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GEOHYDROLOGY AND WATER USE IN SOUTHERN APACHE COUNTY, ARIZONA

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[Plates are in pocket]

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CONVERSION FACTORS

For readers who prefer to use the International System of Units (SI) rather than inch-pound units, the conversion factors for the terms used in this report are listed below:

Multiply inch-pound unit	By	To obtain SI unit
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
acre	0.4047	hectare (ha)
square mile (mi^2)	2.590	square kilometer (km^2)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
foot squared per day (ft^2/d)	0.0929	meter squared per day (m^2/d)
gallon per minute (gal/min)	0.06309	liter per second (L/s)

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Mean Sea Level." NGVD of 1929 is referred to as sea level in this report.

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ABSTRACT

In 1975 about 30,000 acre-feet of water—70 percent surface water and 30 percent ground water—was used in the 4,100-square-mile area of southern Apache County. Water use is expected to increase nearly 100 percent by the mid-1980's owing to projected demands for public, irrigation, and industrial supplies. Ground water will be used to meet the future demands because most of the surface water is allocated to local and downstream users.

Ground water is present in places in most of the geologic formations that underlie the area. The most widespread source of ground water is the Coconino aquifer, which probably underlies the entire area. The aquifer consists of the Coconino Sandstone, the overlying Kaibab Limestone, and the uppermost beds of the underlying Supai Formation. In 1975 the aquifer supplied about 7,700 acre-feet of water to pumping and flowing wells, and in general, no appreciable decline in water levels has taken place. In most of the area the Coconino aquifer will yield 500 to 1,000 gallons per minute of water to properly constructed wells. In the southwestern and west-central parts of the study area, the water contains moderate concentrations of dissolved solids; in the southeastern and east-central parts, the water generally contains large concentrations of dissolved solids. In the northern part, the water generally is unfit for human consumption and other uses.

In the southern part of the area, ground water is obtained mainly from the Springerville and White Mountains aquifers and the basaltic rocks that overlie the Coconino aquifer. The Springerville aquifer consists of undifferentiated Upper Cretaceous sedimentary rocks that probably are equivalent to the Dakota Sandstone, Mancos Shale, and Mesaverde Group. The White Mountains aquifer consists of the Eagar Formation of Sirrine (1958), Datil Formation, and undifferentiated Tertiary sedimentary rocks. In places the Springerville and White Mountains aquifers and the basaltic rocks yield as much as 165 gallons per minute of water to domestic and public-supply wells. The water generally is of suitable chemical quality for most uses.

In the northern part of the area, the Bidahochi aquifer and alluvium overlie the Coconino aquifer and yield water to wells. The Bidahochi aquifer includes the Bidahochi Formation and the underlying Mancos Shale and Dakota Sandstone; in places, the underlying Wingate(?) Sandstone may be part of the aquifer. The aquifer yields 5 to 20 gallons per minute of water to wells in the northeastern part of the area. The water generally is of suitable chemical quality for most uses.

The alluvium along the channels and flood plains of the Puerco and Little Colorado Rivers and their major tributaries consists of sand, silt, gravel, and clay. The alluvium yields 20 to 500 gallons per minute of water along the Puerco River and about 10 to 50 gallons per minute in other places. The chemical quality of the water is marginal to unsuitable for human consumption.

In places reliable ground-water supplies can be obtained from the Moenkopi and Chinle Formations. Most wells that obtain water from the Moenkopi and Chinle Formations yield less than 20 gallons per minute of highly mineralized water. The water is used mainly for watering of livestock. In the northern part of the area, water from the Chinle is of marginal chemical quality and is used for domestic purposes. Although the travertine deposits yield small amounts of water to springs and seeps and to one well, they are limited in areal extent and do not provide reliable water supplies.

INTRODUCTION

Southern Apache County is a ranching and farming area in northeastern Arizona that is undergoing a rapid growth in population. The area is mainly grazing land except for small parcels of irrigated pasture and cropland in the valleys of the Little Colorado River, its major tributaries, and the San Francisco River. Water use is expected to increase greatly because several thousand acres of privately owned grazing land has been divided into 1- to 40-acre units that are being sold as homesites. In addition, two coal-fired electric plants, which will be major water users, are under construction. One is being built near St. Johns by the Salt River Project, and the other is being built near Springerville by the Tucson Electric Power Co. By the mid-1980's, water use is expected to increase from about 30,000 acre-ft/yr to more than 50,000 acre-ft/yr. The water needed to support the increasing population and industrial requirements must come mainly from ground water, because most of the surface water is allocated to local and downstream users. The water-resources investigation in southern Apache County was prompted by the increasing demand for water and was made by the U.S. Geological Survey in cooperation with the Arizona Department of Water Resources.

The purposes of this investigation were to determine the occurrence, availability, and chemical quality of the ground water; to locate favorable areas in which ground water of suitable chemical quality can be developed; and to identify the uses of the water. The report describes (1) distribution and lithology of the rock units that underlie the area; (2) occurrence, availability, and chemical quality of the ground water; (3) areas of potential ground-water development; and (4) water use in 1975.

Location of the Area

Southern Apache County includes about 4,100 mi^2 in northeastern Arizona (fig. 1). The area is bounded on the north by the Navajo Indian Reservation, on the east by the Arizona-New Mexico State line, and on the west by the Apache-Navajo County line; the south boundary is the Apache-Greenlee County line on the southeast and the Fort Apache Indian Reservation on the southwest. The area is mainly in the Plateau uplands water province, but the southern part is in the Central highlands water province (fig. 1). The main population centers are St. Johns, Springerville, and Eagar. The rest of the population live in small communities—such as Greer, Alpine, Nutrioso, Hunt, Concho, Sanders, and Navajo—and on widely scattered ranches.

Methods of Investigation

The fieldwork on which this report is based was done by E. L. Gillespie and R. W. Harper during 1973-74 and by L. J. Mann and E. A. Nemecek during 1975-76. A field inventory was made of most irrigation wells and many domestic and livestock wells and springs. Well and spring locations are described in accordance with the well-numbering system used in Arizona, which is explained and illustrated in figure 2. Pumpage data were collected from private companies and county and city agencies. Pumpage for irrigation use was computed from power-consumption records on the basis of measurements of well discharge per unit of power consumption. Selected hydrologic data collected prior to and during this investigation and pertinent data collected by other agencies are given in tables 3-9 at the end of this report.

Lithologic, geophysical, and drillers' logs of wells and test holes were examined to determine the lithologic characteristics and water-yielding potential of the rock units. The approximate extent of each water-yielding unit was defined by examination of well logs and by reconnaissance geologic mapping at a scale of 1:250,000. The altitudes of wells and springs were obtained from U.S. Geological Survey topographic maps at scales of 1:24,000 or 1:62,500.

Most of the available geohydrologic data are from small areas near the main population centers. Few deep wells have been drilled south of U.S. Highway 60 or in the northern part of the area. Additional data may alter some of the geohydrologic concepts given in this report.

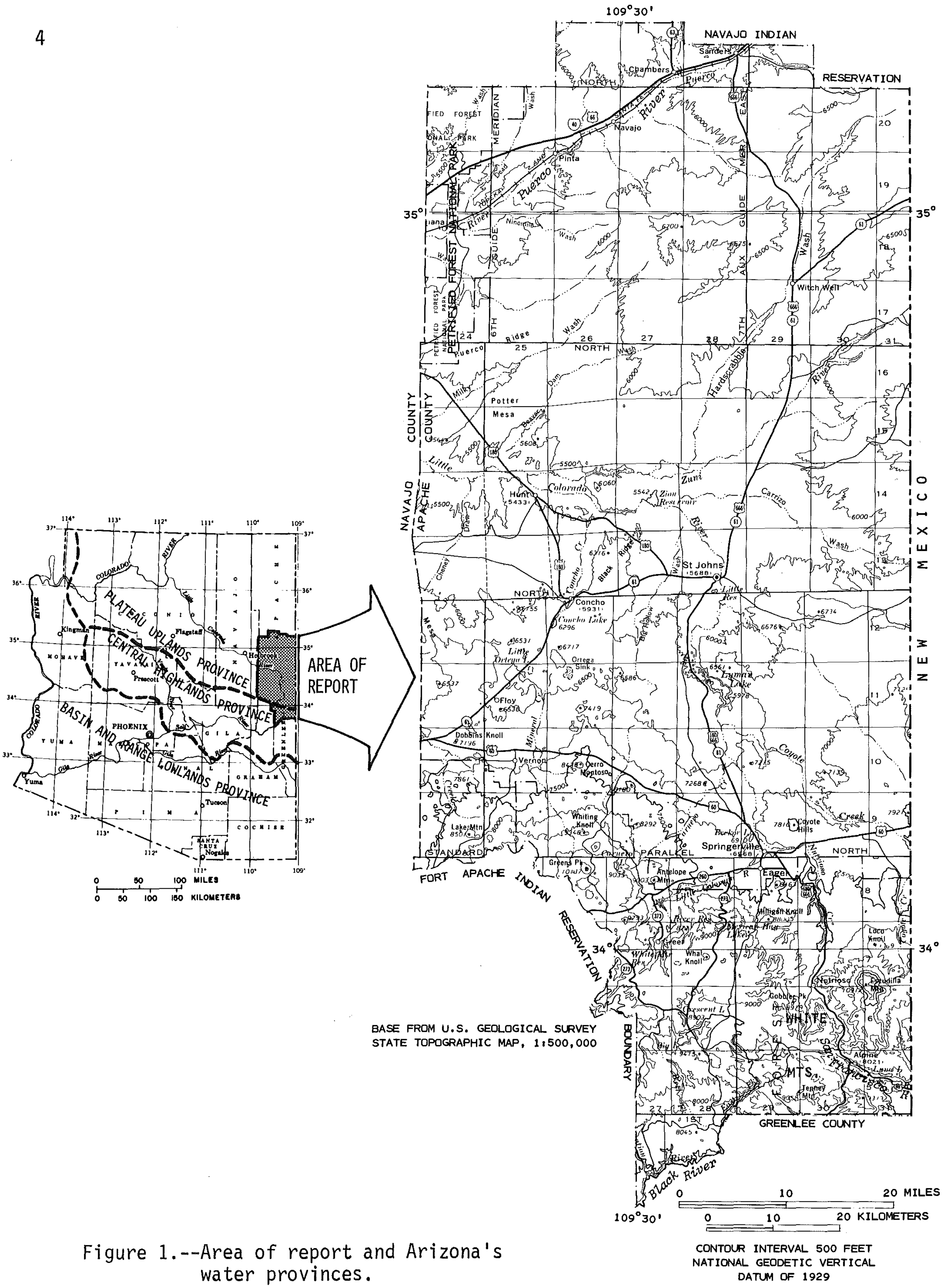
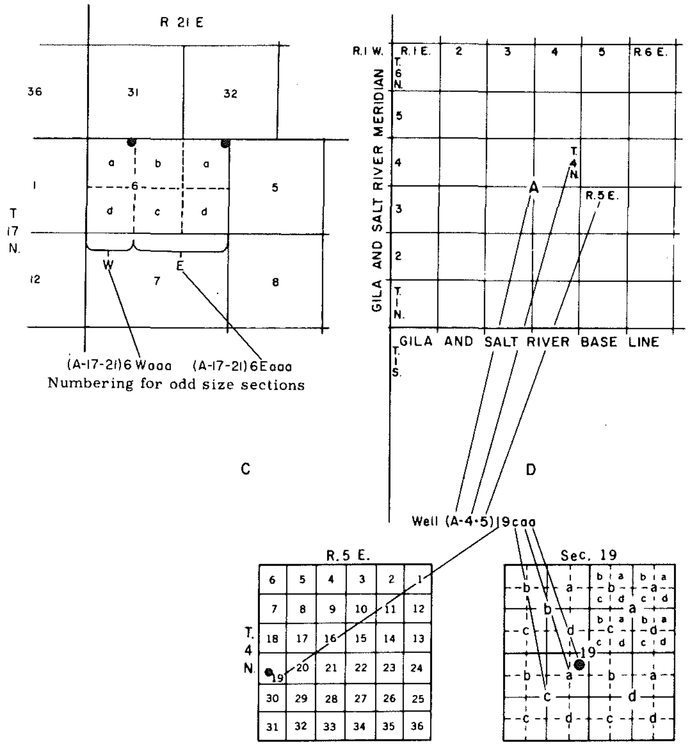


Figure 1.--Area of report and Arizona's water provinces.



The well numbers and letters used by the Geological Survey in Arizona are in accordance with the Bureau of Land Management's system of land subdivision. The land survey in Arizona is based on the Gila and Salt River meridian and base line, which divide the State into four quadrants. These quadrants are designated counterclockwise by the capital letters A, B, C, and D. All land north and east of the point of origin is in A quadrant, that north and west is in B quadrant, that south and west in C quadrant, and that south and east in D quadrant. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d after the section number indicate the well location within the section. The first letter denotes a particular 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. These letters are also assigned in a counterclockwise direction, beginning in the northeast quarter. If the location is known within the 10-acre tract, three lowercase letters are shown in the well number. In the example shown in figure 2, well number (A-4-5)19caa designates the well as being in the NE¼NE¼SW¼ sec. 19, T. 4 N., R. 5 E. Where there is more than one well within a 10-acre tract, consecutive numbers beginning with 1 are added as suffixes.

When a section is more than 1 mile in any dimension, the section number applies as usual. The oversized section is divided so that a full square-mile unit of the section is adjacent to a normal section within the same township; the remainder is considered as a separate unit of land. Appropriate N., S., E., or W. letters are assigned to the units, depending upon where they lie in relation to the full square-mile unit. A well would be designated as shown in figure 2 with the appropriate letter following the section number in which the well is located.

Figure 2.--Well-numbering system in Arizona.

Previous Investigations

Geohydrologic studies by several investigators were helpful in evaluating the ground-water conditions in southern Apache County. The ground-water conditions were first described in a report by Harrell and Eckel (1939). Akers (1964) discussed the geology and ground-water resources in central Apache County, and Feth and Hem (1963) described the springs in the Mogollon Rim region. Ground-water conditions in the White Mountains, Concho, and St. Johns areas were described by Harper and Anderson (1976), and those in the Puerco-Zuni area were described by Mann (1977). Useful test-hole data were obtained from reports by Peirce and Scurlock (1972) and Scurlock (1973). The geology was described by Sirrine (1958), Wilson and others (1960), Wrucke (1961), and Peirce and Gerrard (1966). Ground-water investigations in two adjoining areas—southern Navajo County (Mann, 1976) and the Navajo Indian Reservation (Cooley and others, 1969)—were beneficial to this investigation.

Acknowledgments

The authors gratefully acknowledge the many well drillers, water companies, and residents of southern Apache County who granted access to their property and who furnished many of the well data. Mr. G. G. Small of the Salt River Project provided drill-hole and aquifer-test data for test holes and wells near the Coronado Generation Station near St. Johns. Mr. A. R. Stanton of the U.S. Soil Conservation Service provided the data for irrigated acreage. Special thanks are due Messrs. J. N. Conley and J. R. Scurlock of the Arizona Oil and Gas Conservation Commission for furnishing oil-, gas-, and mineral-exploration test-hole data.

REGIONAL SETTING

Southern Apache County is in the high plateau country in east-central Arizona and includes the White Mountains and associated highlands in the extreme southern part. Altitudes range from 5,200 ft above sea level at the point where the Little Colorado River crosses the Apache-Navajo County line to about 11,500 ft at Baldy Peak near the head of the Little Colorado River drainage—a total relief of about 6,300 ft (pl. 1). The White Mountains and associated highlands are between 7,000 and 11,000 ft. The plateau country consists of flatlands and rolling hills separated by steep-walled canyons and is terminated near the south boundary by the White Mountains and the Mogollon Rim escarpment. In much of central Arizona the Mogollon Rim escarpment is the boundary between the Plateau uplands and Central highlands water provinces (fig. 1). In the southeastern part of Apache County, however, the rim is lost in the White Mountains volcanic field.

Southern Apache County is drained by the Little Colorado River in the central part of the area, the Puerco River in the northern part, the Black River in the southwestern part, and the San Francisco River in the southeastern part (pl. 1). The Little Colorado River flows northeastward from its headwaters in the White Mountains to Springerville, northward to St. Johns, and northwestward and across the west boundary of the area. The Puerco River flows southwestward across the northwestern part of the area, the Black River flows southwestward into Greenlee County, and the San Francisco River flows southeastward into New Mexico. The Black and San Francisco Rivers originate in the White Mountains. In the southern part of the area the Little Colorado, Black, and San Francisco Rivers and many of their major tributaries are perennial. In the northern and central parts most streams are ephemeral.

The topographic high formed by the White Mountains impedes the movement of airmasses that bring in moisture from the south and southwest. As a result, more precipitation falls in the White Mountains than in the northern part of the area. The orographic effect of the White Mountains is indicated by the difference in the amount of normal annual precipitation in the southern part of the area—20 to more than 25 in.—and the amount in the central and northern parts—9 to 12 in. (Sellers and Hill, 1974). The average annual temperature is about 44°F at Alpine and Greer, 53°F at St. Johns, and 51°F at Navajo and Sanders (Sellers and Hill, 1974).

GEOLOGIC SETTING

Southern Apache County is underlain by a sequence of sedimentary and volcanic rocks that is about 2,000 to at least 4,600 ft thick. The upper member of the Supai Formation of Permian age is the lowermost unit that is tapped by water wells. The member is 550 to 1,250 ft thick (Peirce and Gerrard, 1966, p. 6) and is composed mainly of siltstone, sandstone, and silty sandstone that contain beds of evaporite deposits—halite, gypsum, and anhydrite (pl. 1). Geophysical logs and core samples from oil, gas, and mineral test holes indicate that the upper 0 to 130(?) ft of the member is mainly sandstone and silty sandstone that contain beds of siltstone and evaporite deposits; the upper 130(?) ft is underlain by several hundred feet of siltstone and evaporite deposits. Although the Supai Formation does not crop out in southern Apache County, the unit is penetrated by wells and can be correlated with outcrops west of the area.

The Coconino Sandstone of Permian age overlies the Supai Formation. The Coconino ranges in thickness from 175 to 400 ft; the unit is 250 to 300 ft thick near Springerville and St. Johns, 300 to 400 ft thick along the west boundary of the area, and 175 to 200 ft thick near Navajo and Sanders. The Coconino consists of sandstone that is weakly to well cemented by quartz, iron oxide, and calcite. Quartz grains are well sorted, subangular to rounded, and frosted; quartz overgrowths constitute the most common cement. The degree of cementation varies considerably horizontally and vertically throughout the unit. Although the Coconino does not crop out in southern Apache County, the unit is penetrated by wells and can be correlated with outcrops west of the area, where it exhibits fractures and large-scale crossbeds that locally are parted along bedding planes.

The Kaibab Limestone of Permian age overlies the Coconino Sandstone in the southern and central parts of the area. The Kaibab is 0 to 350 ft thick, thins to the northwest, and is the oldest unit exposed in the area. The Kaibab is composed of jointed and locally fractured limestone and sandstone beds; the sandstone beds are lithologically similar to those of the Coconino Sandstone.

The Moenkopi Formation of Triassic age overlies the Kaibab Limestone. The Moenkopi is 0 to 200 ft thick in the central part of the area and 100 to 250 ft thick in the northern part. The thickness is not uniform owing to erosional unconformities at the top and bottom of the unit. The Moenkopi consists of siltstone and mudstone that contain lenticular and wedge-shaped beds of sandstone, silty sandstone, and conglomerate. In places the siltstone and mudstone contain stringers, nodules, and lenticular beds of gypsum and halite. The Moenkopi is exposed mainly in the central part of the area.

The Chinle Formation of Triassic age overlies the Moenkopi Formation in most of the area. The Chinle Formation consists of several members that form a gradational and intertonguing depositional sequence; because of the gradational and intertonguing relations and the discontinuity of some of the members, the Chinle is mapped as one unit in this report (pl. 1). The thickness of the Chinle is 0 to 500 ft in the central and southern parts of the area and as much as 1,600 ft in the northern part. The Chinle consists mainly of siltstone, claystone, mudstone, and limestone, which, in places, contain sandstone and conglomerate beds. The basal Shinarump Member consists mainly of lenticular beds of sandstone and conglomerate. The Petrified Forest Member overlies the Shinarump Member and consists mainly of grayish-blue to grayish-purple claystone, siltstone, and mudstone that contain a few thin lenticular beds of sandstone, conglomerate, and limestone. In the central and northern parts of the area, the Sonsela Sandstone Bed divides the Petrified Forest Member into an upper part and a lower part. The Sonsela is composed mainly of lenticular beds of sandstone and conglomerate. The Chinle Formation is exposed in the central and northwestern parts of the area.

The Dakota Sandstone and Mancos Shale of Cretaceous age overlie the Chinle Formation in the east-central part of the area. The composite thickness of the Dakota Sandstone and Mancos Shale is 0 to 265+ ft. The units consist mainly of sandstone, siltstone, and claystone.

A sequence of undifferentiated Upper Cretaceous sedimentary rocks overlies the Chinle Formation in the east-central and southern part of the area. The sequence probably is equivalent to the Dakota Sandstone, Mancos Shale, and Mesaverde Group. Although the thickness of the undifferentiated Upper Cretaceous sedimentary rocks is not known in most of the area, a thickness of 488 ft has been penetrated in sec. 4, T. 10 N., R. 24 E. (Peirce and Scurlock, 1972, p. 121). The undifferentiated Upper Cretaceous sedimentary rocks consist of interbedded feldspathic sandstone, shale, siltstone, and mudstone. The sandstone is weakly to well cemented and fine to medium grained.

The Eagar Formation of Sirrine (1958) overlies the undifferentiated Upper Cretaceous sedimentary rocks and underlies the Datil Formation near Springerville and Eager. The formation is about 600(?) ft thick near Springerville and is composed of alternating beds of conglomerate, sandstone, and siltstone (Sirrine, 1958).

The Datil Formation is exposed south and east of Springerville and consists of an upper andesite member and a lower sedimentary member (Wrucke, 1961). The andesite member, which has a maximum thickness of 400 ft, is exposed on the slopes of Escudilla Mountain and at Luna Lake and is present in the subsurface near Alpine. The sedimentary member, which is at least 1,000 ft thick near Nutrioso, is composed of interbedded mudstone, sandstone, and conglomerate.

Undifferentiated Tertiary sedimentary rocks overlie the Datil Formation in the southern part of the area. The rocks crop out in large areas near Greer, Alpine, and Nutrioso, and isolated outcrops are present near Crosby Crossing, Lake Sierra Blanca, Three Forks, and in the White Mountains.

The Bidahochi Formation of Tertiary age overlies the Chinle Formation in places in the northeastern and central parts of the area. The Bidahochi Formation was deposited on an irregular erosion surface, and in places in the subsurface it overlies a series of sedimentary rocks that clearly are not part of the Chinle Formation. As determined from drillers' logs, the lithologic characteristics of these rocks indicate that they are part of the Mancos Shale and Dakota Sandstone of Cretaceous age or the Wingate(?) Sandstone of Triassic age. The Wingate(?), Dakota, and Mancos have been removed by erosion in most of the area. The Bidahochi Formation is exposed mainly in the highlands along U.S. Highway 666 between St. Johns and Sanders along the Puerco River, Milky Wash, and southwest of the Painted Desert Inn. The formation is 160 ft thick near Navajo and thins to a few feet in Surprise Valley. More than 1,000 ft was penetrated by a well drilled in T. 19 N., R. 30 E. The Bidahochi consists of sandstone, mudstone, claystone, conglomerate, and travertine.

The basaltic and volcanic rocks of Tertiary and Quaternary age are present mainly in the southern part of the area but also cap a few ridges and buttes in the central and northern parts. The travertine deposits of Tertiary and Quaternary age generally cap buttes or form domes around present or ancient spring orifices. Some springs along the Little Colorado River near Lyman Lake actively deposit travertine. A thin veneer of Quaternary alluvium covers large parts of the area, and alluvium is present in varying thicknesses along most major streams.

The most striking structural characteristic of the sedimentary rocks that underlie southern Apache County is their gentle dip to the north, which is interrupted in places by small folds and faults. Nearly all the folds—anticlines, synclines, and monoclines—trend northwest and parallel to the axis of a broad syncline near Witch Well in the northeastern part of the area (pl. 1). Anticlines generally are well defined, and dips are steepest on the southwest limbs. Synclines generally are masked by the Tertiary and Quaternary units. The closure of most folds ranges from 75 to 350 ft. The monocline about 1 mi west of Sanders trends north to northwest and dips between 5° and 10° WSW. Although the monocline is buried by the Bidahochi Formation and the alluvium in most of the area, it can be traced south of the Puerco River for about 6 mi in the subsurface. Only a few faults are present in southern Apache County, the most prominent of which are near Navajo. Although the faults are buried by the Bidahochi Formation and the alluvium, they were detected during the drilling of several dozen test holes and production wells in the helium fields near Pinta and Navajo. The faults are downthrown on the north, and, in places, the strata are offset more than 200 ft. Small faults were observed in other places in the county, but most were not mapped during this study. Additional faults may be buried by the Tertiary and Quaternary units, but they have not been detected from the available subsurface data.

GROUND WATER

Ground water is present in places in most of the geologic formations that underlie southern Apache County. Many of the formations are hydraulically connected and form aquifers in large areas. An aquifer is a formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs (Lohman and others, 1972, p. 2). On the basis of the available geohydrologic data, the formations are divided into five major aquifers—Coconino aquifer, Springerville aquifer, White Mountains aquifer, Bidahochi aquifer, and the alluvium (pl. 1). In places, water is present in the Moenkopi and Chinle Formations, basaltic rocks, and travertine deposits. The Moenkopi and Chinle Formations and the basaltic rocks are reliable sources of water; however, the travertine deposits are not a reliable source because of their small areal extent.

Most of the available geohydrologic data are from small areas near the main population centers. Few deep water wells have been drilled south of U.S. Highway 60 or in the northern part of the area. Additional data may alter some of the geohydrologic concepts given in this report.

Coconino Aquifer

The Coconino aquifer—which is composed of the Coconino Sandstone, the uppermost beds of the underlying Supai Formation, and the overlying Kaibab Limestone—probably underlies the entire area. The Coconino aquifer is the deepest developed source of water in southern Apache County. The Coconino Sandstone is the main water-bearing unit in the Coconino aquifer. The upper 0 to 130(?) ft of the Supai Formation is hydraulically connected to the Coconino Sandstone and yields water to wells. The upper 0 to 130(?) ft of the Supai is underlain by a thick sequence of siltstone and evaporite deposits, which is nearly impermeable and probably impedes the downward movement of water. In most of the area the Kaibab Limestone is hydraulically connected to the Coconino Sandstone and yields water to wells. The Kaibab is nearly impermeable except where it is jointed or fractured or contains solution cavities. The Coconino aquifer is about 275 ft thick near Chambers and slightly less than 600 ft thick southeast of Lyman Lake (pl. 2A).

Occurrence of water.--The Coconino aquifer is the most widespread and productive source of ground water in southern Apache County. In the northern and central parts of the area, the water is under confined or artesian conditions; the water is confined by the siltstone and mudstone beds in the Moenkopi and Chinle Formations. The confined water will rise as much as 1,400 ft above the top of the aquifer where tapped by wells (pl. 2B). In most of the southern part of the area the aquifer is partly drained, and water is under unconfined or water-table conditions. Drill-hole data indicate that water levels may rise a few feet above the point at which water is first found but do not rise above the top of the aquifer. The rises in water levels probably are the result of vertical changes in lithology. Along the crest of the anticline southeast of St. Johns (pl. 3), the Kaibab Limestone and Coconino Sandstone may be completely drained of ground water.

Recharge and movement of ground water.--Ground water in the Coconino aquifer is derived mainly from the infiltration of precipitation and streamflow. The main area of recharge is in the southern part, where the normal annual precipitation ranges from 12 to more than 25 in. (Sellers and Hill, 1974). Much of the water that infiltrates to the permeable sedimentary and basaltic rocks is recharged to the aquifer. The rate of infiltration is large in relation to that in the central and northern parts of the area, where the nearly impermeable siltstone and mudstone beds of the Moenkopi and Chinle Formations overlie the aquifer. In the northeastern and eastern parts of the area, water in the Coconino aquifer is derived mainly from underflow that enters the area along the Arizona-New Mexico State line on the east and the boundary of the Navajo Indian Reservation on the north.

Ground water in the Coconino aquifer moves northwestward from the areas of inflow on the south and east. Most of the water leaves the area as underflow across the west and northwest boundaries, but some of the water is discharged to springs along the Little Colorado River and to wells in the area. The movement of water in the aquifer is controlled mainly by the regional dip of the sedimentary rocks. In places in the north-central part of the area, ground-water movement is controlled by faulting. The faults act as impediments to the movement of ground water and cause differences of about 100 ft in the altitudes of the potentiometric surface on opposite sides of the fault (pl. 3A). Such impediments result where the permeable beds of the Coconino aquifer are faulted against the nearly impermeable beds of the underlying Supai Formation and the overlying Moenkopi and Chinle Formations. Subsurface data indicate that the displacement along the faults may be as much as 200 ft, and, in places, less than 100 ft of the aquifer may be hydraulically connected across the faults.

The altitude and the configuration of the level at which water will stand in wells that tap the Coconino aquifer are shown by potentiometric contour lines on plate 3A. In most of the area, few water wells tap the aquifer, and many of the water levels used to define the contours were reported or were calculated from the shut-in pressures recorded in oil, mineral, and gas test holes. Water levels calculated from recorded shut-in pressures differ 50 ft or more among several test holes in a small area, and an average value was used to define the inferred potentiometric contours on plate 3A, which may be in error more than 100 ft. The approximate potentiometric contours are believed to be accurate to the nearest 50 ft.

Depth to water.--Water levels in wells that penetrate the Coconino aquifer are from several feet above the land surface to more than 1,000 ft below the land surface (table 3). In 1975, several wells near St. Johns, Carrizo Wash, and Hunt flowed at the land surface. In the northern part of the area, few wells tap the aquifer; however, on the basis of data from oil, gas, and mineral test holes, the depth to water is more than 1,000 ft below the land surface (pl. 2C). Because no wells are known to penetrate the aquifer south of Eagar, the depth to water is not known.

Well yields.--Wells that penetrate the Coconino aquifer in the central part of the area yield from a few to more than 2,500 gal/min. Wells used for domestic and livestock supplies yield from a few to about 50 gal/min, whereas wells used for irrigation and industrial supplies yield from 200 to more than 2,500 gal/min. The largest well yields are obtained in places where at least 75 percent of the total thickness of the units that make up the aquifer is saturated or where the aquifer is confined. In most of the area, 500 to 1,000 gal/min probably could be obtained from properly constructed wells.

Hydraulic characteristics of the aquifer.--The hydraulic characteristics of the Coconino aquifer govern its ability to transmit and store water. Transmissivity is a measure of the ability of the aquifer to transmit water. Storage coefficient is a measure of the ability of the aquifer to store water.

Transmissivity is the rate at which water of the prevailing kinematic viscosity is transmitted through a unit width of the aquifer under a unit hydraulic gradient (Lohman and others, 1972, p. 13). Transmissivity is the product of the saturated thickness and the hydraulic conductivity of the aquifer and is expressed in feet squared per day. Hydraulic conductivity is the volume of water at the existing kinematic viscosity that will move in unit time under a unit hydraulic gradient through a unit area measured at right angles to the direction of flow (Lohman and others, 1972, p. 4). The storage coefficient is the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head (Lohman and others, 1972, p. 13).

The hydraulic characteristics of an aquifer are determined by aquifer tests. An aquifer test consists of pumping a well at a constant rate for a specified time and measuring the resultant water-level declines in the pumped well and in nearby observation wells that are not pumped during the testing period. After the pumping is stopped, measurements are made to define the rate of recovery of water levels. These field data are analyzed to define the hydraulic characteristics of the aquifer, which are used to determine the potential effects of ground-water withdrawals.

In southern Apache County, aquifer-test data are available mainly for wells in the central part of the area where water in the aquifer is confined. The data indicate that the transmissivity of the Coconino aquifer in the central part of the area ranges from 940 to 9,100 ft^2/d (table 1). The wide range in transmissivity is in part a result of areal differences in lithology and fracturing. Hydraulic conductivity of the aquifer is greatest in areas where the aquifer is fractured. In addition, some wells that were tested are open only to the upper part and do not completely penetrate the aquifer. Transmissivity values calculated from aquifer-test data for wells that are open to only a small part of the aquifer generally are less than the calculated values for wells that are open to nearly all the aquifer.

Where the aquifer is completely saturated and the water is confined, the storage coefficient is an indication of the volume of water released by expansion of the water and compression of the aquifer as a result of a decrease in the confining pressure when a well is pumped. A typical storage coefficient for the confined Coconino aquifer probably ranges from 1.0×10^{-4} to 1.0×10^{-3}. Values of the storage coefficient determined from aquifer tests on wells that penetrate the confined Coconino aquifer are shown in table 1.

Where the water in the aquifer is unconfined, the storage coefficient is virtually equal to the specific yield of the saturated strata. Specific yield, which is expressed as a percentage, is the volume of water that is released by gravity drainage per unit volume of the aquifer. The storage coefficient of the unconfined Coconino aquifer cannot be determined using the available data but probably is near zero where the aquifer is mainly a dense unfractured limestone to about 0.15 or more where it is a well-sorted and fractured sandstone.

Table 1.--Hydraulic characteristics of wells that penetrate the confined Coconino aquifer

Location	Length of well open to aquifer, in feet	Transmissivity, in feet squared per day	Storage coefficient
(A-11-28)9dbb1	272	[1]9,100	[1]3.8×10^{-3}
(A-12-26)18dcc2	80	[2]1,900	-----------
(A-12-27)19bcd	450	[1]2,800	-----------
(A-12-28)7cdb	475(?)	[2]3,200	-----------
(A-13-26)6dcb	357	[2] [3]4,000	[2] [3]1.0×10^{-4}
(A-13-27)15bda	350	[1] [3]3,900	-----------
(A-13-27)15bdc	269	[1] [3]3,900	[1] [3]9.0×10^{-5}
(A-13-27)15bdd	309	[1] [3]4,800	[1] [3]6.7×10^{-4}
(A-13-28)12cac	377	[3]940	-----------

[1]Value calculated from recovery data.
[2]Value calculated from pumping data.
[3]Data provided by Salt River Project.

Chemical quality of water.--The chemical quality of water in the Coconino aquifer differs greatly from place to place. Ground water in the southwestern part of the area contains smaller concentrations of dissolved solids than water in the northern and eastern parts (pl. 3A). In the southwestern part of the area the water contains 125 to 1,000 mg/L (milligrams per liter) of dissolved solids and is mainly a calcium bicarbonate type. Near Carrizo Wash in the eastern part of the area, the water contains about 900 to 1,600 mg/L of dissolved solids and is a calcium bicarbonate type. In the rest of the area the water generally contains from 1,000 to 64,100 mg/L of dissolved solids. The dominant ions generally are sodium, chloride, and sulfate, but in places large quantities of calcium and bicarbonate also are in solution.

The areal difference in chemical composition is coincident with an increase in dissolved solids. The dominance of the calcium and bicarbonate in the water in the southwestern part and near Carrizo Wash in the eastern part of the area probably results from the solution of these ions as the water moves downward through the carbonate beds in the Kaibab Limestone to the water table. The south-to-north and west-to-east increase in dissolved solids and the difference in chemical composition probably result from the addition of sodium, chloride, and sulfate from the halite and gypsum beds in the uppermost part of the Supai Formation.

The dissolved-solids concentration in water in the Coconino aquifer is related closely to geologic structure as is indicated by comparing the location of the line of equal dissolved-solids concentration representing 1,000 mg/L shown on plate 3A with the axes of the major folds in the area shown on plate 3B. The increase in dissolved solids occurs mainly as the water moves through the anticlinal and synclinal folds near Lyman Lake and Hunt and in the northern part of the area. Along the folds, the siltstone beds in the uppermost part of the Supai Formation, which may insulate the halite, gypsum, and anhydrite deposits in the southwestern part of the area, probably are fractured and allow solution of the deposits by moving ground water.

In places water in the aquifer may be contaminated by the solution of gypsum and halite from the Moenkopi Formation. The Moenkopi generally is fractured along the major anticlines and synclines and locally may be hydraulically connected to the Coconino aquifer.

Another source of contamination is from the movement of water into and out of the aquifer through the well bore. Many wells drilled into the Coconino aquifer also are open to water-bearing beds in the Moenkopi and Chinle Formations, which normally contain highly mineralized water.

Moenkopi and Chinle Formations

The Moenkopi and Chinle Formations contain water in parts of southern Apache County but yield only small amounts of water to wells, and the water generally contains large concentrations of dissolved solids. The water is used mainly for livestock; however, several wells near St. Johns, Concho, and along the Puerco River provide water for domestic and public supplies (pl. 4A).

The Moenkopi Formation yields water to wells in the central and western parts of the area near the Little Colorado River (pl. 4A). Water in the Moenkopi is present mainly in fractures and joints in the lenticular and wedge-shaped beds of sandstone, silty sandstone, and conglomerate near the top and base of the unit. In most places, the depth to water in wells that tap the Moenkopi is from about 25 to 220 ft below the land surface (table 3); one well near Concho flows at the land surface. Reported well yields are from a few to about 30 gal/min. The water generally contains large concentrations of dissolved solids and is marginal to unsuitable for most uses. In five water samples from wells that tap the Moenkopi, the dissolved-solids concentrations range from 776 to 6,180 mg/L (pl. 4A).

The Chinle Formation yields water to wells in the central and northern parts of the area, mainly near Carrizo Wash, the Zuni River, and the Puerco River (pl. 4A). The Chinle contains water in the lenticular sandstone and conglomerate beds of the Shinarump Member, the Sonsela Sandstone Bed of the Petrified Forest Member, and the thin sandstone beds in the upper part of the unit. Data indicate that the claystone, mudstone, and siltstone beds are nearly impermeable and do not yield usable quantities of water. Water levels in wells that tap the Chinle range from flowing at the land surface to about 340 ft below the land surface. Reported well yields are from a few to about 50 gal/min. The chemical quality of the water from wells that tap the Chinle is suitable to unsuitable for most uses. In 20 water samples from wells that obtain water from the Chinle, the dissolved-solids concentrations range from 181 to 8,300 mg/L (pl. 4A). The specific conductance of the water from well (A-19-24)20bcc is 103,000, which indicates the dissolved-solids concentration probably is about 60,000 mg/L (table 6).

Springerville Aquifer

The Springerville aquifer yields water to several wells in the south-central part of the area. The aquifer includes a sequence of undifferentiated Upper Cretaceous sedimentary rocks that consist of interbedded sandstone, shale, and, in places, shaly coal beds a few feet thick (pl. 1). The rocks that form the aquifer are exposed in isolated outcrops near Vernon and Springerville. The areal distribution of the outcrops and the drilling data indicate that the rocks are present in the subsurface in most of the area between Vernon and Springerville and northeast of Springerville (pl. 1).

Occurrence, recharge, and movement of water.--The Springerville aquifer contains water in the south-central part of the area. The water is perched on the nearly impermeable beds of the Moenkopi and Chinle Formations or on shale in the lower part of the unit. The nearly impermeable beds retard the downward percolation of water into underlying rocks; where the impermeable beds are absent or where they form mesas, the Springerville aquifer generally is dry. In places water in the aquifer is hydraulically connected to water in the White Mountains aquifer or to water in the basaltic rocks.

In the Springerville aquifer water is derived from the downward infiltration of snowmelt, rainfall, and storm runoff that collects in streams and lakes. Because the rocks that form the aquifer are exposed only in isolated outcrops, most of the recharge occurs from downward infiltration through overlying rock formations.

Water-level data for wells that obtain water from the Springerville aquifer indicate that the general direction of ground-water movement is to the north. As the water moves northward, it is discharged to springs, seeps, or wells or infiltrates downward into underlying rocks.

Depth to water.--The depth to water in wells that penetrate the Springerville aquifer ranges from about 25 to 575 ft below the land surface (pl. 4A). The depth to water in wells in the western part of the area near Vernon ranges from 27 to 575 ft below the land surface. The depth to water in wells in the eastern part near Springerville ranges from 36 to 518 ft below the land surface.

The depth to water in wells that penetrate only the upper part of the aquifer generally is less than the depth to water in wells that penetrate the entire thickness of the aquifer. During drilling, the water level may decline as much as 50 ft as water from one permeable zone moves downward through the well bore into another permeable zone. Because depth to water generally increases with well depth, the depth to water in wells of various depths in a small area may differ 50 ft or more.

Well yields.--Wells that penetrate the Springerville aquifer provide water for domestic, public, and livestock supplies. The rate at which water is withdrawn depends on the use of the water. Livestock-supply wells generally are drilled in the upper part of the aquifer and are equipped with windmills that pump less than 5 gal/min. Most domestic and public-supply wells, which generally penetrate a greater thickness of aquifer, are equipped with electric submersible pumps and yield from a few gallons per minute to as much as 165 gal/min. The maximum yield that could be obtained from a properly constructed and developed well is unknown, but in places probably is 100 to 300 gal/min. Well (A-11-25)18dcc is reported to produce 1,000 gal/min (table 3); however, part of the water may be derived from the overlying basaltic rocks or from seepage through fractures from a small lake a few hundred feet from the well.

Chemical quality of water.--Water in the Springerville aquifer contains small to moderate quantities of dissolved solids and is suitable for most uses. The dissolved-solids concentrations range from 156 to 1,000 mg/L and average 405 mg/L in water samples from 16 wells that obtain water from the Springerville aquifer (pl. 4A). The water is mainly a sodium calcium bicarbonate type. In some places the dominant ions also include magnesium, sulfate, and chloride. The fluoride concentrations range from 0.1 to 2.3 mg/L and average about 1.0 mg/L.

White Mountains Aquifer

The White Mountains aquifer underlies most of the southern part of the area and yields water to wells near Greer, Alpine, Nutrioso, Springerville, east of Springerville, and at Big Lake. The aquifer includes the Eagar Formation of Sirrine (1958), the Datil Formation, and the undifferentiated Tertiary sedimentary rocks. In places the rocks are hydraulically connected and function as a single aquifer (pl. 1).

Occurrence of water.--The White Mountains aquifer probably contains water in most of the southeastern part of the area. Wells near

Greer, Alpine, Nutrioso, Springerville, east of Springerville, and at Big Lake obtain water from the aquifer (pl. 4B). Most of the southeastern part of the area is undeveloped, and the exact areal extent of the saturated part of the aquifer is not known.

In the White Mountains aquifer, water is contained in the permeable sandstone beds that in places are separated by mudstone, andesite, and basalt. The andesite and basalt are nearly impermeable but probably contain water where they are fractured. Locally, water is perched on the nearly impermeable mudstone and andesite. Near Alpine, the andesite forms a confining bed for water contained in the underlying sedimentary rocks; however, the areal extent of confined ground water is not known. The aquifer is, at least locally, hydraulically connected with other water-bearing units. Near Greer, the aquifer is hydraulically connected to the overlying basaltic rocks; near Springerville, it probably is connected also to the underlying Springerville aquifer. The subsurface data are inadequate to define the location and the units to which the aquifer may be connected throughout the area.

Near Nutrioso, four wells drilled to depths from 93 to 235 ft into this aquifer reportedly are dry. All four wells are within one-half mile of wells of comparable depth in which the depth to water is from about 10 to 60 ft below the land surface. The occurrence of water in the aquifer, therefore, probably is controlled locally by differences in lithology or concealed faults or fractures.

Availability of water.--In the southeastern part of the area, the White Mountains aquifer has been developed locally as a source of ground water. Wells that penetrate the aquifer are used to supply water for public, domestic, and livestock uses. The depth to water generally is less than 200 ft, and the wells yield a few to about 80 gal/min (table 3).

Chemical quality of water.--The chemical quality of water in the White Mountains aquifer is suitable for most uses. In general, the water is a sodium bicarbonate type, but near Springerville, calcium and magnesium also are dominant constituents (pl. 4B). The dissolved-solids concentrations range from 160 to 384 mg/L and average 249 mg/L in eight water samples. Fluoride concentrations range from 0.1 to 1.4 mg/L and average 0.6 mg/L.

Bidahochi Aquifer

The Bidahochi aquifer yields water to wells in the northeastern part of the area and near St. Johns. The aquifer includes the Bidahochi Formation, the underlying Mancos Shale, and the Dakota Sandstone; in places, the sedimentary rocks that underlie the Bidahochi may include the Wingate(?) Sandstone (pl. 1). The underlying units are buried by the Bidahochi Formation and a precise correlation cannot be made from existing subsurface data. The composite thickness of the sedimentary rocks that form the aquifer ranges from 0 to 1,000 ft. In places, the upper 700 ft of the unit does not yield water to wells.

Occurrence, recharge, and movement of water.--The Bidahochi aquifer contains water under unconfined conditions in most of the northeastern part of the area and near St. Johns (pl. 4B). The occurrence of water is controlled mainly by ancient valleys and ridges buried by the Bidahochi Formation. Between Carrizo Wash and Hardscrabble Wash, buried ridges formed by the nearly impermeable material of the Chinle Formation are above the zone of saturation; wells that tap the ridges do not yield water. The location of the ridges cannot be determined from the drilling data; however, the aquifer probably contains water in most of the northeastern part of the area (pl. 4B).

The aquifer is recharged by precipitation that falls on areas of outcrop. When the soil-moisture requirements are satisfied, part of the precipitation infiltrates downward to the water table. If the rate of precipitation exceeds the rate of absorption by the soil, the water collects in stream channels as surface runoff. Topographic maps of the area indicate that several closed basins are in the northeastern part of the area. Many of the basins are less than 2 mi^2; however, a few basins include several tens of square miles. Part of the surface runoff that collects in the natural lakes and ponds in the closed basins probably infiltrates downward to the zone of saturation and becomes ground water in the Bidahochi aquifer.

The general direction of ground-water movement in the aquifer is northwestward toward the Puerco River and southward toward the Zuni River and Hardscrabble Wash. The approximate location of the ground-water divide is shown on plate 4B. As the water moves downgradient, it is discharged to springs and seeps and to the alluvium along the valleys of the Puerco River, Zuni River, Hardscrabble Wash, and their major tributaries, or it is pumped from wells.

Availability of water.--Most wells that penetrate the Bidahochi aquifer provide water for livestock and domestic supplies. The depth to water ranges from 10 to 709 ft below the land surface (pl. 4B). The depth to water depends mainly on the topography and is greatest in wells on the high ridges between the Puerco, Little Colorado, and Zuni Rivers and least in the valleys between the ridges.

The rate at which wells are pumped depends on the use of the water. Livestock-supply wells are equipped with windmills that generally pump less than 5 gal/min. A few wells used for domestic supplies are equipped with electric submersible pumps that yield from 10 to 20 gal/min. The maximum yield that could be obtained from a properly constructed and developed well drilled into the aquifer is not known. Bailing tests indicate that as much as 50 to 100 gal/min might be obtained in some places.

Chemical quality of water.--Water in the Bidahochi aquifer contains small to moderate quantities of dissolved solids and is suitable for most uses. The dissolved-solids concentrations range from 170 to 415 mg/L and average 229 mg/L in 24 water samples from wells that tap the aquifer in the northeastern part of the area. The water is mainly a sodium calcium bicarbonate type (pl. 4B). The chemical composition of eight water samples from wells and springs in the central part of the area near St. Johns and in T. 15 N., R. 31 E., ranges from a sodium bicarbonate sulfate to a calcium magnesium bicarbonate type. The dissolved-solids concentrations range from 262 to 1,380 mg/L and average about 670 mg/L (pl. 4B). The differences in the chemical composition of water from the aquifer probably result from the solution of specific ions in the lower units of the aquifer.

Basaltic Rocks

The basaltic rocks yield water to wells and springs in the southern part of the area (pl. 4B). The rocks consist mainly of an extensive sequence of basalt flows and cinder cones; in places, the basalt flows are interbedded with cinder beds or are separated by clay lenses (pl. 1). The basaltic rocks are deposited on an irregular surface eroded into the underlying sedimentary units. The thickness is extremely variable and ranges from a thin cap on a ridge or mesa to several hundred feet in old stream channels cut into the underlying sedimentary rocks.

Water occurs mainly in fractures and in the permeable cinder beds. In places where the basaltic rocks are underlain by nearly impermeable siltstone or mudstone or where clay lenses are present between basalt flows, the ground water is perched. Where the basaltic rocks are underlain by permeable sandstone, however, the rocks are either hydraulically connected to the sandstone or are drained of water. Near Greer, the basaltic rocks are hydraulically connected to the permeable sandstone units of the underlying White Mountains aquifer and, near Vernon, to the Springerville aquifer. The general direction of ground-water movement in the basaltic rocks is to the north from the recharge areas in the White Mountains, but water also infiltrates downward into underlying units. Ground-water movement is controlled mainly by the interbedded layers of clay and the irregular surface underlying the unit.

The basaltic rocks yield water to many springs and seeps and to a few domestic and livestock wells in the southern part of the area. Springs generally issue at the contact of the underlying siltstone and mudstone or interbedded clay lenses and the overlying basaltic rocks. Spring discharges range from a few tenths to about 1,000 gal/min. Some springs flow mainly in response to precipitation. Wells that penetrate the basaltic rocks generally are less than 100 to 500 ft deep and yield from 0 to about 50 gal/min (table 3).

Water in the basaltic rocks contains small amounts of dissolved solids and is suitable for most uses. The dissolved-solids concentrations range from 56 to 395 mg/L and average about 150 mg/L in water samples from 15 springs (pl. 4B). Fluoride concentrations range from 0.0 to 1.2 mg/L and average about 0.2 mg/L. Dissolved-solids concentrations range from 118 to 405 mg/L and average about 176 mg/L in water samples from eight wells. Fluoride concentrations range from 0.1 to 0.9 mg/L and average about 0.3 mg/L. In general, the dissolved-solids concentrations in water from springs and wells increase from south to north (pl. 4B).

Alluvium

The alluvium along the channels and flood plains of the Puerco and Little Colorado Rivers and their major tributaries is from a few hundred feet to about 4 mi wide (pl. 1) and is an important source of ground water in southern Apache County. The alluvium consists of poorly sorted deposits of sand, silt, gravel, and clay that are from 0 to about 150+ ft thick. The alluvium is irregular in cross section and contains many buried ridges and stream channels eroded into the underlying sedimentary rocks. In general, the buried channels contain coarse sand and gravel that grade upward into fine sand and silt.

Occurrence, recharge, and movement of water.--Water occurs in the sand, silt, gravel, and clay deposits and is under water-table conditions. In most places the alluvium is underlain by the nearly impermeable siltstone of the Chinle Formation, which impedes downward movement of water into underlying strata. In some places the alluvium overlies the permeable strata in the Bidahochi Formation or the sandstone beds in the Chinle Formation, and the alluvium is hydraulically connected to the underlying unit.

The alluvium is recharged mainly by the downward infiltration of streamflow. Most streams that are underlain by extensive alluvium, such as those along the valley of the Puerco River, are ephemeral, and recharge occurs only during storm runoff. Where the alluvium is hydraulically connected to underlying units, some ground water may be derived from the vertical and lateral movement of water from the underlying units. Along the channels and flood plains of the Puerco River and its major tributaries, the alluvium is in hydraulic connection laterally and vertically with the Bidahochi aquifer and with sandstone beds in the Chinle Formation.

Ground water in the alluvium moves downgradient parallel to the local stream gradient and is discharged as underflow across the west boundary, lost to evapotranspiration, or discharged to pumping wells.

Although the quantity of water that is discharged annually cannot be determined on the basis of the available data, most of the water probably is lost to evapotranspiration.

Availability of water.--In the valley of the Puerco River the alluvium provides water for domestic, public, irrigation, and industrial supplies. Several wells equipped with electric submersible or turbine pumps reportedly yield 20 to as much as 500 gal/min; larger yields probably could be obtained. In other parts of the area wells that tap the alluvium are used to supply water for livestock and domestic use and are equipped with windmills that pump less than 5 gal/min. Most wells that tap the alluvium are drilled, but some are dug or are sand points driven into the upper part of the unit.

The depth to water in the alluvium is less than 10 to as much as 65 ft below the land surface (pl. 4B). Near stream channels, the depth to water generally is 3 to 8 ft below the stream bed; near the edge of the valleys, the depth is 20 to 65 ft below the land surface. Along most of the major tributaries, the depth to water is 5 to 15 ft below the land surface.

The most productive wells typically penetrate the entire thickness of the alluvium. The sand and gravel deposits, which generally are near the base of the alluvium, yield considerably more water to wells than the overlying deposits of sand and silt. Because of the irregular cross-sectional shape of the alluvium, the deeper parts of the valleys that contain the coarser sediments are difficult to locate without test drilling or geophysical studies.

Chemical quality of water.--The water in the alluvium contains large amounts of dissolved solids and generally is marginal to unsuitable for public and domestic supplies. The dominant chemical constituents are sodium, calcium, bicarbonate, chloride, and sulfate (pl. 4B). In water samples from wells that tap the alluvium, the dissolved-solids concentrations range from 188 to 3,410 mg/L and average about 1,060 mg/L (pl. 4B). Although the water is classed as marginal to unsuitable for public and domestic supplies, it is used in many places where a better quality of water is not locally available.

The wide range in the dissolved-solids concentrations in the water in the alluvium probably is a result of one or more of the following: (1) the dissolved-solids concentrations in water derived from surface runoff on the Chinle Formation probably are greater than the concentrations in surface runoff on the Bidahochi Formation and alluvium; (2) in places where the alluvium is hydraulically connected to the Bidahochi aquifer, the water in the alluvium is very similar in chemical quality to that in the Bidahochi aquifer; (3) evapotranspiration losses may concentrate the dissolved solids in water occurring near the surface; and (4) the geochemical composition of the alluvium differs from place to place.

WATER USE

In 1975 about 30,000 acre-ft of water was used in southern Apache County. About 70 percent was supplied by surface-water storage and diversions, and about 30 percent was obtained from pumping and flowing wells. Ground water will be used to meet future demands because most of the surface water is allocated to local and downstream users. The use of surface water is limited owing to the lack of reservoirs to impound floodwaters and the large sediment concentrations in floodwater from most of the larger drainages in the northern and central parts of the area.

Surface-Water Use

Many streams in southern Apache County are ephemeral. The perennial streams that provide a reliable source of water are the Little Colorado River, the Black River, the San Francisco River, and some of their major tributaries. The main source of surface water in the area is the Little Colorado River and some of its tributaries. The Black and the San Francisco Rivers drain only small parts of the area near the south boundary.

Several reservoirs have been constructed on the Little Colorado River and its major tributaries to impound water for agricultural and recreational uses. The reservoirs include Lyman Lake near St. Johns; Tunnel, River, Bunch, and White Mountain Reservoirs near Greer; and Concho Lake near Concho (pl. 1). The reservoirs have a combined storage capacity of about 38,200 acre-ft. In 1975 the amount of water released from the reservoirs and diverted from the Little Colorado River and its tributaries is estimated to be 21,100 acre-ft. The amount of water from several small diversions from the San Francisco River and Nutrioso Creek near Alpine and Nutrioso and other small drainages was not estimated.

Ground-Water Use and the Effects of Withdrawal

In southern Apache County the ground-water resources are largely undeveloped. Several hundred wells have been drilled, but most of them are used for livestock and domestic supplies or for small public-supply systems at the main population centers. The only large-scale withdrawals are for irrigation in the valley of the Little Colorado River near Hunt and St. Johns. Most of the ground water used for irrigation is from the Coconino aquifer. The water is obtained directly from pumping and flowing wells and indirectly from springs that discharge into the Little Colorado River and its tributaries. Most of the water from flowing wells and springs is diverted and stored for irrigation, and part of the stored water is lost to evapotranspiration and infiltration.

In 1975 an estimated 8,900 acre-ft of ground water was obtained from pumping and flowing wells. About 84 percent of the water was used for irrigation; 10 percent for public, domestic, and livestock supplies; and 6 percent for industrial purposes. The Coconino aquifer furnished about 7,700 acre-ft or about 87 percent of the water withdrawn; about 500 acre-ft was obtained from the alluvium, and about 700 acre-ft from the rest of the aquifers (table 2).

Ground-water pumpage for industrial use will increase greatly in the next few years. It is estimated that about 10,000 acre-ft/yr of ground water will be produced from the Coconino aquifer to supply a coal-fired electric plant being constructed by the Salt River Project near St. Johns and about 13,000 acre-ft/yr will be required to supply the Tucson Electric Power Co. plant near Springerville.

In the valley of the Little Colorado River between Lyman Lake and the west boundary of the area and along Carrizo Wash, many of the wells that penetrate the Coconino aquifer flowed at the land surface when they were drilled in 1945-61. The largest flow was reportedly about 1,200 gal/min from well (A-13-30)5dca in 1961 (table 3). By 1976, some wells had ceased to flow, and the flow from many wells had decreased. The decline in the rate of flow is the result of an areal decline in the potentiometric surface owing to the withdrawal of ground water by pumping and flowing wells and the loss of confining pressure owing to deterioration of the well casings. Part of the water is lost into units overlying the aquifer because of casing deterioration.

Table 2.--Estimated amount of ground-water withdrawal in 1975

Source	Ground-water withdrawal, in acre-feet
Coconino aquifer	
Pumped wells	5,800
Flowing wells	1,900
Moenkopi and Chinle Formations	100
Springerville aquifer	200
White Mountains aquifer	200
Bidahochi aquifer	100
Basaltic rocks	100
Alluvium	500
Total	8,900

In most parts of the area water levels fluctuate seasonally in response to pumping or recharge, but in the past 25 to 30 years the net change has been negligible. Although water levels in several wells that tap the Coconino aquifer near the Little Colorado River between Lyman Lake and Hunt have declined as much as 17 ft, the decline generally was less than 10 ft. No appreciable long-term water-level declines have been measured in wells that tap other aquifers.

The withdrawal of ground water for irrigation has resulted in a slight decline in the water level in most wells near Hunt. The greatest amount of decline occurred in well (A-14-25)E12cdd2, where the water level declined from about 13 ft below the land surface in July 1953 to about 30 ft in January 1975 (table 4). Water-level measurements made in the 1950's and in 1975-76 indicate that similar declines have occurred in a few other wells near Hunt, but in general, water levels have declined less than 10 ft.

Chemical Suitability of Water for Drinking and Irrigation

The chemical suitability of water for drinking and irrigation depends on the concentration of dissolved solids and the relative concentration of specific ions in solution. In general, water that contains more than 500 mg/L of dissolved solids is not preferred for use as a public supply; however, water that contains 500 to 1,000 mg/L is used if better water is not available. Water that contains 1,000 to 3,000 mg/L can be used for the irrigation of salt-tolerant crops on well-drained soil. Livestock will sometimes drink water that contains 5,000 mg/L or more of dissolved solids if the water is cold, but not if the same water is warm.

In southern Apache County the dissolved-solids concentrations in ground water are from less than 100 to more than 64,000 mg/L. The concentration of dissolved solids and the concentration of specific ions in solution differ from place to place and depend on the source of the water. Surface water commonly is used for irrigation or livestock supplies and generally is within acceptable limits in chemical constituents.

Drinking water for public and domestic supplies.--The maximum contaminant level for dissolved solids in public water supplies is 500 mg/L, as proposed in the secondary drinking-water regulations of the U.S. Environmental Protection Agency (1977b, p. 17146) in accordance with provisions of the Safe Drinking Water Act (Public Law 93-523). The U.S. Environmental Protection Agency (1977a, b) has established national regulations and guidelines for the quality of water provided by public water systems. Primary drinking-water regulations govern contaminants in drinking water that have been shown to affect human health. Secondary drinking-water regulations apply to contaminants that affect esthetic quality. The primary regulations are enforceable either by the Environmental Protection Agency or by the States; in contrast, the secondary regulations are not Federally enforceable but are intended as guidelines for the States. The maximum contaminant level for fluoride in public water supplies differs according to the annual average maximum daily air temperature (Bureau of Water Quality Control, 1978, p. 6). The amount of water consumed by humans, and therefore the amount of fluoride ingested, depends partly on air temperature. The maximum contaminant level for selected chemical constituents are as follows:

Constituent	Maximum contaminant level, in milligrams per liter
Fluoride (F)	[1]1.6 to 2.0
Iron (Fe)	0.3
Sulfate (SO_4)	250
Chloride (Cl)	250
Nitrate (NO_3)	45

[1]Based on the annual average maximum daily air temperatures in Alpine, Springerville, St. Johns, and Sanders (Sellers and Hill, 1974).

The chemical quality of ground water in southern Apache County differs from one aquifer to another and from place to place in an aquifer. In the southern part and in most of the central part of the area, water that contains less than 1,000 mg/L of dissolved solids can be obtained from wells and springs. Water from the basaltic rocks and the White Mountains and Springerville aquifers generally contains less than 400 mg/L of dissolved solids and is suitable in chemical quality for drinking (pl. 4). Water from the Coconino aquifer generally contains 125 to 1,000 mg/L of dissolved solids in the southwestern and west-central parts of the area but contains about 900 to 2,600 mg/L in the southeastern and east-central parts (pl. 3A). In the northern part of the area, water from the Coconino aquifer contains 2,000 to 64,100 mg/L of dissolved solids (pl. 3A).

Water for domestic, public, and livestock supplies is obtained from the Bidahochi aquifer in the northeastern part of the area. Water in the Bidahochi aquifer generally contains 175 to about 400 mg/L of dissolved solids (pl. 4B). Water in the alluvium along the Puerco River and its major tributaries generally contains 500 to 1,200 mg/L of dissolved solids (pl. 4B). In places along the Puerco River near Navajo, Chambers, and Sanders, water from the Chinle Formation contains 181 to slightly more than 1,000 mg/L of dissolved solids (pl. 4A). Water from wells that tap the Chinle in most other parts of the area contains large concentrations of dissolved solids and is unfit for human consumption.

In the east-central part of the area near the Little Colorado River and Carrizo Wash, most wells yield water that contains concentrations of fluoride that exceed the maximum contaminant level. Wells in this area obtain water from the Coconino aquifer, the Moenkopi Formation, the Chinle Formation, and the Bidahochi aquifer; fluoride concentrations are from 2.0 to as much as 4.9 mg/L (pl. 4; table 8). Fluoride concentrations in the rest of the area generally are within acceptable limits.

Fluoride concentrations between 2 and 3 mg/L are present in water from a few wells that penetrate the Springerville aquifer near Eagar and the alluvium near Chambers and Pinta (pl. 4). Water from a well that taps the alluvium about 8 mi southeast of Black Knoll contains 9.1 mg/L of fluoride (pl. 4B).

Water for irrigation.--The suitability of water for irrigation depends on the ratio of sodium to calcium and magnesium, the amount of dissolved solids in the water, the soil type, and the type of crops to be grown. In southern Apache County the main chemical characteristics in ground water that are harmful to plant growth are the dissolved-solids concentrations or salinity and the ratio of sodium to calcium and magnesium. The dissolved-solids concentrations are critical to plant growth because large salt concentrations may accumulate in the root zones of plants where leaching is inadequate.

Excessive concentrations of sodium in irrigation water may produce a breakdown of soil structure and cause a nutritional disturbance in crops. A useful parameter in evaluating the sodium hazard in irrigation water is the sodium-adsorption ratio (SAR) formulated by the U.S. Salinity Laboratory Staff (1954). The SAR is defined by the equation

$$SAR = \frac{(Na^{+})}{\sqrt{\frac{(Ca^{+2}) + (Mg^{+2})}{2}}},$$

in which the concentrations of the constituents are expressed in milliequivalents per liter.

The salinity hazard can be critical to plant growth. The common test for salinity in irrigation water is to measure the specific conductance. Specific conductance is a measure of the ability of the ions in solution to conduct an electrical current and is an indication of the amount of dissolved solids in the water. About 5,000 micromhos per centimeter is the approximate upper limit of specific conductance for irrigation water if salt-tolerant crops are grown and if leaching in the root zone is adequate. A summary of the different sodium and salinity hazards of irrigation water, according to the U.S. Salinity Laboratory Staff (1954), follows.

Low-sodium water (S1) can be used for irrigation of most soils; however, use of medium to very high sodium water (S2 to S4) may require special soil management and chemical amendments. Low-salinity water (C1) can be used for irrigation of most soils, and medium to very high salinity water (C2 to C4) can be used for irrigation if the soil is permeable, drainage is adequate, and salt-tolerant crops are grown.

The sodium and salinity hazards of water in southern Apache County are low to very high (fig. 3). Water from the Little Colorado River between Eagar and its junction with the west boundary of the area has a low to high sodium hazard and a low to very high salinity hazard. The sodium and salinity hazards increase markedly between Lyman Lake and St. Johns. Above Lyman Lake, water from the Little Colorado River generally has a low sodium hazard and a low to medium salinity hazard. Below Lyman Lake, springs and flowing wells that derive water from the Coconino aquifer flow into the river and increase the sodium and salinity hazards of the water.

Water from the Coconino aquifer and the Moenkopi and Chinle Formations has low to very high sodium and salinity hazards. In the southwestern part of the area, water from the Coconino aquifer generally has a low sodium hazard and a low to medium salinity hazard, but in the central and eastern parts, the water has high to very high sodium and salinity hazards. In the northern part, water from the Coconino aquifer exceeds the criteria established for irrigation uses.

Water from the Springerville, White Mountains, and Bidahochi aquifers has a low to very high sodium hazard and a medium to high salinity hazard. Water from the basaltic rocks has a low sodium hazard and a low to medium salinity hazard. Water from the alluvium has a low to very high sodium hazard and a medium to very high salinity hazard. Water from the alluvium, however, is being used successfully for irrigation of salt-tolerant crops in permeable soils.

AREAS OF POTENTIAL GROUND-WATER DEVELOPMENT

The usability of ground water as a water supply depends on the chemical quality of the water, well depth, depth to water, and yield that can be obtained from wells. The chemical quality of the water is often the main factor that governs its use for specific applications. Water that contains more than 500 mg/L of dissolved solids is not preferred for use as a domestic or public supply, but water with 500 to 1,000 mg/L of dissolved solids is used in places where better quality water is not available. Water that contains as much as 3,000 mg/L of dissolved solids can be used successfully for irrigation of salt-tolerant crops on well-drained soils. The concentration of dissolved solids in water used for industrial purposes varies greatly and depends on the type of industry.

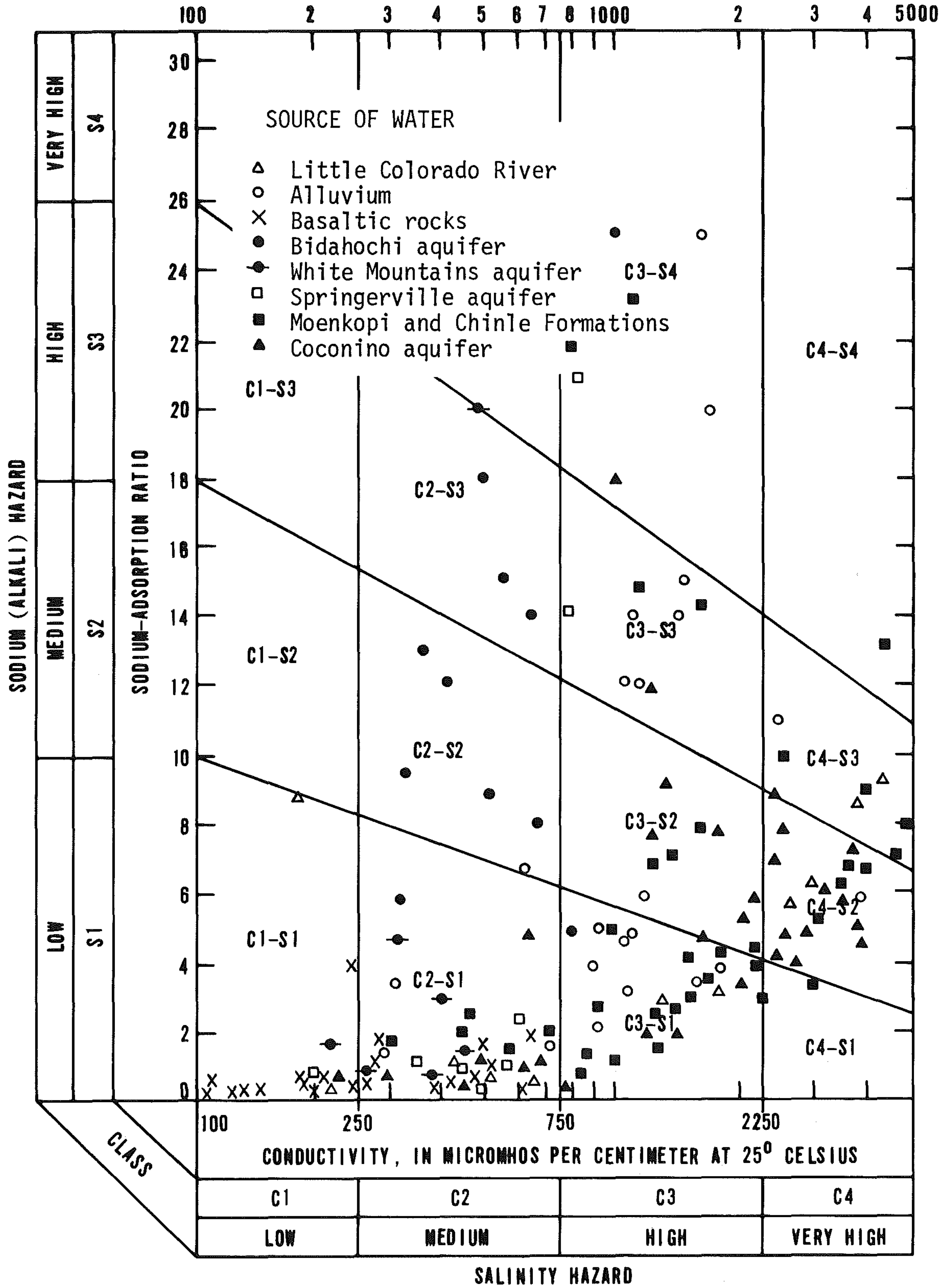


Figure 3.--Sodium and salinity hazards of ground water. Diagram from U.S. Salinity Laboratory Staff (1954).

Well depth, depth to water, and well yields are mainly economic factors. For example, the expense of drilling deep wells and lifting the water several hundred feet to the land surface may preclude the use of ground water for small domestic supplies. Some municipal, agricultural, and industrial users can afford the expense of drilling deep wells and lifting moderate to large quantities of water several hundred feet if the economic return from use of the water exceeds the cost of production. The following criteria were selected to delineate areas of potential development:

Type of supply	Maximum concentration of dissolved solids, in milligrams per liter	Well yield, in gallons per minute	Maximum depth to water, in feet
Domestic	1,000	5-20	200
Municipal	1,000	20-200	1,000
Agricultural	[1]3,000	200	500

[1]Varies greatly and depends on type of crops and (or) soil characteristics.

Criteria for industrial supplies are not shown because each factor varies greatly and depends on the type of industry.

The approximate areas where domestic or municipal ground-water supplies can probably be developed are shown on plate 5. The data shown on plate 5 are not site specific and should be used only as a general guide. For a specific site, local conditions, such as aquifer inhomogeneity or legal constraints, could preclude the development of an adequate ground-water supply.

In the southern part of the area, water for domestic or municipal supplies probably can be obtained from the basaltic rocks, the White Mountains aquifer, or the Springerville aquifer. The depth to water and potential well yield are not known in most of the southern part, but the chemical quality of the water generally is suitable for most uses. Yields of 100 gal/min or more probably could be obtained by drilling deep wells into the White Mountains aquifer or underlying aquifers. In some places, however, well depth and the depth to water may increase drilling and pumping costs so that it is not economically feasible to develop the water.

In the west-central part, 500 gal/min or more of water can be obtained from the Coconino aquifer, but in places the well depth and the depth to water are more than 500 ft (pl. 5). Near Vernon and Floy, 5 to 100 gal/min of water probably can be obtained from the Springerville aquifer and the basaltic rocks.

In most of the east-central part, the Coconino aquifer will yield 1,000 gal/min or more of water, but the water contains more than 1,000 mg/L of dissolved solids and should not be used for drinking without being treated. About 12 mi east-northeast of St. Johns, however, water in the aquifer is marginal for domestic and municipal use and could be used with little or no treatment. In general, the rock formations that overlie the Coconino aquifer in the east-central part of the area will not yield usable quantities of water or the water is highly mineralized and unfit for drinking without being treated. About 2 mi west of St. Johns, the Bidahochi aquifer will yield water of acceptable chemical quality for domestic supplies.

In the northern part, the main sources of ground water for domestic and municipal supplies are the alluvium and the Bidahochi aquifer. The alluvium along the Puerco River generally will yield 20 to 500 gal/min of water that is marginal in chemical quality for drinking (pl. 5). The alluvium along some of the larger tributaries to the Puerco River may yield 10 to 50 gal/min of water, but this water may be unfit for drinking without treatment.

In the northeastern part, the Bidahochi aquifer contains water suitable for domestic use, but in most places will not yield more than 20 gal/min (pl. 5). Well yields of 50 to 100 gal/min probably could be obtained in some places.

In the northern and central parts, the Moenkopi and Chinle Formations locally contain water, but the water is generally highly mineralized. It is used locally for domestic supplies where better quality water cannot be obtained. In the valley of the Puerco River near Chambers, Sanders, and Navajo, sandstone and conglomerate in the Chinle Formation yield as much as 50 gal/min of water that is of marginal chemical quality for domestic and municipal use.

In the central and southern parts, ground water of sufficient quantity and chemical quality for irrigation can be developed from the Coconino aquifer. North of the valley of the Little Colorado River in the western and central parts and in T. 16 N. in the eastern part, the water generally contains more than 3,000 mg/L of dissolved solids. In the central and southern parts, water in the Coconino aquifer is suitable for irrigation; however, the well depth and depth to water are more than 500 ft in much of the area, and development and pumping costs may restrict its use for irrigation (pl. 2C).

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HYDROLOGIC DATA

Local number: See figure 2 for description of well-numbering and location system.
Use of water: H, domestic; I, irrigation; N, industrial; P, public supply; R, recreation; S, stock; T, institutional; U, unused; Z, other.
Finish: C, porous concrete; F, gravel pack with perforations; O, open end; P, perforated or slotted; T, sand point; W, walled; X, open hole.
Water level: In feet below land surface; A, airline; D, dry; E, estimated; F, flowing, but head could not be measured; P, pumping; R, reported; S, steel tape; T, electric tape.
Method constructed: A, air rotary; B, bored or augered; C, cable tool; D, dug; H, hydraulic rotary; R, reverse rotary; V, driven.

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED
A-05-30 01BBC1	345141109132701	001	1966	P	8	P	200	8240	16.90 T	05/18/1976
A-05-30 01BBC2	345141109132801	001	1966	P	8	F	100	8240	12.50 T	05/18/1976
A-05-30 03DBA	335122109095001	001	1971	P	6	P	320	8055	34.00 R	10/ /1971
A-05-30 10BAB	335057109101701	001	1970	P	10	--	150	8240	--	--
A-05-30 11ACB	335039109085101	001	1970	H	8	X	130	8000	30.00 R	08/ /1973
A-05-30 11ACC	335035109090001	001	1974	H	8	X	135	8010	35.00 S	--
A-05-30 11BDA	335040109090101	001	--	H	--		200	8050	30.00 R	08/ /1973
A-05-30 11DBB	335029109090001	001	--	H	--		210	8030	34.00 S	08/21/1973
A-05-30 12BCA	335043109081501	001	1960	U	--	--	190	7990	30.00 R	08/ /1973
A-05-30 12DDA	335019109073001	001	1932	--	--	--	120	7960	D	--
A-05-30 13CDC	334914109080801	001	10/30/1975	P	6	P	495	8060	175.00 T	04/26/1976
A-05-30 13DBC	334929109075301	001	1971	P	8	P	282	8020	97.00 S	08/22/1973
A-05-30 13DDD	344914109073101	001	01/19/1976	P	6	P	486	8034	175.30 T	05/06/1976
A-05-30 14ADA	334944109083201	001	1968	H	--	--	120	8040	1.00 R	08/ /1973
A-05-30 14DAA	334937109083101	001	--	P	8	P	440	8050	40.00 R	08/ /1973
A-05-30 14DDC	334918109083801	001	--	H	--		180	8090	35.00 R	08/ /1973
A-05-31 17BCC	334944109062101	001	1965	--	--	--	200	7930	D	--
A-05-31 17CAA	334943109055301	001	1950	H	10	X	100	7880	20.00 S	08/22/1973
A-05-31 18BDB	334951109070201	001	--	H	--		120	7920	50.00 R	08/ /1973
A-05-31 19ADA1	334858109062701	001	1969	H	10	X	165	7990	27.00 S	08/22/1973
A-05-31 19ADA2	334854109063001	001	1968	H	10	X	125	8010	20.00 R	08/ /1973
A-05-31 19ADA3	334954109062801	001	1967	H	10	X	100	8010	20.00 R	08/ /1973
A-05-31 19ADA4	334854109062501	001	1967	H	10	X	145	8010	20.00 R	08/ /1973
A-05-31 19DAC1	334840109063501	001	1966	H	10	X	185	8080	60.00 R	08/ /1973
A-05-31 19DAC2	334838109063201	001	1965	H	10	X	165	8090	60.00 R	08/ /1973
A-05-31 20BBC1	334904109062201	001	1966	H	10	X	125	7990	25.00 R	08/ /1973
A-05-31 20BBC2	334904109062101	001	1964	H	10	X	165	7990	23.00 S	08/22/1973
A-05-31 20BBC3	334906109062001	001	1968	H	8	X	185	7980	20.00 R	08/ /1973
A-05-31 20BBD	334906109061601	001	1968	H	10	X	165	7980	20.00 R	08/ /1973
A-05-31 20BCA1	334859109061701	001	1965	H	8	X	135	7980	21.00 S	08/22/1973
A-05-31 20BCA2	334855109061301	001	1965	H	10	X	150	7980	20.00 R	08/ /1973
A-05-31 20BCB	334900109062101	001	1969	H	10	X	165	7990	20.00 R	08/ /1973
A-06-28 30CAD	335257109255001	001	1969	U	8	P	125	9030	19.00 R	11/29/1969
A-06-28 30DBB	335309109254001	001	1969	--	5	X	156	9030	D	--
A-06-28 30DCB	335253109254101	001	1969	U	5	X	125	9030	--	--
A-06-28 30DCC	335248109254101	001	1969	U	5	X	225	9030	35.00 R	11/ /1969
A-06-29 01ACA	335655109140501	001	--	H	--		100	7800	--	--
A-06-29 01BBA	335701109143701	001	1972	H	8	P	115	7840	4.00 R	08/ /1972
A-06-30W06AAB	335656109125401	001	1972	H	8	X	85	7680	20.00 R	07/ /1972
A-06-30W06BBA	335703109133001	001	1972	H	6	--	150	7790	75.00 R	08/ /1973
A-06-30W06BBB	335703109134001	001	08/23/1972	H	8	P	100	7760	32.00 S	08/07/1973
A-07-27 01CBA	340150109270701	001	1972	H	8	X	140	8285	35.00 R	07/ /1973
A-07-27 01CCA1	340137109270101	001	1970	H	6	X	100	8280	55.00 S	07/26/1973
A-07-27 01CCA2	340137109270201	001	1969	H	6	X	101	8280	45.00 S	07/26/1973
A-07-27 01CDB	340135109270001	001	--	H	--	X	100	8260	26.00 S	07/26/1973
A-07-27 02DAD1	340138109271801	001	1974	H	4	P	147	8445	--	--
A-07-27 02DAD2	340142109272101	001	1970	H	6	X	264	8460	180.00 R	--
A-07-27 02DDA1	340137109272101	001	--	H	--		280	8450	160.00 R	--
A-07-27 02DDA2	340136109272001	001	--	H	--		120	8425	--	--
A-07-27 11DAB1	340056109272901	001	1957	H	6	X	65	8320	13.00 R	07/ /1973
A-07-27 11DAB2	340054109273001	001	1970	H	6	X	100	8340	30.00 R	07/ /1973
A-07-27 11DBD	340048109273501	001	--	H	--		250	8360	--	--
A-07-27 11DCA	340043109273601	001	--	H	--	--	155	8370	--	--
A-07-27 12BCA	340110109270201	001	1962	H	6	X	85	8305	36.40 R	08/01/1973
A-07-27 14ACB1	340014109274601	001	1963	H	--	--	100	8480	30.00 R	--
A-07-27 14ACB2	340013109274601	001	07/02/1973	H	4	P	110	8460	41.20	08/01/1973
A-07-27 14ACC1	340007109274201	001	06/29/1973	H	4	P	130	8430	45.00 S	08/01/1973
A-07-27 14ACC2	340008109274501	001	1973	H	--	--	72	8440	--	--
A-07-27 14ACD1	340009109273601	001	1973	H	4	P	100	8410	18.00 S	08/01/1973
A-07-27 14ACD2	340008109273801	001	1973	H	4	P	100	8410	23.00 S	08/01/1973
A-07-27 14BDA	340015109275001	001	1963	H	6	P	100	8480	46.70 S	08/01/1973
A-07-27 14BDB	340016109280001	001	1971	H	6	P	220	8600	125.00 S	08/01/1973
A-07-27 14DBB	340004109274401	001	1973	H	4	P	85	8420	27.00 S	06/19/1974
A-07-28 06DAC	340138109252901	001	1973	H	4	P	170	8380	151.00 R	08/13/1973
A-07-28 06DBB1	340144109253901	001	1973	H	4	P	155	8370	85.00 R	07/ /1973
A-07-28 06DBB2	340145109254301	001	1973	H	4	P	155	8365	86.00 S	07/24/1974
A-07-28 06DBC	340143109253701	001	1973	H	4	P	185	8360	--	--
A-07-30 04DBA	340148109105701	001	--	S	--		41	7459	8.00 S	08/06/1973
A-07-30 04DCD	340132109104901	001	--	U	--		27	7460	10.00 S	08/06/1973
A-07-30 11CBB	340059109092301	001	--	--	--		280	7915	210.00 R	08/ /1973
A-07-30 11DDC	340038109083801	001	11/02/1974	S	6	P	185	8020	120.00	03/19/1975
A-07-30 14BDD	340010109090101	001	1971	H	6	P	226	8021	156.00 S	08/06/1973
A-07-30 16ADD	340008109103701	001	--	S	--		50	7566	12.00 S	08/07/1973
A-07-30 16CAA1	340004109110501	001	1971	H	6	P	20	7555	10.00 S	08/06/1973
A-07-30 16CAA2	340000109110201	001	1972	--	--	X	220	7565	D	--
A-07-30 16CAB	340005109111201	001	1974	--	--	--	93	7530	D	--
A-07-30 16CAC	335958109111201	001	1973	--	--	--	151	7540	D	--
A-07-30 16DBB1	340003109105701	001	06/15/1971	H	6	X	100	7555	20.00	06/15/1971
A-07-30 16DBB2	340004109110001	001	1971	H	6	X	26	7555	15.00 R	08/ /1973
A-07-30 16DBB3	340002109105701	001	1974	--	6	--	100	7560	15.00	--

Types of logs available: C, caliper; D, drillers; E, electric; F, fluid conductivity or fluid resistivity; G, geologist or sample; I, induction; J, gamma ray; N, neutron; T, temperature.

Principal aquifer: 111ALVM, alluvium; 112BLCF, basaltic rocks; 121BDHC, Bidahochi Formation; 120SDMR, Tertiary sedimentary rocks, undifferentiated; 120DTIL, Datil Formation; 124SDMR, Eagar Formation of Sirrine (1958); 211SDMR, Upper Cretaceous sedimentary rocks, undifferentiated; 211DOKT, Dakota Sandstone; 231WNGT, Wingate Sandstone; 231CHNL, Chinle Formation; 231SNSL, Sonsela Sandstone Bed; 231SRMP, Shinarump Member; 230MNKP, Moenkopi Formation; 310KIBB, Kaibab Limestone; 310CCNN, Coconino Sandstone; 310SUPI, Supai Formation.

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25° C)	LOCAL NUMBER
35 R	05/18/1976	130	50	C	--	120SDMR	--	--	A-05-30 01BBC1
55 R	05/18/1976	53	50	C	--	120SDMR	--	--	A-05-30 01BBC2
30	--	--	260	C	D	120SDMR	--	318	A-05-30 03DBA
--	--	--	--	--	--	120SDMR	--	--	A-05-30 10BAB
90	--	--	--	C	--	120SDMR	--	--	A-05-30 11ACB
3	--	--	--	--	D	120SDMR	--	--	A-05-30 11ACC
50	--	--	--	--	--	120SDMR	--	--	A-05-30 11BDA
10	--	--	--	--	--	120SDMR	--	--	A-05-30 11DBB
--	--	--	--	C	--	120DTIL	--	--	A-05-30 12BCA
--	--	--	--	C	--	120DTIL	--	--	A-05-30 12DDA
15 V	04/26/1976	126	268	C	D	120DTIL	--	--	A-05-30 13CDC
20	--	--	262	C	D	120DTIL	--	480	A-05-30 13DBC
40 F	05/10/1976	71	240	C	D	120DTIL	15.0	280	A-05-30 13DDD
50	--	--	--	--	--	120SDMR	--	--	A-05-30 14ADA
--	--	--	100	C	D	120DTIL	--	--	A-05-30 14DAA
3	--	--	--		--	120DTIL	--	--	A-05-30 14DDC
--	--	--	--	--	--	120DTIL	--	--	A-05-31 17BCC
7	--	--	20	C	--	120SDMR	--	--	A-05-31 17CAA
17	--	--	--		--	120SDMR	--	--	A-05-31 18BDB
7	--	--	10	C	--	120SDMR	--	550	A-05-31 19ADA1
7	--	--	10	C	--	120SDMR	--	--	A-05-31 19ADA2
7	--	--	10	C	--	120SDMR	--	--	A-05-31 19ADA3
7	--	--	10	C	--	120SDMR	--	--	A-05-31 19ADA4
25	--	--	10	C	--	120SDMR	--	600	A-05-31 19DAC1
35	--	--	10	C	--	120SDMR	--	--	A-05-31 19DAC2
7	--	--	8	C	--	120SDMR	--	--	A-05-31 20BBC1
7	--	--	10	C	--	120SDMR	--	520	A-05-31 20BBC2
7	--	--	10	C	--	120SDMR	--	--	A-05-31 20BBC3
7	--	--	8	C	--	120SDMR	--	--	A-05-31 20BBD
7	--	--	10	C	--	120SDMR	--	--	A-05-31 20BCA1
7	--	--	10	C	--	120SDMR	--	--	A-05-31 20BCA2
7	--	--	10	C	--	120SDMR	--	--	A-05-31 20BCB
25	--	71	95	A	D	112BLCF	--	--	A-06-28 30CAD
--	--	--	--	A	D	112BLCF	--	--	A-06-28 30DBB
6	--	--	--	A	D	112BLCF	--	--	A-06-28 30DCB
22	--	--	--	A	D	112BLCF	--	--	A-06-28 30DCC
--	--	--	--		--	120DTIL	--	--	A-06-29 01ACA
--	--	--	4	C	D	120DTIL	--	--	A-06-29 01BBA
--	--	--	20	C	D	120DTIL	--	--	A-06-30W06AAB
--	--	--	--	C	--	120DTIL	--	--	A-06-30W06BBA
--	--	--	29	C	--	120DTIL	--	--	A-06-30W06BBB
--	--	--	55	C	D	120SDMR	--	350	A-07-27 01CBA
--	--	--	80	C	--	120SDMR	--	380	A-07-27 01CCA1
10	--	64	60	C	D	120SDMR	--	370	A-07-27 01CCA2
--	--	--	40	C	--	120SDMR	--	380	A-07-27 01CDB
--	--	--	--	--	D	120SDMR	--	--	A-07-27 02DAD1
--	--	--	--	--	--	120SDMR	--	--	A-07-27 02DAD2
--	--	--	--	--	D	120SDMR	--	--	A-07-27 02DDA1
--	--	--	--	--	D	120SDMR	--	--	A-07-27 02DDA2
--	--	--	20	A	D	120SDMR	--	--	A-07-27 11DAB1
--	--	--		C	--	120SDMR	--	350	A-07-27 11DAB2
--	--	--	--		D	120SDMR	--	--	A-07-27 11DBD
--	--	--	40	--	D	120SDMR	--	--	A-07-27 11DCA
--	--	--	100	C	D	120SDMR	--	330	A-07-27 12BCA
--	--	--	--	--	D	120SDMR	--	--	A-07-27 14ACB1
--	--	--	85	C	D	112BLCF	--	130	A-07-27 14ACB2
20	--	5	105	C	D	112BLCF	--	160	A-07-27 14ACC1
--	--	--	--	--	D	120SDMR	--	--	A-07-27 14ACC2
--	--	--	75	C	D	120SDMR	--	--	A-07-27 14ACD1
25	--	5	85	C	D	120SDMR	--	150	A-07-27 14ACD2
--	--	--	80	C	--	120SDMR	--	100	A-07-27 14BDA
--	--	--	180	C	D	120SDMR	--	160	A-07-27 14BDB
--	--	--	80	C	D	112BLCF	--	480	A-07-27 14DBB
--	--	--	140	C	D	120SDMR	--	--	A-07-28 06DAC
--	--	--	145	H	D	120SDMR	--	--	A-07-28 06DBB1
5	--	58	130	H	--	120SDMR	16.5	200	A-07-28 06DBB2
--	--	--	170	H	D	120SDMR	--	--	A-07-28 06DBC
--	--	--	--		--	111ALVM	--	350	A-07-30 04DBA
--	--	--	--		--	111ALVM	--	--	A-07-30 04DCD
--	--	--	--		--	120DTIL	--	--	A-07-30 11CBB
--	--	--	120	C	D	120DTIL	--	--	A-07-30 11DDC
--	--	--	160	H	--	120DTIL	13.0	300	A-07-30 14BDD
--	--	--	--		--	120DTIL	--	--	A-07-30 16ADD
4	--	--	15	C	--	111ALVM	--	300	A-07-30 16CAA1
--	--	--	--	H	--	120DTIL	--	--	A-07-30 16CAA2
--	--	--	--	--	D	120DTIL	--	--	A-07-30 16CAB
--	--	--	--	--	D	120DTIL	--	--	A-07-30 16CAC
--	--	--	60	C	D	120SDMR	--	--	A-07-30 16DBB1
4	--	--	15	C	--	111ALVM	--	--	A-07-30 16DBB2
--	--	--	--	C	D	120SDMR	--	--	A-07-30 16DBB3

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-07-30 20BBB	335937109123901	001	1972	--	8	X	175	7560	36.00	R	08/ /1972
A-07-30 23AAC	335928109084201	001	--	H	--		280	8240	180.00	R	08/ /1973
A-07-30 29ADC	335823109115201	001	1958	H	6	P	155	7650	120.00	R	08/ /1973
A-07-30 32BCC	335730109123201	001	1972	H	8	P	60	7660	9.00	R	08/ /1972
A-07-30 32BCD	335729109122501	001	1972	U	--	X	235	7720		D	--
A-07-30 32CBA	335723109122301	001	1972	H	8	X	140	7700	61.00	S	08/07/1973
A-07-31 02CBA	340149109030101	001	1959	S	6	--	75	7635	55.00	R	--
A-08-24 19CBD	340420109512101	001	1956	U	8	P	250	7250	182.00	S	09/ /1973
A-08-24 20CBD	340420109501901	001	1963	U	8	P	700	7310	250.00	S	09/ /1973
A-08-27 15BCA	340533109291601	001	1972	H	10	X	265	8405	20.00	S	07/25/1973
A-08-27 26BDD	340337109275401	001	1973	H	4	P	160	8060	--		--
A-08-27 26CAA	340330109275201	001	1970	H	6	P	155	8140	98.00	R	07/ /1973
A-08-27 26CAB	340334109275901	001	--	H	--		--	8080	--		--
A-08-27 26CAD1	340324109275701	001	1971	H	6	P	200	8175	95.00	S	07/25/1973
A-08-27 26CAD2	340329109275501	001	1973	H	4	P	140	8140	92.00	S	07/25/1973
A-08-27 26CDC	340317109280001	001	1973	H	4	P	190	8210	71.00	R	08/12/1973
A-08-27 26CDD	340317109275601	001	1972	H	4	X	100	8200	76.00	S	07/25/1973
A-08-27 26DAA	340335109272501	001	--	H	--		400	8135	--		--
A-08-27 26DBB	340331109274901	001	1970	H	6	P	140	8150	95.00	S	07/25/1973
A-08-27 26DCD1	340311109273601	001	1964	H	8	X	120	8180	72.00	R	08/ /1973
A-08-27 26DCD2	340315109273501	001	1972	H	--	--	170	8175	--		--
A-08-27 35BAA	340305109275301	001	1973	H	4	P	215	8230	110.00	R	08/ /1973
A-08-27 35BAD	340302109275701	001	1973	H	4	X	155	8260	134.00	S	07/25/1973
A-08-28 09CBB	340613109241801	001	1950	S	6	P	265	7497	247.00	R	11/30/1950
A-08-28 17BDC	340522109230701	001	1973	H	6	P	103	7400	4.00	R	11/ /1973
A-08-29 02ABA	340729109150801	001	1973	H	8	P	102	7060	31.00	R	10/ /1973
A-08-29 02CBC	340658109154701	001	1959	H	6	P	290	7070	--		--
A-08-29 02CDC	340645109153401	001	1965	H	6	X	235	7110	80.00	R	05/ /1965
A-08-29 03BBA	340729109164101	001	1957	P	12	P	360	7090	171.00	S	03/19/1957
A-08-29 03CDD	340642109163001	001	1973	H	8	P	100	7090	10.00	R	05/ /1973
A-08-29 03DBC	340656109162201	001	--	I	--		106	7060	69.00	S	12/16/1974
A-08-29 04DBD	340658109171801	001	1956	H	8	P	200	7050	100.00	R	--
A-08-29 04DCC	340645109172201	001	--	P	--		--	7070	200.00		05/16/1969
A-08-29 05ADB	340718109181501	001	1970	U	8	P	380	7030	140.00	R	01/ /1970
A-08-29 07ABD	340628109192201	001	--	S	--	P	100	7050	8.00	S	08/22/1974
A-08-29 07ACD	340615109191901	001	1968	U	7	X	1525	7075	626.00	S	06/13/1968
A-08-29 07BCA	340621109195001	001	1968	S	10	P	100	7080	14.00	S	01/19/1968
A-08-29 07BCB	340622109200001	001	1964	S	6	P	100	7070	5.00	R	1966
A-08-29 08CBD	340602109184701	001	06/25/1966	H	--	P	50	7100	18.00	R	06/25/1966
A-08-29 08DCD	340548109182001	001	10/03/1963	H	--	P	68	7160	30.00	R	10/03/1963
A-08-29 09BDD	340615109173401	001	--	P	--		600	7130	195.00	R	05/ /1959
A-08-29 11ABC	340633109151901	001	07/31/1967	H	--	X	400	7160	250.00	R	07/31/1967
A-08-29 11ADA	340626109145301	001	--	H	--		460	7160	140.00	R	02/ /1960
A-08-29 11BBC	340631109154701	001	1967	H	6	P	210	7170	--		--
A-08-29 16ADB	340527109170601	001	1964	H	6	P	70	7265	45.00	R	02/ /1964
A-08-29 16ADC	340524109170401	001	1967	H	6	P	134	7270	60.00	R	02/ /1967
A-08-29 16BAA	340544109173101	001	1953	N	6	P	625	7210	375.00	R	1953
A-08-29 16BDC	340521109173801	001	1974	P	6	P	720	7260	518.00		08/10/1974
A-08-29 16CBC	340508109175801	001	1962	P	6	X	850	7265	458.00	R	05/17/1969
A-08-29 21BAA	340453109172901	001	--	S	--		--	7335	18.00	S	08/14/1974
A-08-29 21CAC	340418109173801	001	1958	U	10	P	850	7470	525.00	R	03/ /1958
A-08-29 23BBA	340448109153901	001	1947	U	6	X	35	7460	23.00	S	08/14/1974
A-08-29 26BBC	340348109155401	001	--	S	--		--	7570	164.00	S	08/14/1974
A-08-30 23DCB	340410109085501	001	--	S	--		--	7598	228.00	S	08/06/1973
A-08-30 28DAC	340325109104501	001	--	S	--		--	7750	312.00	S	08/06/1973
A-08-31 05ABB	340732109054801	001	1950	S	6	P	160	7170	100.00	S	12/18/1974
A-08-31 08DBC	340602109054801	001	1948	S	6	P	105	7260	78.00	S	12/19/1974
A-08-31 17CDD	340454109055501	001	1950	S	6	P	125	7358	100.00	R	12/ /1974
A-08-31 22DAC	340414109032801	001	1959	S	6	--	160	7415	85.00	S	07/18/1957
A-08-31 31ADD	340244109062401	001	1955	S	6	P	300	7576	62.00	R	07/ /1959
A-08-31 34ABB	340307109034201	001	1968	H	6	P	100	7480	25.00	S	12/19/1974
A-09-27 01DDB	341201109254901	001	1955	S	6	X	150	6966	75.00	R	12/20/1974
A-09-27 16ACB	341041109291901	001	1967	--	8	X	1400	7800		D	--
A-09-28 02ACA	341230109204401	001	1950	S	6	--	246	6645	--		--
A-09-28 03BDC	341224109220901	001	1949	S	6	X	202	6632	160.00	S	05/06/1959
A-09-28 08CAD	341121109240801	001	1950	H	6	X	140	6850	100.00	R	12/ /1974
A-09-28 27DAD	340840109214801	001	1969	S	6	X	110	7080	72.00	S	08/21/1974
A-09-29 01ABD	341238109131201	001	1964	S	6	P	76	6720	36.00	S	09/26/1974
A-09-29 02ACA	341228109141801	001	1966	S	6	P	250	6998	200.00	R	03/ /1966
A-09-29 05CDB	341202109175501	001	--	H	--		10	6690	9.00	S	02/12/1974
A-09-29 08BAB	341149109175701	001	1972	I	12	X	205	6690	3.00	R	12/ /1972
A-09-29 16DCC	341011109164001	001	1971	S	6	P	150	7090	56.00	S	06/04/1974
A-09-29 20CBA	340937109180801	001	--	H	--		--	6920	21.00	S	02/14/1975
A-09-29 20DDB	340928109172501	001	1974	U	12	P	290	6915	4.00	S	06/04/1974
A-09-29 21CCC	340917109171201	001	--	S	--		--	6914	6.00	S	06/04/1974
A-09-29 24AAA	341008109130101	001	1956	U	--	--	770	7320	750.00	R	--
A-09-29 26DCD	340828109142701	001	1955	P	6	X	100	7018	42.00		09/25/1974
A-09-29 27CBD	340838109155701	001	1973	I	8	--	92	6970	10.00	S	06/11/1974
A-09-29 28DDD	340825109161201	001	1946	P	12	P	80	6960	4.00	R	01/ /1946
A-09-29 29BAB	340912109175501	001	1965	R	8	P	234	6920	19.00	R	11/ /1965

selected wells--Continued

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	46	C	D	120DTIL	--	--	A-07-30 20BBB
--	--	--	--		--	120DTIL	--	--	A-07-30 23AAC
--	--	--	120	C	--	120DTIL	--	280	A-07-30 29ADC
--	--	--	10	C	D	120DTIL	--	--	A-07-30 32BCC
--	--	--	--	C	D	120DTIL	--	--	A-07-30 32BCD
--	--	--	43	C	--	120DTIL	--	--	A-07-30 32CBA
10	--	--	--	--	D	120DTIL	12.0	280	A-07-31 02CBA
--	--	--	180	C	D	--	--	--	A-08-2419CBD
25	--	--	250	C	D	--	--	--	A-08-2420CBD
--	--	--	18	C	D	112BLCF	--	--	A-08-27 15BCA
--	--	--	--	C	--	112BLCF	--	--	A-08-27 26BDD
--	--	--	140	--	--	112BLCF	--	--	A-08-27 26CAA
--	--	--	--	--	--	112BLCF	--	--	A-08-27 26CAB
--	--	--	160	C	D	112BLCF	--	380	A-08-27 26CAD1
--	--	--	100	C	D	112BLCF	--	410	A-08-27 26CAD2
--	--	--	140	C	D	120SDMR	--	--	A-08-27 26CDC
--	--	--	80	A	D	112BLCF	--	--	A-08-27 26CDD
--	--	--	--	A	--	120SDMR	--	--	A-08-27 26DAA
--	--	--	130	--	--	120SDMR	--	--	A-08-27 26DBB
--	--	--	8	C	D	120SDMR	--	--	A-08-27 26DCD1
--	--	--	--	H	D	112BLCF	--	--	A-08-27 26DCD2
--	--	--	150	C	D	120SDMR	--	--	A-08-27 35BAA
--	--	--	75	--	--	112BLCF	--	--	A-08-27 35BAD
15	--	--	--	C	D	112BLCF	--	--	A-08-28 09CBB
--	--	--	15	C	D	120DTIL	16.0	320	A-08-28 17BDC
19	--	--	30	C	D	124SDMR	--	--	A-08-29 02ABA
25	--	--	197	C	--	124SDMR	--	--	A-08-29 02CBC
--	--	--	70	C	D	124SDMR	--	--	A-08-29 02CDC
63	--	26	322	C	D	211SDMR	--	--	A-08-29 03BBA
--	--	--	20	C	D	124SDMR	--	--	A-08-29 03CDD
--	--	--	--		--	124SDMR	--	--	A-08-29 03DBC
--	--	--	--	C	D	124SDMR	--	--	A-08-29 04DBD
122	--	--	--		--	211SDMR	--	--	A-08-29 04DCC
140	--	15	307	C	D	211SDMR	15.0	585	A-08-29 05ADB
--	--	--	--		D	124SDMR	17.0	410	A-08-29 07ABD
64	--	1	955	C	T,F,C	310CCNN	26.0	3970	A-08-29 07ACD
33	01/19/1968	67	25	C	E,D	124SDMR	--	--	A-08-29 07BCA
63	--	5	15	C	D	124SDMR	15.0	342	A-08-29 07BCB
--	--	--	18	C	D	124SDMR	--	--	A-08-29 08CBD
--	--	--	15	C	D	124SDMR	--	--	A-08-29 08DCD
--	--	--	--	[illegible]	--	211SDMR	--	526	A-08-29 09BDD
--	--	--	350	C	D	211SDMR	--	--	A-08-29 11ABC
40	--	85	--	[illegible]	D	211SDMR	--	510	A-08-29 11ADA
--	--	--	--	C	D	124SDMR	16.0	633	A-08-29 11BBC
3	--	--	45	C	D	124SDMR	--	--	A-08-29 16ADB
--	--	--	50	C	D	124SDMR	--	--	A-08-29 16ADC
--	--	--	575	C	D	211SDMR	20.0	826	A-08-29 16BAA
105	--	--	680	C	D	211SDMR	--	793	A-08-29 16BDC
75	--	--	--	C	D	211SDMR	--	650	A-08-29 16CBC
--	--	--	--		--	111ALVM	19.0	400	A-08-29 21BAA
--	--	--	726	C	D	211SDMR	--	--	A-08-29 21CAC
--	--	--	--	--	--	120DTIL	--	--	A-08-29 23BBA
--	--	--	--	--	--	120DTIL	--	650	A-08-29 26BBC
--	--	--	--	--	--	120DTIL	--	300	A-08-30 23DCB
--	--	--	--	--	--	120DTIL	--	350	A-08-30 28DAC
--	--	--	100	--	--	120DTIL	--	550	A-08-31 05ABB
--	--	--	80	C	--	120DTIL	--	490	A-08-31 08DBC
--	--	--	100	C	--	120DTIL	--	500	A-08-31 17CDD
60	--	--	--	--	--	120DTIL	--	340	A-08-31 22DAC
8	--	--	--	--	D	120DTIL	--	474	A-08-31 31ADD
--	--	--	26	C	D	120DTIL	--	387	A-08-31 34ABB
--	--	--	20	C	--	112BLCF	--	--	A-09-27 01DDB
--	--	--	1000	C	D	112BLCF	--	--	A-09-27 16ACB
--	--	--	--	--	--	112BLCF	--	--	A-09-28 02ACA
--	--	--	--	C	--	112BLCF	18.0	620	A-09-28 03BDC
--	--	--	40	C	--	112BLCF	--	--	A-09-28 08CAD
4	--	--	21	C	D	112BLCF	18.0	410	A-09-28 27DAD
--	--	--	35	C	D	211SDMR	19.0	540	A-09-29 01ABD
--	--	--	210	--	D	211SDMR	18.5	470	A-09-29 02ACA
--	--	--	--	--	--	111ALVM	--	--	A-09-29 05CDB
--	--	--	25	C	D	211SDMR	--	--	A-09-29 08BAB
--	--	--	--	--	D	124SDMR	--	--	A-09-29 16DCC
--	--	--	--	--	--	124SDMR	--	700	A-09-29 20CBA
300	--	90	--	C	D	124SDMR	--	--	A-09-29 20DDB
--	--	--	--	C	--	111ALVM	16.5	360	A-09-29 21CCC
--	--	--	--	C	D	231CHNL	--	--	A-09-29 24AAA
30	--	--	50	C	D	124SDMR	--	--	A-09-29 26DCD
--	--	--	--	--	D	124SDMR	--	--	A-09-29 27CBD
--	--	--	1	--	D	124SDMR	--	561	A-09-29 28DDD
60	--	1	200	C	D	211SDMR	--	420	A-09-29 29BAB

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-09-29 29BAD	340907109174801	001	1974	H	--	P	120	6910	7.00	S	08/22/1974
A-09-29 32BCA	340807109180401	001	1963	H	--	--	110	8480	30.00	R	--
A-09-29 32BDC1	340802109180101	001	1967	P	8	P	155	6975	42.00	S	08/15/1974
A-09-29 32BDC2	340800109175801	001	1962	P	6	P	252	6970	80.00	R	03/ /1962
A-09-29 32BDC3	340800109175401	001	1964	P	6	P	135	6970	65.00	R	09/ /1964
A-09-29 32BDC4	340800109175701	001	1971	H	6	P	250	6970	61.00	R	04/ /1975
A-09-29 32BDD	340758109174701	001	1968	P	8	P	360	6960	93.00	S	08/15/1974
A-09-29 32DAD	340746109171701	001	--	S	--		8	6960	0.10	S	03/07/1957
A-09-29 33ADD	340803109161201	001	--	S	--		108	6980	68.00	S	03/07/1957
A-09-29 33BCC	340800109171001	001	1951	S	6	--	196	6965	60.00	R	--
A-09-29 33BDA	340808109165001	001	1953	P	12	P	232	6970	98.00	S	08/15/1974
A-09-29 33BDC	340800109165501	001	1950	H	8	--	286	6980	--		--
A-09-29 33CBA	340757109165801	001	--	P	--	--	265	6980	87.00	R	--
A-09-29 33CBB	340758109170701	001	1941	S	6	X	110	6980	10.00	S	10/23/1956
A-09-29 34BDC	340803109155301	001	1965	S	6	P	126	7000	25.00	R	08/ /1965
A-09-29 34DCC	340732109153201	001	--	H	--		80	7035	--		--
A-09-29 35CAD	340746109144101	001	1965	S	6	P	132	7045	110.00	R	10/ /1965
A-09-30 14CBB	341030109084401	001	--	S	--		30	6947	10.00	R	03/ /1975
A-09-30 14CCB	341017109084701	001	1945	H	6	--	150	6980	60.00	R	03/ /1975
A-09-30 20ACD	340950109111601	001	1966	S	6	P	220	7220	180.00	R	11/ /1966
A-09-30 25CAA	340850109071701	001	--	S	--		30	7070	22.00	R	10/10/1957
A-09-30 32ADA	340805109105601	001	1947	S	6	X	100	7315	--		--
A-09-30 33BCC	340801109105101	001	--	S	--		100	7315	50.00	S	09/25/1974
A-09-30 34AAA	340823109085201	001	1967	S	6	P	460	7180	220.00	R	04/ /1967
A-09-31 10BCA	341134109032701	001	1933	S	8	--	180	7383	126.00	R	12/22/1933
A-09-31 20AAB	341005109045401	001	1931	S	48	W	33	7100	30.00	S	04/21/1958
A-09-31 20BDD	340948109051701	001	1959	--	16	--	2921	7290	--		--
A-10-24 04ACD	341745109480601	001	1967	--	10	--	4657	6855	--		--
A-10-24 06CDC	341716109503501	001	--	S	--	--	190	6500	--		--
A-10-24 07ABC	341704109501601	001	1956	S	6	P	190	6520	150.00	S	--
A-10-24 10DDD	341625109464501	001	1967	S	6	--	175	6800	128.00	S	09/26/1974
A-10-24 22ABA	341527109470501	001	1970	H	8	P	750	6735	--		--
A-10-24 29ABD	341422109491301	001	1957	H	6	P	725	6980	575.00	S	1957
A-10-25 09BBA	341711109422301	001	1971	H	6	P	415	6791	370.00	S	06/ /1971
A-10-25 10CCC	341621109413201	001	--	H	--		317	6885	265.00		06/ /1957
A-10-25 11DAC	341638109393701	001	--	H	--		200	6705	--		--
A-10-25 14BDD	341553109395901	001	1973	H	10	P	135	6790	56.00	R	06/20/1974
A-10-25 15AAD	341608109403301	001	--	H	--		111	6805	27.00	S	06/20/1957
A-10-25 15CBB	341553109413101	001	--	H	4	P	82	6895	75.00	S	--
A-10-25 15DAC	341545109404201	001	1973	H	8	P	170	6910	102.00	S	06/20/1974
A-10-25 18ABD	341606109435601	001	--	H	6	--	500	6932	410.00	R	--
A-10-25 20BCC	341504109433401	001	--	H	6	X	500	6952	460.00	R	--
A-10-25 21DAD	341453109413401	001	1946	U	12	X	320	6960	25.00	R	--
A-10-25 22BBC1	341516109413201	001	--	P	6	X	155	6928	90.00	R	--
A-10-25 22BBC2	341515109412601	001	--	U	6	X	310	6930	--		--
A-10-25 22CAC	341449109411601	001	--	H	6	X	255	6960	75.00	S	--
A-10-25 22CAD	341451109410201	001	--	H	--		114	7060	80.00	R	--
A-10-25 22CCA	341444109412401	001	--	S	--		160	6965	100.00	R	--
A-10-26 03ADA	341751109341301	001	1950	S	6	X	350	7028	300.00	R	--
A-10-26 05DDC	341712109362901	001	1957	S	4	X	450	6832	--		--
A-10-27 01CBC	341722109264101	001	1946	S	6	P	150	6460	123.00	S	01/15/1975
A-10-27 14CBA	341549109273801	001	--	S	5	--	383	6692	257.00	S	01/15/1975
A-10-27 17DCB	341530109302201	001	1967	S	6	X	280	6972	202.00	S	11/21/1974
A-10-27 24DDC	341433109255201	001	1959	S	6	P	301	6660	226.00	S	12/16/1974
A-10-28 08ACC1	341644109235801	001	--	H	4	P	18	6240	7.00	R	--
A-10-28 08ACC2	341646109235801	001	--	H	6	P	20	6240	7.00	R	--
A-10-28 11BAA	341707109205501	001	--	H,I	6	--	100	6075	8.00	R	12/ /1956
A-10-28 11BBB	341703109212101	001	--	U	6	P	100	6100	12.00	S	01/16/1975
A-10-28 11BCB	341654109212001	001	1959	I	--	P	100	6120	4.00	S	01/16/1975
A-10-28 11BCD1	341646109210801	001	1944	H,S	5	--	60	6120	13.00	R	07/ /1946
A-10-28 11BCD2	341646109211001	001	1969	I	8	P	100	6130	21.00	S	01/16/1975
A-10-28 18DCA	341533109245501	001	--	S	5	--	100	6370	--		--
A-10-28 21ACA	341507109224501	001	1966	H	6	P	250	6360	42.00	S	01/15/1975
A-10-28 21ACB	341507109225501	001	1959	I	8	P	242	6380	59.00	S	01/16/1975
A-10-28 22DDB	341440109213801	001	1964	S	6	P	180	6520	156.00	S	01/17/1975
A-10-28 26CCB	341348109212101	001	--	S	6	--	--	6586	215.00	S	12/20/1974
A-10-29 05CBC	341724109180901	001	--	S	48	W	16	6281	10.00	S	01/16/1975
A-10-29 14DCD	341528109142001	001	--	S	--	--	13	6580	12.00	S	12/14/1956
A-10-29 15BAB	341613109154501	001	--	S	36	P	20	6510	13.00	S	12/14/1956
A-10-29 25DAB	341400109131101	001	1965	S	6	P	50	6657	20.00	R	12/18/1965
A-10-29 33DDC	341246109161801	001	1957	I	--	--	380	6995	179.00	S	02/29/1960
A-10-30 08AAA	341659109110401	001	--	S	36	O	30	6915	17.00	S	03/19/1975
A-10-30 26CCD	341341109084201	001	1967	--	13	X	1577	7022	--		--
A-10-30 27CAA	341357109092301	001	1962	--	9	--	2351	6950	--		--
A-10-31 21DBD	341447109035301	001	1950	S	6	--	954	7273	850.00		06/28/1948
A-10-31 29BBD	341419109053201	001	1967	S	6	P	360	7276	250.00	R	1967
A-11-24 08AAC	342218109485701	001	1953	S	6	P	180	6350	145.00	S	06/12/1957
A-11-24 18DDA	342053109495501	001	--	S	--		20	6270	7.00	S	12/19/1974
A-11-24 22DBC	342006109470801	001	1962	U	12	P	850	6650	709.00	S	12/18/1974
A-11-24 28CDC	341900109482401	001	--	S	6	--	819	6690	400.00	R	--

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	25	C	D	124SDMR	15.0	520	A-09-29 29BAD
--	--	--	--	--	D	124SDMR	--	--	A-09-29 32BCA
50	--	--	--	C	--	124SDMR	--	480	A-09-29 32BDC1
25	--	--	200	C	D	211SDMR	--	--	A-09-29 32BDC2
--	--	--	65	C	D	124SDMR	--	--	A-09-29 32BDC3
30	--	30	90	C	D	211SDMR	--	--	A-09-29 32BDC4
80	--	--	--	C	D	211SDMR	--	--	A-09-29 32BDD
--	--	--	--		D	111ALVM	--	--	A-09-29 32DAD
--	--	--	--		D	124SDMR	--	--	A-09-29 33ADD
--	--	--	--	C	D	211SDMR	--	--	A-09-29 33BCC
55	--	49	--	C	D,G	211SDMR	--	--	A-09-29 33BDA
--	--	--	--	--	--	211SDMR	--	--	A-09-29 33BDC
63	--	14	--	--	D,G	211SDMR	--	--	A-09-29 33CBA
--	--	--	--	C	D	124SDMR	--	--	A-09-29 33CBB
90	--	10	27	C	D	124SDMR	--	--	A-09-29 34BDC
--	--	--	--		--	124SDMR	--	--	A-09-29 34DCC
--	--	--	103	C	D	124SDMR	--	--	A-09-29 35CAD
--	--	--	--		--	111ALVM	--	--	A-09-30 14CBB
--	--	--	--	C	--	211SDMR	--	439	A-09-30 14CCB
--	--	--	195	C	--	211SDMR	--	--	A-09-30 20ACD
--	--	--	--		--	111ALVM	--	--	A-09-30 25CAA
--	--	--	48	C	D	124SDMR	--	--	A-09-30 32ADA
--	--	--	--		D	124SDMR	--	470	A-09-30 33BCC
--	--	--	250	C	D	211SDMR	--	--	A-09-30 34AAA
--	--	--	--	--	D	124SDMR	--	--	A-09-31 10BCA
--	--	--	32	D	--	111ALVM	15.5	435	A-09-31 20AAB
--	--	--	--	C	D	--	--	--	A-09-31 20BDD
--	--	--	--	H	G	--	--	--	A-10-24 04ACD
--	--	--	--		D	211SDMR	--	--	A-10-24 06CDC
--	--	--	--	C	D	112BLCF	--	--	A-10-24 07ABC
--	--	--	--	C	--	112BLCF	17.0	540	A-10-24 10DDD
--	--	--	--	C	D	112BLCF	--	--	A-10-24 22ABA
80 R	1957	--	--	C	D	211SDMR	14.0	305	A-10-24 29ABD
--	--	--	375	C	D	211SDMR	--	--	A-10-25 09BBA
--	--	--	--		--	211SDMR	--	--	A-10-25 10CCC
--	--	--	--		--	211SDMR	--	--	A-10-25 11DAC
--	--	--	38	C	D	211SDMR	--	--	A-10-25 14BDD
--	--	--	--		--	211SDMR	--	--	A-10-25 15AAD
--	--	--	72	C	--	211SDMR	--	--	A-10-25 15CBB
--	--	--	100	C	D	211SDMR	--	--	A-10-25 15DAC
--	--	--	--	C	D	211SDMR	13.0	350	A-10-25 18ABD
--	--	--	--	C	D	112BLCF	18.0	165	A-10-25 20BCC
--	--	--	20	C	--	112BLCF	--	--	A-10-25 21DAD
--	--	--	--	C	--	112BLCF	--	--	A-10-25 22BBC1
--	--	--	--	C	--	112BLCF	--	--	A-10-25 22BBC2
--	--	--	--	C	--	112BLCF	--	198	A-10-25 22CAC
--	--	--	--		--	112BLCF	--	--	A-10-25 22CAD
25	--	0	--		D	112BLCF	--	--	A-10-25 22CCA
--	--	--	50	C	--	112BLCF	--	--	A-10-26 03ADA
--	--	--	--	C	--	211SDMR	18.0	160	A-10-26 05DDC
--	--	--	--	C	--	112BLCF	5.5	275	A-10-27 01CBC
--	--	--	--	--	--	112BLCF	--	--	A-10-27 14CBA
--	--	--	40	C	--	112BLCF	14.0	213	A-10-27 17DCB
--	--	--	--	C	D	211SDMR	19.0	680	A-10-27 24DDC
--	--	--	--	D	--	111ALVM	--	250	A-10-28 08ACC1
--	--	--	--	B	--	111ALVM	--	--	A-10-28 08ACC2
--	--	--	--	--	--	111ALVM	--	670	A-10-28 11BAA
20	--	--	--	C	--	230MNKP	15.5	--	A-10-28 11BBB
--	--	--	--	C	--	230MNKP	--	--	A-10-28 11BCB
--	--	--	--	C	--	111ALVM	--	--	A-10-28 11BCD1
--	--	--	--	C	--	111ALVM	--	--	A-10-28 11BCD2
--	--	--	--	--	--	112BLCF	--	--	A-10-28 18DCA
--	--	--	--	C	--	211SDMR	--	--	A-10-28 21ACA
16	--	--	--	C	D	211SDMR	--	--	A-10-28 21ACB
--	--	--	--	C	--	112BLCF	--	--	A-10-28 22DDB
--	--	--	--	--	--	112BLCF	--	--	A-10-28 26CCB
--	--	--	--	D	G	111ALVM	--	1650	A-10-29 05CBC
--	--	--	--	D	--	111ALVM	--	--	A-10-29 14DCD
--	--	--	--	D	--	111ALVM	14.0	1750	A-10-29 15BAB
--	--	--	20	C	D	111ALVM	--	--	A-10-29 25DAB
63	--	0	330	--	D	211SDMR	--	562	A-10-29 33DDC
--	--	--	--	D	G	111ALVM	--	690	A-10-30 08AAA
--	--	--	67	R	D	--	--	--	A-10-30 26CCD
--	--	--	--	--	G,1	--	--	--	A-10-30 27CAA
--	--	--	--	C	D	310KIBB	--	--	A-10-31 21DBD
--	--	--	300	C	D	211SDMR	19.0	--	A-10-31 29BBD
4	--	--	--	C	D	231CHNL	17.7	790	A-11-24 08AAC
--	--	--	--		--	111ALVM	--	500	A-11-24 18DDA
--	--	--	--	C	--	310CCNN	--	--	A-11-24 22DBC
15	--	--	--	--	--	310CCNN	16.5	458	A-11-24 28CDC

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED
A-11-24 36DAB	341825109445001	001	--	S	6	--	485	6740	282.00 R	--
A-11-25 05AAA	342314109424001	001	--	S	6	--	450	6358	425.00 R	--
A-11-25 08ABD	342217109425501	001	1957	S	6	--	170	6425	100.00 S	06/11/1957
A-11-25 08DCC	342137109430201	001	--	S	8	--	425	6422	25.00 S	06/11/1957
A-11-25 11ACA	342207109394501	001	--	S	6	--	170	6437	80.00 R	--
A-11-25 18CDD	342043109400701	001	--	H	5	--	80	6435	44.00 R	--
A-11-25 18DCC	342044109440001	001	1940	U	12	P	280	6430	26.00 S	11/17/1966
A-11-25 19AB	342030109435001	001	1959	--	8	--	380	6435	30.00 R	08/14/1959
A-11-25 19ABA	342030109435301	001	--	U	--	--	48	6440	47.00 S	06/12/1957
A-11-25 20CAB	342013109432201	001	--	--	--	--	30	6400	22.00 S	06/11/1957
A-11-25 20CBB	342010109433801	001	--	H	--	--	83	6435	53.00 S	06/12/1957
A-11-25 23CAB	342014109401401	001	--	S	--	--	--	6444	55.00 R	--
A-11-25 29BDB	341935109432301	001	--	S	--	--	125	6435	81.00 S	06/11/1957
A-11-25 30DAD	341913109434001	001	--	H	--	--	190	6483	55.00 S	06/ /1957
A-11-26 11BCC	342207109340001	001	--	S	6	--	200	6520	--	--
A-11-26 13BAC	342127109323501	001	--	S	--	--	190	6450	150.00 R	--
A-11-26 17ADC	342113109362501	001	--	H	5	--	180	6500	80.00 R	--
A-11-26 27ADB	341936109341801	001	1959	S	6	--	550	6815	520.00 R	--
A-11-26 29BBB	341946109371501	001	1960	S	8	X	385	6680	340.00 R	--
A-11-26 31BCB	341837109382001	001	1952	S	4	X	280	6620	168.00 R	--
A-11-26 31DDC	341808109373301	001	--	H	10	--	410	6660	--	--
A-11-27 12CBB	342200109262801	001	--	S	6	--	15	6275	6.00 S	01/07/1975
A-11-27 17DDA	342048109295701	001	--	S	4	--	--	6425	--	--
A-11-27 23AAA	342035109263701	001	1960	S	8	X	420	6392	392.00 S	12/20/1974
A-11-27 23CCC	341950109273601	001	1940	S	5	P	80	6385	40.00 S	12/20/1974
A-11-27 23DDC	341948109264601	001	--	S	4	P	12	6350	10.00 E	12/ /1974
A-11-27 25BD	341920109262501	001	--	S	--		--	6355	7.00 S	12/07/1956
A-11-27 28CAA	341916109291801	001	1967	S	6	--	179	6475	135.00 S	01/08/1975
A-11-27 31DBB	341826109312201	001	1955	S	6	X	410	6680	390.00 R	--
A-11-27 34CDA	341814109281601	001	1915	S	4	--	175	6490	--	--
A-11-28 05DBC	342240109240001	001	1936	H,S	6	P	80	5940	6.00 S	03/19/1975
A-11-28 09ACC1	342159109225901	001	--	U	17	P	333	5950	13.00 S	01/08/1975
A-11-28 09ACC2	342158109225901	001	--	U	17	P	345	5950	12.00 S	01/08/1975
A-11-28 09BDA	342203109230601	001	1939	I	12	--	113	5930	F	02/05/1958
A-11-28 09DAD	342148109222901	001	1960	H,I	6	X	300	5995	55.00 R	--
A-11-28 19AAD	342030109243701	001	--	S	6	P	57	6315	18.00 S	10/23/1956
A-11-28 21ABA	342036109224601	001	--	S	--		600	6092	107.00 S	12/14/1956
A-11-28 22BDA	342024109220201	001	1967	U	12	--	1684	6060	56.00 S	01/08/1975
A-11-28 29DCD	341853109234701	001	--	S	4	P	61	6320	54.00 E	12/ /1956
A-11-28 30DCC	341856109250401	001	1920	S	42	C	12	6295	9.00 S	12/07/1956
A-11-29 04BBC	342313109170301	001	1944	S	6	P	320	6305	307.00 S	03/20/1975
A-11-29 10ACA	342207109151801	001	--	S	6	--	720	6660	650.00 R	03/ /1975
A-11-29 23DDD	341948109140201	001	--	S	--	--	21	6680	14.00 S	12/14/1956
A-11-29 25BBA	341915109134501	001	--	H,S	--	--	12	6710	7.00 S	03/19/1975
A-11-29 25BBB	341915109135501	001	--	U	72	W	16	6690	11.00 S	12/ /1956
A-11-29 27ACA	341930109152401	001	1961	S	6	P	685	6600	530.00 E	01/16/1975
A-11-29 36DCC	341905109132601	001	--	S	--		890	6835	875.00 R	12/ /1956
A-11-30 03CAD	342244109092501	001	1951	S	6	P	650	6820	630.00 R	--
A-11-30 07ABC	342218109122001	001	1948	S	6	--	715	6795	600.00 R	--
A-11-30 20ACD	342014109111301	001	1955	S	6	P	710	6895	654.00 R	05/20/1975
A-11-30 35CCA	341807109084101	001	--	S	6	P	650	7041.0	620.00 R	--
A-11-31 17ACD	342110109045801	001	1948	S	6	P	660	6997	580.00 R	05/13/1976
A-11-31 31CAD	341818109061501	001	02/23/1951	S	6	--	670	7060	620.00 R	05/13/1976
A-11-31 32ACD	341833109050101	001	1963	U	10	--	830	7162	--	--
A-12-24 11CDA	342654109461401	001	1974	I,H	8	X	348	5945	200.00 R	10/ /1974
A-12-24 14DCC	342600109460501	001	1935	H,S	6	X	320	6046	280.00 S	06/13/1957
A-12-24 17CCC	342557109494101	001	1975	--	6	X	90	6480	D	--
A-12-24 26DD	342420109454001	001	--	U	6	--	320	6600	--	--
A-12-25 03AAB	342831109404801	001	1950	S	6	X	260	5885	168.00 S	08/22/1956
A-12-25 04CDA	342750109422001	001	1948	S	6	--	290	5907	250.00 R	--
A-12-25 14DBD	342616109395401	001	--	S	6	--	325	6115	234.00 S	08/22/1956
A-12-25 16CCC	342558109423201	001	1947	S	--	--	550	6274	425.00 R	--
A-12-25 18CCC1	342600109442801	001	1930	U	60	W	90	6090	57.00 S	01/04/1934
A-12-25 18CCC2	342600109442901	001	1955	S	6	P	357	6093	245.00 S	06/12/1957
A-12-25 28CDC	342410109421901	001	--	U	96	--	12	6334	8.00 S	01/04/1934
A-12-25 34CAB	342339109411101	001	--	S	24	--	28	6329	7.00 S	01/22/1975
A-12-26 02BDA	342817109333601	001	--	S	6	--	100	6295	80.00 R	--
A-12-26 04BBB	342833109361801	001	--	T	6	--	230	5930	--	--
A-12-26 04BBC	342829109362001	001	1965	H	8	P	222	5940	38.00 R	03/ /1965
A-12-26 04BBD	342828109360901	001	1938	H	6	--	200	5940	24.00 R	1958
A-12-26 05DCB	342759109365201	001	1965	H	6	P	165	6025	95.00 R	07/09/1965
A-12-26 08AAC	342738109363401	001	--	S	--		275	6030	F	01/22/1975
A-12-26 13DCD	342555109321601	001	1950	U	6	X	300	5970	40.00 R	1958
A-12-26 15BCC	342624109350401	001	--	H,S	5	--	60	6159	8.00 S	05/02/1957
A-12-26 18CBB	342623109382901	001	1970	P	9	X	875	6390	545.00 R	09/12/1970
A-12-26 18DCC1	342601109375701	001	1967	U	2	X	777	6300	414.00 S	12/07/1967
A-12-26 18DCC2	342559109375701	001	1968	P	12	X	903	6300	423.00 A	06/08/1968
A-12-26 20CCC	342510109371501	001	1937	S	6	--	40	6320	21.00 S	04/03/1957
A-12-26 27CBB1	342429109350201	001	1952	S	6	X	100	6300	16.00 S	01/15/1975
A-12-26 27CBB2	342429109350101	001	--	U	--		100	6300	10.00 S	04/03/1957

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UHMOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	--	--	D	211SDMR	18.2	607	A-11-24 36DAB
--	--	--	--	--	D	310CCNN	15.5	202	A-11-25 05AAA
--	--	--	--	C	--	211SDMR	15.5	190	A-11-25 08ABD
--	--	--	--	--	--	211SDMR	12.0	1430	A-11-25 08DCC
--	--	--	--	--	--	211SDMR	--	230	A-11-25 11ACA
--	--	--	--	--	--	211SDMR	15.5	690	A-11-25 18CDD
1000	--	5	--	C	D	211SDMR	14.5	522	A-11-25 18DCC
30	--	0	--	--	--	211SDMR	--	725	A-11-25 19AB
--	--	--	--	--	--	111ALVM	--	--	A-11-25 19ABA
--	--	--	--	--	--	111ALVM	--	--	A-11-25 20CAB
--	--	--	--	--	--	211SDMR	--	--	A-11-25 20CBB
--	--	--	--	--	--	112BLCF	--	257	A-11-25 23CAB
--	--	--	--	--	--	211SDMR	13.8	550	A-11-25 29BDB
--	--	--	--	--	--	211SDMR	--	--	A-11-25 30DAD
--	--	--	--	--	--	112BLCF	--	--	A-11-26 11BCC
--	--	--	--	--	--	112BLCF	--	--	A-11-26 13BAC
--	--	--	--	--	--	112BLCF	--	225	A-11-26 17ADC
--	--	--	--	--	D	231CHNL	--	--	A-11-26 27ADB
--	--	--	300	C	--	211SDMR	--	190	A-11-26 29BBB
--	--	--	20	C	--	112BLCF	19.0	180	A-11-26 31BCB
350	--	--	--	--	--	211SDMR	--	257	A-11-26 31DDC
--	--	--	--	D	--	121BDHC	7.0	380	A-11-27 12CBB
--	--	--	--	--	--	112BLCF	--	--	A-11-27 17DDA
--	--	--	317	C	D	310CCNN	--	1450	A-11-27 23AAA
--	--	--	--	C	--	112BLCF	11.5	250	A-11-27 23CCC
--	--	--	10	B	--	111ALVM	--	--	A-11-27 23DDC
--	--	--	--		--	111ALVM	--	--	A-11-27 25BD
--	--	--	--	C	D	112BLCF	--	--	A-11-27 28CAA
--	--	--	20	C	D	211SDMR	--	--	A-11-27 31DBB
--	--	--	--	--	--	112BLCF	--	--	A-11-27 34CDA
--	--	--	--	C	--	230MNKP	15.0	1300	A-11-28 05DBC
830	--	116	--	C	G	310KIBB	--	--	A-11-28 09ACC1
680	--	113	--	C	G	310KIBB	16.6	2610	A-11-28 09ACC2
--	--	--	--	C	D	310KIBB	17.0	2000	A-11-28 09BDA
22	--	150	240	C	--	310KIBB	--	2420	A-11-28 09DAD
--	--	--	--	C	--	121BDHC	--	--	A-11-28 19AAD
--	--	--	--		--	310CCNN	--	1300	A-11-28 21ABA
--	--	--	--	--	N	310CCNN	--	--	A-11-28 22BDA
5	--	--	--	C	--	121BDHC	--	--	A-11-28 29DCD
--	--	--	10	D	--	121BDHC	--	--	A-11-28 30DCC
10	--	--	--	C	D	310KIBB	--	--	A-11-29 04BBC
--	--	--	--	C	--	310KIBB	--	--	A-11-29 10ACA
--	--	--	--	D	--	111ALVM	14.5	875	A-11-29 23DDD
--	--	--	--	D	G	111ALVM	--	--	A-11-29 25BBA
--	--	--	--	D	G	111ALVM	--	--	A-11-29 25BBB
--	--	--	625	C	D	310CCNN	--	3500	A-11-29 27ACA
--	--	--	--		--	310SUPI	--	--	A-11-29 36DCC
--	--	--	--	C	D	310KIBB	--	2900	A-11-30 03CAD
--	--	--	--	C	D	310CCNN	--	3300	A-11-30 07ABC
--	--	--	--	C	D	310CCNN	19.0	3800	A-11-30 20ACD
--	--	--	--	C	--	310KIBB	--	3400	A-11-30 35CCA
--	--	--	--	C	D	310KIBB	--	3300	A-11-31 17ACD
--	--	--	--	--	D	310KIBB	16.0	3000	A-11-31 31CAD
--	--	--	--	C	G	--	--	--	A-11-31 32ACD
--	--	--	275	C	--	310CCNN	16.0	460	A-12-24 11CDA
--	--	--	180	C	D	310CCNN	18.2	269	A-12-24 14DCC
--	--	--	5	C	--	231CHNL	--	--	A-12-24 17CCC
--	--	--	--	--	--	231CHNL	19.0	741	A-12-24 26DD
--	--	--	200	C	D	310CCNN	--	240	A-12-25 03AAB
--	--	--	--	C	D	310CCNN	15.0	250	A-12-25 04CDA
--	--	--	--	--	--	310CCNN	16.5	356	A-12-25 14DBD
--	--	--	--	--	D	310CCNN	--	--	A-12-25 16CCC
--	--	--	--	D	G	231CHNL	--	--	A-12-25 18CCC1
--	--	--	315	C	D	310CCNN	60.0	442	A-12-25 18CCC2
100	--	--	--	--	--	111ALVM	--	--	A-12-25 28CDC
--	--	--	--	--	--	111ALVM	--	673	A-12-25 34CAB
15	--	--	80	--	D	112BLCF	--	--	A-12-26 02BDA
--	--	--	--	--	--	310CCNN	--	--	A-12-26 04BBB
--	--	--	182	C	D	310CCNN	13.0	394	A-12-26 04BBC
--	--	--	--	--	--	310CCNN	--	--	A-12-26 04BBD
--	--	--	125	C	D	230MNKP	--	--	A-12-26 05DCB
8	--	--	--		D	231CHNL	--	--	A-12-26 08AAC
--	--	--	--	C	D	310CCNN	16.5	1090	A-12-26 13DCD
4	--	--	20		--	111ALVM	16.6	375	A-12-26 15BCC
--	--	--	793	C	D	310CCNN	--	386	A-12-26 18CBB
--	--	--	750	H	D,E	310KIBB	--	--	A-12-26 18DCC1
605	06/08/1968	59	833	H	D,G	310CCNN	18.0	495	A-12-26 18DCC2
--	--	--	--	C	--	112BLCF	15.5	215	A-12-26 20CCC
--	--	--	20	C	--	112BLCF	--	355	A-12-26 27CBB1
--	--	--	--		--	112BLCF	--	285	A-12-26 27CBB2

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-12-27 14CBD1	342609109272801	001	--	S	8.62	P	10	6020	4.00	S	01/07/1975
A-12-27 19BCD	342528109314201	001	1957	U	16	X	630	5980	45.00	S	02/29/1960
A-12-27 23CBD	342519109273101	001	1972	H	8	P	420	6150	230.00	R	01/ /1975
A-12-27 23CDC	342503109271901	001	1972	H	6	P	100	6145	90.00	R	07/ /1972
A-12-27 23DBD	342522109265701	001	1973	H	8	X	400	6130	100.00	R	01/ /1975
A-12-27 26BAB1	342500109271701	001	--	S	6	P	242	6148	76.00	S	01/07/1975
A-12-27 26BAB2	342500109271601	001	--	U	6	P	90	6148	62.00	S	12/07/1956
A-12-27 35CDA	342324109271602	001	1962	S	6	P	385	6240	301.00	S	01/07/1975
A-12-27 35CDB	342324109271701	001	--	S	6	P	90	6245	80.00	R	01/ /1975
A-12-27S02BBA	342830109273201	001	1970	U	6	P	160	5855	46.00	S	02/06/1975
A-12-28 07CDA	342655109251001	001	--	S	--		75	5925	64.00	R	03/21/1975
A-12-28 07CDB	342700109251201	001	04/ /1956	I	10	X	720	5925	38.80		05/18/1956
A-12-28 07DBD	342703109242001	001	1939	S,H,I	8	--	328	5885		F	09/18/1956
A-12-28 07DCD	342651109244701	001	--	U	--	--	13	5880	11.00	S	12/06/1956
A-12-28 09A	342730109223001	001	--	U	--	--	16	5913	7.00	S	12/11/1956
A-12-28 12BDA	342727109195201	001	--	S	36	U	20	5850	8.00	S	03/20/1975
A-12-28 17CCB	342602109243401	001	--	U	48	W	18	5855	13.00	S	02/26/1975
A-12-28 17CCC	342601109243401	001	--	H	36	W	17	5855	14.00	S	02/26/1975
A-12-28 18BAA	342642109251001	001	--	U	--		50	5967	16.00	S	12/05/1956
A-12-28 18BAB	342645109251401	001	--	S	--	P	80	5925	48.00	S	12/06/1956
A-12-28 18CAD	342608109250301	001	--	U	--		11	5920	7.00	S	12/05/1956
A-12-28 18DBC	342613109250101	001	1960	H	6	P	250	5920	75.00	R	02/26/1975
A-12-28 18DDB	342602109243801	001	--	S,H	48	U	23	5870	20.00	S	12/06/1956
A-12-28 18DDC1	342600109244201	001	--	H	48	W	19	5875	16.00	S	02/26/1975
A-12-28 18DDC2	342600109244001	001	--	U	48	W	24	5870	20.00	S	12/06/1956
A-12-28 19AAB1	342553109244001	001	--	H	36	W	20	5875	13.00	S	12/06/1956
A-12-28 19AAB2	342553109243701	001	--	U	36	W	20	5870	15.00	S	02/26/1975
A-12-28 19ABC	342547109250101	001	1970	H	--	W	16	5920	12.00	R	03/ /1975
A-12-28 19BAD	342548109250301	001	1974	I	8	P	650	5925	25.00	R	03/ /1975
A-12-28 30DBA	342431109244601	001	--	U	--		--	5930		F	12/07/1956
A-12-28 30DDC	342416119244301	001	1956	H	96	C	18	5920	7.00	S	12/07/1956
A-12-28N02CBD	342856109211501	001	1962	H	--		--	5760	37.00	S	03/18/1975
A-12-28N04BAD	342844109230501	001	--	U	--		56	5840	53.00	S	12/06/1956
A-12-28S04CAC	342758109231001	001	--	H,S	--		--	5880	75.00	S	12/06/1956
A-12-28S04CCC	342742109233201	001	--	S	--		--	5915	166.00	S	12/06/1956
A-12-28S05BBA	342830109242301	001	--	U	--		400	6002	310.00	S	02/06/1975
A-12-29 10ACA	342728109152201	001	1953	S	6		227	6221	210.00	R	01/ /1953
A-12-29 20AAC	342547109171801	001	--	S	--		100	6066	30.00	S	12/12/1956
A-12-29 25DCD	342413109131901	001	--	H,S	--	--	49	6595	46.00	S	12/14/1956
A-12-29 31BDC1	342348109185101	001	--	U	--	W	15	6220	12.00	S	12/11/1956
A-12-29 31BDC2	342348109185001	001	1946	S	6	P	250	6220	32.00	R	07/ /1946
A-12-29 35BAB	342408109141001	001	--	S	--		550	6562	511.00		05/21/1975
A-12-30 08DBA	342704109112101	001	--	S	--		180	6492	160.00	R	03/ /1975
A-12-30 08DBD	342703109112101	001	--	S	6	P	200	6495	177.00	S	03/20/1975
A-12-30 13ACA	342633109070601	001	--	S	--		500	6550	396.00	R	09/12/1975
A-12-30 27ABA	342500109091101	001	1956	S	6	--	680	6700	642.00	R	08/ /1956
A-12-31 08DBB	342708109051001	001	--	U	--	--	50	6285	49.00	S	07/16/1957
A-12-31 08DBC	342707109050501	001	--	S	6	P	280	6280	67.00	S	03/20/1975
A-12-31 09BAC	342733109042201	001	1959	U	9	--	585	6258	--		--
A-13-24 09DCC	343156109484301	001	--	S	--	--	--	5670	14.00	S	08/17/1956
A-13-24 12ACB	343228109453501	001	1967	S	6	--	350	5640	140.00	R	--
A-13-24 19ACD	343038109502601	001	--	S	--	--	200	5850	--		--
A-13-24 22BBD	343048109475401	001	--	S	--	--	--	5740	144.00	S	08/17/1956
A-13-24 26DCC	342922109461001	001	--	S	--	--	130	5770	120.00	R	--
A-13-25 04CCA	343302109425001	001	1947	I	12	X	571	5595	40.00	R	08/20/1956
A-13-25 07DCD	343200109441701	001	--	--	--		--	5640	79.00	S	08/20/1956
A-13-25 08DBC	343215109431501	001	--	--	--		--	5680	--		--
A-13-26 06DCB	343302109372001	001	1974	U	12	X	447	5640	89.00	R	06/ /1974
A-13-26 07BAD	343248109372501	001	1974	N	20	P	675	5650	98.00	R	06/ /1974
A-13-26 12DDA	343226109313101	001	--	S	6	--	75	6105	36.47	S	04/15/1976
A-13-26 26AAD	343025109323301	001	--	S	--	--	90	6100	--		--
A-13-26 29BCA	343008109363901	001	1968	P	16	X	300	5835	--		--
A-13-26 32CDD	342843109362201	001	--	H	5	--	140	5920	--		--
A-13-27 03BBA	343401109281901	001	1953	S	6	P	216	5680	113.00	S	02/24/1975
A-13-27 06ADA	343351109303001	001	--	S	--		--	5920	112.00	S	02/24/1975
A-13-27 09CAD	343240109285501	001	1960	S	6	--	265	5780	221.00	S	02/25/1975
A-13-27 15BDA	343204109275201	001	1975	N	20	P	820	5840	260.00	S	02/14/1975
A-13-27 15BDC	343200109275801	001	1975	U	6	X	574	5845	269.00	S	02/11/1975
A-13-27 15BDD	343202109275201	001	1974	U	12	X	740	5840	259.00	R	05/ /1974
A-13-27 21BCC	343103109292001	001	1940	S	6	P	400	5900	250.00	R	02/ /1975
A-13-27 25ACD	343019109253001	001	1975	H	6	P	175	5780	165.00	R	04/ /1975
A-13-27 25ADC	343018109252201	001	1974	H	6	P	155	5800	104.00	S	02/07/1975
A-13-27 25BAC	343032109255101	001	1974	H	6	P	140	5750	36.00	R	02/ /1975
A-13-27 25BBD	343027109255801	001	1974	H	6	P	125	5730	37.00	S	01/06/1975
A-13-27 25DBB	343011109251501	001	1974	H	6	P	185	5790	155.00	R	12/ /1974
A-13-27 25DCC	342949109253301	001	1975	H,S	6	P	182	5830	164.00	S	02/07/1975
A-13-27 26AAC	343025109262501	001	1924	H,I,S	6	X	190	5730	30.00	R	05/ /1957
A-13-27 26CCD	342947109270101	001	1974	H	6	P	155	5740	55.00	S	02/07/1975
A-13-27 27BBC	343026109281501	001	1959	U	8	--	400	5920	256.00	R	05/ /1959
A-13-27 28ABC	343027109284201	001	1939	U	10	X	685	6000	342.00	S	03/17/1975

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UHMOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	--	D	--	111ALVM	--	1400	A-12-27 14CBD1
400	--	52	180	C	D	310CCNN	15.5	5210	A-12-27 19BCD
40	--	0	--	C	D	310KIBB	--	--	A-12-27 23CBD
--	--	--	80	C	--	121BDHC	--	--	A-12-27 23CDC
8	--	--	169	C	D	310KIBB	--	--	A-12-27 23DBD
--	--	--	--	C	--	121BDHC	16.5	480	A-12-27 26BAB1
--	--	--	--	C	--	121BDHC	--	--	A-12-27 26BAB2
3 E	--	--	--	C	D	231CHNL	19.0	870	A-12-27 35CDA
--	--	--	--	--	--	121BDHC	14.0	540	A-12-27 35CDB
30	--	--	--	C	--	230MNKP	--	--	A-12-27S02BBA
--	--	--	--		--	231CHNL	17.0	3000	A-12-28 07CDA
1809 R	07/14/1956	56	710	C	--	310CCNN	18.0	3190	A-12-28 07CDB
400	--	36	--	--	D	310KIBB	14.0	2900	A-12-28 07DBD
--	--	--	--	--	--	111ALVM	--	--	A-12-28 07DCD
--	--	--	--	--	--	111ALVM	--	--	A-12-28 09A
--	--	--	--	D	--	111ALVM	12.0	710	A-12-28 12BDA
--	--	--	--	D	--	111ALVM	--	--	A-12-28 17CCB
--	--	--	--	D	G	111ALVM	13.0	1500	A-12-28 17CCC
--	--	--	--		--	111ALVM	14.5	1670	A-12-28 18BAA
--	--	--	--	C	--	111ALVM	13.5	2800	A-12-28 18BAB
--	--	--	--		--	111ALVM	--	--	A-12-28 18CAD
--	--	--	--	C	--	231CHNL	--	1350	A-12-28 18DBC
--	--	--	--	D	--	111ALVM	--	--	A-12-28 18DDB
--	--	--	--	D	G	111ALVM	8.5	1300	A-12-28 18DDC1
--	--	--	--	D	--	111ALVM	12.7	--	A-12-28 18DDC2
--	--	--	--	D	--	111ALVM	--	--	A-12-28 19AAB1
--	--	--	--	D	--	111ALVM	--	--	A-12-28 19AAB2
--	--	--	--	D	G	111ALVM	--	--	A-12-28 19ABC
100	--	--	--	C	--	310CCNN	15.0	3500	A-12-28 19BAD
1 F	12/07/1956	--	--		D	310KIBB	15.0	3000	A-12-28 30DBA
--	--	--	--	D	--	111ALVM	--	--	A-12-28 30DDC
--	--	--	--		--	310KIBB	--	--	A-12-28N02CBD
--	--	--	--		--	231CHNL	--	--	A-12-28N04BAD
--	--	--	--		--	231CHNL	--	--	A-12-28S04CAC
--	--	--	--		--	231CHNL	--	--	A-12-28S04CCC
--	--	--	--		D	310KIBB	--	--	A-12-28S05BBA
30	--	--	--	C	D	310KIBB	--	3500	A-12-29 10ACA
--	--	--	--		--	231CHNL	--	--	A-12-29 20AAC
--	--	--	--	D	G	111ALVM	13.0	380	A-12-29 25DCD
--	--	--	--	D	G	111ALVM	15.0	--	A-12-29 31BDC1
--	--	--	--	B	D	310KIBB	15.5	3700	A-12-29 31BDC2
--	--	--	--		G	310CCNN	--	3700	A-12-29 35BAB
--	--	--	--		--	121BDHC	--	--	A-12-30 08DBA
--	--	--	--	C	--	121BDHC	--	430	A-12-30 08DBD
--	--	--	--		--	310KIBB	--	2870	A-12-30 13ACA
8	--	--	--	--	D	310CCNN	--	3300	A-12-30 27ABA
--	--	--	--	--	--	111ALVM	20.5	--	A-12-31 08DBB
--	--	--	--	C	D	231SRMP	17.0	3000	A-12-31 08DBC
--	--	--	--	--	G	--	--	--	A-12-31 09BAC
--	--	--	--	--	--	111ALVM	16.0	--	A-13-24 09DCC
20	--	--	320	--	D	310CCNN	--	--	A-13-24 12ACB
--	--	--	--	--	--	310CCNN	16.0	--	A-13-24 19ACD
--	--	--	--	--	--	310CCNN	16.0	500	A-13-24 22BBD
--	--	--	--	--	--	310CCNN	--	--	A-13-24 26DCC
800	--	--	--	C	D	310CCNN	16.5	365	A-13-25 04CCA
--	--	--	--		--	310CCNN	--	--	A-13-25 07DCD
--	--	--	--		--	310CCNN	--	--	A-13-25 08DBC
225	--	15	74	A	G	310CCNN	16.5	390	A-13-26 06DCB
2500	--	235	156	--	G	310CCNN	--	--	A-13-26 07BAD
--	--	--	--	--	--	112BLCF	--	--	A-13-26 12DDA
--	--	--	--	--	--	112BLCF	--	--	A-13-26 26AAD
800	--	--	190	C	--	310CCNN	--	--	A-13-26 29BCA
--	--	--	--	--	--	310KIBB	--	--	A-13-26 32CDD
16	--	0	--		D	310KIBB	--	1550	A-13-27 03BBA
--	--	--	--		--	230MNKP	--	--	A-13-27 06ADA
--	--	--	--	--	--	230MNKP	--	1600	A-13-27 09CAD
2500	--	240	420	C	G	310CCNN	21.0	2500	A-13-27 15BDA
--	--	--	285	A	G	310CCNN	--	--	A-13-27 15BDC
444	--	13	331	--	G	310CCNN	18.0	1900	A-13-27 15BDD
--	--	--	--	C	--	310KIBB	--	--	A-13-27 21BCC
25	--	--	155	C	D	230MNKP	--	--	A-13-27 25ACD
6	--	--	135	C	D	230MNKP	--	--	A-13-27 25ADC
15	--	30	110	C	D	230MNKP	--	--	A-13-27 25BAC
20	--	28	105	C	D	230MNKP	14.0	1610	A-13-27 25BBD
--	--	--	165	C	D	230MNKP	--	--	A-13-27 25DBB
--	--	--	--	C	D	310KIBB	15.5	1800	A-13-27 25DCC
13	--	--	40	C	--	310KIBB	12.0	1400	A-13-27 26AAC
20	--	--	135	C	D	230MNKP	--	--	A-13-27 26CCD
--	--	--	--	C	D	310KIBB	18.2	2350	A-13-27 27BBC
--	--	--	--	C	G,D	310CCNN	--	--	A-13-27 28ABC

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-13-27 31ABC	342932109305201	001	1945	S	6	--	80	6152	28.00	S	01/16/1975
A-13-27 34ABA	342938109273201	001	--	U	--	--	120	5780	79.00	S	02/06/1975
A-13-28 05DDB	343326109232401	001	--	S	--	--	30	5600	9.00	S	02/14/1975
A-13-28 06DDD	343320109241901	001	09/14/1961	S	6	--	740	5670	92.00	S	02/14/1975
A-13-28 12CAC	343245109193001	001	1974	U	12	X	967	5755	101.00	S	10/01/1974
A-13-28 16DAD	343153109220101	001	--	U	--		40	5680	3.00	S	03/18/1975
A-13-28 17ACA	343207109232401	001	1950	H,S	6	P	65	5690	57.00	S	12/19/1956
A-13-28 17ACC	343202109232401	001	1965	I,S	8	P	68	5695	60.00	R	02/ /1975
A-13-28 17CBB	343157109240201	001	1939	H,S	6	P	65	5735	30.00	R	12/ /1956
A-13-28 17CCD1	343135109234901	001	1955	U	6	P	230	5750	40.00	S	02/25/1975
A-13-28 17CCD2	343136109234801	001	1965	H	48	W	40	5750	36.00	R	02/ /1975
A-13-28 17DBA	343158109232401	001	1974	U	6	P	70	5695	45.00	S	02/25/1975
A-13-28 18ADD	343200109240501	001	1939	U	6	P	55	5735	33.00	S	12/19/1956
A-13-28 18DAA	343155109240501	001	--	H,S	--		332	5740	120.00	R	12/ /1956
A-13-28 18DBC	343151109243401	001	--	S	--		200	5800	58.00	S	12/19/1956
A-13-28 19CAA	343104109243801	001	1946	U	10	X	952	5850	164.00	S	02/25/1975
A-13-28 19DCC	343043109242801	001	--	S	--		500	5840	72.00	S	02/12/1975
A-13-28 19DDC	343043109241301	001	--	S	--		65	5820	47.00	S	02/12/1975
A-13-28 20ABD	343123109231801	001	1940	H	8	P	60	5725	35.20	S	02/25/1975
A-13-28 20BBA	343131109234801	001	--	S	--	P	90	5750	31.00	S	12/18/1956
A-13-28 20CAC	343057109234301	001	1961	S	6	P	60	5765	24.00	S	02/25/1975
A-13-28 20DBC	343057109232501	001	1945	H	6	P	165	5740	40.00	R	02/ /1975
A-13-28 20DDD	343043109230501	001	--	H	--		65	5730	30.00	R	02/ /1975
A-13-28 21CDD	343044109223601	001	--	I,S	--		100	5720	47.00	S	03/21/1975
A-13-28 24DBC	343052109191801	001	1958	S	8	P	180	5750	4.00	S	03/18/1975
A-13-28 26ACD	343027109201101	001	--	S	--		180	5720		F	03/18/1975
A-13-28 27BAD	343034109212701	001	--	I,S	--		565	5680		F	12/14/1956
A-13-28 27BCB	343028109215501	001	--	--	--		225	5700	20.00	R	02/ /1961
A-13-28 27BDC	343020109214001	001	1915	I	6	--	162	5670	2.00	S	06/07/1944
A-13-28 28BCB	343027109230001	001	--	S	--	--	90	5720	20.00		02/26/1975
A-13-28 28CCD	342950109224701	001	--	I	--	--	250	5760	35.00	S	12/06/1956
A-13-28 28DAD	343010109215201	001	1952	R,I	8	--	85	5700	33.00	S	03/18/1975
A-13-28 29AAD	343017109230301	001	--	S	--	--	178	5740	38.00	R	12/ /1956
A-13-28 29ABD1	343030109231901	001	--	U	--	--	98	5760	66.00	S	12/19/1956
A-13-28 29ABD2	343034109232401	001	--	S	--	--	--	5750	42.00	S	02/07/1975
A-13-28 29BCD	343015109234801	001	--	H,S	--	--	47	5800	12.00	S	06/07/1944
A-13-28 30BDA	343026109243701	001	--	U	--	--	--	5920	191.00	S	02/14/1975
A-13-28 32CBA	342923109235601	001	--	U	--	P	287	5860	140.00	R	12/ /1956
A-13-28 33ABA	342914109221301	001	--	U	--	--	125	5760	--		--
A-13-28 33ACC	342925109222201	001	1941	H,S	6	P	68	5770	43.00	R	06/ /1946
A-13-28 33BAA	342949109223001	001	--	I	--		--	5740	48.00	S	12/06/1956
A-13-29 32DDC	342904109165201	001	--	S	6.25	P	190	5963		F	12/12/1956
A-13-29 35AAA	342946109133501	001	1957	S	6	P	327	6176	212.00	R	02/ /1957
A-13-30 03BCD1	343356109090301	001	1950	--	6	--	855	5878		F	09/21/1955
A-13-30 03BCD2	343356109090302	001	10/20/1960	S	16	X	863	5878	3.30	S	05/21/1975
A-13-30 05DCA	343331109103801	001	10/10/1961	I,S	12	P	665	5805		F	10/10/1961
A-13-30 28ADC	343048109092801	001	1949	S	4	--	60	5913	9.00		09/12/1955
A-13-31 30DCD	342957109052701	001	1946	S	8	P	270	6075	59.00	S	03/20/1975
A-14-24 04DDA	343807109480601	001	--	I	10	--	325	5350		F	08/17/1956
A-14-24 06ABC	343840109502501	001	--	H	6	--	300	5365	--		--
A-14-24 06BDB	343837109504301	001	1967	I	12	X	454	5380	27.00	S	03/22/1972
A-14-24 10BBA	343753109475001	001	--	I	12	--	365	5355		F	08/17/1956
A-14-24 10BBB	343758109475701	001	--	H	6	--	323	5360		F	08/17/1956
A-14-24 12CAC	343726109453901	001	--	I	12	--	400	5385	40.00	R	08/10/1956
A-14-24 29DCC	343432109500401	001	--	S	--	--	335	5640	180.00	R	08/17/1956
A-14-24 34ADB	343417109474301	001	--	--	--	--	--	5600	--		--
A-14-25 01ABD	343846109384301	001	--	I	14	--	--	5420	--		--
A-14-25 04ABD	343848109414801	001	1940	U	6	--	200	5430	15.00	S	03/09/1955
A-14-25 10ADC	343742109403701	001	--	S	8	--	260	5435	6.00	S	03/09/1955
A-14-25 14CCD	343623109403201	001	1945	S	8	X	350	5600	172.00	S	03/05/1975
A-14-25 18BDB	343657109443501	001	1965	--	--	--	2610	5500	--		--
A-14-25E12CDD1	343717109385801	001	--	I	--	--	375	5430	1.00	R	--
A-14-25E12CDD2	343716109385702	001	1961	I	16	X	452	5430	13.15	R	07/30/1953
A-14-25E13BAC	343703109390301	001	--	H	--		375	5435	10.00	R	10/14/1956
A-14-25E13BBC	343703109392101	001	1954	H	12	X	380	5445	30.00	E	10/14/1956
A-14-25E13DAD	343640109383001	001	1956	I	8	X	400	5440	32.00	S	08/14/1956
A-14-25W12CCD	343716109393101	001	1938	I	12	X	400	5440	17.00	R	10/ /1956
A-14-25W12CDD	343716109391101	001	1946	I	10	X	318	5430	29.00	S	03/03/1975
A-14-26 02DDD	343824109324901	001	--	S	8	--	--	5540	72.00	S	03/17/1975
A-14-26 03CBC	343837109344701	001	--	S	8	--	--	5450	36.00	S	03/17/1975
A-14-26 19ADA	343608109371001	001	1955	I	--	--	425	5480	20.32	S	03/09/1955
A-14-26 19BDD	343602109375701	001	1963	P	14	P	468	5480	54.00	R	08/24/1960
A-14-26 20ACC	343603109362501	001	--	S	6.50	--	40	5480	--		--
A-14-26 21BCC	343601109355801	001	1950	I,S	12	X	345	5475	12.00	S	03/09/1955
A-14-26 27CAC	343503109343501	001	--	H	--		500	5510	30.00	R	09/05/1956
A-14-26 27DCB	343455109342201	001	--	I	12	--	380	5510	8.00	R	09/05/1956
A-14-26 34ACB	343430109342001	001	--	I	12	--	507	5510	3.00	S	01/29/1959
A-14-26 34DBB	343420109342201	001	1963	I	16	P	665	5510	10.00	R	--
A-14-26 36DCA	343415109315101	001	--	S	--		--	5710	26.00	S	02/24/1975
A-14-26E18DCC	343626109373101	001	--	I	--		320	5460	--		--

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UHMOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	--	C	--	112BLCF	--	654	A-13-27 31ABC
--	--	--	--		--	230MNKP	--	--	A-13-27 34ABA
--	--	--	--		G	111ALVM	13.5	2900	A-13-28 05DDB
--	--	--	--	C	D	310CCNN	16.0	3500	A-13-28 06DDD
390	--	118	590	A	G	310CCNN	21.0	3300	A-13-28 12CAC
--	--	--	--		--	111ALVM	--	--	A-13-28 16DAD
12	--	--	--	C	--	121BDHC	12.0	1700	A-13-28 17ACA
16	--	5	--	C	--	121BDHC	--	--	A-13-28 17ACC
2	--	--	37	C	--	121BDHC	--	--	A-13-28 17CBB
--	--	--	210	C	--	231CHNL	--	--	A-13-28 17CCD1
--	--	--	--	D	--	121BDHC	--	--	A-13-28 17CCD2
--	--	--	--	C	--	121BDHC	--	--	A-13-28 17DBA
12	--	--	35	C	D	121BDHC	--	--	A-13-28 18ADD
50	--	--	--	[illegible]	--	310KIBB	--	2400	A-13-28 18DAA
--	--	--	--		--	231CHNL	--	1580	A-13-28 18DBC
--	--	--	--	C	D	310CCNN	--	--	A-13-28 19CAA
--	--	--	--	[illegible]	--	230MNKP	16.0	1200	A-13-28 19DCC
--	--	--	--	[illegible]	--	121BDHC	--	--	A-13-28 19DDC
--	--	--	--	C	--	121BDHC	13.5	1600	A-13-28 20ABD
--	--	--	--		--	121BDHC	--	1350	A-13-28 20BBA
--	--	--	--	C	--	121BDHC	--	--	A-13-28 20CAC
--	--	--	--	C	--	231CHNL	--	2500	A-13-28 20DBC
--	--	--	--		--	121BDHC	--	--	A-13-28 20DDD
--	--	--	--		--	121BDHC	--	--	A-13-28 21CDD
--	--	--	--	C	--	310KIBB	--	--	A-13-28 24DBC
--	--	--	--		--	310KIBB	15.0	2600	A-13-28 26ACD
20	--	--	--		D	310KIBB	15.5	3300	A-13-28 27BAD
--	--	--	--		--	310KIBB	--	--	A-13-28 27BCB
--	--	--	--	C	--	310KIBB	18.8	2640	A-13-28 27BDC
--	--	--	--		--	121BDHC	--	--	A-13-28 28BCB
50	--	--	--		G	310KIBB	16.0	3000	A-13-28 28CCD
--	--	--	--	--	D	310KIBB	15.0	3500	A-13-28 28DAD
--	--	--	--	--	G	231CHNL	--	4350	A-13-28 29AAD
--	--	--	--	--	--	231CHNL	--	--	A-13-28 29ABD1
--	--	--	--	--	--	231CHNL	--	--	A-13-28 29ABD2
--	--	--	--	--	G	121BDHC	15.0	1880	A-13-28 29BCD
--	--	--	--	--	--	230MNKP	--	--	A-13-28 30BDA
--	--	--	--	C	--	230MNKP	--	--	A-13-28 32CBA
--	--	--	--	[illegible]	--	121BDHC	--	--	A-13-28 33ABA
--	--	--	--	C	--	121BDHC	--	--	A-13-28 33ACC
--	--	--	--	C	--	121BDHC	--	--	A-13-28 33BAA
2	--	--	--	C	D	310KIBB	--	1380	A-13-29 32DDC
8	--	63	210	C	D	310KIBB	17.0	3800	A-13-29 35AAA
--	--	--	--	H	D	310CCNN	--	--	A-13-30 03BCD1
--	--	--	421	--	D	310CCNN	--	1300	A-13-30 03BCD2
1200 F F	10/10/1961	--	--	C	D	310CCNN	--	1240	A-13-30 05DCA
--	--	--	--	H	D	120SDMR	16.5	--	A-13-30 28ADC
--	--	--	--	C	--	310KIBB	--	1800	A-13-31 30DCD
--	--	--	--	--	--	310CCNN	15.5	618	A-14-24 04DDA
--	--	--	--	--	--	310CCNN	--	730	A-14-24 06ABC
350	--	--	300	C	--	310CCNN	--	--	A-14-24 06BDB
--	--	--	--	--	--	310CCNN	--	--	A-14-24 10BBA
--	--	--	--	--	--	310CCNN	--	710	A-14-24 10BBB
--	--	--	--	--	G	310CCNN	17.7	572	A-14-24 12CAC
--	--	--	--	--	--	310CCNN	18.5	600	A-14-24 29DCC
--	--	--	--	--	--	310CCNN	--	--	A-14-24 34ADB
--	--	--	--	--	--	310CCNN	16.5	3000	A-14-25 01ABD
--	--	--	--	--	--	310KIBB	--	--	A-14-25 04ABD
500	--	--	--	--	--	310CCNN	--	--	A-14-25 10ADC
--	--	--	--	C	--	310KIBB	--	732	A-14-25 14CCD
--	--	--	--	--	J	--	--	--	A-14-25 18BDB
300	--	--	--	--	--	310CCNN	--	--	A-14-25E12CDD1
--	--	--	100	B	D	310CCNN	17.0	1960	A-14-25E12CDD2
350	--	--	--	B	--	310CCNN	--	--	A-14-25E13BAC
900	--	15	--	C	--	310CCNN	17.1	1160	A-14-25E13BBC
--	--	--	--	C	--	310CCNN	16.0	1460	A-14-25E13DAD
750	--	--	110	C	--	310CCNN	--	--	A-14-25W12CCD
--	--	--	--	C	D	310CCNN	--	--	A-14-25W12CDD
--	--	--	--	--	--	310KIBB	16.0	4500	A-14-26 02DDD
--	--	--	--	--	--	310KIBB	16.5	4800	A-14-26 03CBC
1000 R	--	--	--	--	--	310CCNN	18.0	774	A-14-26 19ADA
1800	--	80	380	C	D	310CCNN	--	510	A-14-26 19BDD
30	--	--	--	--	D	111ALVM	--	--	A-14-26 20ACC
1000	--	--	103	C	D	310CCNN	18.5	790	A-14-26 21BCC
--	--	--	--	C	--	310CCNN	18.0	504	A-14-26 27CAC
1500	--	--	--	--	--	310CCNN	15.5	1010	A-14-26 27DCB
1500	--	--	--	--	--	310CCNN	16.0	368	A-14-26 34ACB
1100	--	--	440	C	D	310CCNN	--	--	A-14-26 34DBB
--	--	--	--		--	231CHNL	--	1000	A-14-26 36DCA
1320 C	07/16/1975	--	--		--	310CCNN	17.5	1050	A-14-26E18DCC

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED
A-14-26E18DDD	343624109370401	001	--	I	--		425	5460	--	--
A-14-26W18DBC	343637109374901	001	1947	U	8	--	410	5430	17.00 S	07/30/1953
A-14-27 01ABB	343931109254001	001	--	S	6	--	--	5551	25.80 S	07/02/1975
A-14-27 01DCD	343843109253701	001	--	S	6	--	--	5553	40.80 S	07/02/1975
A-14-27 03ABD	343922109374501	001	--	S	--	--	140	5538	100.00 R	--
A-14-27 08DDA	343802109293401	001	1950	S	6	--	252	5595	114.30 S	07/02/1975
A-14-27 12DCD	343743109254901	001	--	S	6	--	--	5619	105.70	12/20/1956
A-14-27 15BDC	343713109282001	001	--	S	6	--	105	5565	41.30 S	07/02/1975
A-14-27 22DAC	343608109274801	001	--	--	--	--	20	5520	D	02/14/1975
A-14-27 22DBD	343609109275001	001	--	--	--	--	15	5520	D	02/14/1975
A-14-27 26AAD	343542109263401	001	--	S	--	--	65	5590	34.00 S	02/14/1975
A-14-27 28DCD	343501109285001	001	--	S	--	--	156	5670	148.00 S	02/24/1975
A-14-27 30BAC	343536109312601	001	--	S	6	--	--	5520	26.00 R	03/17/1975
A-14-27 35BDC	343439109270301	001	--	S	6	--	--	5635	82.00 R	02/25/1975
A-14-28 13DBD	343710109192001	001	--	S	6	--	100	5622	87.20 S	08/12/1975
A-14-28 20CBA	343618109241101	001	--	U	6	--	215	5638	83.00 S	02/14/1975
A-14-29 33BBB	343510109164001	001	1974	N	12	P	1181	5780	40.00 R	12/09/1974
A-14-29 35CDC	343414109142001	001	11/26/1960	S	7	X	855	5762	F	09/17/1975
A-14-30 07ACD	343842109114201	001	1942	H,S	4	P	675	6010	257.00 S	05/21/1975
A-14-30 21ADB	343646109093101	001	1941	S	6	--	715	5990	85.00 R	1941
A-14-30 26DDB	343521109073001	001	1945	S	6	--	1022	6000	48.00 R	1945
A-14-31 29ADC	343539109041301	001	09/02/1960	S	--	--	1192	6087	8.00 R	09/02/1960
A-15-24 13DAC	344150109445401	001	--	S	6	--	700	5535	181.00 S	12/17/1971
A-15-24 29CAD	343958109493301	001	--	S	8	--	263	5320	F	12/17/1971
A-15-24 33BBD	343936109484101	001	--	S	5	--	280	5350	F	12/17/1971
A-15-25 28BBC	344036109423201	001	--	S	--	T	30	5405	24.00 R	10/14/1956
A-15-25 35DDD	343859109393101	001	1950	I	12	--	360	5435	13.00 S	01/29/1959
A-15-26 24ADA	344152109314001	001	--	S	4	--	350	5727	300.00 R	--
A-15-27 28AAA	344135109282601	001	--	S	--	--	180	5682	R	--
A-15-27 31DDB	343942109304501	001	--	S	6	--	100	5515	54.30 S	07/02/1975
A-15-28 13CDD	344217109192101	001	--	S	6	--	--	5741	120.00 R	--
A-15-28 16CAD	344230109223901	001	--	S	6	--	180	5701	152.40 S	07/02/1975
A-15-28 21DCC	344122109224001	001	--	U	6	--	130	5638	94.20 S	07/02/1975
A-15-28 29BDC	344101109235301	001	--	S	6	--	135	5605	34.60 S	07/02/1975
A-15-28 33CAA	344000109224201	001	--	S	--	--	--	5585	39.20	02/15/1956
A-15-28 34DDC	343939109211101	001	--	S,H	6	--	150	5635	126.40 S	07/02/1975
A-15-29 09CDD	344245109161001	001	1952	S	10	--	104	5731	75.50 S	03/20/1975
A-15-29 17CDA	344225109171501	001	--	S	6	--	130	5682	75.39	04/18/1957
A-15-29 30CBC	344046109184301	001	--	S	--	--	--	5643	41.10 S	01/09/1957
A-15-29 33ABC	344019109160801	001	09/ /1963	S	6	P	530	5795	440.00 R	09/ /1963
A-15-30 21ABA	344206109092901	001	1946	S	8	P	1204	5964	124.40 S	07/31/1975
A-15-30 33DDB	343947109092501	001	08/ /1946	S	6	--	1300	6118	275.00	08/ /1946
A-15-31 17ADA	344238109040901	001	--	S	5	--	250	6595	200.00 R	--
A-16-24 20DBA	344619109491501	001	1970	S	8	X	665	5430	96.80 S	12/17/1971
A-16-24 31CCC	344407109510001	001	--	S	6	--	--	5325	11.40 S	12/22/1971
A-16-24 33CDD	344827109441001	001	--	S	8	X	--	5350	30.00 S	12/22/1971
A-16-25 12BAB	344840109391701	001	--	S	--	W	30	5565	12.80 S	08/08/1956
A-16-25 15BAC	344739109412501	001	--	--	12	--	--	5524	23.10 S	08/08/1956
A-16-25 20BBC	344643109433801	001	--	H,S	6	--	--	5450	20.00 R	--
A-16-28 18ADB	344800109243001	001	--	S	6	--	100	5940	--	--
A-16-28 35DAD	344459109195801	001	1959	S	6	P	630	5862	336.90 S	07/02/1975
A-16-29 19ADC	344710109180001	001	--	S	5	--	--	6015	--	--
A-16-30 14BDD	344800109074001	001	--	S	6	--	60	5922	35.40 S	07/31/1975
A-16-30 19DBC1	344650109114501	001	08/ /1947	U	7	X	1360	5798	F	--
A-16-30 19DBC2	344650109114502	001	--	S	6	--	150	5798	22.10 S	07/31/1975
A-17-24 12ABD	345330109443001	001	07/ /1973	H	8	P	360	5550	220.00 R	07/ /1973
A-17-26 13CCD	345300109333001	001	--	S	8	--	73	5845	42.10 S	08/19/1975
A-17-27 02BAD	345420109264501	001	--	S	8	--	500	6455	475.00 R	--
A-17-27 06ADB	345414109302901	001	1955	S	5	--	80	6010	34.40 S	08/19/1975
A-17-27 21CBA	345130109283001	001	--	S	6	--	--	6268	297.70 T	08/13/1975
A-17-28 11ACB	345310109201001	001	12/12/1954	S	6	--	300	6244	289.40 S	08/13/1975
A-17-28 13DBD	345220109190001	001	--	S	4	--	--	6085	175.20 S	08/13/1975
A-17-28 19BBC	345157109250601	001	07/11/1956	S	6	--	349	6301	340.00 R	07/11/1956
A-17-28 21ACA	345140109222001	001	--	S	4	--	270	6182	244.90 S	08/13/1975
A-17-28 31BBC	344950109253001	001	06/05/1953	S	6	P	170	6102	144.10 S	08/13/1975
A-17-28 35BBC	345000109205001	001	--	S	4	--	105	6005	73.10 T	08/13/1975
A-17-28 36DDD	344910109190001	001	--	S	--	--	56	5862	29.60 S	08/13/1975
A-17-29 02BDA	345420109141001	001	1965	P	6	P	300	6215	220.00 R	11/ /1965
A-17-29 03BDB	345411109145801	001	04/08/1975	U	6.63	P	266	6180	200.10 S	08/20/1975
A-17-29 03DBB	345400109144501	001	1919	H,S	6	--	320	6166	168.00	12/03/1958
A-17-29 20CDA	345110109173001	001	1937	S	--	--	28	5915	22.10 S	08/13/1975
A-17-29 26BCB	345043109143601	001	07/15/1975	--	--	X	700	6240	D	08/20/1975
A-17-30 24AAD	345128109060901	001	01/03/1949	S	6	X	225	6166	165.00 R	01/03/1949
A-17-30 33AAB	344958109093001	001	03/ /1949	S	6	X	265	6164	200.00 R	03/ /1949
A-17-31 16DBC	345150109032001	001	--	S	--		80	6025	50.00 R	--
A-18-24 02DDC	345900109452301	001	1971	S	5.50	--	60	5360	14.90 S	06/18/1975
A-18-24 08AAA	345855109482701	001	03/12/1975	H	5	P	50	5315	6.40 S	09/22/1975
A-18-24 08BCB	345841109481701	001	1971	Z	14	P	600	5299.0	F	07/12/1971
A-18-24 08BCC	345830109492801	001	07/ /1927	H	--	--	87	5295	12.00 R	07/ /1927
A-18-24 09ABB	345850109475001	001	1958	P	13	F	110	5320	13.00 S	09/26/1975

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25° C)	LOCAL NUMBER
1390 P	07/16/1975	--	--		--	310CCNN	17.5	1000	A-14-26E18DDD
--	--	--	--	C	--	310CCNN	--	--	A-14-26W18DBC
--	--	--	--	--	--	231CHNL	18.0	4420	A-14-27 01ABB
--	--	--	--	--	--	231CHNL	17.0	6000	A-14-27 01DCD
--	--	--	--	--	--	230MNKP	17.0	4750	A-14-27 03ABD
--	--	--	--	C	D	310KIBB	18.0	4180	A-14-27 08DDA
2	05/20/1956	--	--	--	--	310KIBB	--	--	A-14-27 12DCD
--	--	--	--	--	--	230MNKP	15.0	8800	A-14-27 15BDC
--	--	--	--	--	G	121BDHC	--	--	A-14-27 22DAC
--	--	--	--	--	G	121BDHC	--	--	A-14-27 22DBD
--	--	--	--	--	G	121BDHC	--	2400	A-14-27 26AAD
--	--	--	--	--	--	310KIBB	--	2200	A-14-27 28DCD
--	--	--	--	--	--	310KIBB	16.5	2250	A-14-27 30BAC
--	--	--	--	--	--	310KIBB	--	2100	A-14-27 35BDC
--	--	--	--	--	--	231CHNL	15.5	3900	A-14-28 13DBD
--	--	--	--	--	--	310KIBB	--	3550	A-14-28 20CBA
--	--	--	670	C	D	310CCNN	21.5	2400	A-14-29 33BBB
100 R F	11/26/1960	--	--	--	D	310KIBB	19.0	1850	A-14-29 35CDC
3 E	05/21/1975	--	660	H	D	231CHNL	15.5	1750	A-14-30 07ACD
--	--	--	--	C	--	310KIBB	--	1480	A-14-30 21ADB
--	--	--	--	H	D	310KIBB	--	1280	A-14-30 26DDB
--	--	--	--	--	D	310KIBB	--	--	A-14-31 29ADC
300	--	--	--	--	--	310CCNN	18.0	5000	A-15-24 13DAC
10	--	--	--	--	--	310CCNN	15.5	660	A-15-24 29CAD
--	--	--	--	--	--	310CCNN	16.5	605	A-15-24 33BBD
--	--	--	--	D	--	111ALVM	--	3430	A-15-25 28BBC
1000	--	--	--	--	--	310CCNN	--	--	A-15-25 35DDD
--	--	--	--	--	--	231CHNL	--	5300	A-15-26 24ADA
--	--	--	--	--	--	231CHNL	18.0	1600	A-15-27 28AAA
--	--	--	--	--	--	230MNKP	15.0	4200	A-15-27 31DDB
--	--	--	--	--	--	231CHNL	16.5	1620	A-15-28 13CDD
--	--	--	--	--	--	231CHNL	21.0	2200	A-15-28 16CAD
--	--	--	--	--	--	231CHNL	--	--	A-15-28 21DCC
--	--	--	--	--	--	231CHNL	17.0	1550	A-15-28 29BDC
--	--	--	--	--	--	231CHNL	--	--	A-15-28 33CAA
--	--	--	--	--	--	231CHNL	16.0	3580	A-15-28 34DDC
--	--	--	--	--	--	231CHNL	19.0	1800	A-15-29 09CDD
--	--	--	--	--	--	231CHNL	--	--	A-15-29 17CDA
--	--	--	--	--	--	231CHNL	--	7000	A-15-29 30CBC
--	--	--	515	C	D	231CHNL	--	--	A-15-29 33ABC
--	--	--	--	H	D	310KIBB	--	1980	A-15-30 21ABA
5 E	05/21/1975	--	--	H	D	310KIBB	15.5	1750	A-15-30 33DDB
--	--	--	--	--	--	211DOKT	15.0	440	A-15-31 17ADA
300 R	1970	303	600	C	D	310CCNN	--	--	A-16-24 20DBA
--	--	--	--	--	--	310CCNN	15.5	1600	A-16-24 31CCC
--	--	--	--	H	--	310CCNN	17.5	2300	A-16-24 33CDD
--	--	--	--	D	--	111ALVM	--	1400	A-16-25 12BAB
--	--	--	--	--	--	111ALVM	--	3200	A-16-25 15BAC
--	--	--	--	--	--	111ALVM	18.0	1600	A-16-25 20BBC
--	--	--	--	--	--	121BDHC	15.5	670	A-16-28 18ADB
--	--	--	--	C	D	231CHNL	--	12400	A-16-28 35DAD
--	--	--	--	--	--	121BDHC	18.5	1000	A-16-29 19ADC
--	--	--	--	--	--	111ALVM	--	3950	A-16-30 14BDD
--	--	--	1228	H	D	310KIBB	--	--	A-16-30 19DBC1
--	--	--	--	--	--	111ALVM	--	1750	A-16-30 19DBC2
--	--	--	240	C	D	231CHNL	--	--	A-17-24 12ABD
--	--	--	--	--	--	111ALVM	--	1500	A-17-26 13CCD
--	--	--	--	--	--	121BDHC	--	--	A-17-27 02BAD
--	--	--	--	--	--	111ALVM	15.0	580	A-17-27 06ADB
--	--	--	--	--	--	121BDHC	20.0	320	A-17-27 21CBA
--	--	--	--	C	D	121BDHC	17.0	270	A-17-28 11ACB
--	--	--	--	--	--	121BDHC	16.0	560	A-17-28 13DBD
--	--	--	--	C	D	121BDHC	--	--	A-17-28 19BBC
--	--	--	--	--	--	121BDHC	--	410	A-17-28 21ACA
--	--	--	--	C	D	121BDHC	--	650	A-17-28 31BBC
--	--	--	--	--	--	121BDHC	18.5	420	A-17-28 35BBC
--	--	--	--	--	--	111ALVM	14.5	620	A-17-28 36DDD
45	--	20	--	C	D	231WNGT	--	350	A-17-29 02BDA
--	--	--	240	C	D	231WNGT	--	--	A-17-29 03BDB
--	--	--	--	--	--	121BDHC	--	360	A-17-29 03DBB
--	--	--	--	--	--	111ALVM	--	340	A-17-29 20CDA
--	--	--	--	C	D	231CHNL	--	--	A-17-29 26BCB
--	--	--	180	H	D	211DOKT	--	--	A-17-30 24AAD
--	--	--	199	H	D	211DOKT	--	--	A-17-30 33AAB
--	--	--	--		--	111ALVM	15.0	1650	A-17-31 16DBC
--	--	--	--	C	--	231CHNL	--	1190	A-18-24 02DDC
--	--	--	49	--	D	111ALVM	18.0	1700	A-18-24 08AAA
11	--	--	350	H	D	310CCNN	--	90400	A-18-24 08BCB
--	--	--	--	--	D	111ALVM	--	--	A-18-24 08BCC
--	--	--	85	R	D	111ALVM	18.0	1680	A-18-24 09ABB

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-18-24 09ACA	345838109474401	001	--	U	--		50	5315	10.70	S	09/26/1975
A-18-26 02AAB	345937109300701	001	--	S	6	--	200	5975	81.80	S	08/19/1975
A-18-26 13BDC	345737109320501	001	1947	H,S	5	--	132	6095	107.00	T	08/19/1975
A-18-26 36AAD	345450109312001	001	--	S	6	--	--	6108	159.50	S	08/19/1975
A-18-27 06BCA	345930109312001	001	05/21/1954	S	4	P	517	6090	490.00	R	05/21/1954
A-18-27 18CBB	345700109302001	001	04/ /1947	S	8	X	300	6123	138.90	S	08/19/1975
A-18-28 22ABC	345650109212001	001	1935	S	8	--	617	6482	509.90	S	08/13/1975
A-18-28 30BBC	345610109301001	001	--	S	--	--	500	6455	475.00	R	--
A-18-29 04CCB	345840109160001	001	1965	S	6	F	915	6630	709.00	S	07/09/1969
A-18-29 13BCA	345740109132001	001	--	S	--		400	6274	261.00	S	07/09/1969
A-18-29 26BDB	345610109142001	001	1965	S	6	F	430	6267	264.00	S	07/09/1969
A-18-29 29BCC	345550109174001	001	1958	S	8	X	440	6374	390.00	S	07/09/1969
A-18-30 04CBC	345910109101001	001	1965	S	6	F	700	6558	509.00	S	07/10/1969
A-18-30 14DBD	345720109072001	001	1965	S	6	F	695	6624	570.00	S	07/10/1969
A-18-30 20CDD	345620109104001	001	--	S	6	--	420	6381	360.00	S	07/10/1969
A-18-30 36ABC	345510109063001	001	--	S	6	--	--	6424	382.00	S	07/10/1969
A-18-31 16CAC	345730109033001	001	--	S	6	--	--	6268	192.00	S	07/10/1969
A-18-31 29BDB	345550109042001	001	1965	S	6	F	552	6406	349.00	S	07/10/1969
A-19-24 05CBB	350434109492101	001	05/14/1969	U	--	X	27	5405	7.00	S	05/17/1969
A-19-24 06DC	350410110495001	001	1938	U	8	--	40	5390	8.00	S	06/ /1945
A-19-24 13ABD	350306109442701	001	--	U	12	--	51	5460	6.50	S	06/19/1975
A-19-24 13ACC	350252109443601	001	--	S	6	--	15	5442	6.20	S	06/19/1975
A-19-24 20BCC	350205109492701	001	07/ /1955	U	6	--	460	5558	228.00	S	06/17/1975
A-19-24 27DAC	350054109462601	001	--	S	5	--	34	5376	10.70	S	06/19/1975
A-19-24 30CDC	350045109501501	001	07/26/1955	S	6	X	540	5550	--		--
A-19-25 01AAB	350456109375101	001	--	S	6	--	--	5510	25.00	S	06/17/1975
A-19-25 05ABB	350452109423001	001	--	S	--	--	30	5519	--		--
A-19-25 10DAC	350327109400201	001	--	U	--	T	--	5465	3.80	T	06/17/1975
A-19-25 12CBB	350338109084701	001	1965	H,S	6	F	60	5488	20.00	R	1965
A-19-25 16CCA	350233109415001	001	--	S	6	--	60	5432	15.30		09/23/1956
A-19-25 21BDA	350206109413201	001	1960	S	8	P	68	5435	21.60	S	06/18/1975
A-19-25 22BBD	350209109404701	001	--	U	--		65	5470	62.80	S	06/18/1975
A-19-25 30BDD	350111109434401	001	--	S	6	--	60	5402	21.00	S	06/17/1975
A-19-25 32BBB	350040109430701	001	--	S	--	T	35	5407	15.00	R	--
A-19-26 01BDD	350430109315501	001	1925	S	--	--	150	5728	40.70	S	06/18/1975
A-19-26 04DBA	350425109344101	001	04/ /1957	--	8.62	P	1198	5766	790.00	R	05/07/1957
A-19-27 19ABC	350209109305201	001	--	S	8	--	112	5901	13.30	S	06/18/1975
A-19-28 23DCD	350129109200801	001	--	S	6	--	--	6090	106.55		10/30/1956
A-19-28 28BDB	350107109224201	001	12/ /1945	S	6	X	450	6168	240.00	R	12/ /1945
A-19-28 30CBA	350051109245401	001	1945	S	6	--	450	6216	263.90	S	08/21/1975
A-19-29 09AAC	350350109155001	001	1958	S	8	P	381	6312	317.00	S	07/09/1969
A-19-29 17ACB1	350300109170001	001	--	S	6	--	400	6181	212.00	S	07/11/1969
A-19-29 17ACB2	350250109171001	001	1960	S	9	P	465	6181	210.00	S	07/09/1969
A-19-29 35CDB	350000109142001	001	1958	S	8	P	460	6389	370.00	S	07/09/1969
A-19-30 10ABD	350340109084001	001	1965	S	6	F	1096	6765	678.00	S	07/10/1969
A-19-30 18CAB	350240109121001	001	--	H,S	6	--	420	6395	341.00	S	07/10/1969
A-19-30 36BCC	350010109071001	001	1959	S	8	P	600	6622	546.00	S	07/10/1969
A-19-31 09CAC	350320109033001	001	1959	S	8	P	495	6623	447.00	S	07/10/1969
A-19-31 18BBD	350300109054001	001	1955	S	8	P	632	6641	555.00	S	07/10/1969
A-19-31 20BDB	350208109044401	001	1959	S	8	--	600	6581	550.00		09/22/1959
A-20-25 15BCD	350804109404001	001	--	S	30	W	27	5642	15.60	S	06/17/1975
A-20-25 28BAA	350638109413101	001	--	S	78	W	12	5569	7.60	S	06/17/1975
A-20-25 32DCC1	350504109422801	001	--	U	--		200	5535	--		--
A-20-25 32DCC2	350503109422801	001	--	P	--		32	5525	20.00	R	03/13/1969
A-20-25 32DCC3	350501109423201	001	--	P	--		32	5525	20.00	R	03/13/1969
A-20-26 13DAC	350747109313101	001	--	S	5	--	103	5647	46.60	S	06/17/1975
A-20-26 21DCB	350649109350301	001	--	N	12	--	--	5615	35.30	S	08/12/1975
A-20-26 22BDC	350707109341301	001	--	S	8	--	130	5655	72.50	S	06/18/1975
A-20-26 23BDA	350713109330201	001	--	S	8	--	180	5655	16.10	S	06/18/1975
A-20-26 24ADA	350713109312801	001	--	U	4	--	120	5655	5.70	S	06/17/1975
A-20-26 25BAB	350638109320401	001	05/ /1956	H,S	6.50	--	204	5645	40.00	R	05/ /1956
A-20-26 26BAA	350633109330701	001	1948	S	8	--	125	5630	27.90	S	06/18/1975
A-20-26 27BDD	350617109340401	001	--	S	14	--	--	5601	14.60	S	06/18/1975
A-20-26 32BDD	350527109361501	001	--	S	8	--	115	5570	48.30	S	06/18/1975
A-20-26 34CCD	350501109342101	001	--	S	4	--	--	5795	102.40	S	06/18/1975
A-20-26 34CDC	350500109341901	001	03/ /1950	--	--	--	1550	5795	--		--
A-20-27 01CDC	350925109254201	001	--	S	4	--	200	6061	186.30	S	08/20/1975
A-20-27 04BCA	350959109290501	001	1956	H	5	--	100	5710	25.50	S	06/18/1975
A-20-27 05DDA1	350927109292601	001	--	S	8	--	39	5690	21.20	S	06/18/1975
A-20-27 05DDA2	350930109292301	001	--	U	12	--	--	5685	15.20	S	06/18/1975
A-20-27 08BBB	350914109301301	001	--	S	6	--	137	5734	107.10	S	06/17/1975
A-20-27 09CAD	350842109284301	001	--	S	6	--	52	5692	31.80	SP	08/20/1975
A-20-27 19BDA	350713109305201	001	--	S	12	--	--	5661	44.00	S	06/17/1975
A-20-27 24BDA1	350717109253301	001	07/ /1964	P,S	--	--	--	5780		F	11/18/1975
A-20-27 24BDA2	350718109253401	001	--	P,S	--	--	--	5780		F	11/18/1975
A-20-27 24CAC	350656109254501	001	10/ /1962	U	10	--	650	5772		F	08/21/1975
A-20-27 36BBB	350547109260101	001	--	S	6	--	--	5784	--		--
A-20-28 14AAB	350824109200001	001	--	S	6	--	204	6131	193.20	SP	08/19/1975
A-20-28 19CAC	350657109244101	001	08/ /1961	P,S	--	--	--	5813		F	11/18/1975
A-20-28 21BAB	350726109223101	001	03/15/1953	S	6.62	--	221	6075	200.00	R	03/15/1953

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UHMOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	--		--	111ALVM	--	--	A-18-24 09ACA
--	--	--	--	--	--	121BDHC	--	--	A-18-26 02AAB
--	--	--	--	--	--	121BDHC	--	--	A-18-26 13BDC
--	--	--	--	--	--	121BDHC	16.5	370	A-18-26 36AAD
16 R	05/21/1954	--	--	--	D	121BDHC	17.0	460	A-18-27 06BCA
--	--	--	--	--	--	121BDHC	17.0	510	A-18-27 18CBB
--	--	--	--	C	--	121BDHC	--	500	A-18-28 22ABC
--	--	--	--		--	121BDHC	--	260	A-18-28 30BBC
12	--	40	--	H	D	231WNGT	--	400	A-18-29 04CCB
--	--	--	--		--	121BDHC	20.0	360	A-18-29 13BCA
14	--	30	330	H	D	121BDHC	18.5	340	A-18-29 26BDB
12	--	12	--	--	D	121BDHC	21.5	360	A-18-29 29BCC
--	--	--	560	H	D	121BDHC	19.5	315	A-18-30 04CBC
12	--	35	604	H	D	121BDHC	20.0	330	A-18-30 14DBD
15	--	--	--	--	--	121BDHC	19.5	310	A-18-30 20CDD
9	--	--	--	--	--	121BDHC	--	260	A-18-30 36ABC
--	--	--	--	--	--	121BDHC	20.0	420	A-18-31 16CAC
--	--	--	448	H	D	211DOKT	--	320	A-18-31 29BDB
--	--	--	--	H	--	111ALVM	15.0	--	A-19-24 05CBB
15	--	--	--	--	--	111ALVM	14.5	--	A-19-24 06DC
--	--	--	--	--	--	111ALVM	14.5	1950	A-19-24 13ABD
--	--	--	--	--	--	111ALVM	--	--	A-19-24 13ACC
--	--	--	--	--	--	231CHNL	--	103000	A-19-24 20BCC
--	--	--	--	--	--	111ALVM	--	--	A-19-24 27DAC
--	--	--	499	--	D	231CHNL	--	--	A-19-24 30CDC
--	--	--	--	--	--	111ALVM	16.0	900	A-19-25 01AAB
--	--	--	--	--	--	111ALVM	17.0	1750	A-19-25 05ABB
--	--	--	--	--	--	111ALVM	--	--	A-19-25 10DAC
--	--	--	--	R	--	111ALVM	15.5	1150	A-19-25 12CBB
--	--	--	--	--	--	111ALVM	16.5	1070	A-19-25 16CCA
--	--	--	--	C	D	111ALVM	16.5	1190	A-19-25 21BDA
--	--	--	--		--	231CHNL	--	--	A-19-25 22BBD
--	--	--	--	--	--	111ALVM	17.0	1250	A-19-25 30BDD
--	--	--	--	V	--	111ALVM	14.5	1500	A-19-25 32BBB
--	--	--	--	C	--	231CHNL	16.0	1700	A-19-26 01BDD
--	--	--	1010	--	E	310CCNN	--	59300	A-19-26 04DBA
--	--	--	--	--	--	231CHNL	--	--	A-19-27 19ABC
--	--	--	--	--	--	121BDHC	--	--	A-19-28 23DCD
5 R	12/ /1945	--	300	--	D	121BDHC	16.5	--	A-19-28 28BDB
--	--	--	--	--	--	121BDHC	--	290	A-19-28 30CBA
15	--	20	350	C	D	121BDHC	20.0	360	A-19-29 09AAC
22	--	--	--	--	--	121BDHC	--	--	A-19-29 17ACB1
20	--	15	441	C	D	121BDHC	--	320	A-19-29 17ACB2
--	--	--	420	C	D	121BDHC	21.5	480	A-19-29 35CDB
12	--	50	--	H	D	121BDHC	--	460	A-19-30 10ABD
15	--	--	--	--	--	121BDHC	--	280	A-19-30 18CAB
8	--	20	520	C	D	121BDHC	--	260	A-19-30 36BCC
15	--	20	455	--	D	121BDHC	--	360	A-19-31 09CAC
14	--	--	--	--	--	121BDHC	--	--	A-19-31 18BBD
--	--	--	--	C	D	121BDHC	--	--	A-19-31 20BDB
--	--	--	--	D	--	111ALVM	16.0	1340	A-20-25 15BCD
--	--	--	--	D	--	111ALVM	16.0	1300	A-20-25 28BAA
2	--	--	--		D	111ALVM	--	--	A-20-25 32DCC1
4	--	--	--		--	111ALVM	--	--	A-20-25 32DCC2
4	--	--	--		--	111ALVM	--	1750	A-20-25 32DCC3
--	--	--	--	--	--	111ALVM	16.0	1020	A-20-26 13DAC
--	--	--	--	--	--	231CHNL	--	1100	A-20-26 21DCB
--	--	--	--	--	--	231CHNL	--	--	A-20-26 22BDC
--	--	--	--	--	--	111ALVM	16.0	1100	A-20-26 23BDA
--	--	--	--	--	--	111ALVM	--	--	A-20-26 24ADA
--	--	--	--	--	D	111ALVM	--	1100	A-20-26 25BAB
--	--	--	--	--	--	111ALVM	16.0	1160	A-20-26 26BAA
--	--	--	--	--	--	111ALVM	--	--	A-20-26 27BDD
--	--	--	--	--	--	231CHNL	16.0	1180	A-20-26 32BDD
--	--	--	--	--	--	231CHNL	--	--	A-20-26 34CCD
--	--	--	--	C	--	231CHNL	--	9490	A-20-26 34CDC
--	--	--	--	--	--	121BDHC	--	360	A-20-27 01CDC
--	--	--	--	--	--	111ALVM	16.0	920	A-20-27 04BCA
--	--	--	--	--	--	111ALVM	14.5	1350	A-20-27 05DDA1
--	--	--	--	--	--	111ALVM	--	--	A-20-27 05DDA2
--	--	--	--	--	--	231CHNL	20.0	1320	A-20-27 08BBB
--	--	--	--	--	--	111ALVM	17.0	1220	A-20-27 09CAD
--	--	--	--	--	--	111ALVM	--	--	A-20-27 19BDA
--	--	--	--	H	--	231SNSL	15.5	300	A-20-27 24BDA1
--	--	--	--		--	231SNSL	15.5	--	A-20-27 24BDA2
--	--	--	--	H	--	231SNSL	19.0	330	A-20-27 24CAC
--	--	--	--	--	--	111ALVM	19.0	330	A-20-27 36BBB
--	--	--	--	--	--	121BDHC	15.0	300	A-20-28 14AAB
--	--	--	--	H	--	231SNSL	17.5	280	A-20-28 19CAC
14 R	03/15/1975	--	--	--	D	121BDHC	--	--	A-20-28 21BAB

LOCAL NUMBER	SITE-ID	COUNTY	DATE COMPLETED	USE OF WATER	CASING DIAM-ETER (INCHES)	FINISH	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)		DATE WATER LEVEL MEASURED
A-20-28 32CAB	350717109234201	001	--	S	6	--	100	5884	71.80		10/11/1956
A-20-28 33ADB	350528109220201	001	06/30/1953	S	6	P	103	5885	50.00	R	06/30/1953
A-20-28 36AAA1	350544109184301	001	--	S	6	--	145	6050	92.50	S	07/03/1975
A-20-28 36AAA2	350543109184801	001	--	S	6	--	136	6050	--		--
A-20-29 08CAD	350840109171801	001	11/30/1954	S	6	--	158	6134	140.00	R	11/30/1954
A-20-29 35DCD	350506109134601	001	12/ /1946	S	6	--	795	6671	653.40		11/18/1975
A-20-30 03BBB	350959109091901	001	1945	H,S,I	--	--	165	6230	145.00	R	--
A-20-30 12ABD	350858109063201	001	1948	S	--	--	800	6537	500.00		04/24/1957
A-20-30 27DBD	350608109084201	001	1944	S	6	--	500	6483	350.00	R	--
A-20-30 36DAB	350522109062301	001	1938	U	4	--	600	6639	570.00	R	--
A-20-31 29ADC1	350623109041401	001	1950	U	6	--	900	6652	820.00	R	--
A-20-31 29ADC2	350623109041501	001	1970	S	6	--	600	6652	580.00	R	--
A-21-27 15AAB	351341109273801	001	--	H,S	6	--	81	5925	59.00	R	--
A-21-27 23A	351240109263001	001	03/ /1953	--	--	--	402	5830		D	--
A-21-27 24CCC	351158109261601	001	--	S,H	6	--	235	5789	160.00	R	03/28/1956
A-21-27 25BBD1	351149109260801	001	--	S	6	--	110	5785	65.20	S	11/18/1975
A-21-27 25BBD2	351149109260802	001	05/ /1974	P	6	P	250	5785	84.50	S	11/18/1975
A-21-27 25C 1	351120109261501	001	03/ /1902	--	9	X	605	5750	58.00	R	03/31/1902
A-21-27 25C 2	351120109261001	001	11/23/1905	--	12	X	303	5750	58.00	R	11/23/1905
A-21-27 25CAD	351119109255301	001	--	P	16	--	91	5750	38.00		03/28/1956
A-21-27 25CCA	351118109261001	001	1964	S	10	F	235	5750	28.90	S	11/19/1975
A-21-27 26DAA	351123109262101	001	--	U	6	--	50	5762	37.10	S	08/20/1975
A-21-27 26DBD	351119109263901	001	1956	H	6	--	110	5765	49.40	S	11/18/1975
A-21-27 35BDD	351045109265501	001	--	S	10	--	37	5753	31.30	S	08/21/1975
A-21-28 13CBC	351254109194501	001	1969	T	--	--	160	5820	120.00	RP	--
A-21-28 13CDC	351241109193101	001	--	H	6	--	111	5842	65.00	R	--
A-21-28 14DAD	351258109200101	001	--	U	--	--	130	5860	70.00	R	--
A-21-28 14DCA	351253109201401	001	11/02/1974	P	8.62	P	230	5855	143.00	R	11/02/1974
A-21-28 19CCC	351200109251201	001	--	H	6	--	80	5765	32.70	S	11/19/1975
A-21-28 19DCC	351159109243701	001	--	U	4	--	60	5750	18.40	S	--
A-21-28 20DCA	351204109232503	001	1964	H,N	10	F	180	5775	30.80	T	11/19/1975
A-21-28 21CAD	351212109224201	001	--	R,H	6	--	340	5790	180.00	R	--
A-21-28 21DBD	351217109222301	001	--	P	--	--	238	5802	70.00	R	--
A-21-28 23AAC	351224109202401	001	--	S	12	--	175	5825	59.00		05/ /1968
A-21-28 23DDD	351149109195901	001	--	S	8	--	50	5800	35.70	S	08/19/1975
A-21-28 24BBC	351229109195101	001	06/25/1967	P	6	--	256	5825	104.00	S	07/24/1967
A-21-28 24CCC	351147109194901	001	--	S	6	--	135	5810	30.70	S	08/19/1975
A-21-28 29BBA	351155109235801	001	--	H	6	--	100	5755	29.90	S	11/19/1975
A-21-28 30BAA	351154109245001	001	--	U	6	--	100	5755	30.00	R	--
A-21-29 22CCA	351155109152501	001	11/11/1954	S	8	P	75	5957	31.20	SP	08/19/1975
A-21-29 24DCC	351154109130001	001	--	S	--		--	6038	70.00	R	--

DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	DRAW-DOWN (FEET)	DEPTH TO FIRST OPENING (FEET)	METHOD CONST-RUCTED	TYPES OF LOGS AVAILABLE	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UHMOS/CM AT 25° C)	LOCAL NUMBER
--	--	--	--	--	--	121BDHC	16.0	--	A-20-28 32CAB
12 R	06/30/1953	--	--	--	D	121BDHC	--	--	A-20-28 33ADB
--	--	--	--	--	--	121BDHC	--	280	A-20-28 36AAA1
--	--	--	--	--	--	121BDHC	--	--	A-20-28 36AAA2
20 R	11/30/1954	--	--	--	D	121BDHC	--	--	A-20-29 08CAD
12 R	12/ /1946	--	747	--	--	121BDHC	14.5	290	A-20-29 35DCD
--	--	--	--	--	--	121BDHC	--	300	A-20-30 03BBB
--	--	--	--	--	--	121BDHC	14.0	270	A-20-30 12ABD
--	--	--	--	--	--	121BDHC	14.5	280	A-20-30 27DBD
--	--	--	--	--	--	121BDHC	--	--	A-20-30 36DAB
--	--	--	--	--	--	121BDHC	--	--	A-20-31 29ADC1
--	--	--	--	C	--	121BDHC	16.5	290	A-20-31 29ADC2
8	--	--	--	--	--	111ALVM	--	--	A-21-27 15AAB
--	--	--	--	--	--	231CHNL	--	--	A-21-27 23A
--	--	--	--	--	--	231CHNL	--	--	A-21-27 24CCC
--	--	--	--	--	--	111ALVM	--	1280	A-21-27 25BBD1
--	--	--	--	C	--	231CHNL	--	1250	A-21-27 25BBD2
14	03/31/1962	107	195	--	--	111ALVM	--	--	A-21-27 25C 1
75	11/23/1965	107	272	--	D	111ALVM	--	--	A-21-27 25C 2
110	--	--	--	--	--	111ALVM	--	1100	A-21-27 25CAD
250	--	--	--	R	--	111ALVM	--	1160	A-21-27 25CCA
--	--	--	--	--	--	111ALVM	--	--	A-21-27 26DAA
60	--	30	--	--	--	111ALVM	--	1110	A-21-27 26DBD
--	--	--	--	--	--	111ALVM	--	--	A-21-27 35BDD
--	--	--	--	--	--	111ALVM	--	910	A-21-28 13CBC
--	--	--	--	--	--	111ALVM	--	1150	A-21-28 13CDC
--	--	--	--	--	--	231CHNL	--	1360	A-21-28 14DAD
--	--	--	190	C	D	231CHNL	--	1000	A-21-28 14DCA
--	--	--	--	--	--	111ALVM	--	2500	A-21-28 19CCC
--	--	--	--	--	--	111ALVM	--	--	A-21-28 19DCC
200	--	--	165	R	--	111ALVM	--	1100	A-21-28 20DCA
--	--	--	--	--	--	231CHNL	16.0	2340	A-21-28 21CAD
--	--	--	--	--	--	111ALVM	--	--	A-21-28 21DBD
--	--	--	--	--	--	111ALVM	--	--	A-21-28 23AAC
--	--	--	--	--	--	111ALVM	--	--	A-21-28 23DDD
--	--	--	--	C	D	231SRMP	--	910	A-21-28 24BBC
--	--	--	--	--	--	111ALVM	13.0	1150	A-21-28 24CCC
--	--	--	--	--	--	111ALVM	--	--	A-21-28 29BBA
--	--	--	--	--	--	111ALVM	--	--	A-21-28 30BAA
20 R	11/11/1954	--	--	--	D	111ALVM	14.5	410	A-21-29 22CCA
--	--	--	--	--	--	121BDHC	--	360	A-21-29 24DCC

Table 4.--Measurements of the water level in selected wells

Water level: P, pumping; R, recently pumped.

Method of measurement: R, reported; S, steel tape; T, electric tape; Z, other.

LOCAL NUMBER	DATE MEASURED	WATER LEVEL, IN FEET BELOW LAND SURFACE	METHOD OF MEASUREMENT
A-05-30 13DBC	10/17/1971	104.80	R
	08/22/1973	96.90	
A-05-31 17CAA	08/22/1973	21.50	
	01/21/1975	19.30	
	01/29/1976	9.30	
A-07-27 01CCA1	07/26/1973	55.00	
	01/02/1975	49.20	
	01/28/1976	53.05	
A-07-27 01CDB	07/26/1973	26.50	
	01/29/1974	25.70	S
	01/02/1975	22.00	
	01/28/1976	25.35	
A-07-30 14BDD	08/06/1973	156.50	
	01/29/1974	156.30	
	01/02/1975	153.70	
	01/29/1976	169.20	
A-08-29 11ADA	02/25/1960	140.00	R
	09/25/1974	141.60	T
A-08-29 16BAA	01/01/1953	375.00	R
	05/22/1969	413.00	
	08/13/1974	334.30	T
A-08-31 22DAC	07/18/1957	85.50	
	12/19/1974	91.70 R	T
A-09-31 10BCA	12/22/1933	126.00	R
	07/09/1959	140.00	
A-10-29 15BAB	12/14/1956	13.00	
	01/16/1975	11.40	
A-10-31 21DBD	07/08/1959	854.00	R
A-11-24 08AAC	06/12/1957	144.80	
	12/19/1974	104.00	
A-11-24 22DBC	12/18/1974	709.00	
	01/28/1976	709.25	T
A-11-25 08DCC	01/15/1975	31.40	
A-11-25 18DCC	07/01/1946	22.06	
	06/13/1957	23.60	
	08/21/1958	22.00	
	11/17/1966	25.59	
	04/16/1969	27.13	
	02/01/1972	26.90	
	01/29/1974	27.90	
	01/03/1975	27.45	
	01/28/1976	27.35	S
A-11-27 23AAA	12/20/1974	392.50	
	05/11/1975	390.05	
	01/28/1976	394.30	
A-11-28 30DCC	12/07/1956	8.75	
	12/20/1974	10.00	
A-11-29 04BBC	01/29/1976	293.10	S
A-12-24 11CDA	10/01/1974	200.00	R
	04/22/1975	234.30	
A-12-25 03AAB	08/22/1956	167.70	
	01/21/1975	173.60 P	
	05/07/1975	172.16	
	09/12/1975	171.07	S
A-12-25 04CDA	05/07/1975	183.16	
	09/12/1975	182.00	S
A-12-25 18CCC2	06/12/1957	244.90	
	05/07/1975	289.02	
A-12-26 02BDA	05/06/1975	68.33	S
	04/15/1976	88.60	S
	09/08/1976	84.86	S
A-12-26 04BBD	01/01/1958	24.00	R
	05/06/1975	140.60	
A-12-26 13DCD	01/01/1958	40.00	R
	01/16/1975	49.10	S
	05/06/1975	47.70	S
	09/11/1975	46.14	S
	04/14/1976	45.25	S
	09/09/1976	49.95	S
A-12-26 15BCC	05/02/1957	7.80	
	01/15/1975	13.40	S
A-12-26 18DCC1	12/07/1967	413.50	T
	06/08/1968	415.10	
	04/16/1969	413.50	T
A-12-27 19BCD	12/09/1957	47.30	
	02/29/1960	45.43	
	03/03/1975	48.30	
	05/06/1975	47.77	
A-12-28 07CDB	05/18/1956	38.80	
	11/17/1956	32.85	
	04/06/1957	28.60	
	03/15/1967	35.91	
	10/06/1967	35.92	
	02/06/1968	35.78	
	10/13/1968	31.15	
	03/19/1970	33.52	
	03/31/1971	33.50	
	02/01/1972	34.10	
	01/29/1974	32.40	
	01/03/1975	31.65	
	02/26/1975	35.50	
	09/12/1975	55.18	
	01/28/1976	38.98	S
	01/29/1976	38.98	
	02/28/1976	32.60	
A-12-28 19BAD	03/18/1975	25.00	R
	05/10/1975	32.37	
	09/11/1975	23.76	S
	04/15/1976	32.65	S
	09/09/1976	38.80	S
A-12-28S04CCC	02/13/1975	172.40	
A-12-29 20AAC	09/21/1974	30.80	
A-12-29 25DCD	12/14/1956	46.10	
	03/21/1975	44.00 R	
A-13-24 12ACB	05/13/1975	112.40	
A-13-24 22BBD	08/17/1956	144.40	
	05/13/1975	134.42	
	09/12/1975	143.30	S
	04/13/1976	143.80	S
	09/08/1976	145.72	S
A-13-25 04CCA	06/06/1947	46.00	R
	08/20/1956	40.00	R
	03/04/1975	49.20	
A-13-26 06DCB	06/01/1974	89.00	
	03/17/1975	86.20	
	01/28/1976	88.42	S
A-13-26 12DDA	04/15/1976	36.47	S
	09/09/1976	36.74	S
A-13-27 03BBA	04/19/1974	157.60	
	02/24/1975	113.30	T
A-13-27 09CAD	04/19/1974	217.50	
	02/25/1975	221.30	
A-13-27 15BDC	01/28/1976	264.00	S
A-13-27 27BBC	05/04/1959	256.00	R
	02/24/1975	271.00	
	05/06/1975	247.33	
A-13-28 06DDD	04/22/1974	85.13	
	02/14/1975	92.00	
	05/12/1975	96.52	
A-13-28 12CAC	01/01/1974	101.30	
	10/01/1974	101.30	
	03/21/1975	102.50	
	05/10/1975	103.50	
	01/29/1976	129.53	S
	12/28/1976	108.38	Z
A-13-28 18ADD	06/01/1946	38.03	
	12/19/1946	33.40	
	02/25/1975	31.30	
A-13-28 18DAA	12/19/1956	120.00	R
	05/14/1975	132.98	
	09/17/1975	131.24	S
A-13-28 18DBC	02/25/1975	78.90	
A-13-28 19CAA	05/25/1955	170.60	
	02/25/1975	163.80	T
A-13-28 24DBC	03/18/1975	4.50	S
A-13-28 27BDC	06/07/1944	1.57	S
	08/09/1944	4.51	S
	07/15/1949	-.93	S
	08/07/1950	-.95	S
	02/26/1951	-.78	S
	08/07/1951	5.73	S
	07/02/1952	8.93	S

LOCAL NUMBER	DATE MEASURED	WATER LEVEL, IN FEET BELOW LAND SURFACE		METHOD OF MEASUREMENT
A-13-28 27BDC--CONT	07/30/1953	2.65		S
	10/11/1954	3.72		S
	10/23/1956	3.74		S
	04/06/1960	.65		S
	10/23/1963	.86		S
	04/03/1964	.68		S
	11/05/1964	.52		S
	04/23/1965	1.43		S
	04/14/1966	.52		S
	03/15/1967	.77		S
	02/06/1968	.75		S
	04/16/1969	.95		S
	03/19/1970	-.58		S
	03/31/1971	-.40		S
	02/01/1972	-.25		S
	02/28/1973	-.90		S
	01/29/1974	-.90		S
	01/03/1975	-.90		S
	02/25/1975	-.90		S
	01/29/1976	.09		S
A-13-28 29BCD	06/07/1944	12.05		
	04/14/1966	11.65		
	01/29/1976	13.96		S
A-13-28 33ACC	06/01/1946	42.66		R
	03/21/1975	32.00		
A-13-29 35AAA	02/01/1957	212.00		R
	02/19/1957	165.00		R
	03/20/1975	167.00		
	05/08/1975	166.07		
	09/11/1975	167.30		S
	01/29/1976	167.50		S
	04/13/1976	169.70		S
	09/09/1976	167.95		S
A-13-30 28ADC	09/12/1955	9.00		
	05/21/1975	6.30		T
A-13-31 30DCD	03/20/1975	59.00		
	05/08/1975	59.60		
A-14-24 29DCC	08/17/1956	180.00		R
	05/13/1975	238.55		
	09/11/1975	257.10		T
	04/13/1976	245.30		T
	09/08/1976	262.34		T
A-14-25 14CCD	03/05/1975	172.40		
	05/13/1975	192.04		
	09/11/1975	212.05	R	T
	04/14/1976	201.87	R	T
	09/09/1976	189.22		T
A-14-25E12CDD2	07/30/1953	13.15		
	10/28/1953	13.44		
	10/11/1954	15.62		
	06/28/1955	16.70		
	10/26/1955	18.25		
	05/03/1956	16.17		
	10/23/1956	16.57		
	05/15/1957	15.97		
	10/11/1957	15.66		
	04/21/1958	15.51		
	04/06/1960	11.80		
	10/07/1960	12.61		
	04/28/1961	15.22		
	05/01/1962	11.66		
	04/08/1963	17.40		
	11/05/1964	25.28		
	04/23/1965	15.71		
	10/03/1965	16.31		
	04/14/1966	17.60		
	11/16/1966	23.39		
	03/15/1967	13.82		
	02/06/1968	13.58		
	04/16/1969	40.00	P	
	03/14/1970	18.03		
	03/31/1971	18.90		
	02/01/1972	19.80		
	02/28/1973	23.65		
	01/29/1974	23.10		
	01/03/1975	30.25		
A-14-25E13DAD	10/14/1956	31.67		
	03/05/1975	51.20		
	05/13/1975	46.83		
A-14-25W12CDD	02/28/1973	23.65		S
A-14-26 21BCC	11/01/1950	9.00		R
	03/09/1955	11.64		
	05/13/1975	21.10		T
	09/11/1975	28.05		T
	04/14/1976	21.52		T
	09/09/1976	36.75		T
A-14-26 34DBB	01/01/1963	10.00		R
	05/13/1975	48.19		
A-14-26W18DBC	10/23/1956	17.66		
	04/20/1960	14.90		
	11/05/1964	29.70		
	04/23/1965	22.12		
	10/03/1965	22.17		
	04/14/1966	25.65		
	11/16/1966	27.70		
	03/15/1967	21.85		
	10/06/1967	39.30		
	02/06/1968	22.94		
	10/03/1968	41.01		
	04/16/1969	36.73		
	03/19/1970	19.82		S
	03/31/1971	21.65		S
	02/01/1972	20.05		S
	02/28/1973	26.42		S
	01/29/1974	26.30		S
	01/03/1975	33.80		S
	05/13/1975	41.92		
	01/28/1976	34.10		S
A-14-27 01DCD	12/20/1956	27.03		
	07/02/1975	40.80	R	S
A-14-27 08DDA	12/19/1956	105.40		
	05/12/1975	116.76		
	07/02/1975	114.30		
	09/12/1975	114.60		
A-14-27 35BDC	02/25/1975	82.20		
	05/12/1975	101.00		
	09/12/1975	96.13		
	04/14/1976	97.26		
	09/09/1976	94.72		T
A-14-29 33BBB	03/17/1975	92.40		
A-14-30 21ADB	01/01/1941	85.00		R
	05/21/1975	178.00	R	S
	05/19/1976	158.30	R	S
	09/21/1976	125.15		S
A-14-30 26DDB	01/01/1945	48.00		R
	05/21/1975	76.90	R	S
A-14-31 29ADC	09/02/1960	8.00		R
	01/01/1975	40.00		R
A-15-28 21DCC	01/09/1957	81.60		
	07/02/1975	94.20		S
A-15-30 21ABA	01/01/1946	102.00		R
	05/12/1975	122.55		
	07/31/1975	124.40		S
A-16-25 15BAC	08/08/1956	23.10		
	09/17/1975	13.70		S
A-17-29 03DBB	07/01/1946	167.80		
	12/03/1958	168.00		
A-18-29 04CCB	05/02/1965	725.00		R
	07/09/1969	709.40		T
A-18-29 26BDB	07/30/1965	270.00		R
	07/09/1969	264.30		T
	08/12/1975	265.10		S
A-18-29 29BCC	10/31/1958	379.00		
	09/30/1959	395.00		
	07/09/1969	390.20		T
A-18-30 04CBC	05/31/1965	521.00		R
	07/10/1969	509.10		S
	08/12/1975	511.30		S
A-18-30 14DBD	06/13/1965	580.00		R
	07/10/1969	569.90		T
A-18-30 20CDD	02/02/1972	365.20		S
	02/27/1973	360.40		
	01/29/1974	361.20		
	01/31/1975	363.00		T
	08/12/1975	365.00		T
	01/29/1976	366.80		T
A-18-31 16CAC	08/12/1975	189.30		
A-18-31 29BDB	07/02/1965	364.00		R
	07/10/1969	349.40		T
A-19-25 30BDD	10/17/1956	10.00		
	06/17/1975	21.00	R	S
A-19-28 23DCD	10/30/1956	106.55		
	04/22/1959	150.00		
	11/21/1975	146.70	R	S
A-19-28 28BDB	12/01/1945	240.00		R
	11/21/1975	226.30		S

Table 4.--Measurements of the water level in selected wells--Continued

LOCAL NUMBER	DATE MEASURED	WATER LEVEL, IN FEET BELOW LAND SURFACE	METHOD OF MEASUREMENT
A-19-29 09AAC	08/05/1958	323.00	R
	09/30/1959	342.00 P	
	07/09/1969	316.80	T
	08/12/1975	319.30	T
A-19-29 17ACB1	07/11/1969	212.00	S
	03/30/1971	210.20	S
	02/02/1972	212.00	S
	02/27/1973	210.80	
A-19-29 17ACB2	03/23/1960	218.50	
	07/09/1969	210.00	S
	03/30/1971	211.00	S
	02/02/1972	211.30	S
	02/27/1973	210.20	
	01/29/1974	210.80	
	01/31/1975	215.15	S
	01/29/1976	213.80 R	T
A-19-29 35CDB	08/24/1958	385.00	R
	09/30/1959	397.00	
	07/09/1969	370.40	T
	08/12/1975	369.90	T
A-19-30 10ABD	05/18/1965	704.00	R
	07/10/1969	678.20	T
A-19-30 18CAB	07/10/1969	341.20	T
	08/12/1975	338.70	S
A-19-30 36BCC	08/22/1959	550.00	R
	07/10/1969	545.70	T
A-19-31 09CAC	09/01/1959	445.00	R
	07/10/1969	446.60	T
A-20-25 15BCD	08/07/1956	13.80	
	06/17/1975	15.60	S
A-20-28 32CAB	10/11/1956	71.80	
	11/21/1975	70.30	S
A-20-28 36AAA1	10/11/1956	111.50	
	07/03/1975	92.50	S
A-20-30 27DBD	01/01/1944	350.00	R
	11/18/1975	427.00	T
A-20-30 36DAB	01/01/1938	570.00	R
	11/18/1975	512.20	T
A-20-31 29ADC1	01/01/1950	820.00	R
	11/18/1975	574.20	T
A-21-28 23AAC	05/27/1968	58.59	S
	10/18/1968	58.17	S
	04/03/1969	58.20	S
	03/06/1970	58.18	S
	03/30/1971	58.20	S
	02/02/1972	58.30	S
	01/29/1974	58.80	
	01/31/1975	60.40	S
	01/30/1976	58.90	S
A-21-28 24CCC	10/11/1956	31.80	
	08/19/1975	30.70	

Table 5.--Records of selected springs

Local number: See figure 2 for description of location system.
Use of water: H, domestic; I, irrigation; P, public supply; R, recreation; S, stock; U, unused.
Discharge: C, current meter; E, estimated; F, flume; M, meter; R, reported; V, volumetric.

Principal aquifer: 112BLCF, basaltic rocks; 121BDHC, Bidahochi Formation; 120SDMR, Tertiary sedimentary rocks, undifferentiated; 211SDMR, Upper Cretaceous sedimentary rocks, undifferentiated; 231SNSL, Sonsela Sandstone Bed; 310KIBB, Kaibab Limestone.

LOCAL NUMBER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	PRINCIPAL AQUIFER	TEMPERATURE (DEGREES C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25 °C)	NAME OF SPRING
A-08-26 05BCB	H,S	8891	2 V	09/24/1974	112BLCF	8.0	110	FRANEY
A-08-26 05CCA	H,S	8900	2 V	09/24/1974	112BLCF	8.0	165	FIREMAN CAB
A-08-26 09DAB	S	9290	--	--	112BLCF	--	--	UDALL DRAW
A-08-26 14DCD	S	9400	--	--	112BLCF	--	--	SWINBORNE
A-08-26 25AAA	H,S	9150	1 V	09/23/1974	112BLCF	8.0	110	BEEHIVE
A-08-26 26DCD	S	9150	--	--	112BLCF	--	--	SHEEP
A-09-25 02DCB	S	7460	0.1 V	11/19/1974	112BLCF	8.0	153	BUCKELEW
A-09-25 20ADC	S	8107	--	--	112BLCF	12.0	111	QUAKIE PATCH
A-09-25 28DAA	S	8490	--	--	112BLCF	10.0	86	PORTER
A-09-25 29BAD	--	8290	--	--	112BLCF	--	--	FIREBOX
A-09-26 02DBB	S	7740	--	--	112BLCF	--	140	MALLORY
A-09-26 04DCD	U	7800	--	--	112BLCF	--	--	KITCHEN
A-09-26 15DAC	S	8350	8 E	09/24/1974	112BLCF	9.0	130	LITTLE GIANT
A-09-26 20CAA	S	8520	10 E	11/20/1974	112BLCF	8.0	111	MINERAL
A-09-26 28BDB	S	8710	--	--	112BLCF	--	--	SAWMILL
A-09-26 34BBB	S	8920	--	--	112BLCF	--	--	BURNT MILL
A-09-27 18DDD	H,S	8050	8 E	09/24/1974	112BLCF	10.0	200	ATASCACITA
A-09-27 26BBB	S	7600	3 E	12/24/1974	112BLCF	8.0	188	--
A-09-30 21CDB	S	7180	--	--	112BLCF	8.0	532	HORSESHOE
A-10-28 02CCA	I,S	6100	1 E	01/16/1975	112BLCF	--	250	SHERWOOD
A-10-28 03AAD	I,H	6080	8 V	01/17/1975	112BLCF	12.0	500	NEILSON
A-10-28 06DAC	S	6295	20 V	01/06/1975	112BLCF	15.0	244	24 RANCH
A-10-28 08DBC	S	6235	100 E	01/06/1975	112BLCF	17.0	230	WILTBANK
A-10-28 11CDA	H,S	6100	3 E	01/16/1975	112BLCF	14.0	320	HALL
A-10-28 12CBB	U	6180	0.1 V	01/16/1975	211SDMR	15.0	350	--
A-10-28 21BAA	S	6320	0.3 E	01/15/1975	112BLCF	13.0	190	HALL RANCH
A-10-29 20AAD	S	6460	0.1 E	01/16/1975	112BLCF	--	740	--
A-11-25 20BCD	S	6390	3 V	01/15/1975	211SDMR	7.0	424	LAGUNA SALDA
A-11-27 01CAB	S	6230	0.3 E	01/07/1975	121BDHC	15.0	400	HIDDEN
A-11-27 09DAA	S	6260	5 E	01/07/1975	112BLCF	8.5	440	MUD
A-11-27 25CAC	S	6335	0.1 E	12/20/1974	112BLCF	--	--	STRADDLING
A-11-28 04DBA	S	5930	350 E	01/08/1975	120SDMR	--	650	--
A-11-28 18BDD	S	6220	0.1 E	01/07/1975	121BDHC	--	700	COTTONWOOD
A-12-26 10CCB	S	6150	5 E	01/15/1975	112BLCF	15.0	282	ORTEGA
A-12-26 19ABA	I,R	6300	1120 C	12/06/1951	112BLCF	13.5	172	CONCHO
A-12-26 26DBB	S	6180	4 V	01/15/1975	112BLCF	14.0	267	MALPAIS
A-12-27 14CBD2	S	6020	0.3 E	01/07/1975	121BDHC	--	1200	ROMERO
A-12-27 21AAD	S	6060	0.1 E	01/07/1975	121BDHC	--	--	--
A-12-27 30ABD	S	6040	2 V	01/15/1975	112BLCF	13.0	460	--
A-12-31 16BBD	U	6350	0.1 E	03/20/1975	231SNSL	10.0	940	GALLEGOS
A-13-27 13A	S	5700	67 F	09/17/1975	121BDHC	18.0	1450	BIG HOLLOW
A-13-27 13CDC	I,S	5720	50 E	02/12/1975	121BDHC	16.0	1200	--
A-13-27 32CDB	P	5960	10 M	02/06/1975	112BLCF	14.5	510	SCHUSTER
A-13-29 20C	P	5900	5 R	07/ /1946	121BDHC	15.0	400	MC INTOSH
A-13-29 33BCB	S	6040	29	1957	121BDHC	8.0	470	DAVIS
A-14-26 10CDC	S	5450	18 F	04/14/1976	310KIBB	16.0	3900	STINKING
A-20-27 26BCB	S	5730	1 E	11/18/1975	121BDHC	--	--	SALT SEPPS
A-20-27 29DBD	S	5670	5 E	11/18/1975	121BDHC	25.0	780	NAVAJO

Local identifier: See figure 2 for description of well-numbering and location system.
Agency analyzing sample (code number): 1028, U.S. Geological Survey; 9704, Arizona

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	SILICA, DIS-SOLVED (MG/L AS SIO2)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
A-05-30 01BBC1	75-03-19	--	14	14	3.4	27	1.6	--	95	--
A-05-30 03DBA	75-03-19	--	23	9.1	2.1	60	1.7	--	189	--
A-05-30 13DBC	74-07-30	--	27	37	9.7	39	1.0	--	241	0
A-05-30 14DAA	75-03-09	--	22	4.0	.5	63	1.7	--	166	--
	75-03-19	--	22	4.0	.5	63	1.7	--	166	--
A-07-28 06DBB2	74-07-24	16.5	16	7.9	1.8	48	.7	--	145	--
A-08-29 02ABA	74-08-15	16.5	26	36	19	42	1.1	--	290	0
A-08-29 03BBA	57-03-07	--	33	46	27	32	--	--	338	0
	74-08-15	--	13	38	19	34	6.5	--	296	0
A-08-29 04DCC	66-08-16	18.0	14	42	24	41	2.7	--	320	0
	74-08-14	26.0	23	40	26	29	1.5	--	281	0
A-08-29 05ADB	70-01-22	15.0	6.0	42	19	74	--	--	368	0
A-08-29 07ABD	66-08-18	14.0	26	43	19	19	.1	--	244	0
	74-08-22	17.0	--	--	--	--	--	--	--	--
A-08-29 07ACD	68-06-13	26.0	21	390	60	--	--	472	842	0
	68-06-14	27.0	21	392	61	--	--	468	844	0
A-08-29 07BCB	66-08-18	15.0	29	49	14	8.0	.1	--	236	0
A-08-29 09BDD	69-11-05	--	--	46	22	49	--	--	268	0
	74-08-14	--	13	40	23	40	3.2	--	307	0
A-08-29 11ADA	74-09-25	20.0	15	24	26	54	5.7	--	314	0
A-08-29 11BBC	74-08-15	16.0	23	47	27	55	2.4	--	320	0
A-08-29 16BAA	66-10-09	20.0	12	3.2	3.9	--	--	206	444	24
	74-08-13	21.0	10	4.2	1.6	200	4.8	--	350	6
A-08-29 16BDC	74-11-01	15.0	11	7.8	2.5	170	5.6	--	462	--
A-08-29 16CBC	66-08-16	22.0	8.0	3.2	1.4	182	6.7	--	412	11
	68-04-04	--	--	4.0	1.0	180	--	--	396	27
	69-11-05	--	--	4.0	1.0	179	--	--	370	15
	74-08-13	23.0	11	4.7	2.0	190	6.6	--	467	4
A-08-31 31ADD	74-12-19	--	14	1.7	.3	110	1.2	--	187	35
A-08-31 34ABB	74-12-19	10.0	30	44	13	20	.9	--	218	--
A-09-27 01DDB	74-12-20	--	29	16	8.1	11	2.3	--	108	--
A-09-29 28DDD	66-07-15	12.0	--	70	17	--	--	33	324	0
A-09-29 32BDC1	74-08-15	14.5	15	50	19	26	1.6	--	275	0
A-09-29 32BDC2	69-05-17	16.0	6.0	56	19	22	--	--	286	--
	74-08-15	16.0	24	57	20	37	2.5	--	306	0
A-09-29 32BDD	74-06-24	--	--	26	10	70	--	--	230	0
A-09-29 33BDA	66-08-17	16.0	8.3	40	19	64	8.6	--	304	0
	69-04-03	--	--	36	15	37	--	--	208	0
	74-06-24	--	--	28	13	60	--	--	236	0
A-09-29 33CBA	66-08-17	16.0	7.9	28	18	64	8.2	--	312	0
A-09-29 33CBA	69-04-03	--	--	34	13	60	--	--	228	0
	74-06-24	--	--	35	13	50	--	--	232	0
A-09-30 14CCB	75-03-20	--	23	48	15	27	2.6	--	237	--
A-09-31 10BCA	33-12-22	--	--	28	--	26	--	26	192	0
A-10-25 15DAC	74-07-30	--	25	27	9.9	8.6	1.3	--	128	0
A-10-25 18ABD	57-06-13	13.0	--	--	--	--	--	--	192	0
A-10-25 20BCC	57-06-13	18.0	25	14	6.7	--	--	19	97	0
A-10-25 22BBC1	34-01-04	--	--	28	--	9.0	--	--	134	0
A-10-25 22CAC	57-06-13	--	--	--	--	--	--	--	112	0
A-10-27 17DCB	74-11-21	14.0	22	16	10	9.5	4.9	--	124	0
A-10-28 11BAA	75-01-16	--	29	55	41	41	1.3	--	435	--
A-10-28 26CCB	74-12-20	15.0	19	23	8.7	9.3	1.9	--	110	--
A-10-29 15BAB	75-01-16	--	17	55	100	200	1.3	--	453	--
A-10-29 33DDC	57-03-07	--	33	46	27	--	--	52	338	0
A-10-30 08AAA	75-03-19	10.0	.7	11	38	78	10	--	247	--
A-10-31 29BBD	74-12-17	19.0	7.2	62	29	270	15	--	635	--
A-11-24 08AAC	57-06-12	18.0	--	--	--	--	--	--	247	0
	74-12-19	--	20	41	45	46	6.1	--	235	--
A-11-24 18DDA	74-12-19	--	27	49	25	21	3.9	--	226	--
A-11-24 36DAB	57-06-13	18.0	--	--	--	--	--	--	278	0
A-11-25 05AAA	57-06-11	16.0	21	19	8.6	--	--	13	113	0
	66-08-17	18.0	15	20	8.8	9.0	2.3	--	110	0
A-11-25 08DCC	57-06-11	12.0	--	--	--	--	--	--	364	0
A-11-25 18CDD	46-07-05	13.0	--	--	--	--	--	--	208	0
	57-06-12	16.0	--	--	--	--	--	--	189	0
A-11-25 18DCC	58-08-21	14.0	14	65	18	--	--	14	260	0
	59-08-14	--	--	--	--	--	--	--	260	0
	66-11-17	14.0	14	71	15	--	--	22	268	0
	75-01-15	12.0	12	62	21	12	5.2	--	257	--
A-11-25 23CAB	75-01-15	--	31	20	13	13	4.4	--	106	13
A-11-25 29BDB	57-06-11	14.0	--	--	--	--	--	--	288	0
A-11-26 17ADC	46-08-14	--	--	--	--	--	--	--	131	0
	75-01-14	--	25	20	12	12	5.0	--	141	--
A-11-26 29BBB	75-01-14	--	35	19	13	11	5.9	--	150	--
A-11-26 31DDC	74-11-22	11.0	8.0	20	15	9.8	4.9	--	157	--
A-11-27 23AAA	74-12-20	--	13	130	42	130	13	--	414	--
A-11-27 23CCC	74-12-20	12.0	30	20	13	13	4.3	--	142	--
A-11-27 34CDA	75-01-08	--	28	46	22	18	4.2	--	129	--
A-11-28 05DBC	75-03-19	15.0	8.1	99	46	110	14	--	369	--
A-11-28 09ACC2	55-07-15	17.0	16	248	60	--	--	297	636	0

State Health Laboratory; 9801, private laboratory; 9802, Salt River Valley Water Users' Association; 9902, University of Arizona.

DATE OF SAMPLE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)
75-03-19	22	5.2	.2	135	134	49	0	54	1.7	220	--	1028
75-03-19	10	5.0	.4	205	208	31	0	80	4.7	318	--	1028
74-07-30	15	7.6	.2	256	248	130	0	39	1.5	480	8.1	1028
75-03-09	6.0	2.6	.4	183	173	12	0	91	7.9	277	--	1028
75-03-19	6.0	2.6	.4	183	173	12	0	22	7.9	277	--	1028
74-07-24	8.2	5.6	.2	160	173	27	0	79	4.0	237	--	1028
74-08-15	13	5.7	.9	290	282	170	0	35	1.4	477	8.0	1028
57-03-07	27	17	.8	378	--	226	0	33	1.5	562	7.7	1028
74-08-15	9.3	7.7	.5	274	262	170	0	29	1.1	467	7.9	1028
66-08-16	18	17	.7	318	--	204	0	30	1.3	538	7.5	1028
74-08-14	14	16	.6	292	283	210	0	23	.9	494	7.8	1028
70-01-22	16	16	.6	372	374	182	0	--	2.4	585	7.7	9801
66-08-18	10	13	.1	252	--	186	0	18	.6	410	7.6	1028
74-08-22	--	--	--	--	--	--	--	--	--	610	--	1028
68-06-13	770	530	2.7	2660	--	1220	530	--	--	3970	6.7	1028
68-06-14	770	530	2.8	2660	--	1230	539	--	--	3980	6.7	1028
66-08-18	8.0	3.0	.1	227	--	178	0	9	.3	355	7.3	1028
69-11-05	16	10	.8	340	--	204	0	--	1.5	526	--	9704
74-08-14	12	8.2	.9	292	274	190	0	30	1.2	512	7.8	1028
74-09-25	19	7.3	.7	307	285	170	0	40	1.8	510	8.0	1028
74-08-15	42	21	.8	384	368	230	0	34	1.6	633	7.8	1028
66-10-09	41	14	2.2	525	--	24	0	--	--	826	8.7	1028
74-08-13	44	93	2.2	539	504	17	0	95	21	700	8.5	1028
74-11-01	32	11	2.2	470	482	30	0	91	14	793	--	1028
66-08-16	39	11	2.3	468	--	14	0	95	21	784	8.5	1028
68-04-04	42	9.0	2.6	535	--	14	0	--	21	833	--	9704
69-11-05	38	9.0	2.6	--	--	16	0	--	21	667	--	9704
74-08-13	39	10	2.7	501	505	20	0	94	19	827	8.4	1028
74-12-19	12	10	1.4	278	280	5	0	97	20	474	--	1028
74-12-19	19	4.5	.3	241	240	160	0	21	.7	387	7.8	1028
74-12-20	3.2	3.5	.1	129	124	73	0	24	.6	188	--	1028
66-07-15	20	21	--	321	--	244	0	--	--	561	7.8	1028
74-08-15	13	17	.3	278	275	200	0	22	.8	480	8.1	1028
69-05-17	8.2	18	.1	427	--	220	0	--	.7	542	7.4	9801
74-08-15	17	19	.3	335	323	220	0	26	1.1	555	7.7	1028
74-06-24	13	7.0	.6	250	--	108	0	--	3.0	400	7.8	9704
66-08-17	17	10	.9	318	--	178	0	42	2.1	445	7.3	1028
69-04-03	9.0	4.0	.5	290	--	152	0	--	1.3	454	--	9704
74-06-24	8.0	5.0	.7	240	--	124	0	--	2.4	385	8.1	9704
66-08-17	16	11	1.0	308	--	142	0	47	2.3	455	7.7	1028
69-04-03	12	8.0	.8	--	325	140	0	--	2.2	500	--	9704
74-06-24	9.0	10	.7	264	--	142	0	--	1.8	417	7.9	9704
75-03-20	20	10	.7	274	263	180	0	24	.9	439	--	1028
33-12-22	12	13	.6	206	--	138	0	--	--	--	--	1028
74-07-30	9.7	8.3	.3	156	144	110	3	15	.4	480	7.9	1028
57-06-13	--	7.5	--	--	--	120	0	--	--	350	7.0	1028
57-06-13	4.9	4.0	.4	118	--	62	0	32	.7	165	7.2	1028
34-01-04	16	23	.1	175	--	141	31	--	--	--	--	1028
57-06-13	--	3.0	--	--	--	98	6	--	--	198	7.2	1028
74-11-21	3.2	3.8	.3	134	130	81	0	19	.5	213	--	1028
75-01-16	16	14	.4	413	391	310	0	22	1.0	670	--	1028
74-12-20	6.3	6.5	.1	134	127	93	3	17	.4	260	--	1028
75-01-16	590	22	.1	1210	1230	550	180	44	3.7	1750	--	1028
57-03-07	27	17	.8	378	--	226	0	--	--	562	7.7	1028
75-03-19	79	54	.7	394	412	180	0	46	2.5	690	--	1028
74-12-17	280	24	1.6	1000	998	270	0	67	7.1	1540	--	1028
57-06-12	--	88	--	--	--	322	120	--	--	790	7.4	1028
74-12-19	60	93	.7	437	441	290	95	25	1.2	720	--	1028
74-12-19	34	28	.3	304	286	230	40	17	.6	500	--	1028
57-06-13	--	6.0	--	--	--	299	71	--	--	607	7.2	1028
57-06-11	11	4.0	.4	133	--	83	0	25	.6	202	7.2	1028
66-08-17	12	4.0	.0	125	--	86	0	18	.4	208	7.2	1028
57-06-11	--	78	--	--	--	635	336	--	--	1430	7.2	1028
46-07-05	.0	51	--	--	--	--	--	--	--	650	--	1028
57-06-12	--	68	--	--	--	272	117	--	--	690	7.2	1028
58-08-21	30	16	1.0	286	--	238	25	12	.4	492	7.6	1028
59-08-14	--	17	--	--	--	240	27	--	--	506	7.3	1028
66-11-17	34	20	.7	309	--	238	18	--	--	522	7.2	1028
75-01-15	36	15	.6	291	283	240	30	10	.3	499	--	1028
75-01-15	5.4	16	.2	169	170	100	0	21	.6	257	9.1	1028
57-06-11	--	5.0	--	--	--	287	51	--	--	550	7.3	1028
46-08-14	--	4.0	.6	--	--	--	--	--	--	225	--	1028
75-01-14	4.6	5.9	.2	157	140	99	0	20	.5	248	7.9	1028
75-01-14	4.5	3.2	.1	167	156	100	0	18	.5	190	8.1	1028
74-11-22	3.8	3.5	.3	145	139	110	0	15	.4	257	--	1028
74-12-20	220	140	2.2	895	904	500	160	36	2.5	1450	7.6	1028
74-12-20	5.3	6.6	.2	167	159	100	0	21	.6	250	8.1	1028
75-01-08	47	60	.2	317	339	210	100	16	.5	480	8.1	1028
75-03-19	200	140	1.9	801	789	440	130	35	2.3	1300	--	1028
55-07-15	521	310	3.1	1770	--	866	344	43	4.4	2610	6.6	1028

LOCAL IDENT- I- FIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SILICA, DIS- SOLVED (MG/L AS SIO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SODIUM+ POTAS- SIUM DIS- SOLVED (MG/L AS NA)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
A-11-28 09BDA	75-01-08	17.0	14	190	48	200	16	--	523	--
A-11-28 09DAD	75-01-17	--	13	160	59	280	15	--	296	--
A-11-28 21ABA	74-12-19	--	9.5	110	34	100	13	--	339	--
A-11-29 07DBB	75-01-16	--	12	250	66	430	32	--	473	--
A-11-29 10ACA	75-03-19	--	11	200	90	460	42	--	363	--
A-11-29 23DDD	56-12-14	14.5	--	--	--	--	--	--	490	--
A-11-29 27ACA	75-01-16	--	15	320	59	430	29	--	741	--
	75-05-13	22.5	17	320	56	410	8.0	--	740	--
A-11-30 03CAD	75-05-20	--	13	260	75	450	37	--	530	0
A-11-30 20ACD	75-03-19	19.0	10	320	75	390	35	--	885	--
A-11-30 35CCA	75-03-19	15.0	8.1	190	69	380	36	--	396	--
A-11-31 17ACD	75-03-19	13.0	7.6	200	64	400	37	--	389	--
A-11-31 31CAD	75-03-19	16.0	3.9	210	64	370	38	--	411	--
A-12-24 11CDA	74-10-14	16.0	14	50	16	18	4.1	--	185	--
A-12-24 14DCC	57-06-12	18.0	17	27	10	--	--	15	119	0
	75-04-22	--	14	28	13	11	3.4	--	113	--
A-12-25 14DBD	56-08-22	17.0	--	--	--	--	--	--	176	0
	75-01-21	16.0	17	27	12	16	2.9	--	143	--
A-12-25 18CCC1	34-01-04	--	--	74	83	323	--	--	532	0
A-12-25 18CCC2	75-01-21	16.0	16	48	20	11	2.6	--	164	--
A-12-25 28CDC	34-01-04	--	--	93	99	--	--	86	350	0
A-12-25 34CAB	75-01-22	10.0	27	44	41	32	3.6	--	287	--
A-12-26 02BDA	76-04-15	--	26	31	25	97	4.1	--	231	--
A-12-26 04BBC	75-01-22	13.0	17	33	16	22	4.8	--	164	--
A-12-26 13DCD	57-04-24	17.0	--	--	--	--	--	--	371	0
	75-01-16	15.0	6.4	4.7	3.1	200	3.3	--	226	82
A-12-26 15BCC	57-05-02	17.0	--	--	--	--	--	--	--	--
	75-01-15	15.0	29	14	9.4	34	5.0	--	164	--
A-12-26 18CBB	75-01-22	--	15	48	15	20	3.9	--	156	--
A-12-26 18DCC2	68-06-09	18.0	19	37	20	--	--	34	186	0
A-12-27 19BCD	57-05-23	16.0	--	--	--	--	--	--	466	0
A-12-27 26BAB1	69-06-26	16.5	--	--	--	--	--	--	--	--
	75-01-07	12.0	20	19	15	47	2.7	--	222	--
A-12-27 35CDA	68-11-27	19.0	--	83	30	60	--	--	260	0
	75-01-07	17.0	8.6	82	29	55	15	--	329	--
A-12-27 35CDB	69-06-26	17.0	--	--	--	--	--	--	--	--
	75-01-07	14.0	25	39	27	27	4.6	--	206	--
A-12-28 07CDB	56-03-21	--	18	246	88	--	--	346	697	0
	66-11-17	18.0	15	348	47	--	--	384	758	--
	75-09-10	17.0	12	310	61	360	25	--	1020	0
A-12-28 07DBD	75-03-21	14.0	8.8	190	49	380	28	--	723	--
A-12-28 12BDA	75-01-22	--	--	--	--	--	--	--	--	--
	75-03-20	12.0	16	66	18	57	6.2	--	266	--
A-12-28 17CCC	75-02-26	13.0	12	21	10	320	1.7	--	517	--
A-12-28 18BAA	56-12-06	14.5	--	--	--	--	--	--	340	7
A-12-28 18DBC	75-02-26	13.5	14	46	24	260	11	--	587	--
A-12-28 18DDC2	56-12-06	13.0	--	--	--	--	--	--	510	0
A-12-28 19BAD	75-03-18	15.0	8.0	290	62	430	31	--	780	--
	75-03-20	--	--	--	--	--	--	--	--	--
	75-09-11	16.5	7.6	260	64	460	23	--	776	0
	76-04-15	18.0	9.4	310	68	360	26	--	764	--
	76-09-09	17.5	8.8	240	67	470	25	--	712	--
A-12-28 30DBA	75-01-07	15.0	12	280	61	360	26	--	741	--
A-12-28N02CBD	75-03-18	--	17	190	68	560	18	--	353	--
A-12-29 10ACA	75-03-20	--	3.0	190	100	400	38	--	327	--
A-12-29 31BDC1	56-12-11	15.5	--	--	--	--	--	--	420	0
A-12-29 31BDC2	75-03-20	15.5	11	370	96	370	31	--	772	--
A-12-29 35BAB	75-03-21	--	9.8	200	88	480	41	--	387	--
A-12-30 13ACA	75-03-20	--	6.8	220	100	270	38	--	489	--
A-12-30 27ABA	75-05-20	--	1.8	220	110	540	48	--	541	0
A-12-31 08DBC	75-03-20	17.0	--	--	--	--	--	--	--	--
	75-05-20	--	7.9	300	83	260	34	--	821	0
A-13-24 22BBD	75-09-12	16.0	12	60	19	18	2.7	--	192	0
	76-04-13	18.0	12	62	20	17	2.9	--	196	--
	76-09-08	18.0	12	63	19	18	2.8	--	184	--
A-13-25 04CCA	56-08-20	17.0	--	--	--	--	--	--	143	0
A-13-26 06DCB	74-06-00	16.5	--	--	--	--	--	--	--	--
A-13-27 09CAD	75-02-25	--	6.3	110	45	150	13	--	251	--
A-13-27 15BDA	75-02-22	--	9.0	227	51	197	--	--	490	0
A-13-27 15BDD	74-05-00	18.0	--	--	--	--	--	--	--	--
A-13-27 25BBD	75-02-06	14.0	8.6	68	18	280	14	--	423	--
A-13-27 25DCC	75-02-07	15.5	8.4	100	35	260	19	--	405	--
A-13-27 26AAC	75-02-07	--	7.3	44	11	260	11	--	510	--
A-13-27 27BBC	59-05-04	18.0	--	238	59	--	--	232	501	0
A-13-27 31ABC	75-01-16	--	33	29	26	67	3.7	--	238	--
A-13-28 06DDD	75-02-14	16.0	9.4	79	18	750	14	--	814	--
A-13-28 12CAC	74-05-00	21.0	--	--	--	--	--	--	--	--
A-13-28 17ACA	75-02-06	--	19	51	21	300	12	--	473	--
A-13-28 18DAA	75-09-17	--	8.4	130	33	430	18	--	766	0
A-13-28 19DCC	75-03-21	16.0	17	17	8.3	250	4.6	--	463	--

DATE OF SAMPLE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)
75-01-08	370	220	2.4	1320	1270	670	240	39	3.4	2000	7.1	1028
75-01-17	550	350	2.6	1580	1660	640	400	48	4.8	2420	8.2	1028
74-12-19	170	120	2.4	726	712	410	140	34	2.1	1300	7.9	1028
75-01-16	800	520	.1	2340	2260	900	510	50	6.3	3500	7.6	1028
75-03-19	890	550	2.3	2430	2450	870	570	52	6.8	3700	--	1028
56-12-14	--	16	--	--	--	370	0	--	--	875	8.4	1028
75-01-16	740	500	1.0	2460	2260	1000	430	46	5.8	3500	7.5	1028
75-05-13	720	430	2.7	2330	2300	1000	420	46	5.6	3400	--	1028
75-05-20	820	520	2.3	2420	2440	960	520	49	6.3	3560	7.4	1028
75-03-19	590	460	2.1	2320	2290	1100	380	42	5.1	3800	--	1028
75-03-19	610	460	1.8	1950	2110	760	430	51	6.0	3400	--	1028
75-03-19	680	490	2.0	2070	2140	760	440	52	6.3	3300	--	1028
75-03-19	680	460	1.8	2030	2020	790	450	49	5.7	3000	--	1028
74-10-14	66	17	.1	277	--	190	39	17	.6	460	8.0	1028
57-06-12	28	9.5	.4	167	--	108	11	23	.6	269	7.2	1028
75-04-22	34	9.3	.2	169	170	120	31	16	.4	249	--	1028
56-08-22	--	8.5	--	--	--	150	6	--	--	356	7.1	1028
75-01-21	27	9.0	.2	182	174	120	0	22	.6	296	--	1028
34-01-04	383	260	1.2	1416	--	525	89	--	6.1	--	--	1028
75-01-21	81	8.5	.2	268	276	200	68	10	.3	442	--	1028
34-01-04	160	250	.2	885	--	638	350	--	--	--	--	1028
75-01-22	45	48	.5	391	371	280	43	20	.8	673	--	1028
76-04-15	51	100	1.2	470	458	180	0	53	3.1	800	--	1028
75-01-22	32	19	.2	225	207	150	14	24	.8	394	--	1028
57-04-24	--	100	--	--	--	380	76	--	--	1090	7.4	1028
75-01-16	38	81	3.1	535	549	25	0	94	18	944	8.8	1028
57-05-02	--	--	--	--	--	--	--	--	--	375	--	1028
75-01-15	8.8	5.0	.2	188	181	74	0	48	1.7	282	--	1028
75-01-22	100	18	.4	319	354	180	54	19	.6	386	--	1028
68-06-09	51	31	.3	284	--	177	24	--	--	495	7.7	1028
57-05-23	--	1240	--	--	--	725	343	--	--	5210	7.4	1028
69-06-26	--	--	--	--	--	--	--	--	--	480	--	1028
75-01-07	19	11	.5	248	234	110	0	48	2.0	400	8.1	1028
68-11-27	108	67	2.8	550	--	335	120	--	1.4	870	--	9704
75-01-07	97	69	2.7	521	511	320	54	26	1.3	850	7.6	1028
69-06-26	--	--	--	--	--	--	--	--	--	540	--	1028
75-01-07	21	60	.3	315	306	210	40	22	.8	540	--	1028
56-03-21	578	390	1.7	2010	--	976	405	44	4.8	3040	7.0	1028
66-11-17	670	405	2.4	2240	--	1060	439	--	--	3240	6.7	1028
75-09-10	740	420	2.3	2430	2010	1000	190	43	4.9	3200	6.2	1028
75-03-21	500	310	2.4	1830	1690	680	83	54	6.4	2900	--	1028
75-01-22	--	--	--	--	--	--	--	--	--	--	--	1028
75-03-20	120	15	2.5	442	457	240	21	33	1.6	710	--	1028
75-02-26	280	57	5.3	964	974	94	0	88	14	1500	8.3	1028
56-12-06	--	110	--	--	--	130	0	--	--	1670	8.4	1028
75-02-26	190	69	4.1	908	873	210	0	71	7.7	1350	7.6	1028
56-12-06	--	56	--	--	--	91	0	--	--	1860	7.5	1028
75-03-18	610	470	2.1	2290	2130	980	340	48	6.0	3500	--	1028
75-03-20	--	--	--	--	--	--	--	--	--	--	--	1028
75-09-11	600	470	2.5	2270	1970	910	280	52	6.6	3500	6.5	1028
76-04-15	600	410	2.4	2160	2240	1100	430	42	4.8	2500	--	1028
76-09-09	510	550	2.3	2220	2230	880	290	53	6.9	3300	--	1028
75-01-07	600	380	2.7	2090	2060	950	340	44	5.1	3000	--	1028
75-03-18	1400	220	2.2	2670	2760	750	470	61	8.9	8000	--	1028
75-03-20	900	470	2.3	2270	2340	890	620	48	5.8	3500	--	1028
56-12-11	--	45	--	--	--	200	0	--	--	949	7.9	1028
75-03-20	930	450	2.8	2640	2680	1300	690	37	4.4	3700	--	1028
75-03-21	850	560	.4	2420	2450	860	540	53	7.1	3700	--	1028
75-03-20	630	360	2.0	1870	1950	960	560	37	3.8	2870	--	1028
75-05-20	820	660	1.8	2670	2670	1000	560	53	7.4	4120	7.7	1028
75-03-20	--	--	--	--	--	--	--	--	--	3000	--	1028
75-05-20	590	310	2.5	1990	1950	1100	420	33	3.4	3000	6.8	1028
75-09-12	87	17	.3	311	317	230	71	14	.5	500	7.4	1028
76-04-13	89	22	.4	322	337	240	76	13	.5	500	--	1028
76-09-08	97	18	.2	321	325	240	85	14	.5	475	--	1028
56-08-20	--	15	--	--	--	161	44	--	--	365	7.3	1028
74-06-00	--	--	--	254	--	--	--	--	--	390	--	9802
75-02-25	310	210	2.3	971	1050	460	250	41	3.0	1600	8.0	1028
75-02-22	305	218	3.3	1490	--	778	210	--	3.1	2500	7.6	9801
74-05-00	--	--	--	1235	--	--	--	--	--	1900	--	9802
75-02-06	440	49	1.9	1090	1030	240	0	70	7.8	1610	--	1028
75-02-07	490	110	1.3	1220	1230	390	62	58	5.7	1800	7.7	1028
75-02-07	270	33	3.0	891	891	160	0	77	9.1	1400	7.6	1028
59-05-04	486	295	2.3	1580	--	835	424	--	--	2350	7.1	1028
75-01-16	40	39	.9	405	406	180	0	44	2.2	654	8.2	1028
75-02-14	600	440	3.2	2320	2430	270	0	85	20	3500	7.5	1028
74-05-00	--	--	--	2145	--	--	--	--	--	3300	--	9802
75-02-06	370	94	1.9	1120	1110	210	0	74	8.9	1700	7.8	1028
75-09-17	480	240	3.4	1720	1700	460	0	66	8.7	2400	6.6	1028
75-03-21	140	92	3.8	776	782	77	0	87	12	1200	--	1028

LOCAL IDENT- I- FIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SILICA, DIS- SOLVED (MG/L AS SIO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SODIUM+ POTAS- SIUM DIS- SOLVED (MG/L AS NA)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
A-13-28 20ABD	75-02-25	13.5	21	75	33	320	8.1	--	433	--
A-13-28 20DBC	75-02-06	--	8.3	93	26	420	16	--	579	--
A-13-28 26ACD	75-03-18	15.0	7.8	230	65	250	31	--	680	--
A-13-28 27BAD	55-05-26	16.0	11	312	108	--	--	324	772	0
	75-03-18	15.0	9.3	310	90	320	29	--	750	--
A-13-28 27BDC	66-11-17	14.0	10	276	51	--	--	258	510	0
	75-02-25	13.0	7.0	240	60	240	28	--	491	--
A-13-28 28DAD	75-03-18	15.0	18	490	200	940	16	--	480	--
A-13-28 29AAD	75-03-06	--	8.7	140	59	740	17	--	237	--
A-13-28 29BCD	46-06-11	--	30	52	30	--	--	391	552	0
	75-02-07	10.0	--	--	--	--	--	--	--	--
A-13-29 32DDC	75-03-20	--	1.7	4.2	38	200	27	--	232	--
A-13-29 35AAA	75-03-20	17.0	12	330	92	360	35	--	827	--
	76-04-13	17.5	11	240	100	400	33	--	560	--
	76-09-09	18.5	12	340	94	370	29	--	873	--
A-13-30 03BCD1	55-09-17	21.0	14	171	52	--	--	98	590	0
A-13-30 05DCA	75-11-20	--	10	180	39	93	17	--	545	--
A-13-31 30DCD	75-03-20	--	7.6	160	62	240	27	--	692	--
A-14-24 04DDA	66-08-17	17.0	7.9	66	22	33	5.8	--	165	--
A-14-24 10BBB	66-08-09	--	7.3	66	22	32	5.1	--	171	0
A-14-24 12CAC	56-08-10	18.0	10	54	20	--	--	34	148	0
A-14-24 29DCC	76-04-13	18.5	10	60	24	25	3.6	--	139	--
	76-09-08	18.0	9.4	51	22	21	3.3	--	156	--
A-14-25 01ABD	75-05-12	16.5	9.5	77	25	520	6.3	--	266	--
A-14-25 14CCD	75-03-05	--	3.8	70	24	41	8.1	--	219	--
	75-09-11	17.5	10	63	22	44	4.9	--	178	0
	76-04-14	17.0	9.4	66	23	37	4.9	--	199	--
A-14-25E12CDD1	66-11-18	17.0	13	170	28	--	--	225	172	0
A-14-25E13BBC	56-10-14	17.0	13	99	34	78	--	--	160	0
A-14-25E13DAD	57-05-21	16.0	--	--	--	--	--	--	140	0
A-14-26 02DDD	75-03-17	16.5	11	330	86	550	26	--	689	--
A-14-26 03CBC	75-03-17	16.5	13	270	96	600	24	--	662	--
A-14-26 19ADA	66-08-04	18.0	--	39	16	--	--	102	192	0
	66-08-17	18.0	8.0	38	16	10	6.8	103	188	0
A-14-26 19BDD	75-03-05	--	9.6	39	14	45	5.5	--	161	--
A-14-26 21BCC	57-05-23	18.5	--	--	--	--	--	--	190	0
A-14-26 27CAC	57-05-23	18.0	--	--	--	--	--	--	190	0
A-14-26 27DCB	57-05-23	16.0	--	--	--	--	--	--	495	0
A-14-26 34ACB	57-05-23	16.0	--	--	--	--	--	--	160	0
A-14-26E18DCC	66-08-04	18.0	--	42	15	--	--	115	199	0
A-14-26E18DDD	66-08-17	18.0	8.5	38	15	44	5.8	--	162	0
A-14-27 01DCD	75-07-02	17.0	17	110	22	1100	6.4	--	641	0
A-14-27 08DDA	75-07-02	18.0	12	290	80	460	18	--	610	0
A-14-27 15BDC	75-07-02	15.0	13	600	230	1200	15	--	434	0
A-14-27 28DCD	75-02-24	--	7.6	150	76	260	25	--	300	--
A-14-27 30BAC	75-03-17	16.5	13	220	63	190	22	--	549	--
A-14-27 35BDC	75-02-25	--	--	--	--	--	--	--	--	--
	75-09-12	17.0	8.9	160	43	290	18	--	514	0
	76-04-14	17.0	7.9	64	17	350	10	--	409	--
	76-09-09	18.0	9.0	110	29	310	14	--	458	--
A-14-28 13DBD	57-01-08	--	--	--	--	--	--	--	334	0
	75-08-12	15.5	21	190	94	610	4.8	--	334	0
A-14-28 20CBA	46-06-20	--	--	54	15	--	--	750	298	0
A-14-29 33BBB	75-03-18	22.0	10	220	49	260	25	--	659	--
A-14-29 35CDC1	75-09-17	19.0	9.9	200	46	170	21	--	654	0
	76-04-14	19.0	10	200	42	170	21	--	660	--
	76-09-09	19.5	10	210	45	170	21	--	653	--
A-14-30 07ACD	75-05-21	15.5	8.3	65	28	320	17	--	534	0
A-14-30 21ADB	55-08-30	20.0	--	--	--	--	--	--	610	0
	75-05-21	--	9.7	120	29	210	13	--	597	0
A-14-30 26DDB	75-05-21	--	11	150	41	100	12	--	541	0
A-15-24 13DAC	72-03-23	18.0	11	410	46	660	8.2	--	159	0
A-15-24 29CAD	71-12-17	15.5	8.7	64	18	45	4.4	--	156	0
A-15-24 33BBD	56-09-12	15.5	--	--	--	--	--	--	155	0
	72-03-23	16.5	11	56	17	40	3.9	--	160	0
A-15-25 28BBC	56-11-14	--	--	--	--	--	--	--	343	0
A-15-28 13CDD	57-01-09	16.5	--	--	--	--	--	--	513	0
	75-07-02	16.5	21	140	25	200	6.0	--	441	0
A-15-28 29BDC	75-07-02	17.0	16	55	12	280	2.7	--	244	0
A-15-28 34DDC	57-01-08	16.0	--	--	--	--	--	--	139	0
A-15-30 21ABA	75-07-31	--	12	150	34	220	12	--	430	0
	76-04-13	18.5	12	150	29	220	11	--	425	--
A-15-30 33DDB	75-05-21	15.5	13	160	38	410	11	--	515	0
A-15-31 17ADA	75-05-21	15.0	25	45	12	30	1.6	--	247	0
A-16-24 31CCC	57-05-14	16.0	5.5	118	28	--	--	208	175	0
	71-12-22	15.5	8.2	110	27	200	13	--	168	0
A-16-24 33CDD	72-03-23	17.5	11	150	23	330	10	--	264	0
A-16-25 15BAC	75-09-17	--	10	28	3.3	790	1.8	--	519	0
A-16-25 20BBC	75-09-17	--	10	5.7	.9	370	1.2	--	771	0
A-16-28 18ADB	75-08-13	15.5	19	15	3.0	130	1.5	--	193	0

DATE OF SAMPLE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)
75-02-25	500	96	1.9	1290	1310	320	0	68	7.7	1600	7.6	1028
75-02-06	540	180	4.4	1570	1620	340	0	72	9.9	2500	7.7	1028
75-03-18	440	280	1.9	1640	1480	840	280	38	3.8	2600	--	1028
55-05-26	606	465	2.3	2210	--	1220	590	37	4.0	3300	7.1	1028
75-03-18	610	450	1.2	2190	2150	1100	530	37	4.1	3400	--	1028
66-11-17	504	362	3.2	1720	--	900	482	--	--	2600	7.1	1028
75-02-25	430	350	3.1	1600	1690	850	440	37	3.6	2600	7.1	1028
75-03-18	1600	1500	2.2	5000	5180	2000	1700	50	9.0	3500	--	1028
75-03-06	1000	630	6.1	2740	2900	590	400	72	13	4350	--	1028
46-06-11	479	78	2.3	1380	--	253	0	--	--	1880	--	1028
75-02-07	--	--	--	--	--	--	--	--	--	1680	--	1028
75-03-20	51	290	1.2	728	743	170	0	68	6.7	1380	--	1028
75-03-20	640	510	1.7	2390	2380	1200	520	39	4.5	3800	--	1028
76-04-13	680	500	1.7	2240	2380	1000	550	45	5.5	2500	--	1028
76-09-09	640	500	2.2	2430	2290	1200	520	39	4.6	3400	--	1028
55-09-17	274	52	4.0	955	--	640	157	25	1.7	1450	6.7	1028
75-11-20	280	60	3.3	952	929	610	160	24	1.6	1240	--	1028
75-03-20	400	180	2.2	1420	1310	650	87	43	4.1	1800	--	1028
66-08-17	132	36	.2	385	--	255	122	21	.9	618	7.5	1028
66-08-09	127	37	.0	380	--	253	121	21	.9	616	--	1028
56-08-10	97	47	.8	336	--	216	95	26	1.0	572	7.2	1028
76-04-13	120	44	.4	356	412	250	130	18	.7	600	--	1028
76-09-08	100	25	.3	309	321	220	90	17	.6	520	--	1028
75-05-12	180	750	.6	1700	1750	300	77	79	13	3000	--	1028
75-03-05	120	51	.5	427	429	270	94	24	1.1	732	--	1028
75-09-11	110	51	.5	393	397	250	100	27	1.2	600	7.5	1028
76-04-14	110	46	.4	395	417	260	96	23	1.0	690	--	1028
66-11-18	412	325	.6	1260	--	540	399	--	--	1960	7.4	1028
56-10-14	170	170	.6	643	--	390	260	--	1.7	1160	7.8	1028
57-05-21	--	200	--	--	--	510	390	--	--	1460	7.4	1028
75-03-17	760	770	.8	2870	2850	1200	610	50	7.0	4500	--	1028
75-03-17	660	750	1.9	2730	2600	1100	530	54	8.0	4800	--	1028
66-08-04	50	125	.5	427	--	164	6	--	--	--	8.2	1028
66-08-17	52	124	.5	349	--	161	7	11	.3	774	7.8	1028
75-03-05	59	52	.5	304	312	160	23	38	1.6	510	--	1028
57-05-23	--	120	--	--	--	160	6	--	--	790	8.1	1028
57-05-23	--	39	--	--	--	180	26	--	--	504	7.4	1028
57-05-23	--	20	--	--	--	150	0	--	--	1010	7.8	1028
57-05-23	--	18	--	--	--	140	8	--	--	368	7.5	1028
66-08-04	52	143	--	465	--	168	5	--	--	828	7.9	1028
66-08-17	54	42	.5	288	--	158	25	37	1.5	487	7.7	1028
75-07-02	420	1400	1.1	3390	3590	370	0	87	25	6000	7.7	1028
75-07-02	670	680	1.6	2510	2600	1100	550	48	6.2	4480	6.9	1028
75-07-02	1700	2200	1.1	6180	6330	2400	2100	51	11	8800	6.9	1028
75-02-24	550	290	2.4	1510	1640	690	440	44	4.3	2200	8.1	1028
75-03-17	490	230	2.1	1500	1470	810	360	33	2.9	2250	--	1028
75-02-25	--	--	--	--	--	--	--	--	--	2100	--	1028
75-09-12	420	270	1.6	1470	1370	580	160	51	5.3	2100	6.5	1028
76-04-14	400	170	1.9	1230	1250	230	0	76	10	1800	--	1028
76-09-09	400	210	1.8	1320	1320	390	18	62	6.8	2000	--	1028
57-01-08	--	440	--	--	--	785	512	--	--	3980	7.4	1028
75-08-12	1300	430	.4	2820	2920	860	590	60	9.0	3900	7.5	1028
46-06-20	819	510	3.6	2300	--	196	0	--	--	3550	--	1028
75-03-18	400	300	2.2	1590	1450	750	210	42	4.1	2400	--	1028
75-09-17	330	160	3.0	1260	994	690	150	34	2.8	1850	6.1	1028
76-04-14	300	150	3.0	1220	1220	670	130	35	2.9	2000	--	1028
76-09-09	310	160	3.3	1250	1190	710	170	33	2.8	1900	--	1028
75-05-21	300	170	4.9	1180	1110	280	0	70	8.4	1840	8.0	1028
55-08-30	--	92	--	--	--	400	0	--	--	1580	7.6	1028
75-05-21	270	110	4.2	1060	950	420	0	51	4.5	1570	7.4	1028
75-05-21	250	70	3.2	904	925	540	100	28	1.9	1410	7.0	1028
72-03-23	360	1500	.6	3070	--	1200	1100	54	8.2	5470	7.5	1028
71-12-17	130	54	.3	401	--	230	110	29	1.3	674	7.5	1028
56-09-12	--	54	--	--	--	225	98	--	--	610	7.3	1028
72-03-23	110	53	.4	370	--	210	79	29	1.2	609	7.7	1028
56-11-14	--	335	--	--	--	256	0	--	--	3430	7.5	1028
57-01-09	--	76	--	--	--	568	148	--	--	1720	7.2	1028
75-07-02	420	74	.3	1100	1200	450	91	49	4.1	1620	7.1	1028
75-07-02	170	300	.8	957	970	190	0	76	8.9	1550	7.8	1028
57-01-08	--	835	--	--	--	139	25	--	--	3570	7.4	1028
75-07-31	270	260	2.3	1170	1190	510	160	47	4.2	1980	7.5	1028
76-04-13	260	270	2.7	1160	1200	490	150	49	4.3	1400	--	1028
75-05-21	420	400	2.0	1710	1580	560	130	61	7.6	2630	7.7	1028
75-05-21	16	8.8	.5	262	265	160	0	29	1.0	440	7.4	1028
57-05-14	211	350	1.4	1010	--	410	266	52	4.5	1730	7.1	1028
71-12-22	190	360	1.6	993	--	390	250	52	4.4	1770	7.7	1028
72-03-23	350	430	2.6	1440	--	470	250	60	6.6	2390	7.4	1028
75-09-17	300	760	1.6	2160	2060	84	0	95	38	3200	7.1	1028
75-09-17	110	65	1.6	947	934	18	0	98	38	1600	7.7	1028
75-08-13	22	85	.3	415	424	50	0	85	8.0	670	8.0	1028

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	SILICA, DIS-SOLVED (MG/L AS SIO2)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SODIUM+POTAS-SIUM DIS-SOLVED (MG/L AS NA)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
A-16-28 35DAD	75-07-02	--	10	210	63	2800	26	--	312	0
A-16-29 19ADC	75-08-13	18.5	10	6.1	.2	230	.5	--	262	11
A-16-30 14BDD	75-07-31	--	12	400	100	510	2.2	--	307	0
A-16-30 19DBC1	47-09-12	--	--	225	19	1288	--	--	434	0
A-16-30 19DBC2	75-07-31	--	20	150	41	210	4.0	--	450	0
A-17-26 13CCD	75-08-19	--	33	20	3.3	420	.7	--	661	112
A-17-27 21CBA	75-08-13	20.0	17	7.9	1.4	68	.9	--	185	0
A-17-28 11ACB	75-08-13	17.0	18	21	2.8	34	2.9	--	150	0
A-17-28 13DBD	75-08-13	16.0	12	3.6	.8	120	.5	--	176	8
A-17-28 21ACA	75-08-13	--	12	3.7	.0	87	.8	--	148	18
A-17-28 31BBC	75-08-13	--	32	6.1	.3	130	1.4	--	126	43
A-17-28 35BBC	75-08-13	18.5	18	20	4.6	65	2.2	--	146	0
A-17-28 36DDD	75-08-13	14.5	20	19	3.3	120	1.2	--	288	0
A-17-29 03DBB	57-04-28	--	--	--	--	--	--	--	197	0
	75-08-20	--	21	24	4.4	47	2.3	--	194	0
A-17-29 20CDA	75-08-13	--	12	12	6.4	60	1.4	--	161	9
A-17-30 33AAB	49-09-10	--	--	23	8.0	53	--	--	220	0
A-17-31 16DBC	75-07-31	15.0	17	200	45	160	4.8	--	328	0
A-18-24 08AAA	75-09-22	18.0	7.8	15	4.9	430	2.6	--	580	0
A-18-24 08BCB	71-12-22	18.0	8.3	880	190	24000	37	--	530	0
A-18-24 09ABB	75-09-26	18.0	20	26	6.6	320	1.6	--	526	0
A-18-26 36AAD	75-08-19	16.5	15	2.9	.2	84	.6	--	164	2
A-18-27 06BCA	75-08-19	17.0	19	16	2.7	87	1.8	--	180	0
A-18-28 18CBB	75-08-19	17.0	17	7.0	1.7	100	1.0	--	179	0
A-18-28 22ABC	75-08-13	--	15	2.8	.0	110	.7	--	82	69
A-18-28 30BBC	75-08-13	--	19	23	6.0	29	3.2	--	138	0
A-18-29 26BDB	75-08-12	18.5	19	28	5.1	41	2.5	--	184	0
A-18-30 04CBC	75-08-12	19.5	26	45	5.8	12	2.6	--	175	0
A-18-30 20CDD	75-08-12	19.5	22	37	6.2	20	2.6	--	170	0
A-18-31 16CAC	75-08-12	16.0	25	52	8.8	13	3.8	--	148	0
A-19-24 05CBB	69-05-17	15.0	15	2.8	.7	--	--	368	478	43
A-19-24 06DC	69-03-17	14.0	11	8.8	2.2	--	--	627	318	22
A-19-24 20BCC	55-07-20	--	--	--	--	--	--	--	86	0
	55-07-21	--	--	--	--	--	--	--	76	0
A-19-25 01AAB	75-06-17	16.0	17	65	13	130	1.6	--	257	--
A-19-25 05ABB	75-06-17	17.0	23	22	6.1	420	1.4	--	580	--
A-19-25 16CCA	75-06-17	16.5	19	39	4.8	290	3.4	--	723	--
A-19-25 30BDD	75-06-17	17.0	20	26	4.8	290	1.9	--	529	--
A-19-26 04DBA	57-05-07	--	25	657	122	--	--	15000	150	0
A-19-29 09AAC	75-08-12	20.0	27	49	5.6	11	2.3	--	179	0
A-19-29 35CDB	75-08-12	21.5	19	34	5.3	47	3.6	--	145	0
A-19-30 18CAB	75-08-12	--	26	35	5.3	15	3.4	--	157	0
A-20-25 15BCD	75-06-17	16.0	15	4.9	1.1	340	1.4	--	653	--
A-20-25 28BAA	75-06-17	16.0	19	6.9	.9	420	1.4	--	890	--
A-20-25 32DCC3	69-03-13	--	24	56	14	--	--	668	530	0
A-20-26 13DAC	75-06-17	16.0	24	76	18	170	4.3	--	561	--
A-20-26 21DCB	75-08-12	--	14	25	6.3	260	3.3	--	461	0
A-20-26 32BDD	75-06-18	16.0	19	5.7	3.7	290	2.6	--	619	--
A-20-26 34CDC	50-03-06	--	8.5	98	15	--	--	2260	174	--
A-20-27 04BCA	75-06-18	16.0	16	69	21	180	2.6	--	428	--
A-20-27 09CAD	75-08-20	17.0	15	36	8.1	240	5.0	--	485	0
A-20-27 24BDA1	75-11-18	15.5	19	2.8	.4	73	1.0	--	189	--
A-20-27 36BBB	75-08-21	19.0	7.8	3.2	.3	67	1.2	--	162	4
A-20-28 14AAB	75-08-19	15.0	30	42	4.8	14	3.1	--	161	0
A-20-28 19CAC	75-11-18	17.5	20	24	2.6	34	3.1	--	167	--
A-20-28 36AAA1	75-08-20	--	26	31	7.4	21	3.2	--	166	0
A-20-29 35DCD	75-11-18	14.5	26	43	3.3	16	3.6	--	178	--
A-20-30 03BBB	75-08-19	22.0	19	41	3.5	17	3.1	--	142	0
A-20-30 12ABD	59-04-22	18.5	28	34	5.1	--	--	17	126	0
	75-11-18	14.0	25	34	3.2	14	1.9	--	121	--
A-20-30 27DBD	75-11-18	--	21	45	3.6	8.0	1.9	--	153	--
A-20-31 29ADC2	75-11-18	16.5	24	48	3.9	12	1.8	--	158	--
A-21-27 25BBD1	75-11-18	--	9.9	4.2	.6	440	3.8	--	1010	--
A-21-27 25BBD2	75-11-18	--	11	6.0	1.3	430	6.4	--	930	--
A-21-27 25CAD	75-11-19	--	13	84	17	170	2.7	--	337	--
A-21-27 25CCA	75-11-19	--	20	100	21	200	4.7	--	850	--
A-21-27 26DBD	56-03-29	--	19	64	19	--	--	211	566	0
	75-11-18	--	16	69	16	210	3.6	--	503	--
A-21-28 13CBC	69-06-00	--	--	78	12	126	--	--	204	0
	74-03-27	--	--	81	11	77	--	--	194	0
A-21-28 14DAD	55-09-15	--	13	137	68	--	--	84	356	0
A-21-28 14DCA	75-11-18	--	9.0	110	46	52	8.2	--	361	--
A-21-28 19CCC	75-11-21	--	20	92	36	500	20	--	825	--
A-21-28 20DCA	75-11-19	--	19	110	25	140	5.3	--	478	--
A-21-28 21CAD	56-03-28	--	12	4.0	1.0	--	--	618	1240	51
A-21-28 24BBC	75-11-20	--	15	85	15	100	2.7	--	296	--
A-21-28 24CCC	75-08-22	13.0	13	32	6.1	220	9.3	--	358	0
A-21-29 22CCA	75-08-19	14.5	23	28	2.9	61	1.7	--	172	0
A-21-29 24DCC	54-11-04	--	3.2	17	5.0	--	--	--	146	0

from selected wells--Continued

DATE OF SAMPLE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)
75-07-02	730	4300	2.7	8300	8280	780	530	88	44	12400	7.9	1028
75-08-13	91	130	.6	618	625	16	0	97	25	1000	8.6	1028
75-07-31	2200	26	1.0	3410	3600	1400	1200	44	5.9	3950	7.6	1028
47-09-12	300	1700	1.1	3750	--	616	260	--	22	--	--	9902
75-07-31	500	81	.7	1230	1280	540	170	45	3.9	1750	7.7	1028
75-08-19	140	35	9.1	1110	1100	64	0	93	23	1500	8.9	1028
75-08-13	13	3.2	.5	209	215	26	0	85	5.9	320	8.3	1028
75-08-13	10	4.2	.2	175	179	64	0	52	1.9	270	7.8	1028
75-08-13	82	26	.3	349	354	12	0	95	15	560	8.5	1028
75-08-13	15	19	.2	246	255	9	0	95	12	410	9.3	1028
75-08-13	14	88	.3	382	418	16	0	94	14	650	9.7	1028
75-08-13	9.4	41	.3	264	262	69	0	66	3.4	420	7.7	1028
75-08-13	33	33	.3	376	378	61	0	81	6.7	620	7.8	1028
57-04-28	--	12	--	--	--	85	0	--	--	360	7.7	1028
75-08-20	13	9.5	.5	222	222	78	0	56	2.3	360	8.0	1028
75-08-13	13	9.4	.2	207	206	56	0	69	3.5	340	8.7	1028
49-09-10	--	16	.2	210	--	92	0	--	2.4	--	--	9902
75-07-31	610	100	.3	1300	1360	680	420	34	2.7	1650	7.2	1028
75-09-22	240	190	1.5	1180	1180	58	0	94	25	1700	8.0	1028
71-12-22	1700	37000	3.2	64100	--	3000	2500	95	191	90400	7.0	1028
75-09-26	210	110	1.1	956	974	92	0	88	15	1680	7.6	1028
75-08-19	11	19	1.0	233	235	8	0	95	13	370	8.4	1028
75-08-19	18	35	.5	306	310	51	0	78	5.3	460	7.6	1028
75-08-19	17	34	.5	306	314	24	0	89	8.8	510	8.1	1028
75-08-13	35	22	.5	296	308	7	0	97	18	500	10.0	1028
75-08-13	13	6.8	.3	172	172	82	0	42	1.4	260	7.8	1028
75-08-12	11	5.2	.2	207	204	91	0	49	1.9	340	7.4	1028
75-08-12	6.4	4.9	.2	197	200	140	0	16	.4	315	7.4	1028
75-08-12	9.7	5.2	.2	191	190	120	0	26	.8	310	7.5	1028
75-08-12	10	44	.3	239	292	170	45	14	.4	410	7.1	1028
69-05-17	176	114	1.5	956	--	10	0	--	--	1580	8.8	1028
69-03-17	266	580	1.1	1680	--	31	0	--	--	2930	8.7	1028
55-07-20	1670	32600	--	--	--	--	--	--	--	80300	6.8	1028
55-07-21	2020	51000	--	--	--	--	--	--	--	103000	--	1028
75-06-17	210	42	1.0	607	610	220	5	57	3.9	900	--	1028
75-06-17	230	190	1.7	1200	1220	80	0	92	20	1750	--	1028
75-06-17	65	42	.5	821	774	120	0	84	12	1280	--	1028
75-06-17	170	79	1.6	856	853	85	0	88	14	1250	--	1028
57-05-07	1760	23900	--	--	--	2140	2020	--	--	59300	7.2	1028
75-08-12	5.7	4.5	.2	200	199	150	0	14	.4	360	7.4	1028
75-08-12	9.6	58	.2	251	253	110	0	48	2.0	480	7.9	1028
75-08-12	6.5	6.4	.2	178	183	110	0	22	.6	280	7.6	1028
75-06-17	200	21	2.7	916	930	17	0	98	36	1340	--	1028
75-06-17	170	20	4.0	1090	1100	21	0	98	40	1710	--	1028
69-03-13	382	575	1.9	1980	--	196	0	--	--	3330	8.1	1028
75-06-17	120	38	.5	728	625	260	0	58	4.6	1140	--	1028
75-08-12	240	37	1.0	817	831	88	0	86	12	1100	7.9	1028
75-06-18	93	59	.8	780	790	29	0	95	23	1180	--	1028
50-03-06	3720	850	.8	7040	--	306	164	--	--	9490	--	1028
75-06-18	190	62	.7	759	739	260	0	60	4.9	920	--	1028
75-08-20	200	39	1.2	784	799	120	0	80	9.4	1220	7.2	1028
75-11-18	10	3.1	.7	207	209	9	0	94	11	300	--	1028
75-08-21	13	5.5	1.9	185	177	9	0	93	9.6	330	8.3	1028
75-08-19	6.2	8.9	.4	193	190	120	0	19	.5	300	7.3	1028
75-11-18	8.4	3.3	.3	181	167	71	0	50	1.8	280	--	1028
75-08-20	11	8.2	.7	191	213	110	0	29	.9	280	7.7	1028
75-11-18	11	5.6	.2	199	198	120	0	22	.6	290	--	1028
75-08-19	12	13	.2	200	201	120	0	23	.7	300	7.5	1028
59-04-22	8.6	15	.6	179	--	106	2	25	.7	270	7.3	1028
75-11-18	7.7	13	.3	170	153	98	0	23	.6	290	--	1028
75-11-18	8.3	7.7	.4	179	190	130	2	12	.3	280	--	1028
75-11-18	6.3	10	.3	190	184	140	6	16	.4	290	--	1028
75-11-18	88	47	2.3	1100	1110	13	0	98	53	1280	--	1028
75-11-18	61	45	2.3	1020	983	20	0	97	42	1250	--	1028
75-11-19	270	44	.7	776	763	280	3	57	4.4	1100	--	1028
75-11-19	3.4	38	.4	807	740	340	0	56	4.7	1160	--	1028
56-03-29	159	45	1.0	796	--	238	0	66	5.9	1250	7.8	1028
75-11-18	220	36	.7	820	849	240	0	65	5.9	1110	--	1028
69-06-00	230	44	.7	565	--	244	77	--	3.5	909	--	9704
74-03-27	268	48	.7	565	--	264	110	--	2.1	909	7.7	9704
55-09-15	462	36	.7	986	--	662	330	25	1.6	1360	7.0	1028
75-11-18	250	33	.6	689	732	460	170	19	1.1	1000	--	1028
75-11-21	640	64	.4	1780	1860	380	0	73	11	2500	--	1028
75-11-19	150	34	.4	724	774	380	0	44	3.1	1100	--	1028
56-03-28	170	38	10	1520	--	14	0	99	72	2340	8.7	1028
75-11-20	170	39	.5	574	589	270	31	44	2.6	910	--	1028
75-08-22	110	110	1.5	692	696	110	0	80	9.3	1150	7.4	1028
75-08-19	18	30	.4	251	247	82	0	61	2.9	410	7.5	1028
54-11-04	8.8	21	.8	--	--	63	0	--	--	--	--	1028

Local identifier: See figure 2 for description of well-numbering and location system.
Geologic unit: 112BLCF, basaltic rocks; 120SDMR, Tertiary sedimentary rocks, undifferentiated; 121BDHC, Bidahochi Formation; 211SDMR, Upper Cretaceous sedimentary rocks, undifferentiated; 310KIBB, Kaibab Limestone.

LOCAL IDENT-I-FIER	DATE OF SAMPLE	GEO-LOGIC UNIT	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SODIUM PLUS POTAS-SIUM (MG/L)	BICAR-BONATE (HCO3) (MG/L)
A-08-26 05BCB	74-09-24	112BLCF	8.0	25	11	6.9	3.7	.6	--	64
A-08-26 25AAA	74-09-23	112BLCF	8.0	25	11	5.3	3.6	.6	--	58
A-08-27 07CAC	74-09-24	112BLCF	10.0	23	8.8	3.5	3.7	.9	--	43
A-09-25 02DCB	74-11-19	112BLCF	8.0	31	14	8.0	5.6	1.6	--	79
A-09-25 20ADC	74-11-19	112BLCF	12.0	14	8.5	5.4	3.5	1.8	--	37
A-09-25 28DAA	74-11-19	112BLCF	10.0	8.1	7.5	4.0	2.8	1.5	--	32
A-09-26 02DBB	74-09-24	112BLCF	20.0	27	13	8.4	4.1	1.4	--	79
A-09-26 15DAC	74-09-24	112BLCF	9.0	28	11	7.9	3.8	1.2	--	74
A-09-26 20CAA	74-11-20	112BLCF	8.0	14	10	5.1	4.8	1.3	--	62
A-09-27 18DDD	74-09-24	112BLCF	10.0	33	14	14	5.2	1.6	--	115
A-09-27 26BBB	74-12-20	112BLCF	--	31	15	11	6.8	1.9	--	106
A-09-30 21CDB	74-12-18	112BLCF	--	28	46	22	29	4.2	--	275
A-10-28 03AAD	75-01-17	112BLCF	12.0	32	42	33	54	10	--	252
A-10-28 06DAC	75-01-06	112BLCF	15.0	28	17	12	12	4.3	--	137
A-10-28 08DBC	75-01-06	112BLCF	17.0	26	23	11	13	3.8	--	133
A-10-28 12CBB	75-01-16	211SDMR	15.0	18	27	14	28	2.9	--	212
A-11-25 20BCD	75-01-15	112BLCF	7.0	19	44	17	19	1.8	--	183
A-11-27 01CAB	75-01-07	112BLCF	15.0	29	41	26	30	2.7	--	325
A-11-27 09DAA	75-01-07	112BLCF	8.5	26	46	23	20	3.5	--	259
A-11-28 04DBA	75-01-08	120SDMR	7.0	18	48	19	62	6.5	--	272
A-11-28 18BDD	75-01-07	121BDHC	4.0	30	37	34	69	6.1	--	414
A-12-26 10CCB	34-01-04	112BLCF	--	--	14	--	--	--	27	148
	75-01-15	112BLCF	15.0	29	14	9.4	34	5.0	--	164
A-12-26 19ABA	34-01-04	112BLCF	--	--	14	--	8.0	--	--	98
	51-12-06	112BLCF	15.0	29	18	9.4	--	--	3.9	102
	66-08-16	112BLCF	15.0	23	13	9.1	10	2.9	--	100
	74-01-16	112BLCF	13.5	30	14	8.4	7.8	2.6	--	95
	75-11-20	112BLCF	15.5	28	16	8.5	10	2.9	--	99
	76-04-16	112BLCF	15.0	27	14	9.0	8.7	2.9	--	101
	76-09-08	112BLCF	15.5	27	18	9.0	11	3.0	--	89
A-12-26 26DBB	75-01-15	112BLCF	14.0	28	16	12	25	5.1	--	157
A-12-27 14CBD2	75-01-07	121BDHC	--	21	15	5.0	270	1.2	--	490
A-13-27 13A SPRGS E OF B	75-09-17	121BDHC	18.0	20	38	16	320	5.6	--	574
	76-04-14	121BDHC	14.5	15	51	20	350	6.1	--	522
	76-09-09	121BDHC	22.0	16	49	22	390	8.4	--	644
A-13-27 13CDC	75-02-12	121BDHC	16.0	21	29	12	230	4.4	--	334
A-13-27 32CDB	75-02-07	112BLCF	14.5	35	26	14	81	2.9	--	220
A-13-29 20C	75-03-18	121BDHC	15.0	20	31	5.5	57	9.8	--	225
A-14-26 10CDC	75-03-17	310KIBB	16.0	11	260	89	480	25	--	600
	75-09-12	310KIBB	--	12	260	87	480	21	--	611
A-14-26 10CDC	76-04-14	310KIBB	17.0	11	250	87	480	20	--	617
A-20-27 26BCB	75-11-18	121BDHC	--	35	49	8.1	140	1.2	--	322
A-20-27 29DBD	75-08-21	121BDHC	25.0	12	2.6	.3	210	1.4	--	399
	75-11-19	121BDHC	25.0	15	1.3	.5	160	.9	--	373

Specific conductance: Values are in micromhos per centimeter at 25° Celsius.

Code for agency analyzing sample: 1028, U.S. Geological Survey.

CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	CODE FOR AGENCY ANA-LYZING SAMPLE
--	4.0	1.4	.0	84	71	56	3	12	.2	110	--	1028
--	4.6	1.5	.0	82	70	49	2	14	.2	110	--	1028
--	6.3	1.6	.0	70	63	36	1	18	.3	85	--	1028
--	8.5	2.7	.1	111	108	68	3	15	.3	153	--	1028
--	12	7.0	.1	71	83	43	13	14	.2	111	--	1028
--	12	1.9	.3	56	75	35	9	14	.2	86	--	1028
--	5.2	1.6	.0	101	88	67	2	11	.2	140	7.5	1028
--	5.1	1.5	.0	96	83	60	0	12	.2	130	--	1028
--	4.3	2.3	.1	73	76	46	0	18	.3	111	--	1028
--	6.1	2.3	.0	134	112	93	0	11	.2	200	--	1028
--	6.1	2.6	.1	128	123	83	0	15	.3	188	--	1028
--	20	25	.4	311	312	210	0	23	.9	532	--	1028
36	41	20	1.0	395	357	240	0	32	1.5	500	--	1028
--	5.4	3.5	.2	156	142	92	0	21	.5	244	--	1028
--	5.4	3.1	.2	154	141	100	0	21	.6	230	--	1028
--	8.2	5.6	1.7	212	198	130	0	32	1.1	350	--	1028
--	42	18	.4	254	253	180	30	19	.6	424	--	1028
--	9.9	7.8	.5	308	292	210	0	23	.9	400	7.9	1028
--	21	15	.3	285	277	210	0	17	.6	440	8.3	1028
--	100	13	2.1	404	402	200	0	40	1.9	650	8.2	1028
--	24	23	.8	433	415	230	0	38	2.0	700	7.8	1028
0	5.0	2.0	.0	135	--	72	0	--	--	--	--	1028
--	8.8	5.0	.2	188	181	74	0	48	1.7	282	7.9	1028
0	2.0	3.0	.6	91	--	72	0	--	--	--	--	1028
0	3.1	3.0	.2	118	--	84	0	9	--	174	--	1028
0	4.0	4.5	.0	116	--	70	0	23	.5	178	7.2	1028
0	4.5	3.2	.0	119	109	70	0	19	.4	172	8.1	1028
--	7.7	3.6	.2	128	138	75	0	22	.5	170	--	1028
--	5.5	5.5	.3	126	115	72	0	20	.4	180	--	1028
--	15	13	.1	142	153	82	9	22	.5	178	--	1028
--	6.3	6.0	.3	179	165	89	0	36	1.2	272	8.1	1028
--	200	21	2.0	790	791	58	0	91	15	1200	8.3	1028
0	260	78	3.2	1030	995	160	0	81	11	1450	7.4	1028
--	370	110	2.4	1180	1220	210	0	78	11	2000	--	1028
--	350	120	2.6	1280	1280	210	0	79	12	1800	--	1028
--	210	74	2.6	759	756	120	0	80	9.1	1200	8.3	1028
--	35	27	1.2	374	363	120	0	58	3.2	510	7.9	1028
--	32	13	.2	293	299	100	0	52	2.5	400	--	1028
--	600	660	.5	2420	2390	1000	520	50	6.6	3400	--	1028
0	680	670	1.8	2510	2260	1000	510	50	6.6	3900	6.5	1028
--	570	650	1.9	2370	2490	980	480	51	6.7	3500	--	1028
--	43	100	1.3	538	514	160	0	66	4.9	800	--	1028
39	45	12	1.1	523	446	8	0	98	33	780	8.5	1028
--	40	9.8	.9	413	393	5	0	98	30	780	--	1028

[Agency analyzing sample (code number):

DATE	TEMPERATURE, WATER (DEG C)	SILICA, DISSOLVED (MG/L AS SIO2)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
341730109191200 - COYOTE CREEK AB DIV NR MOUTH (LAT 34 17 30 LONG 109 19 12)										
JAN , 1975										
16...	1.0	17	54	34	240	2.2	305	7	500	36
343922109495800 - LCR AT APACHE-NAVAJO CO LINE ARIZ SITE32 (LAT 34 39 22 LONG 109 49 58)										
FEB , 1975										
13...	2.0	8.7	190	78	550	22	295	--	990	550
341816109212400 - LCR AT RICHEY RCH NR SPRINGERVILLE ARIZ SITE14 (LAT 34 18 16 LONG 109 21 24)										
FEB , 1975										
13...	6.0	14	44	21	38	2.1	301	--	19	16
NOV										
19...	2.0	22	57	26	45	3.3	387	--	18	16
340944109180600 - LCR BEL BECKER LK NR SPRINGERVILLE ARIZ SITE 8 (LAT 34 09 44 LONG 109 18 06)										
FEB , 1975										
13...	7.0	20	40	18	34	1.8	275	--	11	9.9
NOV										
18...	40.0	22	49	19	36	1.8	283	21	13	12
343025109212500 - LCR BEL HIGHWAY AT ST JOHNS ARIZ SITE23 (LAT 34 30 25 LONG 109 21 25)										
FEB , 1975										
13...	10.0	16	190	58	380	27	390	--	680	420
NOV										
20...	4.5	17	170	52	320	24	261	--	560	360
340518109244200 - LCR BEL S FK NR SPRINGERVILLE ARIZ SITE 1 (LAT 34 05 18 LONG 109 24 42)										
FEB , 1975										
13...	1.0	20	19	7.0	8.7	1.7	100	--	5.2	3.0
NOV										
17...	7.0	19	19	7.4	10	1.9	109	--	9.8	6.3
342600109224000 - LCR BEL SALADO SP NR ST JOHNS ARIZ SITE18 (LAT 34 26 00 LONG 109 22 40)										
FEB , 1975										
13...	7.0	17	240	59	370	26	519	--	660	410
NOV										
19...	7.0	17	200	51	330	26	443	--	540	350
343618109292200 - LCR BEL ZION RES NR ST JOHNS ARIZ SITE26 (LAT 34 36 18 LONG 109 29 22)										
FEB , 1975										
13...	1.0	10	210	98	650	27	360	--	1200	660
340834109170000 - NUTRIOSO CR AT MOUTH SPRINGERVILLE ARIZ SITE 6 (LAT 34 08 34 LONG 109 17 00)										
FEB , 1975										
13...	10.0	24	45	21	41	1.0	295	--	27	24
NOV										
17...	7.0	25	53	20	38	.8	290	--	17	20
340528109120900 - NUTRIOSO CR BEL CORREJO XING ARIZ SITE 4 (LAT 34 05 28 LONG 109 12 09)										
FEB , 1975										
13...	4.0	15	56	18	38	1.2	310	--	19	19

1028, U.S. Geological Survey]

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AGENCY ANALYZING SAMPLE (CODE NUMBER)
341730109191200 - COYOTE CREEK AB DIV NR MOUTH (LAT 34 17 30 LONG 109 19 12)										
JAN , 1975										
16...	.3	1040	1020	270	13	65	6.3	1500	--	1028
343922109495800 - LCR AT APACHE-NAVAJO CO LINE ARIZ SITE32 (LAT 34 39 22 LONG 109 49 58)										
FEB , 1975										
13...	1.6	2540	2590	800	550	59	8.5	3800	--	1028
341816109212400 - LCR AT RICHEY RCH NR SPRINGERVILLE ARIZ STTE14 (LAT 34 18 16 LONG 109 21 24)										
FEB , 1975										
13...	.4	303	312	200	0	29	1.2	500	--	1028
NOV										
19...	.4	380	377	250	0	28	1.2	610	--	1028
340944109180600 - LCR BEL BECKER LK NR SPRINGERVILLE ARIZ SITE 8 (LAT 34 09 44 LONG 109 18 06)										
FEB , 1975										
13...	.3	274	273	170	0	30	1.1	460	--	1028
NOV										
18...	.4	315	322	200	0	28	1.1	500	--	1028
343025109212500 - LCR BEL HIGHWAY AT ST JOHNS ARIZ SITE23 (LAT 34 30 25 LONG 109 21 25)										
FEB , 1975										
13...	2.2	1970	2000	710	390	53	6.2	3000	--	1028
NOV										
20...	2.0	1640	1700	640	420	51	5.5	2500	--	1028
340518109244200 - LCR BEL S FK NR SPRINGERVILLE ARIZ SITE 1 (LAT 34 05 18 LONG 109 24 42)										
FEB , 1975										
13...	.2	114	106	76	0	19	.4	185	--	1028
NOV										
17...	.2	128	136	78	0	21	.5	170	--	1028
342600109224000 - LCR BEL SALADO SP NR ST JOHNS ARIZ SITE18 (LAT 34 26 00 LONG 109 22 40)										
FEB , 1975										
13...	2.3	2040	2060	840	420	48	5.5	3100	--	1028
NOV										
19...	2.0	1740	1710	710	350	49	5.4	2500	--	1028
343618109292200 - LCR BEL ZION RES NR ST JOHNS ARIZ SITE26 (LAT 34 36 18 LONG 109 29 22)										
FEB , 1975										
13...	1.8	3030	3090	930	630	60	9.3	4200	--	1028
340834109170000 - NUTRIOSO CR AT MOUTH SPRINGERVILLE ARIZ SITE 6 (LAT 34 08 34 LONG 109 17 00)										
FEB , 1975										
13...	.6	330	338	200	0	31	1.3	530	--	1028
NOV										
17...	.4	318	328	210	0	28	1.1	550	--	1028
340528109120900 - NUTRIOSO CR BEL CORREJO XING ARIZ STTE 4 (LAT 34 05 28 LONG 109 12 09)										
FEB , 1975										
13...	.3	320	326	210	0	28	1.1	540	--	1028

DATE	TEMPER- ATURE, WATER (DEG C)	SILICA, DIS- SOLVED (MG/L AS SIO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
341717109220300 - VIGIL RUN BEL HIWA NR SPRINGERVILLE ARIZ SITE11 (LAT 34 17 17 LONG 109 22 03)										
FEB , 1975 13...	2.5	22	40	23	25	6.5	265	--	16	9.9
NOV 18...	7.0	22	34	24	26	9.6	274	--	14	12
342600109224001 - A-12-28 16DDC LCR BLW SALADO SPRGS (LAT 34 26 00 LONG 109 22 40)										
FEB , 1975 13...	7.0	17	240	59	370	26	519	--	660	410
SEP 15...	23.5	16	190	44	270	20	451	0	470	310
NOV 19...	7.0	17	200	51	330	26	443	--	540	350
APR , 1976 15...	14.5	16	210	60	340	23	486	--	550	380
SEP 10...	17.5	17	130	36	200	15	388	--	320	200
APR , 1977 06...	15.0	18	220	58	360	22	450	0	660	390
SEP 20...	17.0	18	250	59	370	27	340	0	800	400
342453109241001 - A-12-28 29BAD LCR ABV SALADO SPRGS (LAT 34 24 53 LONG 109 24 10)										
SEP , 1975 15...	23.5	14	100	31	150	11	304	0	230	150
NOV 19...	5.0	17	150	40	200	14	332	--	310	190
APR , 1976 15...	10.0	16	160	54	250	16	442	--	440	260
SEP 10...	16.5	17	68	24	81	7.0	286	--	130	67
APR , 1977 06...	14.5	17	160	52	250	15	450	0	420	240
SEP 20...	16.0	17	170	55	240	17	390	0	400	250
342804109212400 - LCR ABV ST JOHNS DIV (LAT 34 28 04 LONG 109 21 24)										
NOV , 1975 19...	6.5	17	190	53	320	24	325	--	560	370
341208109175500 - LCR AT CLINTON SLADE RANCH FORD (LAT 34 12 08 LONG 109 17 55)										
NOV , 1975 18...	4.5	23	57	22	47	3.2	371	--	14	16
343230109221000 - LCR AT COUNTY BRDG N OF ST JOHNS (LAT 34 32 30 LONG 109 22 10)										
NOV , 1975 20...	2.0	17	190	50	320	23	396	--	550	350

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AGENCY ANALYZING SAMPLE (CODE NUMBER)
342314109235300 - LCR AT EL TULE (LAT 34 23 14 LONG 109 23 53)										
NOV , 1975										
19...	1.7	846	766	430	160	41	2.9	1300	--	1028
340615109203300 - LCR AT HIWAY 273 (LAT 34 06 15 LONG 109 20 33)										
NOV , 1975										
17...	.2	148	130	110	0	15	.4	220	--	1028
340848109173700 - LCR AT HIWAY 666 (LAT 34 08 48 LONG 109 17 37)										
NOV , 1975										
17...	.3	266	265	190	0	22	.8	430	--	1028
341110109181200 - LCR AT HOOPER RANCH RD CROSSING (LAT 34 11 10 LONG 109 18 12)										
NOV , 1975										
18...	.4	330	321	220	0	29	1.2	520	--	1028
342453109241000 - LCR AT L. HALLS (LAT 34 24 53 LONG 109 24 10)										
NOV , 1975										
19...	1.6	1090	1130	540	270	44	3.7	1700	--	1028
342925109212100 - LCR AT LITTLE RES. (LAT 34 29 25 LONG 109 21 21)										
NOV , 1975										
20...	1.9	1750	1730	690	460	51	5.6	2500	--	1028
341706109210600 - LCR AT SHERWOOD CROSSING (LAT 34 17 06 LONG 109 21 06)										
NOV , 1975										
18...	.5	364	366	240	0	28	1.2	570	--	1028
340747109174500 - LCR BEL BECKER LK DIV (LAT 34 07 47 LONG 109 17 45)										
NOV , 1975										
18...	.3	243	238	170	0	23	.8	380	--	1028
340225109180300 - WATER CANYON AT ELDERBERRY SPRING, ARIZ. (LAT 34 02 25 LONG 109 18 03)										
AUG , 1974										
14...	.1	154	152	110	0	17	.4	250	7.9	1028

DATE	TEMPER- ATURE, WATER (DEG C)	SILICA, DIS- SOLVED (MG/L AS SIO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
342314109235300 - LCR AT EL TULE (LAT 34 23 14 LONG 109 23 53)										
NOV , 1975 19...	6.0	15	120	32	140	11	336	--	240	120
340615109203300 - LCR AT HIWAY 273 (LAT 34 06 15 LONG 109 20 33)										
NOV , 1975 17...	7.5	20	28	9.9	9.5	2.1	140	--	5.8	2.4
340848109173700 - LCR AT HIWAY 666 (LAT 34 08 48 LONG 109 17 37)										
NOV , 1975 17...	5.5	23	49	16	25	1.6	284	--	6.5	3.9
341110109181200 - LCR AT HOOPER RANCH RD CROSSING (LAT 34 11 10 LONG 109 18 12)										
NOV , 1975 18...	4.5	22	55	20	41	2.2	336	--	11	12
342453109241000 - LCR AT L. HALLS (LAT 34 24 53 LONG 109 24 10)										
NOV , 1975 19...	5.0	17	150	40	200	14	332	--	310	190
342925109212100 - LCR AT LITTLE RES. (LAT 34 29 25 LONG 109 21 21)										
NOV , 1975 20...	3.5	17	190	53	340	24	282	--	610	370
341706109210600 - LCR AT SHERWOOD CROSSING (LAT 34 17 06 LONG 109 21 06)										
NOV , 1975 18...	5.5	21	53	26	44	3.3	365	--	19	17
340747109174500 - LCR BEL BECKER LK DIV (LAT 34 07 47 LONG 109 17 45)										
NOV , 1975 18...	1.5	22	44	14	23	1.6	259	--	6.7	3.2
340225109180300 - WATER CANYON AT ELDERBERRY SPRING, ARIZ. (LAT 34 02 25 LONG 109 18 03)										
AUG , 1974 14...	16.0	25	27	9.6	10	2.0	146	0	5.3	2.7

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)
341717109220300 - VIGIL RUN BEL HIWA NR SPRINGERVILLE ARIZ SITE11 (LAT 34 17 17 LONG 109 22 03)										
FEB , 1975										
13...	.3	274	258	190	0	21	.8	350	--	1028
NOV										
18...	.4	278	265	180	0	22	.8	450	--	1028
342600109224001 - A-12-28 16DDC LCR BLW SALADO SPRGS (LAT 34 26 00 LONG 109 22 40)										
FEB , 1975										
13...	2.3	2040	2060	840	420	48	5.5	3100	7.6	1028
SEP										
15...	2.0	1540	1550	660	290	46	4.6	2250	7.1	1028
NOV										
19...	2.0	1740	1710	710	350	49	5.4	2500	--	1028
APR , 1976										
15...	1.9	1820	1930	770	370	48	5.3	2600	--	1028
SEP										
10...	1.5	1110	1150	470	150	47	4.0	1620	--	1028
APR , 1977										
06...	2.3	1950	2000	790	420	49	5.6	2750	7.4	1028
SEP										
20...	2.3	2090	1990	870	590	47	5.5	3000	7.7	1028
342453109241001 - A-12-28 29BAD LCR ABV SALADO SPRGS (LAT 34 24 53 LONG 109 24 10)										
SEP , 1975										
15...	1.4	838	813	380	130	45	3.4	1220	7.4	1028
NOV										
19...	1.6	1090	1130	540	270	44	3.7	1700	--	1028
APR , 1976										
15...	2.0	1420	1470	620	260	46	4.4	2100	--	1028
SEP										
10...	.9	536	522	270	34	39	2.2	840	--	1028
APR , 1977										
06...	2.0	1380	1460	610	250	46	4.4	1990	7.5	1028
SEP										
20...	1.9	1340	1370	650	330	44	4.1	3000	8.0	1028
342804109212400 - LCR ABV ST JOHNS DIV (LAT 34 28 04 LONG 109 21 24)										
NOV , 1975										
19...	2.2	1700	1700	690	430	49	5.3	2500	--	1028
341208109175500 - LCR AT CLINTON SLADE RANCH FORD (LAT 34 12 08 LONG 109 17 55)										
NOV , 1975										
18...	.4	366	375	230	0	30	1.3	600	--	1028
343230109221000 - LCR AT COUNTY BRDG N OF ST JOHNS (LAT 34 32 30 LONG 109 22 10)										
NOV , 1975										
20...	1.8	1700	1800	680	360	50	5.3	2600	--	1028

Table 9.--Modified drillers' logs of selected wells

	Thickness (feet)	Depth (feet)
(A-5-30)3dba		
QUATERNARY:		
Surficial material:		
Topsoil and fill	8	8
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone, light-brown	168	176
Red sandstone and layers of shale	64	240
Sandstone, red	70	310
Sandstone, light-gray; with water-bearing fractures	10	320
(A-5-30)11acc		
QUATERNARY:		
Surficial material:		
Topsoil	2	2
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Conglomerate	12	14
Sandstone	5	19
Conglomerate	2	21
Sandstone, tan; little water at 42 feet	37	58
Sandstone, reddish	46	104
Sandstone, red; plenty of water at 127 feet	31	135
(A-5-30)13cdc		
QUATERNARY:		
Surficial material:		
Topsoil and subsoil	10	10
Sandy clay	8	18
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone	102	120
Sandstone with some shale	50	170
Sandstone and shale	90	260
Sandstone, brown, fine, with some shale	40	300
Sandstone, yellow, hard	5	305
Datil Formation:		
Andesite member:		
Andesite	167	472
Sedimentary member:		
Sandy shale	23	495
(A-5-30)13dbc		
QUATERNARY:		
Surficial material:		
Topsoil	5	5
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone, hard; half a gallon per minute of water at 15 feet	95	100
Sandstone, soft	10	110
Sandy shale	60	170
Sandstone	80	250
Datil Formation:		
Andesite member:		
Andesite	27	277
Andesite, fractured; 21 gallons per minute of water	3	280
Andesite	2	282
(A-5-30)13ddd		
QUATERNARY:		
Surficial material:		
Topsoil and subsoil	10	10
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone	50	60
Sandstone and shale	110	170
Datil Formation:		
Andesite member:		
Andesite	70	240
Sedimentary member:		
Sandstone	100	340
Shale	20	360
Sandstone, hard	30	390
Shale	10	400
Sandstone	60	460
Sandy shale; formation is water bearing from 240-486 feet; water under artesian pressure and stands at 172 feet in well	26	486
(A-5-30)14daa		
QUATERNARY:		
Surficial material:		
Soil, black	2	2
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone, brown	79	81
Clay, pink	13	94
Clay, brown	4	98
Sandstone, brown, with thin streaks of clay approximately 2 inches thick	62	160
Sandstone, brown	45	205
Clay, reddish-brown	2	207
Sandstone, brown, with some clay seams	47	254
Hard black rock	4	258
Sandstone, dark-brown	14	272
Light-brown rock, fractured; water	13	285
Andesite, dark-brown	50	335
Sandstone, red and brown	30	365
Datil Formation:		
Andesite member:		
Andesite, brown	18	383
Andesite, brown, interbedded with green stone and brown rock	12	395
Andesite, fractured; water	3	398
Andesite, brown, hard	42	440
(A-6-28)30cad		
QUATERNARY:		
Surficial material:		
Soil	10	10
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Basalt, weathered; show of water at 20 feet	16	26
Cinders and clay, red, weathered	24	50
Welded black cinders, soft streaks; possible increase in water at 70 to 80 feet	30	80
Basalt, welded cinders	16	96
Clay, dark-gray	1	97
Welded cinders, possible fractured basalt	2	99
Cinders, red; estimate 30 to 35 gallons per minute of water	12	111
Clay, red, tight; blew 1 hour at 30 to 35 gallons per minute	14	125

	Thickness (feet)	Depth (feet)
(A-6-28)30dcc		
QUATERNARY:		
Surficial material:		
Soil	4	4
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Basalt, very fine grained; seep of water at 6 feet	9	13
Clay with weathered cinders	2	15
Basalt, fractured; water at 20 and 22 feet	24	39
Weathered cinders; possible slight increase in water	5	44
Basalt, fractured	24	68
Black cinders over red clay; estimate 10 gallons per minute	2	70
Basalt, fractured, weathered; measured discharge at 85 feet about 20 gallons per minute	15	85
Cinders, welded	5	90
Basalt	13	103
Cinders, weathered with clay streaks and some basalt splits	35	138
TERTIARY:		
Sedimentary(?) rocks (undifferentiated):		
Pumice, white, appears to drill blind as the pumice floats	44	182
Red cinders, sand, and reworked material	43	225
(A-6-29)1bba		
QUATERNARY:		
Surficial material:		
Topsoil	4	4
TERTIARY:		
Datil Formation:		
Sedimentary member:		
Dark clay and gravel, soft; hit water at 5 feet	17	21
Sandstone with clay	11	32
Conglomerate; hit more water	21	53
Clay	7	60
Sandstone with gravel and small layers of clay	55	115
(A-6-30)6Waab		
QUATERNARY:		
Surficial material:		
Topsoil and rocks	5	5
TERTIARY:		
Datil Formation:		
Sedimentary member:		
Sandstone, whitish; hit water at 32 feet	30	35
Sandstone, reddish, more water at 77 feet	47	82
Sandstone, whitish	3	85
(A-6-30)6Wbbb		
QUATERNARY:		
Surficial material:		
Topsoil	6	6
TERTIARY:		
Datil Formation:		
Sedimentary member:		
Sandstone, soft	29	35
Gravel and rocks; hit water at 39 feet	6	41
Sandstone	64	105
(A-7-27)14acc1		
QUATERNARY:		
Surficial material:		
Soil	3	3
Clay	9	12
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Malpais; started encountering water at 80 feet	118	130
(A-7-27)14acd1		
QUATERNARY:		
Surficial material:		
Soil and boulders	3	3
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Malpais	59	62
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Shale	8	70
Sandstone	30	100
(A-7-27)14bdb		
QUATERNARY:		
Surficial material:		
Topsoil	1	1
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandrock, light-brown, medium-brittle; 1.5 to 2 gallons per minute from 150 to 152 feet; 6 to 7 gallons per minute from 162 to 170 feet; water rises to depth of 120 feet	219	220
(A-7-28)6dac		
QUATERNARY:		
Surficial material:		
Soil	3	3
Swamp bog	14	17
TERTIARY:		
Sedimentary rocks (undifferentiated):		
Sandstone with shaly sandstone; started hitting water at 55 ft	151	168

Table 9.--Modified drillers' logs of selected wells--Continued

(A-7-28)6dbb1

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TERTIARY:		
Surficial material:					
Surface soil	4	4	Sedimentary rocks (undifferentiated):		
QUATERNARY AND TERTIARY:			Shale, sandy	90	125
Basaltic rocks:			Sandstone	9	134
Malpais	31	35	Sandy shale	21	155

(A-7-30)11ddc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Basalt, black	32	110
Surficial material:			Cinders, black	2	112
Alluvium; topsoil	4	4	Basalt	3	115
QUATERNARY AND TERTIARY:			TERTIARY:		
Basaltic rocks:			Sedimentary(?) rocks (undifferentiated):		
Basalt rock, black	31	35	Pink sandy clay	5	120
Cinders, red	3	38	Pink sandy clay and gravel; water	5	125
Basalt, reddish	10	48			
Cinders, black	2	50	Pink sandy clay and gravel; lots of water	5	130
Basalt, black	25	75			
Cinders, red	3	78	Basalt rock	10	140

(A-7-30)16cab

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Gravelly clay and sand	5	35
Surficial material:					
Loam	3	3	Gravelly clay	7	42
TERTIARY:					
Datil Formation:			Sandy clay	28	70
Sedimentary member:					
Gravelly clay	27	30	Hard clay	23	93

(A-7-30)16dbb1

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TERTIARY:		
			Datil Formation:		
			Sedimentary member:		
Surficial material:			Streaks of sand and gravel and clay; water from 21 to 50 feet	40	50
Topsoil	10	10	Streaks of clay and sandstone	50	100

(A-7-30)20bbb

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Rocks; water at 41 feet	4	42
Surficial material:			Conglomerate	32	74
Topsoil; dirt and rocks	22	22	Sandstone	50	124
TERTIARY:			Brownish sticky clay	24	148
Datil Formation:			Brownish sticky clay with crystals	4	152
Sedimentary member:			Reddish clay	6	158
Gravel and clay	16	38	Sandstone, coarse	17	175

(A-7-30)32bcc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TERTIARY:		
			Datil Formation:		
			Sedimentary member:		
Surficial material:			Gravel, rocks and clay; water at 9 feet	31	38
Topsoil	7	7	Sandstone	22	60

(A-7-30)32cba

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Sandstone	43	65
Surficial material:			Sticky clay	3	68
Topsoil with clay	8	8	Gravel and rocks; little water at 69 feet	5	73
TERTIARY:					
Datil Formation:			Sandstone, gray	29	102
Sedimentary member:			Sandstone, reddish	24	126
Clay	14	22	Sandstone, gray	14	140

(A-8-27)26cdc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TERTIARY:		
Surficial material:					
Surface with boulders	2	2	Sedimentary rocks (undifferentiated):		
QUATERNARY AND TERTIARY:			Sand and sandy shale;		
Basaltic rocks:			started into water		
Malpais	53	55	at 160 feet	135	190

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
(A-8-27)26dcd1					
QUATERNARY:			TERTIARY:		
Surficial material:			Sedimentary rocks (undifferentiated):		
Soil	8	8	Gravel and coarse sand	65	120
QUATERNARY AND TERTIARY:					
Basaltic rocks:					
Malpais	47	55			
(A-8-27)35baa					
QUATERNARY:			QUATERNARY AND TERTIARY:		
Surficial material:			Basaltic rocks:		
Overburden	3	3	Cinders	18	35
Clay	14	17	TERTIARY:		
			Sedimentary rocks (undifferentiated):		
			Sandstone with shale streaks	180	215
(A-8-28)17bdc					
QUATERNARY:			TERTIARY:		
Surficial material:			Datil Formation:		
Topsoil	4	4	Sedimentary member:		
			Clay with gravel	14	18
			Gravel and sand; water bearing	12	30
			Sandy clay, gray	73	103
(A-8-29)3bba					
TERTIARY AND CRETACEOUS:			Blue clay with patches of gray rock; some water here	30	330
Eagar Formation of Sirrine (1958):			Sandstone, gray; water bearing; main aquifer; hit yellowish clay at 360 feet	30	360
Clay, red	90	90			
Sandstone, red, turns lighter in color with depth; some water	130	220			
UPPER CRETACEOUS					
Sedimentary rocks (undifferentiated):					
Clay, blue	80	300			
(A-8-29)3cdd					
QUATERNARY:			TERTIARY AND CRETACEOUS:		
Surficial material:			Eagar Formation of Sirrine (1958):		
Sandy topsoil	10	10	Layers of sand and gravel	50	60
			Clay, red	30	90
			Sandstone, red, fine	10	100
(A-8-29)5adb					
QUATERNARY AND TERTIARY:			TERTIARY AND CRETACEOUS:		
Basaltic rocks:			Eagar Formation of Sirrine (1958):		
Malpais, hard	38	38	Streaks of red sandstone	16	160
Malpais boulders and cinders	87	125	UPPER CRETACEOUS:		
Cinders and boulders with streaks of blue-gray shale	19	144	Sedimentary rocks (undifferentiated):		
			Shale, blue-gray; caving most of way	157	317
			Sandstone, gray	70	387
(A-8-29)7acd					
QUATERNARY:			Shale, red	12	560
Surficial material:			Shale, gray	210	770
Topsoil	10	10	Sandy lime	218	988
Boulder fill	50	60	Gray sand	22	1,010
TERTIARY AND CRETACEOUS:			PERMIAN:		
Eagar Formation of Sirrine (1958) and upper Cretaceous sedimentary rocks (undifferentiated):			Kaibab Limestone:		
Sand, red	480	540	Lime, hard	250	1,260
Sand, gray	8	548	Coconino Sandstone:		
			Sand	260	1,520
			Supai Formation:		
			Supai	5	1,525
(A-9-29)2aca					
QUATERNARY:			UPPER CRETACEOUS:		
Surficial material:			Sedimentary rocks (undifferentiated):		
Topsoil	2	2	Sandstone, gray, hard; water-bearing	20	230
QUATERNARY AND TERTIARY:			Sandstone, gray	15	245
Basaltic rocks:			Clay, gray	5	250
Volcanic rock	208	210			

	Thickness (feet)	Depth (feet)
(A-9-29)8bab		
QUATERNARY:		
Surficial material:		
Alluvium; sand, gravel, and clay mixed ..	12	12
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Sandstone, yellow, fractured below 40 feet; water at 40 feet	33	45
Streaks of clay and coarse sandstone; water	15	60
Shale, gray	130	190
Sandstone, yellow; water	15	205
(A-9-29)29bab		
QUATERNARY:		
Surficial material:		
Gravel	10	10
Clay and gravel; seep of water at 19 feet	9	19
TERTIARY AND CRETACEOUS:		
Eagar Formation of Sirrine (1958):		
Clay, dark-gray; 12 gallons per minute of water	21	40
Sand and gravel; more water	4	44
Gravel, very hard; drilled 4 feet per day	54	98
Clay, red	17	115
Clay, red, blue, and yellow	5	120
Sandstone, red and clay layers	20	140
Clay, gray	58	198
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Sandstone, yellow and gray, very fine ..	14	212
Sandstone, light-gray; water	22	234
(A-9-29)32bdd		
QUATERNARY:		
Surficial material:		
Soil	5	5
Gravel and sand	10	15
TERTIARY AND CRETACEOUS:		
Eagar Formation of Sirrine (1958):		
Clay, red	55	70
Sandstone and clay; some water	30	100
Clay, blue	50	150
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Sandstone, gray; water	210	360
(A-9-29)35cad		
QUATERNARY:		
Surficial material:		
Soil	4	4
TERTIARY AND CRETACEOUS:		
Eagar Formation of Sirrine (1958):		
Clay, red	44	48
Coarse, very hard sandstone and flint rock	10	58
Clay, red	7	65
Sandstone, red, fine, hard	10	75
Clay, red	16	91
Sandstone, red	4	95
Red clay with sandstone streaks	8	103
Sandstone; water; most water in crack at 103 feet	7	110
Sandstone, coarse	22	132
(A-9-30)20acd		
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Basalt	90	90
TERTIARY AND CRETACEOUS:		
Eagar Formation of Sirrine (1958):		
Gravel, cemented	38	128
Sandstone	32	160
Clay, red	19	179
Clay, gray	15	194
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Sandstone, gray; water	16	210
Clay, gray	10	220
(A-9-30)34aaa		
QUATERNARY:		
Surficial material:		
Soil	2	2
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Basalt	50	52
TERTIARY AND CRETACEOUS:		
Eagar Formation of Sirrine (1958):		
Sandstone	8	60
Gravel, clay and sand	70	130
Sandstone, red	60	190
Clay, red	13	203
Sandstone, red	45	248
Sandstone, red, fine; water	112	360
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Clay, yellow	10	370
Clay, gray	10	380
Sandstone, yellow	69	449
Shale, gray	11	460
(A-10-24)6cdc		
QUATERNARY:		
Surficial material:		
Topsoil	10	10
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Malpais	35	45
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Clay, yellow	85	130
Sandstone, yellow; water	25	155
Clay, black	5	160
Sandstone, yellow; water	10	170
No log	20	190
(A-10-24)29abd		
QUATERNARY:		
Surficial material:		
Topsoil and clay	15	15
QUATERNARY AND TERTIARY:		
Basaltic rocks:		
Malpais	70	85
Cinders	5	90
Malpais	160	250
Cinders	15	265
Malpais	120	385
Cinders	7	392
Malpais	178	570
Cinders	13	583
Malpais; seems to be plenty of water	57	640
UPPER CRETACEOUS:		
Sedimentary rocks (undifferentiated):		
Sandy shale and clay, some gravel on top	85	725

(A-10-25)14bdd

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Shale, gray and blue; no water	188	308
Surficial material:			TRIASSIC:		
Topsoil, clay, and boulders	7	7	Chinle and Moenkopi Formations:		
Clay and some gravel	28	35	Blue shale, resembles Chinle; no water	167	475
UPPER CRETACEOUS:			Blue shale and some limestone; very cavy; no water	48	523
Sedimentary rocks (undifferentiated):			PERMIAN:		
Yellow clay and some sandy layers; small amount of water at this level	32	67	Kaibab Limestone:		
Shale, yellow and blue; no change in water level	53	120	Limestone, gray, some fractures; no water	77	600

(A-10-25)20bcc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY AND TERTIARY:					
Basaltic rocks:					
Lava	460	460			
Cinders; hit water at 460 feet	40	500			

(A-10-28)21acb

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY AND TERTIARY:			Sandstone with streaks of clay	70	140
Basaltic rocks:			TRIASSIC:		
Clay and lava	30	30	Chinle(?) Formation:		
UPPER CRETACEOUS:			Shale, red and blue	80	220
Sedimentary rocks (undifferentiated):			Sandstone; water	22	242
Sandstone	40	70			

(A-10-29)33ddc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TERTIARY AND CRETACEOUS:		
Surficial material:			Eagar(?) Formation of Sirrine (1958):		
Topsoil	2	2	Sandstone, red	60	190
			Clay, red	13	203
			Sandstone, red, hard	45	248
QUATERNARY AND TERTIARY:			UPPER CRETACEOUS:		
Basaltic rocks:			Sedimentary rocks (undifferentiated):		
Malpais	50	52	Sand, gray, fine; water and running sand	112	360
			Clay, yellow	10	370
TERTIARY:			Shale, gray	10	380
Bidahochi(?) Formation:			Sandstone, yellow	10	390
Sandstone, red	8	60	Shale, gray; well plugged back to 380 feet	60	450
Gravel, clay and sandstone mix	70	130			

(A-10-31)21dbd

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY AND TERTIARY:			Conglomerate, hard	10	420
Basaltic rocks:			Shale, brown	20	440
Fill and boulders	26	26	Sandstone	18	458
Basalt or lava	24	50	TRIASSIC:		
TERTIARY(?):			Chinle Formation:		
Bidahochi(?) Formation:			Purple shale with lenses of bentonite	27	485
Sandstone, hard, abrasive	20	70	Red beds of clay	76	561
UPPER CRETACEOUS:			Sandy lime, broken, fractured	31	592
Sedimentary rocks (undifferentiated):			Moenkopi Formation:		
Shale, blue	135	205	Shale, red	66	658
Sand, hard	20	225	PERMIAN:		
Shale and lime shells	28	253	Kaibab Limestone:		
Shale with streaks of sand	52	305	Limestone, white, hard	46	704
Shale, brown	68	373	Sand, fleecy white, hard	6	710
Iron pyrites	2	375	Lime, brown, hard	218	928
Brown shale and shells	20	395	Lime, brown, porous; water	25	953
Sandstone	15	410			

(A-11-24)36dab

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
UPPER CRETACEOUS:			Sandrock, yellow	30	200
Sedimentary rocks (undifferentiated):			Clay, gray	70	270
Clay, yellow	50	50	Sandrock, yellow	30	300
Shale, gray	20	70	Clay, gray	110	410
Shale, yellow	30	100	Gray shale and sandrock	75	485
Shale, gray	70	170			

(A-11-27)23aaa

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			TRIASSIC:		
Surficial material:			Moenkopi Formation:		
Fill	10	10	Shale	10	40
QUATERNARY AND TERTIARY:			PERMIAN:		
Basaltic rocks:			Kaibab Limestone:		
Malpais	10	20	Limestone	188	228
Cinders	10	30	Coconino Sandstone:		
			Coconino	192	420

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
(A-11-27)31dbb					
QUATERNARY AND TERTIARY:			UPPER CRETACEOUS:		
Basaltic rocks:			Sedimentary rocks (undifferentiated):		
Volcanics	250	250	Shale	100	350
			Sandstone	60	410
(A-11-28)9acc2					
TRIASSIC:			White, hard, sharp, medium sand; some increase in water	45	200
Moenkopi Formation:			Sandy lime, brown, hard	54	254
Clay, red	25	25	Lime, brown, hard	44	298
Sandy breaks in shale; a little water	2	27	Crevice	2	300
Sand, red, hard	13	40	Lime, brown, hard, in part sandy	21	321
Bluish-gray, hard, sharp sand; dry	10	50	Sand, brown, hard; some water increase	2	323
Sticky clay, red	3	53	Lime, brown, very hard, in part sandy	3	326
PERMIAN:			Crevices	5	331
Kaibab Limestone:			Lime, brown, hard, in part sandy; sand running into hole badly from 322 feet	14	345
Gray, hard, sandy shale, few streaks of limestone; small increase in water	17	70			
Lime, brown, hard	76	146			
Crevice; 60 gallons per minute with 39 feet of drawdown	9	155			
(A-11-29)4bbc					
QUATERNARY:			Clay, red	13	85
Surficial material:			Gravel	30	115
Sand	3	3	PERMIAN:		
TRIASSIC:			Kaibab Limestone:		
Chinle(?) Formation:			Limestone	21	136
Chinle	7	10	Shale, gray	9	145
Moenkopi Formation:			Shale, brown	5	150
Shale, red	35	45	Lime and sandrock	15	165
Sandstone, red	15	60	Sandrock, red	10	175
Clay, red	10	70	Limerock	127	302
Sandstone, red; little water	2	72	No log	18	320
(A-11-29)27aca					
QUATERNARY:			Moenkopi Formation:		
Surficial material:			Broken colored shale	125	285
Sandy soil	10	10	PERMIAN:		
No log	10	20	Kaibab Limestone:		
TRIASSIC:			Broken lime	245	530
Chinle(?) Formation:			Coconino Sandstone:		
Clay, red	70	90	Sandstone; hit water at 625 feet	155	685
Shale, gray	70	160			
(A-12-25)16ccc					
QUATERNARY AND TERTIARY:			Sandstone, red	40	200
Basaltic rocks:			Shale, gray	60	260
Malpais	10	10	Sandstone, white	40	300
TRIASSIC:			Shale, red	20	320
Chinle and Moenkopi Formations:			PERMIAN:		
Shale, red	150	160	Coconino Sandstone:		
			Sandstone, white	230	550
(A-12-30)27aba					
TERTIARY:			Sand and blue badland	40	275
Bidahochi Formation:			PERMIAN:		
Gravel, gray	160	160	Kaibab Limestone:		
TRIASSIC:			Lime, broken	20	295
Chinle and Moenkopi Formations:			Limerock	375	670
Yellow clay and shale	30	190	Coconino(?) Sandstone:		
Gravel, gray	45	235	Sandstone	10	680
(A-12-31)8dbc					
TRIASSIC:			Blue badland	120	190
Chinle Formation:			Shale, red	65	255
Shale, red	20	20	Sandstone, red	25	280
Red badland	50	70			
(A-13-24)12acb					
QUATERNARY:			Shale, red	60	130
Surficial material:			Shale, blue	20	150
Alluvium	10	10	Moenkopi Formation:		
TERTIARY:			Sandstone, red	20	170
Bidahochi Formation:			Shale, red	80	250
Sandstone, red	30	40	PERMIAN:		
TRIASSIC:			Coconino Sandstone:		
Chinle Formation:			Sandstone	100	350
Shale, blue	30	70			

(A-13-25)4cca

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Surficial material:		
Soil and gravel formation	18	18
TRIASSIC:		
Chinle(?) Formation:		
Sandstone, red	21	39
Shale, yellow	5	44
Shale, blue	6	50
Shale, red	18	68
Sandstone, red	55	123
Shale, red	4	127
Sandstone, gray	19	146
Moenkopi Formation:		
Shale, red and blue	12	158
Shale, red	3	161
Sandstone, light-red	70	231
Shale, red and blue	12	243
Sandstone, light-brown	13	256
Sandstone, light-gray	16	272
Shale, blue	6	278
Sandstone, brown	12	290
PERMIAN:		
Kaibab Limestone:		
Lime, gray	8	298
Sandstone, white	22	320
Lime, dark-gray	7	327
Coconino Sandstone:		
Sandstone	244	571

(A-13-26)7bad

	Thickness (feet)	Depth (feet)
TRIASSIC:		
No log	50	50
Moenkopi Formation:		
Interbedded reddish sandstone and shale	80	130
Light-reddish sandstone grading into a white sandstone	10	140
White sandstone grading into light-gray limestone	10	150
PERMIAN:		
Kaibab Limestone:		
Limestone, light-brownish-gray	10	160
Limestone, dark	30	190
Limestone, light	30	220
White limestone grading into white sandstone	10	230
Sandstone, white	160	390
No sample	20	410
Sandstone, brown, flesh color	20	430
No sample	40	470
Sandstone, light-brown	50	520
Interbedded light-brown to medium-brown sandstone	50	570
No sample	10	580
Sandstone, light-brown	30	610
Interbedded light-brown and medium-brown sandstone	65	675

(A-13-27)15bda

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Light-brown sand and clay	10	10
Sand, light-brown	20	30
Sand, brown	2	32
TRIASSIC:		
Chinle Formation:		
Blue shale and sand	6	38
Shale, blue	2	40
Clay, light-red	6	46
Limestone, gray	5	51
Shale, gray, hard	9	60
Shale, blue	10	70
Shale, red	30	100
Sandstone, brown	10	110
Shale, blue	10	120
Sandstone, brown	30	150
Siltstone, red	10	160
Shale, blue	20	180
Moenkopi Formation:		
Siltstone, red	20	200
Shale, red	10	210
Siltstone, red	25	235
Siltstone, red, hard	18	253
Shale, red	10	263
Clay, red	6	269
Sandy clay, red	10	279
Sandstone, red	13	292
Sandy clay, red	3	295
Sandstone, red	8	303
Sandy clay, red	11	314
Clay, red	7	321
Sandy clay, red	8	329
Sandy clay, reddish-brown	4	333
Sandstone, light-red	2	335
PERMIAN:		
Kaibab Limestone:		
Limestone, light-red	3	338
Limestone, gray	4	342
Limestone, gray, hard	7	349
Limestone, gray	20	369
Limestone, gray, hard	17	386
Limestone, gray	2	388
Limestone, gray, hard	4	392
Limestone, gray	9	401
Shale, gray, sticky	1	402
Shale, gray, hard	4	406
Limestone, gray	40	446
Limestone, gray, hard	51	497
Limestone, gray	15	512
Limestone, gray, hard	6	518
Sandy limestone, gray	2	520
Limestone, gray	3	523
Coconino Sandstone:		
Sandstone, light-gray	6	529
Sandstone, white	30	559
Sandstone, gray	10	569
Sandstone, white	185	754
Sandstone, red	19	773
Sandstone, brown	10	783
Supai Formation:		
Red sandstone and clay	2	785
Shaly clay, red	35	820

(A-13-27)25dcc

	Thickness (feet)	Depth (feet)
TRIASSIC:		
Chinle(?) Formation:		
Shale, blue	15	15
Shale, red	45	60
Shale, brownish-blue	20	80
Moenkopi Formation:		
Shale, red	35	115
Shale, blue	15	130
Shale, red	35	165
Sandstone	20	185
PERMIAN:		
Kaibab Limestone:		
Limestone; hit cavity at 180 feet and bottom is deeper than 230 feet	45	230

(A-13-28)12cac

	Thickness (feet)	Depth (feet)
TRIASSIC:		
Chinle Formation:		
Blue clay and bentonite clay	30	30
Clayey shale, red	80	110
Shale, gray	40	150
Shale, red	90	240
Shale, blue	20	260
Shale, red	70	330
Moenkopi Formation:		
Sandrock, red, soft	50	380
No samples	70	450
Shale, gray	10	460
Gray shale grading into reddish-gray limestone	20	480
PERMIAN:		
Kaibab Limestone:		
Limestone, gray	120	600
Limestone, tan	120	720
Tan limestone grading into tan sandstone	5	725
Coconino Sandstone:		
Sandstone, white, hard	225	950
Sandstone, white, medium-hard	17	967

Table 9.--Modified drillers' logs of selected wells--Continued

(A-13-29)35aaa

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
TERTIARY:			Shale, blue	21	226
Bidahochi Formation:			Shale, red	14	240
Sand and gravel	60	60	Shale, blue	20	260
Clay, white	20	80	Sandstone	20	280
TRIASSIC:			Shale, blue	10	290
			PERMIAN:		
Chinle and Moenkopi Formations:			Kaibab Limestone:		
Sandstone	125	205	Limestone	37	327

(A-13-30)3bcd1

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Conglomerate, hard	10	280
Alluvium:			Moenkopi Formation:		
Fill	20	20	Shale and sandstone	140	420
TERTIARY:			PERMIAN:		
Bidahochi Formation:			Kaibab Limestone:		
Clay, yellow	50	70	Limestone, white	20	440
TRIASSIC:			Limestone, brown	220	660
Chinle Formation:			Coconino Sandstone:		
Shale	200	270	Sandstone; water	195	855

(A-14-26)21bcc

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Sandstone, red; a good		
Surficial material:			stream of water at		
Soil	2	2	168 feet	37	182
TRIASSIC:			Shale, red	16	198
Chinle Formation:			Sandstone, brown;		
Sandstone, red	29	31	lots of water at		
Shale, blue	7	38	205 feet	47	245
Shale, red	23	61	Shale, red	49	294
Sandstone, yellow; good stream of			PERMIAN:		
water at 71 feet	15	76	Kaibab Limestone:		
Moenkopi Formation:			Lime, white	9	303
Shale, red, some sand; all water shut			Coconino Sandstone:		
off at 103 feet with 12-inch casing	69	145	Sandstone, white	42	345

(A-14-26)34dbb

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
QUATERNARY:			Moenkopi Formation:		
Alluvium(?):			Shale, gray	10	285
Shale and boulders	48	48	Sandstone, brown	85	370
TRIASSIC:					
Chinle Formation:			PERMIAN:		
Shale, red	67	115	Kaibab Limestone:		
Sandstone, red	25	140	Limestone, gray	70	440
Shale, gray	60	200	Coconino Sandstone:		
Shale, red	35	235	Sandstone, white	221	661
Sandstone, red	40	275	Silty sandstone, brown	4	665

(A-14-27)8dda

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
TERTIARY(?):			Red beds, some lime	10	120
Bidahochi(?) Formation:			Red beds	10	130
Soil	20	20	PERMIAN:		
TRIASSIC:			Kaibab Limestone:		
			Lime	100	230
Moenkopi Formation:			Coconino Sandstone:		
Red beds	90	110	Sandstone; water, 240 to 250 feet	22	252

(A-14-29)33bbb

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
TERTIARY:			Moenkopi(?) Formation:		
Bidahochi Formation:			Limestone, gray	40	600
Fine sand and clay streaks	80	80	Red clay and shale	60	660
Coarse sand and gravel,			PERMIAN:		
one-eighth inch	25	105	Kaibab Limestone:		
TRIASSIC:			Limestone, brown	35	695
			Limestone, shale stringers; lost		
Chinle(?) Formation:			circulation at 735 feet	40	735
Sand, fine to coarse	270	375	Coconino Sandstone:		
Blue shale and clay	100	475	Sandstone, white, brown, and gray	424	1,159
Red clay and shale	60	535	Supai Formation:		
Brown and gray sandstone,			Hard dark shale with streaks		
streaks of shale	25	560	of white clay	22	1,181

(A-14-30)26ddb

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Fill	50	50
Sandstone	26	76
TRIASSIC:		
Chinle Formation:		
Red beds	162	238
Shale, green	172	410
Blue muck	96	506
Chert and quartz, hard	15	521
Shale, red	19	540
Lime, hard	15	555
Red sand and shale	25	580
Shale, red, sticky	12	592
Sandy shale, broken	18	610
Shale, red, sticky	15	625
Limestone, soft	4	629
Moenkopi Formation:		
Shale, red, hard	22	651
PERMIAN:		
Kaibab Limestone:		
Lime rock, hard	29	680
Limestone, porous; water	30	710
Limestone, hard	85	795
Shale, red	6	801
Limestone, porous	3	804
Limestone, gray, hard	14	818
Limestone and shale	22	840
Limestone, gray, hard	37	877
Limestone, gray, soft	8	885
Shale, red, hard	7	892
Coconino Sandstone:		
Sandstone; water	130	1,022

(A-15-30)21aba

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Alluvium:		
Fill	5	5
Clay	53	58
Sand and gravel	12	70
TRIASSIC:		
Chinle Formation:		
Clay, red	20	90
Sandstone, hard	35	125
Shale and shells	65	190
Lime, medium	22	212
Hard sand boulders	14	226
Red bed shells	209	435
Sand, hard, fine	140	575
Shale, sticky	28	603
Broken lime and sand	44	647
Shale, red and green	98	745
Clay, blue	22	767
Shale, red, hard	23	790
Hard sand and streaks of shale	76	866
Moenkopi Formation:		
Shale, red	24	890
Sandstone, red	22	912
Sand, white, hard	18	930
Shale, green	9	939
Red shale and shells	17	956
PERMIAN:		
Kaibab Limestone:		
Very hard lime and chert	29	985
Lime, white, porous	19	1,004
Lime, white, hard	23	1,027
Shale	6	1,033
Lime, gray	85	1,118
Red shale and traces of white sand	31	1,149
Coconino Sandstone:		
Sandstone, broken	20	1,169
Sandstone, porous	4	1,173
Very white quartz sand	31	1,204

(A-16-30)19dbc1

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Alluvium:		
Valley fill	50	50
TERTIARY(?):		
Bidahochi(?) Formation:		
Quicksand	130	180
TRIASSIC:		
Chinle Formation:		
Red beds	120	300
Sand, red	30	330
Shale, red and green	100	430
Sandy shale, red	30	460
Shale, red and green	70	530
Sandy shale, red	150	680
Sand, white	20	700
Shale, red, sticky	40	740
Sand, red	40	780
Shale, red, sticky	70	850
Sand rock, green, white and red	120	970
Shale, blue	10	980
Shale, red, sticky	40	1,020
Hard sand and chert	10	1,030
Moenkopi Formation:		
Shale, red, sticky	80	1,110
Conglomerate, hard	20	1,130
PERMIAN:		
Kaibab Limestone:		
Limestone, hard	130	1,260
Coconino Sandstone:		
Coconino	100	1,360

(A-17-28)11acd

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Surficial material:		
Fill	20	20
TERTIARY:		
Bidahochi Formation:		
Clay	50	70
Sand	100	170
Clay	40	210
Sand	80	290
Sand; water; Chinle Formation at 300 feet	10	300

(A-17-28)19bbc

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Sand and clay	5	5
Sandstone	25	30
Clay and bentonite	110	140
Sand	105	245
Clay and bentonite	15	260
Sand with streaks of bentonite	80	340
Sand; water	9	349

(A-17-28)31bbc

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
No log	10	10
Sand	140	150
Sand; water	10	160
TRIASSIC:		
Chinle Formation:		
Chinle	10	170

Table 9.--Modified drillers' logs of selected wells--Continued

	Thickness (feet)	Depth (feet)
(A-17-29)2bda		
QUATERNARY:		
Surficial material:		
Topsoil	20	20
TERTIARY:		
Bidahochi Formation:		
Sand fill	60	80
Caliche	70	150
Boulders	30	180
Sandstone, red	30	210
Shale, red	10	220
TRIASSIC(?):		
Wingate(?) Sandstone:		
Pale-red sandstone; first water at 240 feet	50	270
Sandstone, gray	30	300
(A-17-29)3bdb		
QUATERNARY:		
Surficial material:		
Sandy topsoil	4	4
TERTIARY:		
Bidahochi Formation:		
Sandy clay, tan	6	10
Sand, tan	85	95
Sandstone, tan	10	105
Sand, tan	10	115
Shale, white	5	120
Sand, red	40	160
Red sandy shale	15	175
Red shale with gravel	10	185
TRIASSIC:		
Wingate(?) Sandstone:		
Sandstone, pink	55	240
Sandstone, white, coarse; water	25	265
Chinle Formation:		
Shale, red, hard	1	266
(A-17-29)26bcb		
TERTIARY:		
Bidahochi Formation:		
Sand and shale, brown	45	45
Limestone, gray	35	80
Shale, yellow	15	95
Shale, red	15	110
TRIASSIC:		
Wingate(?) Sandstone:		
Yellow sandstone and shale	10	120
Sandstone, yellow	30	150
Chinle Formation:		
Shale, red	30	180
Shale, blue	30	210
Shale, red	490	700
(A-17-30)24aad		
TERTIARY:		
Bidahochi Formation:		
Sand; traces of water near base	102	102
Clay, yellow	53	155
Clay, blue and white	13	168
CRETACEOUS:		
Dakota Sandstone:		
Black shale and traces of coal	3	171
Shale, blue	9	180
Sandstone, porous; water	36	216
Shale, green	9	225
(A-17-30)33aab		
TERTIARY:		
Bidahochi Formation:		
Caliche	10	10
Sand, soft	30	40
Boulders	10	50
CRETACEOUS:		
Mancos Shale:		
Clay, yellow	30	80
Sandstone, yellow	10	90
Shale, black	60	150
Dakota Sandstone:		
Sandstone	10	160
Shale, brown	10	170
Coal	10	180
Shale, black	10	190
Sandstone, hard, tight	30	220
Sandstone, porous; water	40	260
TRIASSIC:		
Chinle Formation:		
Badland clay	5	265
(A-18-24)8bcb		
QUATERNARY:		
Alluvium:		
Clay with sand	41	41
TRIASSIC:		
Chinle and Moenkopi Formations:		
Sand and shale	115	156
Sandy shale with clay streaks	60	216
Sandy lime and shale with gypsum	78	294
Shale with lime streaks	8	302
PERMIAN:		
Coconino Sandstone:		
Sand	298	600
(A-18-24)9abb		
QUATERNARY:		
Alluvium:		
Sand	75	75
Clay	15	90
Sand and clay	5	95
Gravel	10	105
TRIASSIC:		
Chinle Formation:		
Clay and shale	5	110
(A-18-29)26bdb		
TERTIARY:		
Bidahochi Formation:		
Topsoil, shale and sand, soft	270	270
Reddish sandstone and blue shale, soft	30	300
Brown shale and white sandstone, soft	20	320
Reddish sandstone and red shale, soft	70	390
Shale, red	28	418
Sandstone, white	12	430

(A-18-30)4cbc

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Sand, gray, medium-hard	160	160
Sandy shale, medium-hard	80	240
Sandstone, white, light, soft	109	349
Sandstone, brown and white, soft	51	400
Sandy clay, tan, soft	150	550
Clay, white, soft	30	580
Shale, brown and white, hard	6	586
Sandy shale, red, hard	64	650
Sandy shale, red and white, hard	50	700

(A-18-30)14dbd

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Sand and shale lenses, soft	120	120
Sand and shale, hard	125	245
Sandstone, white, hard	47	292
Shale and sandstone, brown, hard	78	370
White sandstone and brown sand, hard	60	430
Sandstone, white, medium-hard	70	500
Brownish clay and sandstone, medium-hard	70	570
Sandstone, white, soft	48	618
Sandstone, gray, soft	18	636
TRIASSIC:		
Chinle Formation:		
Shale, red	59	695

(A-18-31)29bdb

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Variable colored sand, soft	140	140
Sand, mostly gravel, soft	120	260
Fine sand with clay, soft	80	340
Sandstone, yellow, soft	16	356
CRETACEOUS:		
Dakota Sandstone:		
Charcoal with gray sandy clay, soft	10	366
Charcoal and yellow sandstone, hard	14	380
Sandstone, white, hard	37	417
Gray shale and white sandstone, hard	56	473
TRIASSIC(?):		
Wingate(?) Sandstone:		
Blue and reddish-brown shale and siltstone, hard	32	505
Reddish-orange sandstone, fine, hard	47	552

(A-19-29)9aac

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Sand	194	194
Sandy clay	78	272
Sand; water at 342 feet	77	349
Clay	12	361
Sandstone	2	363
Sand and clay	6	369
Sandstone	2	371
Sand	8	379
TRIASSIC:		
Chinle Formation:		
Shale	2	381

(A-19-29)17acb2

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
Sand, soft	65	65
Sandstone and clay	15	80
Sandstone	120	200
Sandstone and clay	60	260
Clay, red and white	15	275
Red and white clay with sandstone ledges; water	180	455
TRIASSIC:		
Chinle Formation:		
Shale, red, hard	10	465

(A-19-29)35cdb

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Surficial material:		
Soil	4	4
TERTIARY:		
Bidahochi Formation:		
Sand and sandy clay	34	38
Clay	9	47
Sand and clay	56	103
Clay	9	112
Sand and clay	42	154
Clay	8	162
Sand	106	268
Sandy clay	77	345
Sand	53	398
Clay	14	412
Sand; first water	3	415
Sandy clay	23	438
Sand; water	11	449
Sandstone; water	11	460

(A-19-30)10abd

	Thickness (feet)	Depth (feet)
TERTIARY:		
Bidahochi Formation:		
White shaly mud, soft	120	120
Yellowish clay, hard and sticky	90	210
Light-yellowish shale, soft	170	380
Shale, white and brown, soft	30	410
Brownish, shale, soft	50	460
Sand and clay with streaks of white clay, soft	240	700
Clay and sand, tan, soft	15	715
Variable colored fine sand, soft	133	848
Clay and sand, tan, soft	72	920
Variable colored fine sand, soft	165	1,085
TRIASSIC:		
Chinle Formation:		
Reddish shale, medium-hard	11	1,096

(A-20-26)25bab

	Thickness (feet)	Depth (feet)
QUATERNARY:		
Alluvium:		
Sandy soil	10	10
Sandy clay	20	30
Fine quicksand	70	100
Clay and sand	60	160
Clay, red	10	170
Gravel and sandstone	15	185
TRIASSIC:		
Chinle Formation:		
Sandstone, red; water	15	200
Badland	4	204

Table 9.--Modified drillers' logs of selected wells--Continued

	Thick-ness (feet)	Depth (feet)		Thick-ness (feet)	Depth (feet)
(A-20-29)25dcd					
QUATERNARY:			Sandstone, with an occasional boulder	216	601
Surficial material:					
Surface soil	3	3	Sandstone, dirty, porous; weak show of water	8	609
Drift sand	32	35			
TERTIARY:			Medium-hard sandstone with thin crystalized sandstone from 2 to 4 inches	137	746
Bidahochi Formation:					
Sandstone, white, soft	138	173			
Sandstone, brown, soft	212	385	Sand and gravel; water	49	795
(A-21-28)24bbc					
QUATERNARY:			TRIASSIC:		
Alluvium:			Chinle Formation:		
			Red shale and some layers of sandstone	100	180
Sand and gravel	80	80	Light-colored sandstone	76	256