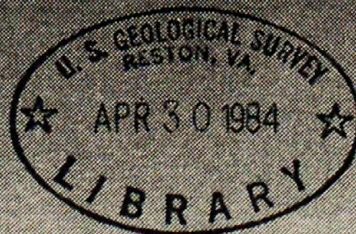
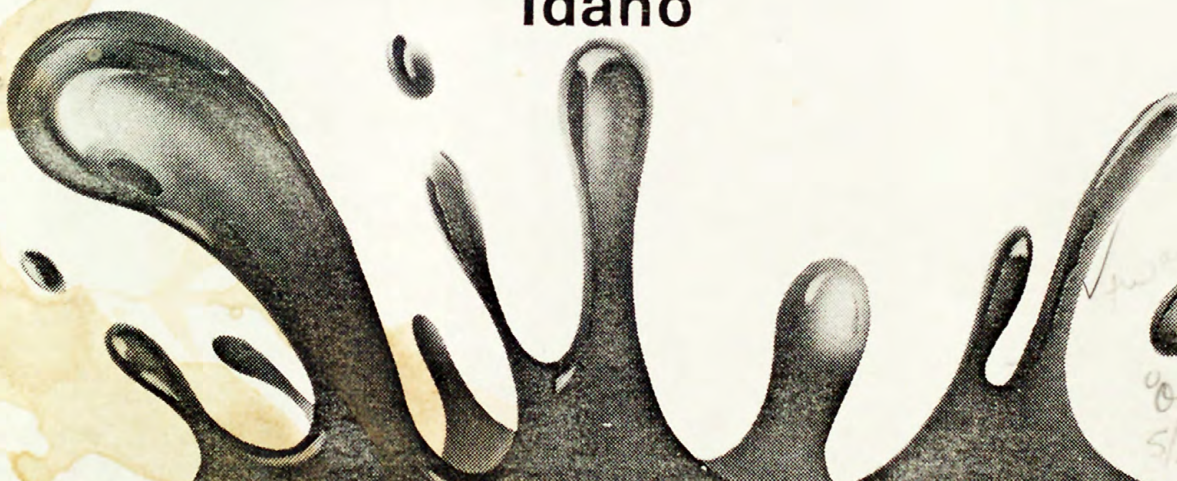


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Hydrologic, Demographic, and Land-Use Data for the Snake River Plain, Southeastern Idaho



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HYDROLOGIC, GEOGRAPHIC, AND LAND-USE DATA FOR THE STATE

WATER RESOURCES, ENVIRONMENTAL, AND LAND-USE DATA

U.S. GEOLOGICAL SURVEY

Water Resources Investigation Report 84-1001

Prepared in cooperation with the
U.S. ENVIRONMENTAL PROTECTION AGENCY

HYDROLOGIC, DEMOGRAPHIC, AND LAND-USE DATA FOR THE SNAKE
RIVER PLAIN, SOUTHEASTERN IDAHO

By H. W. Young and M. L. Jones

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 84-4001

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Boise, Idaho

1984

U.S. DEPARTMENT OF THE INTERIOR

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GEOLOGICAL SURVEY

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CONVERSION FACTORS

For readers who prefer to use metric units, conversion factors for terms used in this report are listed below. Chemical data are given in mg/L (milligrams per liter), which are numerically equal to parts per million within the range of values presented. Specific conductance is expressed as $\mu\text{mho}/\text{cm}$ (micromhos per centimeter at 25 degrees Celsius).

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
acre	4,047	square meter
acre-foot (acre-ft)	1,233	cubic meter
cubic foot per second (ft^3/s)	0.02832	cubic meter per second
foot (ft)	0.3048	meter
foot squared per day (ft^2/d)	0.0929	meter squared per day
gallon	3.785	liter
inch (in.)	25.40	millimeter
micromho (μmho)	1.00	microsiemens
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer

Temperature in $^{\circ}\text{C}$ (degrees Celsius) can be converted to $^{\circ}\text{F}$ (degrees Fahrenheit) as follows:

$$^{\circ}\text{F} = (1.8)(^{\circ}\text{C}) + 32$$

All water temperatures are reported to the nearest one-half degree.

NGVD of 1929 (National Geodetic Vertical Datum of 1929):
The term "National Geodetic Vertical Datum of 1929" replaces the formerly used term "mean sea level" to describe the datum for altitude measurements. The geodetic datum is derived from a general adjustment of the first-order leveling networks in both the United States and Canada. For convenience in this report, the datum also is referred to as "sea level."

HYDROLOGIC, DEMOGRAPHIC, AND LAND-USE DATA FOR THE SNAKE RIVER PLAIN, SOUTHEASTERN IDAHO

By
H. W. Young and M. L. Jones

ABSTRACT

The Snake River Plain aquifer is composed of a series of successive basalt flows underlying an area of about 9,600 square miles. Reported values of transmissivities range from 500,000 feet squared per day to as high as 13,000,000 feet squared per day. Depth to water in most developed areas is less than 300 feet.

Recharge to the aquifer in 1980 was estimated to be 7,821,000 acre-feet. Discharge in 1980 was about 8,072,000 acre-feet, which resulted in a net decrease in storage of about 251,000 acre-feet.

The quality of water in the aquifer is generally good. Only fluoride (1 percent of the samples), nitrite plus nitrate as nitrogen (1 percent of the samples), and dissolved-solids concentrations (3 percent of the samples) exceeded established recommended standards for drinking water. Under the present circumstances, potential alternative sources of water for use on the Snake River Plain are impractical.

INTRODUCTION

The U.S. Environmental Protection Agency has been petitioned for "sole source" designation of the Snake River Plain aquifer in southeastern Idaho in accordance with the 1974 Federal Safe Drinking Water Act (Public Law 93-523). If the aquifer is determined to be the only economical source of safe drinking water capable of supplying the area, then a "sole source" designation can be assigned. This would give the U.S. Environmental Protection Agency the responsibility of protecting the quality of water in the aquifer from detrimental effects caused by Federal financially assisted projects in the area.

Purpose

The purpose of this report is to provide hydrologic, demographic, and land-use information that pertains to the availability, condition, and uses of water in the Snake River Plain aquifer. The report is based on available basic data and previous studies of the aquifer and is intended for use as an aid in the decisionmaking process.

Location

The Snake River Plain aquifer extends about 200 mi eastward and northeastward from Bliss to Ashton (pl. 1). The aquifer underlies about 9,600 mi² of a broad, undulating surface bounded on the north, east, and south by mountain ranges and alluvium-filled intermontane valleys and on the west by broad, lava-capped plateaus. The boundary of the aquifer, as defined by Norvitch, Thomas, and Madison (1969), was drawn along the foot of the surrounding mountains and across the mouths of tributary valleys. Generally, the boundary marks the contact of the Snake River Plain aquifer and the usually less permeable material of the surrounding areas. Contributory drainage to the aquifer totals nearly 36,000 mi², which includes about 29,000 mi² in Idaho, 5,100 mi² in Wyoming, 390 mi² in Utah, and 1,500 mi² in Nevada (pl. 1).

Centers of water use, agricultural development, and population are mostly near the Snake River, which flows along the eastern and southern margins of the Snake River Plain. The Snake River is the primary source of surface water for irrigation of croplands near the river. Ground water is used almost exclusively on the more recently developed irrigated lands extending into the plain away from areas irrigated with surface water.

Climate

Climate of the area may be classified as semiarid. Precipitation is sparse, winters are cold, and summers are hot. Precipitation is much greater and temperatures are lower in mountainous areas of the contributory drainages.

Mean annual temperatures range from 5.0°C at Ashton (altitude 5,100 ft above sea level) to 10.0°C at Bliss (altitude 3,270 ft). Mean annual precipitation ranges from less than 9 in. in some of the north-central and western areas to about 14 in. in some of the eastern, southern, and northeastern areas.

Well- and Spring-Numbering System

The well-numbering system (fig. 1) used by the U.S. Geological Survey in Idaho indicates the location of wells within the official rectangular subdivision of the public lands, with reference to the Boise base line and meridian. The first two segments of the number designate the township and range. The third segment gives the section number followed by three letters, which indicate the $\frac{1}{4}$ section (160-acre tract), the $\frac{1}{4}$ - $\frac{1}{4}$ section (40-acre tract), the $\frac{1}{4}$ - $\frac{1}{4}$ - $\frac{1}{4}$ section (10-acre tract); and the serial number of the well within the tract. Quarter sections are lettered A, B, C, and D in counterclockwise order from the northeast quarter of each section. Within the quarter sections, 40-acre and 10-acre tracts are lettered in the same manner. Well 8S-24E-31DAC1 is in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31, T. 8 S., R. 24 E., and was the first well inventoried in that tract. Springs are designated by the letter "S" following the last numeral; for example, 6S-13E-17BAB1S.

Gaging-Station Numbering System

Each gaging station and partial-record station has been assigned an eight-digit number in accordance with the permanent numbering system used by the U.S. Geological Survey. The first two digits indicate the river basin in which the station is located; in this case, 13 designates the Snake River basin. The last six digits are the station number (for example, 13090900, Blue Lakes Spring near Twin Falls). Numbers are assigned in a downstream direction along the main stream, and stations on tributaries between main-stream stations are numbered in the order that the tributaries enter the main stream. A similar order is followed on other ranks of tributaries.

HYDROLOGY OF THE SNAKE RIVER PLAIN AQUIFER

Hydrogeologic Setting

The Snake River Plain aquifer is composed of a series of successive basaltic lava flows of Quaternary age. Individual basalt flows are generally less than 25 ft thick. Total thickness of the series is unknown but locally may exceed several thousand feet (Stearns and others, 1936). Older and less permeable volcanic rocks, generally rhyolite, underlie the basalt and are thought to be the base of the Snake River Plain aquifer.

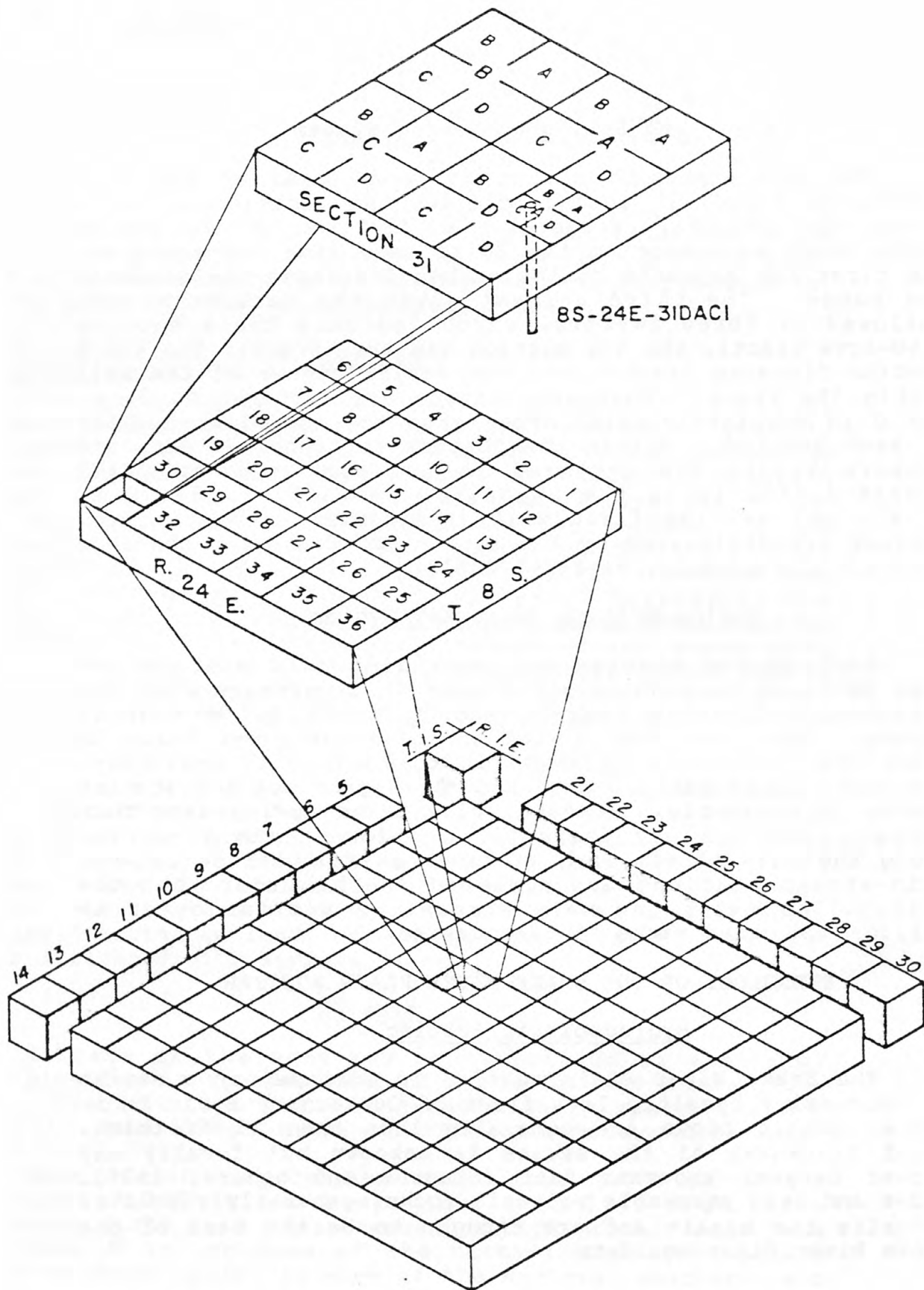


Figure 1.--Well- and spring-numbering system.

Interflow zones between successive basalt flows consist of pyroclastic and sedimentary materials. They are highly permeable and are the major avenues for horizontal movement of water within the aquifer. The transmissivity of the aquifer (the rate at which water is transmitted through a unit width of the aquifer under a unit hydraulic gradient) is generally high. Reported values of transmissivity range from 500,000 ft²/d to as high as 13,000,000 ft²/d (Lindholm, 1981).

Calculated values of ground-water velocities are high. Assuming a saturated thickness of 1,000 ft, an average water-table gradient of 5 ft/mi, a porosity of 0.05, and transmissivity values of 500,000 and 13,000,000 ft²/d, calculated ground-water velocities range from 9.5 ft/d to 246 ft/d.

Depth to Water

Depth to water in the Snake River Plain aquifer ranges from less than 100 ft to more than 900 ft below land surface (pl. 2). As shown by plate 2, depth to water is greatest in the central and northern parts of the aquifer. In areas near the western, southern, and eastern margins of the aquifer, depth to water is generally less than 300 ft and is coincident with most of the development and water use.

Ground-Water Movement

The general direction of ground-water movement can be inferred from contours on the water surface (pl. 3). Movement is down the hydraulic gradient and roughly perpendicular to the water-level contours, from areas of recharge to areas of discharge. The position of the water surface in March 1980 is shown on plate 3. Arrows on plate 3 show the general direction of ground-water movement.

Water-Level Fluctuations

Ground-water levels fall in response to discharge from an aquifer and rise in response to recharge. For purposes of analysis, fluctuations are important on both short-term (minutes, days, months) and long-term (years) bases. Hydrographs of water-level fluctuations can reveal stresses on an aquifer and whether water in storage is increasing or decreasing over the long term.

The character of fluctuations in agricultural areas depends on whether ground water or surface water is the principal source for irrigation. Where surface water is the source, ground-water levels start to rise after the beginning of an irrigation season as some of the applied water percolates to the saturated zone. A decline in water levels generally is observed shortly after the end of the season. This decline normally continues until the start of the next season. Where ground water is the principal source, water levels start to decline at the beginning of the irrigation season. The decline continues through the season until pumping ceases. Levels then generally recover gradually.

Water levels in areas not influenced by irrigation are either relatively stable or start to rise in early spring in response to snowmelt. This rise peaks in late spring or early summer, then gradually declines. The decline continues through fall and winter until spring snowmelt again recharges the aquifer.

Hydrographs of water levels in 10 selected wells are shown on plate 4. Fluctuations in the Snake River Plain aquifer generally reflect the source of irrigation water. Well 4S-33E-3CBB2 shows fluctuations typical of an area of surface-water irrigation where canal losses and seepage from fields constitute the principal source of recharge. Well 8S-24E-3lDACl shows fluctuation typical of an area of ground-water irrigation where water levels start to decline at the start of the pumping season.

In addition to repetition of seasonal fluctuations, hydrographs on plate 4 show long-term (several years) trends in the Snake River Plain aquifer. Generally, water levels in both surface- and ground-water irrigated areas show declines starting in the mid-1970's. These downward trends are probably the result of increasing ground-water withdrawals and reduced recharge from surface water owing to changes in irrigation practices.

Recharge to and Discharge From the Aquifer

Plate 5 shows locations and estimates of recharge to and discharge from the aquifer and contains a ground-water budget for 1980. The aquifer is recharged by percolation from surface-water irrigation; inflow from tributary valleys, which includes both ground-water underflow and surface water; precipitation; and seepage losses from the Snake River.

Estimates of recharge from percolation of surface-water irrigation, tributary valley inflow, and precipitation totaled 4,800,000; 1,411,000; and 760,000 acre-ft, respectively (S. P. Garabedian, U.S. Geological Survey, written commun., 1983). Estimates of recharge from seepage losses from the Snake River totaled 850,000 acre-ft (L. C. Kjelstrom, U.S. Geological Survey, written commun., 1983). Total recharge to the aquifer in 1980 was 7,821,000 acre-ft.

Discharge from the aquifer occurs as spring discharge, ground-water pumpage for irrigation, and seepage to the Snake River. Estimates of spring discharge and seepage to the Snake River totaled 6,232,000 and 340,000 acre-ft, respectively (L. C. Kjelstrom, U.S. Geological Survey, written commun., 1983). Ground-water pumpage for irrigation totaled 1,500,000 acre-ft (B. B. Bigelow, S. A. Goodell, and G. D. Newton, U.S. Geological Survey, written commun., 1983). Ground-water withdrawals for nonirrigation use are not included (see section "Water Use").

An additional potential loss from the aquifer is ground-water evapotranspiration. However, depth to water in most parts of the aquifer is more than 50 ft and precludes any significant loss by this means.

Total discharge from the aquifer in 1980 was 8,072,000 acre-ft. Total recharge (7,821,000 acre-ft) subtracted from total discharge shows a reduction in storage of 251,000 acre-ft in 1980. Hydrographs on plate 4, which indicate a general decline in the water levels, also indicate a net loss in storage.

Spring Discharge

Springs issuing from the Snake River Plain aquifer occur singly, in clusters, and in continuous zones along the Snake River canyon between Milner and Bliss and along the Snake River near American Falls Reservoir between Blackfoot and Neeley. Several hydrographs of spring discharge for the periods 1971-82 and 1973-82 are shown on plate 6. Continuous discharge data are available for Box Canyon and Blue Lakes Springs. Seasonal fluctuations in these springs coincide with the irrigation season. As shown on plate 6, hydrographs of discharge for Box Canyon and Blue Lakes Springs clearly show an increase in discharge shortly after the start of the irrigation season and a decrease in discharge shortly after the conclusion of the irrigation season. Hydrographs for the remaining springs do not show

the seasonal fluctuation because, generally, only one measurement per year was available. However, in 1980, several measurements made at these springs show an increase in spring discharge corresponding to the irrigation season.

Hydrographs of annual discharge for the springs between Milner and Bliss and for the springs near American Falls Reservoir for the period 1970-81 are shown on plate 6. Generally, these hydrographs show a decrease in annual spring discharge starting in the mid-1970's, which is coincident with the declining water levels shown on plate 4.

Ground-Water/Surface-Water Relations

Most of the water moving through the aquifer, as previously discussed, discharges to the Snake River by springs near American Falls Reservoir and between Milner and Bliss. However, exchange between the aquifer and the Snake River also occurs. In areas where the altitude of the water level is above the altitude of the river, ground water discharges from the aquifer to the river. In areas where the altitude of the water level is below the altitude of the river, the aquifer is recharged by seepage from the river.

Plate 5 shows locations and quantities of ground-water discharge to the river and recharge to the aquifer from the river. Total exchanges of water between the aquifer and the Snake River in 1980 indicate a net recharge to the aquifer of 510,000 acre-ft.

Ground-Water Quality

In preparing this report, a primary goal was tabulation of all available data on the chemistry of water in the Snake River Plain aquifer to assess changes with time. The final tabulation of data was accumulated from a wide variety of sources representing different sampling techniques, analytical methods, and data-reporting practices. Therefore, to minimize the potential for inclusion of incompatible data, only data collected by the U.S. Geological Survey were used.

A tabulation of water-quality data from 89 wells and 25 spring sites for which more than one analysis is available is given in table 1 (back of report). Locations of wells and spring-sampling sites are shown on plate 7.

A summary of six chemical characteristics included in the National Interim Primary Drinking Water Regulations and

the National Secondary Drinking Water Regulations (U.S. Environmental Protection Agency, 1977a and 1977b) is shown on plate 7. The summary includes the number of sites and samples where the established MCL's (maximum contaminant levels) were exceeded and the maximum value was observed. Four of the six characteristics shown on plate 7 exceeded the MCL's. Concentrations of fluoride and nitrite plus nitrate as nitrogen exceeded the MCL's in 1 percent of the samples. Ranges of pH and dissolved-solids concentrations exceeded the MCL's in 3 percent of the samples.

Also included in table 1 are fecal coliform and fecal streptococci counts and methylene blue active substance (detergents) concentrations. Methylene blue active substance concentrations ranged from 0 to 0.2 mg/L and were below the MCL of 0.5 mg/L. Bacteriological tests for fecal coliform are available for 34 well and spring sites; tests for fecal streptococci are available for 28 sites. Fecal coliform counts ranged from less than 1 to 11 colonies per 100 mL (milliliters); fecal streptococci counts ranged from less than 1 to 340 colonies per 100 mL. These data, however, may reflect sanitary conditions of the wells and their distribution systems or location of the spring-sampling site, so may not be indicative of the bacteriological quality of the aquifer.

Data in table 1 show that, although the concentration of any one constituent may change from one sampling date to the next at any site, no long-term trends of changing water quality are readily observable.

Water Use

Ground water is withdrawn from the aquifer for irrigation, municipal, rural-domestic and livestock, and industrial use. Withdrawals for irrigation, as previously mentioned, totaled 1,500,000 acre-ft in 1980. Municipal ground-water withdrawals were estimated for communities on the Snake River Plain where wells are open to the aquifer. Estimates were made using daily, per-capita use data (Young and Harenberg, 1971) and the number of people supplied by the systems (Idaho Department of Health and Welfare, Division of Environment, written commun., 1983). Estimated withdrawals for municipal supplies were 44,555 acre-ft in 1980 (table 2). Municipal pumpage in 1969 was 33,697 acre-ft (Young and Harenberg, 1971), which indicates an increase of about 30 percent.

Table 2.--Municipal ground-water pumpage in 1980

City	County	Population served ^{1/}	Daily per-capita use ^{2/} (gallons)	Quantity pumped (acre-feet)
Aberdeen	Bingham	1,642	48	87
Ammon	Bonneville	2,545	280	798
Arco	Butte	1,259	280	395
Ashton	Fremont	1,242	280	390
Atomic City	Bingham	60	685	46
Basalt	do.	410	280	129
Blackfoot	do.	10,500	242	2,847
Butte City	Butte	60	280	19
Carey	Blaine	160	280	50
Dubois	Clark	499	231	129
Eden	Jerome	350	42	16
Firth	Bingham	362	280	114
Fort Hall	do.	600	280	188
Gooding	Gooding	3,100	176	611
Goshen	Bingham	50	280	^{3/} 16
Hagerman	Gooding	550	280	172
Hazelton	Jerome	575	280	180
Heyburn	Minidoka	1,250	280	392
Idaho Falls	Bonneville	37,351	495	20,713
Iona	do.	1,030	280	323
Jerome	Jerome	7,500	247	2,075
Minidoka	Minidoka	131	280	41
Mud Lake	Jefferson	244	280	77
Newdale	Fremont	400	40	18
Parker	do.	315	280	99
Paul	Minidoka	1,575	276	487
Rexburg	Madison	10,000	180	2,017
Richfield	Lincoln	365	173	71
Rigby	Jefferson	3,000	811	2,726
Ririe	Bonneville	590	882	583
Roberts	Jefferson	393	280	123
Rupert	Minidoka	5,000	174	975
St. Anthony	Fremont	3,500	98	384
Shelley	Bingham	3,100	230	799
Shoshone	Lincoln	1,250	347	486
Springfield	Bingham	62	280	19
Sugar City	Madison	657	280	206
Teton	Fremont	498	^{4/} 280	^{3,4/} 156
Twin Falls	Twin Falls	23,000	201	5,170
Ucon	Bonneville	850	112	107
Wendell	Gooding	1,492	192	321
Totals		127,517		44,555

¹ Idaho Department of Health and Welfare, Division of Environment (written commun., 1983).

² Young and Harenberg (1971).

³ Water from springs issuing from the Snake River Plain aquifer.

⁴ Reported.

Assuming the increase in municipal withdrawals is representative of increased nonirrigation withdrawals from the aquifer, and using 1969 rural-domestic and livestock and industrial pumpage reported by Young and Harenberg (1971), 1980 pumpage for rural-domestic and livestock and industrial use was estimated to be 9,500 and 49,300 acre-ft, respectively. Nonirrigation pumpage was estimated to be about 103,000 acre-ft, or about 7 percent of the total ground-water withdrawals in 1980. Estimated nonirrigation ground-water pumpage appears reasonable when compared with 1969 nonirrigation pumpage of 79,000 acre-ft, or 7 percent of the total withdrawals (Young and Harenberg, 1971).

Ground-water withdrawals for irrigation (1,500,000 acre-ft) greatly exceed nonirrigation pumpage to the extent that a potential error, ± 10 percent (150,000 acre-ft), in estimating irrigation pumpage is greater than the total nonirrigation pumpage (103,000 acre-ft). Therefore, only estimates of ground-water pumpage for irrigation are shown on plate 5 and used in the ground-water budget.

ALTERNATIVE WATER SOURCES

Potential alternative sources of water for the area overlying the Snake River Plain aquifer are the Snake River and surface- and ground-water resources of its tributary valleys. Quantity of water available, quality of the water, and proximity to the areas of need are considerations in determining the practicality of each source.

Existing water rights and, in some cases, the remoteness of the Snake River to the areas of need probably preclude use of the river water as an alternative water source. Assuming sufficient supplies are available after existing water rights are met, remoteness of tributary valleys to the areas of need also precludes use of these water resources. Therefore, under the present circumstances, potential alternative sources of water for use on the Snake River Plain probably are impractical.

Surface-Water Quality

Many different surface-water bodies are direct or indirect sources of recharge to the Snake River Plain aquifer. However, water in the Snake River has the most potential to affect quality of water in the aquifer, owing to seepage losses and to large volumes of water diverted

for irrigation (see pl. 5). Therefore, only water-quality data from stations on the Snake River are included in this report. These stations are representative of water quality in the Snake River at points of major water use and development, and downstream from major points of aquifer discharge.

Quality of surface water generally fluctuates over a wide range (compared to ground water) in response to changes in flow, seasons, and quality of inflowing water. Therefore, for data compatibility, generally only analyses of water collected in the fall of each year are included in table 3. Locations of these sites are shown on plate 7. Data in table 3 are summarized on plate 7 in the same manner as the ground-water data for chemical constituents. As shown on plate 7, only the pH values of surface water exceeded the guidelines.

Bacteriological tests of water in the Snake River are included in table 3. Fecal coliform counts ranged from 1 to 1,200 colonies per 100 mL; fecal streptococci counts ranged from 1 to 2,000 colonies per 100 mL. Because these data are available at only five sites and include only 41 samples, they probably are not representative of the bacteriological quality of water in the Snake River in the vicinity of the aquifer.

SOILS

The major types of soil overlying the aquifer are shown on plate 8. Soil types were grouped on the basis of their infiltration characteristics from the original soils map prepared by the U.S. Department of Agriculture (1976). Although no actual infiltration ratios are available, ratings of infiltration characteristics of the soils relative to each other are assigned. Infiltration ratios for areas of bare rock and sand dunes are unknown.

POPULATION

Distribution of population over the Snake River Plain is shown on plate 9. Population densities are by counties and range from 58.2 people/mi² to 0.45 people/mi².

LAND USE AND OWNERSHIP

Use and ownership of land on the Snake River Plain are shown on plate 1. The majority of land is public domain managed by the U.S. Bureau of Land Management. The predominant use of privately owned land is irrigated agriculture.

Table 3.--Chemical analyses of water from selected sites on the Snake River
[chemical constituents in milligrams per liter, except where noted; ---constituents not
analyzed for; <, less than; >, greater than; K, less than ideal colony count]

Station No.	Discharge, in cubic feet per second	Date of sample	Specific conductance (µmho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 µm-MF (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)
13037500	2,750	10/15/69	355	8.4	---	33	13	15	2.6	120	2	---	15	0.4	4.3	---	---	---	---	---
	4,110	10/15/70	368	8.4	11.5	42	13	12	---	130	5	41	12	---	11	200	---	0.36	---	---
	8,370	10/15/71	344	8.2	---	44	11	9.2	---	160	0	48	7.4	---	---	---	<0.01	.04	---	---
	9,230	10/15/72	336	7.9	12.0	43	10	8.5	---	150	0	43	7.7	---	---	---	<.01	.01	---	---
	3,430	10/ 2/73	402	8.0	12.0	49	13	13	2.4	180	0	45	14	.3	7.9	233	---	.06	---	---
	6,610	10/ 3/74	345	8.5	12.5	47	10	8.6	---	120	7	41	8.1	---	9.3	193	.10	.02	---	---
	7,130	10/ 1/75	326	7.3	10.5	44	12	9.4	1.8	150	0	47	8.9	.3	8.0	207	.11	.02	---	---
	4,140	10/ 6/76	367	7.5	11.0	48	12	11	2.0	160	0	43	14	.3	8.1	217	.02	<.01	---	---
	1,200	10/31/77	562	8.1	7.0	66	19	22	3.3	200	0	81	25	.6	8.1	324	---	<.01	---	---
	2,970	10/30/78	382	8.3	8.0	56	13	11	1.9	170	0	52	13	.3	8.1	239	.07	<.01	K2	56
	1,720	10/29/79	455	8.1	8.0	62	16	19	2.9	---	---	63	21	.3	8.6	286	.09	.01	K2	---
	2,580	10/28/80	466	8.7	8.0	56	15	15	2.4	---	---	57	17	.4	6.9	260	<.01	.02	K1	K6
	1,310	10/30/81	493	8.1	8.5	62	18	20	3.0	---	---	---	---	.4	6.8	---	<.1	.02	K36	52
	8,390	9/29/82	327	8.6	11.5	44	10	8.0	1.6	---	---	33	7.9	.3	9.1	184	.15	.03	K7	46
	1,490	10/ 6/77	314	8.4	11.5	35	9.9	15	2.5	150	---	24	3.1	1.3	22	187	.08	.04	---	---
	3,990	8/11/78	243	7.9	20.0	39	9.7	8.6	1.8	140	---	24	6.5	.5	11	171	.13	.02	---	---
13060000	2,910	12/ 3/79	387	7.8	3.0	41	11	18	19	---	---	38	16	1.3	21	251	.29	.21	---	---
	2,310	10/ 9/80	323	8.4	18.0	42	11	13	2.5	---	---	31	11	.7	14	211	.34	.03	---	---
	3,070	9/23/81	320	8.6	14.5	42	11	12	2.3	---	---	37	11	.8	13	208	.15	.02	---	---
	2,830	8/31/75	284	8.5	14.5	46	13	13	2.5	180	0	28	9.8	.7	14	216	---	.03	---	---
	2,750	7/ 2/76	310	8.7	17.5	41	9.8	13	2.5	160	0	19	7.5	.6	12	181	.20	.05	---	---
13069500	459	10/18/77	476	7.9	14.0	52	19	22	4.1	240	---	41	17	.9	26	303	.70	.05	---	---
	2,950	9/20/78	346	8.0	11.5	45	13	11	2.5	180	---	24	9.0	.6	14	---	.03	.04	---	---
	1,950	11/21/79	337	9.0	2.0	39	11	20	3.1	---	---	34	10	1.4	25	223	.31	.01	---	---
	289	10/ 8/80	413	8.1	14.5	46	14	16	3.0	---	---	34	10	.8	17	239	.35	<.01	---	---
	1,410	7/16/81	331	8.0	18.5	43	11	12	2.3	---	---	39	8.8	.4	1.3	197	.29	.08	---	---
	4,300	11/ 5/75	501	---	8.0	50	16	21	4.0	---	---	40	23	---	21	---	.56	.06	K12	---
	4,280	11/ 2/76	429	8.2	10.0	44	17	21	3.7	170	0	42	23	---	20	254	.12	.08	35	---
	2,070	2/23/77	502	8.7	2.0	51	16	21	3.5	210	14	45	22	---	20	296	.42	.03	K2	---
	4,030	9/12/78	364	8.3	14.0	---	---	---	---	180	0	---	---	---	14	---	.13	.04	59	---
	9,040	8/29/79	396	8.8	22.0	43	16	20	3.1	---	---	42	16	---	3.0	---	.15	.04	49	---
13082030	4,460	9/24/80	391	8.9	17.0	---	---	---	---	---	---	---	---	---	---	---	<.01	.11	30	---
	6,190	9/30/81	396	8.3	14.5	---	---	---	---	---	---	---	---	---	---	---	14	.06	31	---
	1,350	12/22/69	571	8.4	3.0	58	20	35	8.0	250	3	55	37	---	21	---	---	.13	---	---
	5,250	10/20/70	435	9.0	9.0	46	17	---	---	180	21	41	22	.6	---	---	---	.06	---	---
	10,100	10/12/71	369	8.5	13.5	49	14	18	3.4	160	9	40	15	.5	---	---	---	.09	---	---
	20,200	6/15/72	406	8.7	17.0	47	13	15	2.9	180	10	33	14	.4	---	---	---	.09	---	---
	8,600	8/26/74	401	8.7	22.0	39	14	18	4.1	140	1	30	16	---	.5	194	.04	.07	---	---

Table 3.--Chemical analyses of water from selected sites on the Snake River--Continued

Station No.	Discharge, in cubic feet per second	Date of sample	Specific conductance (μ mho)	pH	Water temperature ($^{\circ}$ C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MF (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)
13087900	3,000	11/ 6/75	494	---	6.0	49	17	24	4.7	---	---	42	24	---	21	---	0.64	0.09	64	---
	4,580	11/ 2/76	468	8.4	8.5	45	17	23	4.3	180	5	41	24	---	20	268	.01	.10	253	---
	1,350	2/24/77	502	8.3	2.0	55	17	24	4.6	220	0	46	23	---	20	298	.49	.07	72	---
	9,710	8/ 3/78	395	8.7	22.5	---	---	---	---	170	10	---	---	---	9.0	---	.11	.04	53	---
	9,200	8/29/79	405	8.6	19.0	44	16	21	3.6	---	---	42	19	---	4.4	---	.38	.06	>240	---
	269	8/26/80	381	8.7	19.0	---	---	---	---	---	---	---	---	---	---	---	<.01	.07	K39	---
13154500	965	9/29/81	407	8.4	12.0	---	---	---	---	---	---	---	---	---	---	---	.20	.13	97	---
	12,800	10/15/70	521	8.0	12.5	47	22	33	---	240	0	50	26	---	33	330	.22	.07	---	---
	17,800	10/15/71	471	8.0	---	42	18	27	---	210	0	50	20	---	---	---	.79	.09	---	---
	18,400	10/15/72	485	7.2	---	45	19	26	---	210	0	41	22	---	---	---	.73	.10	---	---
	8,740	9/11/73	544	8.1	16.0	47	21	35	4.8	240	0	54	26	0.5	33	347	1.2	.08	---	---
	10,100	10/18/74	452	8.5	12.5	48	18	33	5.0	120	38	47	25	.6	27	301	.98	.06	98	175
	14,100	10/16/75	503	8.3	14.0	48	18	28	4.9	240	0	49	25	.6	29	320	1.0	.11	86	354
	10,100	10/18/76	465	8.4	12.5	46	20	30	4.7	210	---	49	25	.6	26	305	1.2	.08	K13	33
	7,900	10/11/77	507	8.5	14.0	47	21	33	4.6	200	12	53	29	.7	35	334	1.2	.04	---	120
	8,760	10/10/78	503	8.5	15.5	51	20	31	4.6	200	7	53	25	.6	29	320	1.1	.06	K1,200	2,000
	7,930	10/10/79	506	8.5	15.5	46	20	30	4.9	190	10	54	27	.7	34	326	1.4	.07	K3	51
	8,460	10/ 6/80	519	8.3	16.0	45	20	31	4.5	---	---	52	26	.6	31	318	---	---	K9	25
	7,910	9/ 1/81	511	8.3	17.0	44	20	31	4.7	---	---	52	26	.6	34	323	.94	.08	25	K1
	9,440	9/ 9/82	486	---	16.0	48	19	27	4.2	---	---	45	23	.5	30	301	1.1	.07	130	>620

WASTE-DISPOSAL SITES

Plate 10 shows the location and distribution of various types of waste-water and solid-waste disposal sites overlying the aquifer. All these sites could have some effects on the quality of water in the aquifer. Although not included on plate 10, drain wells are a common means of disposing of irrigation-waste water, urban runoff, septic-tank effluent, and industrial-waste water in many areas overlying the aquifer.

The number of drain wells used in the area overlying the aquifer is unknown; however, Seitz, La Sala, and Moreland (1977) reported approximately 3,100 were in use in Minidoka, Gooding, Jerome, and Lincoln Counties. These wells were reported to inject about 29,000 acre-ft of irrigation-waste water, 100 acre-ft of urban runoff, 400 acre-ft of septic-tank effluent, and 1,000 acre-ft of industrial-waste water annually into the aquifer.

Seitz, La Sala, and Moreland (1977) reported that although no regional effects of drain-well inflow could be identified, several local effects were noted. They also concluded that irrigation-waste water contains significant concentrations of nutrients and bacteria; urban runoff may contain high concentrations of sodium, chloride, and bacteria; and septic-tank effluent contains high concentrations of nutrients, chloride, and bacteria. The only sample of industrial-waste water collected as part of their study was chemically unchanged, but the temperature was significantly increased.

NEED FOR ADDITIONAL MONITORING

To provide data for monitoring ground-water level fluctuations and water-quality changes in the Snake River Plain aquifer, the following network is suggested: (1) Ground-water observation wells: Supplement the existing observation-well network operated by the U.S. Geological Survey in cooperation with the Idaho Department of Water Resources by the addition of about 25 wells. These wells would be measured bimonthly. (2) Water-quality sampling sites: About 50 wells would be inventoried and then sampled annually during the irrigation season for chemical and nutrient concentrations. The wells would be selected to provide areal coverage of the aquifer with emphasis placed on areas of ground- and surface-water irrigation. Ten springs located along the Snake River between Milner and Bliss would be sampled for chemical, nutrient, and bacterial concentrations twice a year, prior to and at the conclusion of the irrigation season.

Plate 11 shows locations of existing State observation wells, proposed new observation wells, and proposed water-quality sampling sites.

SUMMARY

The purpose of this report was to provide hydrologic, demographic, and land-use information that pertains to the availability, condition, and uses of the water in the Snake River Plain aquifer. The aquifer underlies about 9,600 mi² of southeastern Idaho. Contributory drainage to the aquifer totals nearly 36,000 mi², of which about 29,000 mi² are in Idaho.

The aquifer is composed of a series of successive basalt flows that locally may be more than several thousand feet thick. Reported values of transmissivity range from 500,000 ft²/d to as high as 13,000,000 ft²/d. Depth to water in most developed areas is generally less than 300 ft. Ground-water levels in the aquifer generally fluctuate in response to the irrigation season.

The aquifer is recharged by percolation from surface-water irrigation; inflow from tributary valleys, which includes both ground-water underflow and surface water; precipitation; and seepage losses from the Snake River. Discharge from the aquifer occurs as spring discharge, ground-water pumpage, and seepage to the Snake River. A ground-water budget for 1980 indicated a net decrease in storage of 251,000 acre-ft.

Available water-quality data indicated that the aquifer generally yields water of good quality. Analyses of water from wells and springs indicated that concentrations of fluoride (1 percent of the samples), nitrite plus nitrate as nitrogen (1 percent of the samples), and dissolved solids (3 percent of the samples) exceeded established maximum contaminant levels.

Potential alternative sources of water for the area overlying the Snake River Plain aquifer are the Snake River and surface- and ground-water resources of its tributary valleys. However, existing water rights and, in some cases, the remoteness of these water sources preclude their use as an alternative water supply.

To provide data for monitoring ground-water level fluctuations and water-quality changes in the Snake River Plain aquifer, the following are suggested: (1) Supplement the existing observation-well network by the addition of 25 wells. (2) Establish a ground-water quality network to include about 50 wells and 10 springs.

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Table 1.--Chemical analyses of water from selected wells and springs
[chemical constituents in milligrams per liter, except where noted; --, constituents
not analyzed for; <, less than; K, less than ideal colony count]

Well, spring, or station No.	Date of sample	Specific conductance (umho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 µm-MP (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
BINGHAM COUNTY																				
3N-32E-13BBD1	1/16/57	292	7.8	---	31	10	15	2.8	150	0	12	11	0.7	27	184	---	---	---	---	---
	10/28/57	299	8.1	12.0	33	9.7	15	3.4	150	0	12	10	.7	23	182	---	---	---	---	---
	11/21/59	302	8.0	13.0	32	9.5	14	3.0	150	0	12	11	.6	25	181	---	---	---	---	---
	6/ 2/65	306	8.0	---	33	10	14	3.0	150	0	12	11	.8	31	193	---	---	---	---	---
1N-31E- 3CAC1	9/14/77	---	---	---	35	10	15	3.1	160	0	8.8	18	.6	---	---	---	---	---	---	---
	9/29/53	299	7.1	14.0	28	12	16	3.7	150	0	15	12	.8	36	199	---	---	---	---	---
	5/18/54	310	8.1	---	29	11	---	---	150	0	20	14	.6	32	204	---	---	---	---	---
	10/30/56	304	8.2	11.0	28	12	15	3.8	150	0	14	12	.6	36	198	---	---	---	---	---
1S-30E-15BCA1	9/14/77	---	---	---	31	12	15	3.3	140	0	12	14	.6	---	---	---	---	---	---	---
	6/12/51	327	7.6	14.0	31	14	14	2.4	160	0	19	14	1.1	33	205	---	---	---	---	---
	5/20/52	328	7.9	14.0	32	14	16	2.5	---	---	19	14	1.1	31	212	---	---	---	---	---
	9/20/77	---	---	---	21	8.3	11	2.0	81	0	4.7	28	.9	---	---	---	---	---	---	---
1S-32E-23CBB1	1/18/49	347	7.6	12.0	37	13	16	4.2	170	---	26	12	.8	33	226	---	---	---	---	---
	9/29/53	358	7.2	13.0	37	12	21	4.0	170	0	28	13	.8	34	236	---	---	---	---	---
	5/18/54	358	8.4	13.0	36	12	---	---	170	---	29	12	1.0	36	234	---	---	---	---	---
	5/ 8/57	354	7.5	---	34	14	7.0	4.2	170	0	25	11	.8	35	225	---	---	---	---	---
2S-30E-30BBB1	11/ 9/51	303	8.0	16.0	28	13	16	5.0	150	0	18	9.8	.6	32	200	---	---	---	---	---
	5/19/52	284	8.0	16.0	25	15	11	3.2	---	---	16	9.4	.5	24	177	---	---	---	---	---
3S-33E- 9BBA1	9/29/53	570	8.6	10.0	64	20	33	4.6	220	9	54	58	.6	31	386	---	---	---	---	---
	10/31/56	676	7.8	9.0	72	21	37	4.8	250	0	59	56	.6	28	407	---	---	---	---	---
4S-33E- 1ADC1S	4/ 8/78	791	7.1	11.0	67	29	46	5.3	280	0	64	58	.7	29	446	---	---	---	---	---
	12/10/80	763	7.6	11.0	63	27	49	6.8	---	---	75	61	.7	31	463	---	---	---	---	---
BLAINE COUNTY																				
7S-26E- 1ABD1	6/ 3/53	313	7.7	12.0	32	11	15	3.2	150	---	22	13	0.7	30	200	---	---	---	---	---
	9/29/53	311	8.6	---	32	9.4	19	3.5	140	5	22	12	.8	34	208	---	---	---	---	---
	5/18/54	333	7.6	12.0	33	13	17	---	160	---	21	12	.8	26	203	---	---	---	---	---
	9/13/66	306	8.1	14.5	32	11	16	2.8	160	---	21	10	.8	28	199	---	---	---	---	---
8S-27E-16CCD1	6/ 3/53	468	7.3	10.5	50	16	22	3.2	180	---	49	28	.4	29	288	---	---	---	---	---
	10/ 2/53	465	7.8	---	47	15	25	3.8	180	---	48	27	.6	35	296	---	---	---	---	---
	5/18/54	480	8.2	12.0	48	20	21	---	180	---	52	30	.6	42	304	---	---	---	---	---
	5/ 8/57	186	7.6	12.0	48	16	23	4.4	180	---	48	26	.5	35	292	---	---	---	---	---
8S-28E-21AAC1	6/ 4/53	523	7.7	10.0	59	20	23	3.6	200	---	59	33	.4	26	324	---	---	---	---	---
	9/29/53	515	7.6	---	56	16	29	3.8	200	---	58	32	.6	32	330	---	---	---	---	---
	5/18/54	525	7.8	10.5	55	26	16	---	200	---	62	32	.6	33	327	---	---	---	---	---
	10/31/56	522	7.8	10.5	58	17	26	4.2	200	---	57	30	.5	31	326	---	---	---	---	---
BONNEVILLE COUNTY																				
3N-34E-32BBC1	11/ 4/50	269	7.3	12.0	28	9.5	15	1.6	150	---	11	8.2	1.0	40	186	---	---	---	---	---
	10/16/52	275	7.8	12.0	26	9.3	18	2.3	140	---	13	8.2	.9	32	182	---	---	---	---	---
	9/14/77	---	---	---	26	8.5	17	2.7	140	---	55	7.7	1.0	---	---	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature ($^{\circ}$ C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
BONNEVILLE COUNTY--Continued																				
3N-37E- 2AAA1	6/27/76	465	7.5	11.5	67	17	12	2.5	250	0	37	8.5	0.4	18	282	1.1	0.02	---	---	---
	7/21/76	475	7.7	13.5	63	16	11	2.6	190	0	37	11	.4	16	254	1.4	.01	---	---	---
	11/ 9/79	453	7.5	12.0	64	15	11	2.8	---	---	40	9.3	.4	16	274	---	.02	---	---	---
2N-37E-14CCC1	8/17/72	581	7.5	11.5	71	22	19	3.6	300	0	45	11	.5	25	450	---	.03	---	---	---
	3/14/73	605	7.6	12.0	71	22	18	3.5	300	0	40	11	.4	24	342	---	.03	---	---	---
	8/16/77	580	7.3	13.0	73	21	19	3.5	300	0	42	11	.4	25	347	---	.05	---	---	---
	9/20/79	587	7.7	11.0	68	24	20	3.8	---	---	12	13	.4	26	314	---	.07	---	---	---
1N-38E- 9BCB1	8/17/77	618	7.5	18.0	74	24	21	4.9	330	0	38	15	.3	30	372	---	---	---	---	---
	8/24/79	621	7.5	17.0	82	22	18	4.4	310	0	38	21	.3	28	367	---	---	---	---	---
BUTTE COUNTY																				
7N-31E-22BDD1	7/10/56	356	8.0	10.0	46	16	6.0	1.2	180	0	28	6.8	0.2	14	211	---	---	---	---	---
	9/ 7/77	344	7.9	10.0	43	16	6.1	1.4	180	0	26	7.7	.3	13	202	---	---	---	---	---
	11/15/57	357	8.1	9.5	47	16	6.1	1.3	180	---	28	7.5	.1	11	209	---	---	---	---	---
26BBC1	9/ 7/77	344	7.9	10.0	43	15	6.2	1.4	180	0	25	9.6	.2	14	203	---	---	---	---	---
	28DAB1	361	8.0	10.0	43	16	7.2	1.5	180	---	30	7.5	.3	15	211	---	---	---	---	---
	9/ 7/77	345	7.9	11.0	44	16	6.2	1.5	190	0	26	7.0	.2	15	210	---	---	---	---	---
6N-31E-10ACC1	9/ 6/56	392	8.0	13.0	44	17	10	2.4	180	---	35	14	.3	23	235	---	---	---	---	---
	9/ 7/77	374	7.9	13.5	44	16	10	2.5	180	0	32	14	.3	24	232	---	---	---	---	---
	21DCC1	301	8.1	13.0	33	15	7.4	2.5	160	---	16	7.0	.1	24	186	---	---	---	---	---
27BAD1	12/19/61	301	7.8	13.0	32	15	7.6	2.5	160	0	15	6.8	.3	25	185	---	---	---	---	---
	9/ 7/77	298	8.0	14.0	33	15	6.9	2.7	160	0	16	7.0	.2	25	185	---	---	---	---	---
	4/ 4/50	338	8.2	11.5	34	15	15	4.8	17	---	20	10	.3	25	214	---	---	---	---	---
5N-29E-15ABD1	6/ 7/52	377	7.9	13.0	40	14	12	3.1	180	---	35	13	.2	27	208	---	---	---	---	---
	5/18/61	274	8.0	---	23	8.8	25	4.4	140	---	7.4	10	1.6	---	---	---	---	---	---	---
	2/15/62	227	8.6	16.5	12	6.9	26	4.4	110	6	1.2	10	1.5	4.0	126	---	---	---	---	---
23CDD1	12/17/63	285	8.1	---	23	8.5	24	4.3	140	---	14	9.2	1.8	17	173	---	---	---	---	---
	6/ 3/65	261	8.4	14.0	18	8.2	24	4.3	130	3	6.0	9.5	1.6	11	151	---	---	---	---	---
	9/ 7/77	186	8.3	15.5	7.4	6.0	23	4.4	98	0	1.3	13	1.5	15	107	---	---	---	---	---
5N-31E-28CCC1	10/18/49	288	---	12.0	30	16	---	7.6	150	---	22	6.0	.4	---	158	---	---	---	---	---
	1/ 5/50	273	7.8	11.0	29	15	3.3	2.6	140	---	18	5.0	.1	20	165	---	---	---	---	---
	9/11/78	243	8.0	14.5	24	11	11	1.5	130	0	16	4.8	.1	17	152	---	0.01	< 1	---	---
5N-31E-28CCC1	9/25/51	205	8.1	17.0	22	14	7.6	1.5	100	---	23	12	.2	15	147	---	---	---	---	---
	5/ 9/52	376	8.0	16.5	47	17	7.0	2.3	190	---	26	---	.1	15	---	---	---	---	---	---
	12/11/62	421	7.7	15.5	50	18	8.5	1.4	190	---	30	20	.2	14	238	---	---	---	---	---
5N-31E-28CCC1	12/18/63	417	7.6	---	50	19	8.5	1.4	180	---	32	23	.2	14	238	---	---	---	---	---
	6/ 3/65	454	7.8	15.5	54	20	8.9	1.4	190	0	34	28	.1	13	255	---	---	---	---	---
	9/ 6/77	407	7.8	17.0	47	17	11	1.7	210	0	25	14	.2	15	233	---	---	---	---	---
5N-31E-28CCC1	9/12/56	341	8.0	19.0	33	14	17	2.6	180	---	22	9.0	.5	28	210	---	---	---	---	---
	12/ 3/62	327	7.9	15.0	32	13	16	2.8	160	0	24	8.5	.5	30	205	---	---	---	---	---
	6/ 3/65	332	7.9	15.5	34	13	15	2.8	160	0	24	8.0	.5	29	204	---	---	---	---	---
	9/ 7/77	319	8.0	16.5	33	13	15	3.2	160	0	22	12	.5	31	208	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-KP (cols/100 mL)	Streptococci, fecal, KP Agar (cols/100 mL)	Methylene blue active substance
BUTTE COUNTY--Continued																				
4N-26E-36ACB1	11/ 3/78	407	7.8	10.0	62	14	5.1	1.1	230	0	19	5.2	0.2	14	236	---	0.01	< 1	---	---
	6/ 4/81	390	7.9	9.5	58	14	5.5	1.1	---	---	23	5.1	.1	14	227	---	.01	---	---	---
4N-30E- 7ADB1	8/30/50	540	8.0	11.5	70	22	10	1.6	220	---	40	44	---	23	319	---	---	---	---	---
	9/30/52	536	7.7	11.5	67	22	11	2.0	220	---	38	40	.2	21	309	---	---	---	---	---
	12/ 3/62	399	7.5	10.5	38	19	11	2.0	160	---	17	34	.2	5.8	205	---	---	---	---	---
	12/17/63	434	7.4	---	44	21	11	2.0	160	---	31	39	.2	9.2	235	---	---	---	---	---
	6/ 8/65	567	7.7	11.5	71	22	12	2.1	220	0	43	44	.2	20	322	---	---	---	---	---
	9/27/77	---	---	---	60	18	9.1	1.9	160	0	23	21	.1	---	---	---	---	---	---	---
22BDD1	11/30/51	225	8.3	11.0	28	5.9	7.0	4.2	81	9	21	6.6	.2	21	143	---	---	---	---	---
	10/ 2/52	280	---	13.5	38	8.3	---	---	140	---	---	---	---	---	---	---	---	---	---	---
	12/ 3/62	212	7.9	11.0	24	8.0	6.5	2.3	100	---	15	6.8	.2	14	127	---	---	---	---	---
	12/18/63	250	7.8	---	30	10	6.0	2.3	120	---	19	6.5	.3	19	152	---	---	---	---	---
	6/ 8/65	248	7.9	12.0	29	8.7	8.1	2.5	120	0	16	5.8	.4	15	198	---	---	---	---	---
	9/13/77	---	---	---	31	11	7.9	2.6	140	0	14	5.3	.2	---	---	---	---	---	---	---
30AAD2	8/20/68	554	7.7	13.0	66	21	16	2.0	230	---	37	42	.2	25	327	---	---	---	---	0.02
	9/26/77	---	---	---	64	21	14	2.2	230	1	35	33	.2	---	---	---	---	---	---	---
4N-31E-16ADC1	4/16/50	692	7.5	12.0	76	21	21	3.7	100	---	37	---	.2	17	---	---	---	---	---	---
	9/12/52	304	7.6	14.0	30	12	14	2.7	150	---	20	9.5	.4	21	185	---	---	---	---	---
	12/ 3/62	333	6.9	---	23	9.6	16	3.6	110	---	---	---	.2	---	---	---	---	---	---	---
	12/18/63	310	8.2	---	19	9.5	15	4.0	100	---	---	---	.2	---	---	---	---	---	---	---
	6/21/65	354	8.0	---	24	11	16	4.1	130	---	---	---	.3	---	---	---	---	---	---	---
	9/13/77	---	---	---	28	10	14	3.1	130	0	7.6	12	.1	---	---	---	---	---	---	---
3N-26E-14DAA1	7/24/78	488	7.5	11.5	62	13	20	1.6	250	0	23	12	.3	17	271	---	< .01	< 1	---	---
	7/ 7/81	448	7.7	11.0	59	12	18	1.5	---	---	12	11	.2	19	254	---	< .01	---	---	---
3N-29E-14ACD1	3/31/50	398	8.0	11.5	48	19	8.4	5.4	210	---	21	13	.2	25	244	---	---	---	---	---
	7/24/57	411	8.0	13.0	55	16	8.3	1.4	210	---	23	12	.2	18	242	---	---	---	---	---
	7/31/63	384	7.8	14.5	49	17	7.5	1.6	200	---	22	11	.2	22	234	---	---	---	---	---
	8/20/68	418	7.8	---	51	18	8.4	1.6	210	---	25	14	.2	---	---	---	---	---	---	.2
	9/ 6/77	401	7.9	---	50	18	7.6	1.9	210	0	22	14	.2	21	239	---	---	---	---	---
19CBB1	6/ 9/52	350	8.1	16.5	31	10	20	3.8	88	0	22	47	.2	25	202	---	---	---	---	---
	11/26/62	420	7.5	12.0	38	11	23	6.7	91	0	26	65	.1	18	233	---	---	---	---	---
	12/ 5/63	370	7.6	---	32	9.5	21	6.3	70	0	25	63	.2	10	201	---	---	---	---	---
	6/ 2/65	550	7.5	---	46	14	39	7.8	130	0	32	82	.2	22	309	---	---	---	---	---
	9/ 6/77	386	8.0	18.0	30	11	24	5.7	73	0	19	71	.2	12	209	---	---	---	---	---
23ABB1	12/12/60	413	7.8	---	55	14	7.3	2.1	150	0	60	16	.2	20	251	---	---	---	---	---
	9/ 6/77	555	8.3	14.5	77	17	12	4.4	140	0	130	21	.2	22	353	---	---	---	---	---
24DAD1	8/27/56	549	8.0	12.0	56	15	25	3.9	140	---	24	81	.3	23	299	---	---	---	---	---
	3/13/57	792	8.1	13.0	55	13	84	3.9	190	---	34	126	.3	24	433	---	---	---	---	---
	9/ 5/77	914	7.6	---	70	14	98	3.5	180	0	45	150	.4	23	493	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (umho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 µm-MF (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
BUTTE COUNTY--Continued																				
3N-30E-12CDD1	3/17/50	242	8.5	13.0	24	8.0	10	4.5	74	12	23	10	0.3	30	159	---	---	---	---	---
	2/22/52	327	7.8	13.0	41	13	7.2	1.7	170	---	20	9.5	.2	24	203	---	---	---	---	---
	9/27/77	---	---	---	30	11	8.0	2.6	150	0	40	13	.2	---	---	---	---	---	---	---
19CCA1	11/11/59	630	7.9	13.5	50	12	56	3.6	200	0	30	68	.3	23	352	---	---	---	---	---
	10/17/60	592	8.0	15.0	54	11	54	3.8	190	0	29	78	.3	21	353	---	---	---	---	---
	9/ 5/77	465	7.8	14.5	51	14	21	2.8	190	0	24	36	.2	23	266	---	---	---	---	---
31AAD1	11/17/51	430	7.5	12.0	27	10	46	5.1	140	0	25	53	.3	23	260	---	---	---	---	---
	10/ 3/52	292	8.0	11.5	35	---	11	2.3	140	0	17	12	.1	23	180	---	---	---	---	---
	2/ 6/62	288	7.9	11.0	34	10	8.1	2.5	130	0	16	14	.3	20	170	---	---	---	---	---
	12/ 4/63	303	7.7	---	37	11	7.8	2.4	140	0	19	15	.3	23	186	---	---	---	---	---
	6/ 8/65	503	8.0	12.0	46	15	28	3.6	150	0	24	63	.2	17	275	---	---	---	---	---
	9/ 6/77	313	7.9	13.0	37	12	7.9	2.7	140	0	17	20	.2	25	191	---	---	---	---	---
34BAD1	2/27/56	332	8.2	---	39	14	8.8	2.7	160	0	19	16	.1	26	205	---	---	---	---	---
	9/ 6/77	340	8.0	---	39	13	12	2.6	170	0	20	16	.3	27	214	---	---	---	---	---
3N-32E-29DDC1	1/ 4/50	282	7.7	12.0	32	12	8.9	2.9	150	0	14	8.8	.7	32	186	---	---	---	---	---
	10/17/52	284	7.9	12.0	29	11	14	2.8	150	0	12	9.0	.7	32	184	---	---	---	---	---
	6/ 7/65	280	7.7	13.5	27	9.9	15	3.1	140	0	11	10	.8	22	169	---	---	---	---	---
	9/14/77	---	---	---	29	9.7	15	3.0	140	1	7.2	14	.8	---	---	---	---	---	---	---
2N-28E-13ADD1	11/20/72	620	7.7	11.0	36	20	48	5.3	95	0	36	120	.4	31	353	---	---	---	---	---
	10/12/73	684	8.2	12.0	39	22	50	4.9	93	0	35	140	.4	31	375	---	---	---	---	---
	9/14/77	---	---	---	26	15	24	4.2	95	0	36	51	.3	---	---	---	---	---	---	---
35ADA1	12/18/51	310	8.0	11.0	37	14	7.9	5.0	160	0	22	10	.3	27	204	---	---	---	---	---
	5/ 9/52	307	7.9	14.0	---	---	---	---	150	---	23	10	---	---	---	---	---	---	---	---
	12/ 6/62	186	7.0	---	12	5.7	13	4.5	59	0	22	12	.3	---	---	---	---	---	---	---
	9/20/77	---	---	---	11	9.1	14	5.0	69	0	---	25	.1	---	---	---	---	---	---	---
2N-29E-1DDB1	1/16/49	348	7.3	12.0	39	15	7.9	3.5	150	0	21	24	.2	30	215	---	---	---	---	---
	2/27/56	348	8.0	---	42	15	8.3	2.5	160	0	21	16	.1	24	207	---	---	---	---	---
	8/20/68	480	7.6	12.0	48	19	14	3.0	140	---	20	58	.2	---	---	---	---	---	---	0.20
	9/ 6/77	552	7.8	12.5	59	20	15	3.7	140	0	32	81	.2	28	311	---	---	---	---	---
9CAA1	8/12/49	267	8.0	18.5	22	16	9.1	4.0	140	---	18	6.0	.2	36	181	---	---	---	---	---
	4/17/50	269	7.9	---	22	16	8.7	2.6	140	0	---	6.3	.3	36	179	---	---	---	---	---
	8/10/51	268	8.2	19.0	22	16	9.0	5.0	140	---	18	6.2	.4	35	184	---	---	---	---	---
	4/ 4/55	273	8.2	---	23	15	8.8	3.3	140	---	16	6.0	.1	35	177	---	---	---	---	---
	6/27/56	266	8.1	16.0	23	16	8.4	3.0	140	---	17	6.2	.3	33	177	---	---	---	---	---
	9/23/77	---	---	---	22	15	8.2	3.3	140	0	13	6.6	.1	---	---	---	---	---	---	---
13AAA1	6/ 7/65	269	7.8	11.5	26	12	10	2.7	120	0	19	9.5	.4	27	169	---	---	---	---	---
	9/ 6/77	245	7.9	12.5	29	9.6	8.5	2.7	130	0	14	6.8	.2	31	166	---	---	---	---	---
17CBC1	10/12/72	430	8.0	11.5	38	14	27	2.7	160	0	23	41	1.2	28	256	---	---	---	---	---
	9/14/77	---	---	---	40	13	9.0	2.7	170	0	24	16	.2	---	---	---	---	---	---	---
18BDA1	9/14/71	452	8.5	12.5	28	11	46	4.7	130	0	76	24	.3	32	290	---	---	---	---	---
	8/20/72	447	8.6	12.5	28	12	42	5.1	120	7	38	43	.3	31	267	---	---	---	---	---
	9/ 6/77	349	8.0	13.0	36	13	17	3.4	150	0	23	24	.2	25	214	---	---	---	---	---
1N-27E-22ACB1	9/29/77	297	7.4	---	36	13	8.4	2.1	150	0	18	9.6	.2	26	190	---	<0.01	---	---	---
	6/ 5/78	315	7.7	15.0	35	13	8.3	2.0	150	0	18	9.5	.3	24	186	---	.01	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
BUTTE COUNTY--Continued																				
1N-29E-30BBD1	9/12/50	314	7.9	11.5	38	13	6.9	2.6	160	---	21	8.8	0.3	24	195	---	---	---	---	---
	5/12/52	301	7.6	14.0	38	14	6.5	2.0	160	---	24	7.4	.1	22	193	---	---	---	---	---
	9/20/77	---	---	---	39	14	7.2	2.2	150	0	19	12	.2	---	---	---	---	---	---	---
GOODING COUNTY																				
5S-15E-32CDA1	9/29/53	430	7.4	---	44	16	22	3.4	200	---	40	18	0.4	38	280	---	---	---	---	---
	5/19/54	424	7.0	14.0	47	16	20	3.2	190	0	41	17	---	34	274	---	---	---	---	---
	10/30/56	476	7.6	12.0	53	17	22	4.0	210	0	45	20	.3	37	306	---	---	---	---	---
	9/16/66	522	7.5	14.5	57	20	---	---	240	---	---	24	---	---	---	---	---	---	---	---
13153713	9/21/70	692	8.0	14.0	70	25	44	5.0	320	0	65	29	.4	26	433	---	---	---	---	---
	9/15/71	737	7.7	14.0	72	26	46	5.0	320	0	75	31	.6	38	463	---	0.08	---	---	---
	5/31/72	723	7.5	14.0	69	26	46	4.5	320	0	73	29	.1	37	454	---	.06	---	< 1	---
	12/ 1/77	636	7.4	14.0	69	27	45	4.8	300	0	71	29	.4	37	431	2.3	.04	< 1	K2	0.10
6S-13E-17BAB1S	4/ 3/78	638	7.5	14.5	61	27	46	4.4	310	0	67	27	.4	36	422	2.2	.05	< 1	K9	.10
	12/ 1/77	590	7.5	14.0	60	29	41	4.6	310	0	55	24	.5	42	409	2.7	.03	< 1	K1	.10
	4/ 3/78	580	7.5	14.0	63	29	44	4.5	320	0	56	16	.5	42	413	2.0	.02	< 1	< 1	0
	7/24/78	666	7.9	14.0	61	30	30	4.6	320	0	48	23	.6	41	396	2.6	.03	K11	28	0
13153400	10/11/78	616	7.9	14.0	---	---	---	---	360	---	---	21	---	43	---	2.8	.04	< 1	K3	---
	5/17/30	---	---	14.5	42	15	22	3.2	200	0	29	13	---	30	250	---	---	---	---	---
	10/27/49	343	---	14.5	33	15	---	---	170	---	25	10	.4	35	221	---	---	---	---	---
	9/13/50	333	7.9	15.0	32	15	17	2.4	170	0	23	12	.3	37	225	---	---	---	---	---
	9/24/52	361	---	15.0	34	16	---	---	180	---	23	12	---	33	227	---	---	---	---	---
	9/28/53	354	7.7	15.0	32	15	17	3.8	180	---	23	9.0	.4	40	229	---	---	---	---	---
	10/13/54	369	8.1	15.0	36	16	20	3.2	190	---	24	9.8	.6	---	---	---	---	---	---	---
	10/28/55	355	8.1	---	31	16	18	3.5	180	0	---	9.8	.4	---	---	---	---	---	---	---
	10/ 5/56	---	7.6	14.5	---	---	17	---	170	---	---	10	---	---	---	---	---	---	---	---
	8/23/62	331	7.4	15.0	32	15	17	3.2	170	0	25	9.0	.3	31	218	---	---	---	---	---
	11/ 4/77	338	8.8	14.5	42	20	22	3.8	210	7	36	16	.4	33	289	---	.03	---	---	---
	8/16/78	340	7.9	15.5	30	15	16	3.5	160	0	20	9.7	.5	32	209	---	.01	---	---	---
7S-13E- 1ACC1	12/ 7/77	547	7.3	14.0	59	30	25	4.6	280	0	40	21	.7	42	360	2.0	.01	< 1	< 1	0
	4/ 3/78	483	7.2	15.0	47	24	23	4.0	260	0	36	18	.7	39	320	1.4	.02	< 1	< 1	.10
	7/24/78	704	7.6	17.0	72	34	26	5.0	340	0	50	26	.7	43	424	2.4	< .01	< 1	< 1	0
	10/27/49	431	---	14.0	37	18	---	---	190	---	39	18	.4	37	278	---	---	---	---	---
13132800	9/14/50	420	7.9	14.5	36	17	28	2.7	190	---	37	19	.5	39	278	---	---	---	---	---
	9/24/52	434	---	14.5	42	19	---	---	200	---	36	17	---	39	275	---	---	---	---	---
	9/28/53	446	8.0	---	36	19	29	4.0	200	---	42	17	.8	42	293	---	---	---	---	---
	10/13/54	458	8.0	15.0	37	21	28	4.4	210	---	39	17	.8	---	---	---	---	---	---	---
	10/28/55	440	8.4	14.0	37	19	26	3.7	200	---	---	16	.8	---	---	---	---	---	---	---
	10/ 5/56	439	7.9	17.0	---	---	25	---	200	---	---	---	---	---	---	---	---	---	---	---
	7/25/58	401	8.0	---	38	17	24	3.8	190	0	36	16	.5	34	262	---	---	---	---	---
	8/23/62	419	7.6	14.5	34	18	24	4.4	190	---	33	17	.5	34	260	---	---	---	---	---
	9/12/66	439	7.9	15.0	37	19	25	3.8	200	---	---	16	---	---	---	---	---	---	---	---
	3/28/72	408	7.9	14.5	36	18	23	3.9	190	0	35	16	.6	35	264	---	.03	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μmho)	pH	Water temperature ($^{\circ}\text{C}$)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 $\mu\text{m-MF}$ (coils/100 mL)	Streptococci, fecal, KF Agar (coils/100 mL)	Methylene blue active substance
GOODING COUNTY--Continued																				
13132800	11/30/77	350	7.6	14.0	34	17	20	3.8	170	0	32	15	0.6	34	240	0.96	0.01	< 1	< 1	0
	7/26/78	385	7.7	15.0	35	17	20	3.8	170	0	32	15	.6	33	240	.94	.02	< 1	< 1	0
	3/25/80	362	8.4	15.0	30	15	18	3.8	---	---	32	13	.5	33	227	---	.02	---	---	---
	3/23/82	364	8.3	14.5	31	16	20	4.0	---	---	32	12	.4	33	243	---	<.01	---	---	---
	2/ 6/78	313	7.9	15.0	31	15	16	3.4	160	0	22	9.7	.4	34	210	.68	.01	< 1	< 1	0
	4/ 6/78	307	7.9	15.0	29	14	15	3.6	160	0	22	8.8	.5	33	205	.79	.01	< 1	< 1	0
	7/24/78	353	8.0	19.5	30	15	16	3.6	150	0	23	11	.4	32	205	.73	<.01	< 1	< 1	0
	6/25/81	338	7.6	16.0	31	16	18	3.7	---	---	28	13	.4	36	227	---	.02	---	---	---
	9/28/53	331	7.7	15.5	27	15	18	3.7	160	---	26	10	.8	44	226	---	---	---	---	---
	10/13/54	341	8.1	15.5	30	15	20	3.7	170	---	25	9.8	.6	---	---	---	---	---	---	---
18BCD1S	10/26/55	325	---	14.0	29	14	17	4.1	160	---	---	9.8	.6	---	---	---	---	---	---	---
	10/ 5/56	331	7.6	15.5	---	---	17	---	160	---	---	10	---	---	---	---	---	---	---	---
	9/10/62	317	7.5	15.0	30	15	18	3.6	160	0	25	12	.4	32	218	---	---	---	---	---
	12/ 8/77	226	7.7	16.0	28	9.7	16	4.6	130	0	24	9.7	.5	36	193	.28	<.01	< 1	---	0
	4/ 3/78	286	7.7	15.5	28	9.8	16	4.2	140	0	23	8.3	.5	35	194	.27	<.01	< 1	< 1	0
	7/24/78	299	8.0	20.0	27	9.9	16	4.6	150	0	22	8.7	.4	35	198	.31	<.01	< 1	< 1	.10
	3/31/72	336	8.1	14.5	29	15	18	3.6	170	0	26	11	.5	35	223	---	.03	---	---	---
	6/16/72	363	7.7	15.0	32	17	18	3.6	180	0	26	11	.5	35	234	---	.07	---	---	---
	3/ 9/76	344	8.5	14.5	28	17	17	3.6	160	1	27	9.9	.5	32	220	.82	.02	---	---	---
	12/ 1/77	323	7.6	14.5	31	17	17	3.7	160	0	26	11	.5	34	219	.84	<.01	< 1	< 1	0
13134600	7/27/78	367	7.9	16.0	32	17	18	3.8	180	0	26	10	.5	33	229	.76	.01	< 1	< 1	0
	3/27/79	312	8.1	15.0	---	---	---	---	---	---	26	9.9	---	---	---	---	.01	---	---	---
	3/25/80	331	8.5	14.0	29	15	17	3.7	---	---	26	11	.6	34	218	---	---	---	---	---
	9/19/80	335	8.1	16.0	29	17	18	3.5	---	---	26	10	.4	37	228	---	---	---	---	---
	3/ 9/81	344	8.2	14.5	34	15	17	3.7	---	---	28	11	.5	32	223	---	---	---	---	---
	3/25/82	326	8.3	13.5	30	15	16	3.6	---	---	27	10	.5	33	217	---	---	---	---	---
	6/22/53	331	7.8	15.0	28	15	17	3.2	160	0	25	12	.5	34	214	---	---	---	---	---
	5/17/54	331	7.5	15.0	27	15	18	---	150	---	25	11	.4	26	200	---	---	---	---	---
	11/ 1/56	336	8.1	14.5	28	15	19	3.6	160	0	26	13	.4	38	224	---	---	---	---	---
	2/ 6/78	289	7.9	15.0	30	16	17	3.4	160	0	24	12	.6	33	215	.67	.01	< 1	---	0
7S-14E-18BAB1	4/ 5/78	295	8.0	15.5	29	14	16	3.6	170	0	23	9.9	.5	33	213	.76	.01	< 1	< 1	0
	7/27/78	359	7.8	16.0	31	16	18	3.7	180	0	25	10	.5	32	225	.76	.01	< 1	< 1	0
	10/13/78	342	7.8	14.0	---	---	---	---	160	0	---	10	---	32	---	1.0	.01	< 1	K16	---
	6/12/49	348	---	14.5	30	16	13	---	160	---	13	13	.4	33	199	---	---	---	---	---
	10/27/49	357	7.9	15.0	32	17	19	4.8	170	---	29	12	.5	34	234	---	---	---	---	---
	9/13/50	353	8.0	15.5	31	16	20	4.2	170	---	28	13	.2	35	234	---	---	---	---	---
	4/ 3/58	335	8.0	15.0	30	15	18	3.3	160	0	28	11	.3	33	215	---	---	---	---	---
	3/10/76	328	8.4	16.0	---	---	---	---	160	5	27	11	---	---	---	---	---	---	---	---
	12/11/70	359	8.1	---	30	16	18	3.8	170	0	24	12	---	36	225	---	.03	---	---	---
	5/31/72	342	7.6	15.0	29	15	17	3.4	170	0	26	10	.3	34	220	---	.01	---	< 1	---
	8/29/68	361	8.0	---	32	16	18	3.4	170	0	27	12	.5	33	228	---	---	---	---	---
13132790	9/ 9/69	349	8.1	16.0	32	16	17	3.3	170	0	25	12	.4	33	227	---	---	---	---	---
	9/21/70	358	8.0	15.0	32	16	18	3.9	180	0	23	10	.4	24	217	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (cols/100 mL)	Streptococci, fecal, KP Agar (cols/100 mL)	Methylene blue active substance
GOODING COUNTY--Continued																				
13132790	9/ 3/71	352	8.0	15.0	30	15	17	3.8	170	0	30	11	0.6	35	230	---	---	---	---	---
	3/30/72	331	8.0	15.5	29	15	17	3.5	160	0	26	11	.5	33	216	---	---	---	---	---
	3/11/75	281	8.1	15.5	29	16	17	3.7	160	0	26	11	.5	31	217	0.75	<.01	---	---	---
	3/ 1/77	324	8.2	15.0	29	15	16	3.4	160	0	25	13	.6	30	214	<.01	<.01	---	---	---
	3/28/78	270	8.1	16.0	30	15	17	3.4	160	0	24	9.9	.5	32	214	<.01	<.01	---	---	---
	3/26/79	292	8.3	15.5	30	15	17	3.3	150	0	27	10	.5	32	212	<.01	<.01	---	---	---
	3/25/80	323	8.6	15.0	28	14	17	3.5	---	---	25	11	.5	34	208	<.01	<.01	---	---	---
	3/10/81	329	8.3	15.5	28	14	16	3.2	---	---	27	10	.5	31	211	<.02	<.01	---	---	---
	3/22/82	326	8.0	15.0	30	15	17	3.4	---	---	27	11	.5	34	219	<.01	<.01	---	---	---
13132700	6/ 2/72	382	8.0	14.5	33	17	19	3.5	180	0	31	12	.4	34	243	---	.02	---	K3	---
	12/20/72	378	---	13.5	---	---	---	---	---	---	---	13	---	---	---	---	.05	---	K340	---
	3/ 3/77	376	8.2	14.5	---	---	---	---	---	---	31	15	---	---	---	---	.01	---	---	---
	3/28/78	335	8.6	16.0	---	---	---	---	---	---	29	13	---	---	---	---	.01	---	---	---
	3/10/81	369	7.7	15.0	32	15	18	3.2	---	---	29	15	.4	33	222	---	.03	---	---	---
13132595	6/ 2/72	402	8.0	14.0	34	17	22	3.6	180	0	35	16	.4	35	256	---	.01	---	K1	---
	3/26/74	393	8.5	---	34	17	21	4.0	170	3	34	14	.7	32	245	---	.03	---	---	---
	3/11/75	338	8.3	15.0	37	18	21	3.9	180	0	35	16	.6	32	258	.85	.01	---	---	---
	3/ 9/76	391	8.2	13.0	40	17	20	3.8	180	0	34	15	.7	33	257	.93	.02	---	---	---
	3/ 1/77	365	8.5	12.5	35	17	20	3.5	180	0	34	18	.7	31	251	---	<.01	---	---	---
	11/30/77	366	7.6	14.0	35	18	20	3.8	170	0	33	17	.6	34	245	.97	.01	1	1	0
	4/ 5/78	338	7.9	15.0	33	16	19	3.5	180	0	32	13	.6	34	240	.86	.02	< 1	1	0
	10/11/78	389	7.9	14.5	---	---	---	---	180	0	---	15	---	33	---	.91	.02	< 1	< 1	0
	3/27/79	357	8.1	13.5	37	17	20	3.5	170	0	34	14	.6	32	245	---	.01	---	---	---
	3/25/80	388	8.1	14.5	33	16	19	3.8	---	---	33	15	.5	33	242	---	.02	---	---	---
	3/10/81	383	7.7	14.0	37	17	20	3.5	---	---	35	16	.6	33	244	---	.02	---	---	---
	3/22/82	387	7.9	14.5	35	18	20	3.8	---	---	36	16	.6	36	253	---	<.01	---	---	---
8S-15E-31CDD1	12/ 8/77	639	7.3	14.0	63	39	34	4.9	330	0	56	36	.8	46	442	1.7	.02	< 1	< 1	.10
	4/ 5/78	637	7.5	13.0	61	37	36	4.7	300	0	65	36	.8	46	434	2.7	.03	< 1	K13	0
	7/26/78	742	7.8	16.5	69	43	37	5.1	380	0	60	34	.8	44	480	1.2	.03	< 1	< 1	0
33DCC1	2/ 7/78	494	7.6	13.5	51	22	26	4.4	190	0	52	42	.7	33	325	1.1	.01	< 1	< 1	0
	4/ 5/78	491	7.7	14.0	55	20	29	4.4	200	0	52	36	.6	33	329	1.2	.01	< 1	< 1	0
	7/26/78	554	7.8	15.5	51	23	27	4.6	190	0	53	42	.6	32	327	1.2	.01	< 1	< 1	0
	10/12/78	551	7.9	14.0	---	---	---	---	190	0	---	42	---	32	---	1.4	.01	< 1	K3	---
	6/23/81	500	7.7	14.5	52	22	30	4.6	---	---	56	46	.5	36	343	---	.02	---	---	---
9S-14E- 2ACD1S	11/30/77	406	7.7	14.0	41	19	23	4.0	150	0	39	25	.7	34	260	.96	<.01	< 1	K2	.10
	4/ 5/78	469	7.8	14.5	51	19	27	4.1	200	0	50	34	.6	34	318	1.2	.01	< 1	---	0
	7/26/78	535	7.8	14.5	47	20	25	3.8	170	0	52	37	.6	32	301	1.2	.01	< 1	K13	0
13095175	10/27/49	456	7.7	14.0	39	19	26	4.6	200	---	42	21	.6	38	292	---	---	---	---	---
	9/14/50	498	---	14.0	44	22	---	---	200	17	57	20	---	43	336	---	---	---	---	---
	9/21/70	473	8.0	14.0	44	20	24	4.3	220	0	37	21	.7	26	287	---	---	---	---	---
	6/16/72	459	7.7	14.0	42	19	22	3.7	200	0	39	20	.7	36	285	---	.07	---	< 1	---
	11/30/77	423	7.5	14.0	41	19	23	4.0	180	0	39	23	.7	34	272	1.2	<.01	< 1	K7	0

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MF (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
GOODING COUNTY--Continued																				
13095175	7/26/78	461	7.7	14.5	40	19	23	3.8	190	0	41	26	0.7	33	280	1.3	0.02	< 1	K10	---
	10/11/78	422	7.8	14.5	---	---	---	---	180	0	---	26	---	33	---	1.4	.02	< 1	20	---
	3/27/80	446	8.3	---	40	18	23	3.9	---	---	41	23	.4	35	273	---	.02	---	---	---
	11/ 5/80	469	7.9	14.0	42	20	22	4.3	---	---	45	26	.7	34	297	---	.04	---	---	---
	3/11/81	452	7.7	14.0	40	18	22	3.6	---	---	41	24	.6	32	270	---	.02	---	---	---
	3/24/82	441	8.0	14.0	42	19	22	3.8	---	---	46	26	.7	34	289	---	< .01	---	---	---
	3/27/73	548	7.6	14.0	50	20	28	4.4	200	0	54	36	.7	33	328	---	.03	---	---	---
	3/27/74	535	8.2	14.5	48	20	28	4.9	190	0	54	37	.6	24	315	---	.02	---	---	---
	3/12/75	467	8.2	13.0	48	21	28	4.6	200	0	52	38	.5	31	326	1.2	.01	---	---	---
	3/11/76	538	8.4	11.0	52	23	30	4.7	220	5	47	40	.6	34	349	1.4	.04	---	---	---
	3/ 2/77	449	8.1	15.0	52	21	27	4.4	200	0	56	45	.6	31	340	---	.01	---	---	---
	11/29/77	526	7.9	14.0	53	22	29	5.0	190	0	55	43	.6	34	335	1.3	.01	< 1	23	0
	4/ 4/78	506	7.9	14.0	55	20	30	4.3	200	0	55	39	.6	33	336	1.2	.03	K4	31	0
	7/26/78	574	8.1	15.0	53	21	28	4.0	210	0	55	45	.6	32	342	1.2	.02	< 1	15	0
13093700	10/12/78	535	8.1	14.0	---	---	---	---	200	0	---	45	---	33	---	1.3	.02	< 1	34	---
	3/28/79	536	8.1	14.0	53	22	29	4.6	190	0	61	43	.6	37	349	---	.01	---	---	---
	3/27/80	583	8.5	13.5	52	21	29	4.6	---	---	55	41	.5	34	333	---	.03	---	---	---
	3/11/81	560	8.2	13.5	54	21	28	4.3	---	---	58	43	.5	31	341	---	.02	---	---	---
	3/27/70	594	8.2	14.5	51	24	34	4.8	240	0	55	37	.5	36	365	---	---	---	---	---
	9/30/71	617	8.1	14.0	55	25	33	4.5	250	0	55	33	.4	37	372	---	.06	---	---	---
	6/ 1/72	589	---	14.0	51	23	32	4.5	---	---	60	37	---	---	---	---	---	---	---	---
	3/29/73	605	8.0	14.0	55	24	32	4.7	230	0	60	39	.7	35	370	---	.04	---	---	---
	3/27/74	595	8.1	14.5	53	24	32	5.2	220	0	56	40	.8	35	363	---	.03	---	---	---
	3/12/75	561	7.6	14.0	57	26	34	4.9	230	0	60	42	.7	34	380	1.7	.01	---	---	---
	3/10/76	627	8.2	14.5	57	24	32	4.7	250	0	52	42	.6	35	376	---	.02	---	---	---
	3/ 2/77	601	8.2	14.0	56	25	32	4.7	230	0	61	47	.6	32	378	---	.01	---	---	---
	3/29/78	575	8.2	14.5	57	25	32	4.7	220	0	60	42	.6	36	372	---	.02	---	---	---
	3/28/79	601	8.4	14.0	57	26	34	4.8	230	---	63	49	.6	37	---	---	.02	---	---	---
13093398	3/26/80	631	8.1	14.0	55	24	31	5.1	---	---	61	44	.5	34	370	---	.03	---	---	---
	3/11/81	594	8.1	14.0	58	25	33	4.3	---	---	61	46	.5	34	384	---	.03	---	---	---
	3/24/82	635	8.2	14.0	61	27	33	4.8	---	---	66	49	.4	37	401	---	< .01	---	---	---
	11/29/77	712	7.5	14.0	70	34	55	5.3	390	0	49	23	.6	48	477	3.5	.02	< 1	K1	.10
	4/ 4/78	705	7.4	14.0	68	33	52	4.8	410	0	50	23	.5	47	480	3.0	.02	< 1	< 1	.10
	7/25/78	817	7.7	15.0	81	35	55	5.5	450	0	49	27	.5	46	521	8.2	.01	< 1	< 1	.10
JEFFERSON COUNTY																				
6N-32E-22CAC1	7/20/56	366	---	11.0	46	15	7.0	2.9	180	---	29	7.2	0.2	27	224	---	---	---	---	---
	6/21/57	354	8.1	10.0	43	15	7.1	3.1	180	0	29	6.5	.3	21	215	---	---	---	---	---
26CDB1	9/ 5/77	410	8.1	12.0	49	16	12	3.8	190	0	34	21	.2	27	214	---	---	---	---	---
	7/18/56	359	8.2	14.5	37	15	14	3.1	170	---	30	11	.4	32	227	---	---	---	---	---
	7/24/59	338	7.4	---	33	14	13	3.8	160	0	28	9.5	.4	22	202	---	---	---	---	---
	9/ 7/77	353	8.2	14.5	37	15	15	3.5	170	0	29	16	.5	31	231	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature ($^{\circ}$ C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
JEFFERSON COUNTY--Continued																				
6N-32E-36ADD1	10/ 9/52	385	7.3	13.0	34	21	11	15	210	0	19	7.0	0.1	28	237	---	---	---	---	---
	9/ 7/77	337	8.0	12.5	29	17	13	9.1	170	0	26	7.9	.2	25	211	---	---	---	---	---
6N-33E-26DDB1	12/18/52	362	7.5	15.5	36	---	24	4.3	180	0	25	13	.8	35	228	---	---	---	---	---
	10/10/66	351	7.6	15.5	31	11	22	4.9	150	0	26	19	.8	34	221	---	---	---	---	---
	9/ 7/77	430	7.9	15.5	39	14	25	5.4	150	0	29	43	.8	38	266	---	---	---	---	---
6N-34E- 4AAA1	5/27/57	238	9.1	12.0	.8	.1	53	1.8	91	17	9.5	6.0	.5	42	174	---	---	---	---	---
	10/25/79	244	9.4	10.0	1.0	.3	56	1.6	250	29	12	5.2	.5	36	263	---	<0.01	---	---	---
5N-32E-36ADD1	6/ 3/52	315	7.7	13.0	33	11	15	3.6	140	0	25	14	.3	20	188	---	---	---	---	---
	10/10/66	231	8.4	12.0	11	5.4	15	5.0	100	4	---	16	.2	---	---	---	---	---	---	---
	9/13/77	---	---	---	13	6.2	14	4.4	95	0	---	12	.1	---	---	---	---	---	---	---
5N-34E- 9BDA1	2/ 3/50	1,000	7.8	12.0	100	36	42	8.8	180	0	59	170	.3	31	541	---	---	---	---	---
	11/ 8/52	936	7.7	11.0	93	33	42	6.8	190	---	57	160	.3	29	511	---	---	---	---	---
	9/13/77	---	---	---	64	23	45	6.0	260	0	40	68	.3	---	---	---	---	---	---	---
5N-37E- 8CCCC1	7/22/57	390	8.1	9.0	45	11	18	5.8	190	0	29	12	1.1	48	266	---	---	---	---	---
	10/31/79	381	8.0	9.0	42	11	18	5.2	---	---	32	12	1.2	43	255	---	.05	---	---	---
32DDB1	7/21/76	576	7.3	11.5	64	16	40	3.5	260	0	30	9.8	1.1	33	324	0.11	.04	---	---	---
	12/ 6/79	740	7.3	8.0	95	23	33	4.0	400	0	53	18	1.1	37	444	---	.02	---	< 1	---
4N-36E-30CBB1	11/ 2/79	521	7.9	10.0	66	18	15	3.2	270	0	50	18	.5	25	329	---	.01	---	< 1	---
	7/ 8/81	523	7.5	11.0	69	18	15	3.3	---	---	46	16	.3	25	325	---	<.01	---	---	---
JEROME COUNTY																				
8S-17E-19BAA1	10/ 5/26	---	---	---	40	17	---	---	160	---	44	39	---	25	---	---	---	---	---	---
	9/29/53	472	7.5	---	40	18	29	4.0	190	0	46	25	0.6	35	295	---	---	---	---	---
	5/17/54	425	7.8	16.5	38	16	---	---	170	---	39	23	.6	33	262	---	---	---	---	---
	11/ 1/56	446	7.9	---	42	16	25	4.0	190	0	42	25	.6	36	284	---	---	---	---	---
8S-19E-15DDD1	5/17/54	394	7.6	---	37	14	24	---	160	---	37	19	.6	32	245	---	---	---	---	---
	11/ 1/56	608	7.9	10.0	47	19	48	5.2	190	0	86	45	.5	34	379	---	---	---	---	---
	11/20/57	429	7.2	---	38	15	27	---	160	0	25	---	---	---	---	---	---	---	---	---
35CCCC1	7/12/72	754	7.2	13.0	69	25	44	5.6	240	0	100	59	.6	34	461	---	0.03	---	< 1	---
	8/ 2/73	754	---	---	---	---	---	---	---	---	100	63	---	---	---	---	---	---	< 1	---
9S-16E-14CDA1	12/ 6/77	623	7.5	13.0	63	30	35	3.8	300	0	51	30	.5	49	410	1.9	<.01	< 1	< 1	0
	4/ 4/78	570	7.4	12.5	61	27	41	5.5	280	0	62	46	.5	38	419	2.1	.01	< 1	< 1	.1
	7/25/78	725	7.7	15.5	72	36	34	2.7	360	0	50	31	.4	55	458	1.2	<.01	< 1	< 1	0
	10/12/78	689	7.8	16.5	---	---	---	---	340	0	---	29	---	45	---	.91	.01	< 1	< 1	---
13093300	3/28/70	656	---	13.5	---	---	---	---	---	---	---	38	---	---	---	---	---	---	---	---
	3/31/72	650	8.2	15.0	61	26	46	5.9	280	0	61	39	.6	40	426	---	.01	---	---	---
	4/ 5/73	650	---	12.5	---	---	---	---	---	---	---	36	---	---	---	2.0	---	---	---	---
	3/13/75	554	---	10.5	---	---	---	---	---	---	55	38	---	---	---	2.2	<.01	---	---	---
	3/11/76	642	8.7	9.0	---	---	---	---	260	19	59	---	---	---	---	2.4	.02	---	---	---
	11/29/77	609	8.0	14.0	66	25	43	5.6	280	0	61	39	.6	41	419	2.2	<.01	< 1	76	0
	4/ 6/78	630	8.1	15.0	69	24	45	5.5	280	0	65	44	.6	41	432	2.2	.02	K4	31	0

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature ($^{\circ}$ C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-KF (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
JEROME COUNTY--Continued																				
9S-16E-16ADA1	7/25/78	677	8.1	15.0	65	24	41	4.4	270	0	62	46	0.6	39	415	2.1	0.01	K6	---	0
	10/12/78	640	8.2	14.0	---	---	---	---	270	0	---	46	---	40	---	2.1	.02	^ 1	14	---
	3/27/79	644	8.3	11.5	---	---	---	---	---	---	66	42	---	---	---	---	.01	---	---	---
	12/20/77	597	7.2	10.0	64	26	39	6.2	260	0	65	48	.5	38	415	---	.02	^ 1	^ 1	0
	4/ 4/78	635	7.4	10.0	68	26	41	6.0	270	0	63	45	.5	38	421	2.1	.02	^ 1	^ 1	.1
17ABA1	7/25/78	678	7.7	18.0	65	27	45	6.2	270	0	73	49	.4	39	438	2.2	.01	^ 1	^ 1	0
	12/ 7/77	850	7.4	14.0	69	46	81	5.2	440	0	66	40	.4	46	571	9.2	.02	^ 1	^ 1	.1
	4/ 4/78	850	7.6	15.0	60	41	79	5.2	460	0	63	35	.5	45	555	7.7	.02	---	^ 1	.1
24AAC1	7/25/78	942	7.6	14.5	68	45	75	5.0	470	0	65	40	.4	44	574	5.9	.01	^ 1	^ 1	.1
	10/12/78	1,010	7.7	16.0	---	---	---	---	460	0	---	51	---	46	---	13	.02	^ 1	K1	---
	12/ 2/77	615	7.6	15.0	59	22	46	7.0	300	0	61	31	.4	38	412	2.1	^ .01	^ 1	^ 1	0
	4/ 4/78	634	7.5	14.0	63	20	61	6.5	330	0	61	28	.3	38	440	2.1	.02	^ 1	K3	0
	7/25/78	691	7.8	16.0	61	22	58	6.9	310	0	65	32	.3	37	435	2.0	^ .01	^ 1	K1	0
9S-17E-20BDB1	6/23/81	671	7.8	16.0	59	22	58	6.9	---	---	63	31	.3	41	434	---	.01	---	---	---
	12/20/77	641	7.4	15.5	77	23	29	6.4	200	0	80	79	.4	47	440	---	.01	^ 1	^ 1	.1
	4/ 3/78	702	7.5	17.0	73	25	29	6.0	190	0	80	90	.3	44	441	2.1	^ .01	^ 1	K2	.1
	7/25/78	756	7.7	18.0	85	25	30	6.8	200	0	80	92	.3	47	465	2.3	^ .01	^ 1	^ 1	0
	10/12/78	705	7.8	16.5	---	---	---	---	180	0	---	84	---	45	---	2.1	.01	^ 1	K3	---
13091000	6/22/81	832	7.6	17.5	98	29	34	7.1	---	---	120	110	.3	49	549	---	^ .01	---	---	---
	5/17/30	---	---	16.0	49	19	30	4.2	190	0	48	44	---	36	323	---	---	---	---	---
	6/12/49	562	---	13.5	54	19	34	---	210	---	51	40	.4	40	343	---	---	---	---	---
	9/14/50	553	7.9	15.0	54	20	32	5.8	210	0	51	40	.3	41	353	---	---	---	---	---
	9/24/52	558	---	14.5	53	19	---	---	220	---	50	40	---	38	344	---	---	---	---	---
	9/28/53	566	7.8	15.0	52	20	34	1.7	210	---	51	39	.4	45	352	---	---	---	---	---
	10/13/54	591	8.2	15.0	47	19	39	6.6	210	---	52	40	.6	---	---	---	---	---	---	---
	10/27/55	563	8.6	15.0	52	22	35	6.1	210	---	---	39	.6	---	---	---	---	---	---	---
	10/ 5/56	586	8.0	15.0	---	---	20	---	230	---	---	41	---	---	---	---	---	---	---	---
	5/18/58	583	7.7	15.5	54	19	35	6.5	210	0	52	41	.4	41	358	---	---	---	---	---
	8/23/62	565	7.4	15.0	55	18	32	6.7	220	0	49	41	.1	37	352	---	---	---	---	---
	11/21/67	602	7.8	15.0	58	20	36	6.4	230	0	55	42	.4	37	373	---	---	---	---	---
	6/21/68	602	7.7	16.0	57	19	36	6.4	230	0	56	42	.5	39	374	---	---	---	---	---
	9/12/69	610	7.8	15.0	58	20	35	5.9	230	0	57	44	.3	39	378	---	---	---	---	---
	9/16/70	604	7.9	14.5	57	21	36	7.0	240	0	53	44	.4	27	370	---	---	---	---	---
	8/31/71	622	7.8	15.0	59	20	39	6.4	240	0	58	46	.1	40	393	---	.06	---	---	---
	3/23/72	621	7.8	14.5	57	21	37	6.7	240	0	61	46	.5	44	397	---	.03	---	---	---
	4/ 4/73	611	7.7	15.5	56	21	37	6.3	230	0	66	45	.4	38	390	---	.03	---	---	---
	3/28/74	628	7.9	15.0	59	21	37	6.9	230	0	53	46	.9	38	384	---	.03	---	---	---
	3/11/75	514	7.2	14.5	62	22	37	7.0	230	0	60	47	.4	37	395	2.0	.01	---	---	---
	3/11/76	597	8.2	15.5	62	21	36	7.2	240	0	52	46	.5	38	389	1.9	.02	---	---	---
	11/ 7/76	666	7.8	12.5	59	21	38	6.7	230	0	59	55	.4	37	398	---	.01	---	---	---
	11/29/77	615	7.2	15.5	61	22	37	6.9	220	0	59	48	.4	38	381	2.1	^ .01	0	15	0
	4/ 4/78	587	7.5	15.5	66	20	40	6.8	230	0	72	47	.4	39	405	2.0	.01	0	1	0
	5/22/78	653	8.1	12.5	61	21	38	6.8	240	0	57	49	.4	38	390	---	^ .01	---	---	0
	4/18/79	586	8.1	15.0	51	21	37	6.8	220	0	61	49	.4	40	383	---	.02	---	---	---
	7/29/80	561	7.8	15.5	61	21	38	7.8	---	---	61	50	.4	40	400	---	.01	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature ($^{\circ}$ C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Silica (SiO_2)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO_2+NO_3)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (cols/100 mL)	Streptococci, fecal, KF Agar (cols/100 mL)	Methylene blue active substance
JEROME COUNTY--Continued																				
13090101	3/12/75	527	7.7	14.0	56	20	39	7.5	230	0	58	43	0.5	38	385	2.0	<0.01	---	---	---
	2/28/77	555	8.2	13.5	56	20	39	7.0	230	0	57	44	.5	38	383	---	<.01	---	---	---
	3/27/78	519	8.0	15.5	56	19	38	6.8	230	0	58	41	.4	39	380	---	.01	---	---	---
	3/29/79	582	8.2	13.0	55	20	40	6.7	230	0	59	44	.4	42	388	---	.02	---	---	---
13090100	3/27/72	636	8.2	16.5	58	22	45	6.8	250	0	64	42	.5	41	409	---	.03	---	---	---
	3/27/80	642	8.2	14.0	58	21	44	7.2	---	---	63	40	.4	42	404	---	.01	---	---	---
	3/ 9/81	598	8.0	16.0	57	20	41	6.2	---	---	61	41	.3	40	390	---	.02	---	---	---
	3/22/82	610	8.1	14.0	57	21	41	7.3	---	---	62	41	.3	42	395	---	<.01	---	---	---
9S-19E-35BCB1	6/ 2/53	631	7.8	---	56	22	41	6.7	230	0	61	50	.3	39	395	---	---	---	---	---
	5/17/54	635	8.0	15.0	54	19	52	---	230	---	61	46	.4	28	380	---	---	---	---	---
	11/29/56	641	7.7	---	54	20	51	7.2	240	0	61	46	.4	44	409	---	---	---	---	---
	6/23/53	633	8.0	15.5	62	22	33	7.1	210	0	62	58	.3	40	393	---	---	---	---	---
9S-21E-36DDD1	5/17/54	659	7.9	---	63	23	37	---	220	---	65	57	.2	45	403	---	---	---	---	---
	9/13/66	595	7.8	15.5	42	13	57	6.3	180	---	64	50	.3	29	359	---	---	---	---	---
	10/27/49	699	---	15.0	58	23	---	---	260	0	74	54	.4	44	448	---	---	---	---	---
	9/15/50	675	7.9	15.0	59	25	48	5.9	260	0	73	51	.2	46	445	---	---	---	---	---
13089500	9/27/52	681	---	14.0	57	24	---	---	260	---	70	48	---	42	428	---	---	---	---	---
	9/28/53	691	7.7	15.0	55	23	52	7.7	260	---	71	46	.6	50	441	---	---	---	---	---
	3/31/54	705	8.4	14.5	53	28	52	7.1	260	6	---	48	.6	---	---	---	---	---	---	---
	3/23/55	688	8.5	15.0	58	24	51	7.1	240	7	---	47	.6	---	---	---	---	---	---	---
13089600	10/ 5/56	704	7.7	16.5	---	---	53	---	260	---	---	47	---	---	---	---	---	---	---	---
	9/10/62	705	7.7	---	53	23	64	6.7	280	---	65	46	.2	41	446	---	---	---	---	---
	9/22/70	678	8.2	14.0	58	24	50	7.5	280	0	63	42	.4	26	422	---	---	---	---	---
	3/29/74	676	8.3	---	57	23	48	7.2	270	0	60	41	.5	40	418	---	.09	---	---	---
13089600	3/10/75	559	8.4	13.0	59	25	49	7.2	260	0	66	43	.4	39	428	---	.02	---	---	---
	11/ 7/80	646	8.4	14.0	54	22	45	7.9	---	---	65	39	.4	41	410	---	.05	---	---	---
	3/25/82	656	8.7	12.5	54	22	43	5.8	---	---	73	43	.3	40	412	---	<.01	---	---	---
	10/ 1/71	677	8.0	13.5	59	24	46	6.2	270	0	70	32	.4	41	421	---	.08	---	---	---
13089600	3/31/72	665	8.3	14.5	56	24	51	6.9	260	0	66	44	.5	42	428	---	.03	---	---	---
	3/30/73	692	8.3	13.0	60	24	48	6.8	270	0	71	43	.5	40	433	---	.07	---	---	---
	3/29/74	676	8.3	---	57	23	48	7.2	270	0	60	41	.5	40	418	---	.09	---	---	---
	3/ 8/76	631	8.6	13.0	56	23	47	7.3	230	22	65	40	.6	40	423	---	.01	---	---	---
13089600	3/ 4/77	660	8.5	12.0	58	24	47	6.7	260	0	67	45	.5	37	423	---	<.01	---	---	---
	3/30/78	558	8.0	14.5	56	24	47	6.8	260	0	66	40	.4	40	419	---	.01	---	---	---
	3/26/79	665	8.6	14.5	54	23	46	6.9	250	---	65	43	.4	42	---	---	.02	---	---	---
	3/26/80	627	8.8	13.5	52	23	46	7.0	---	---	67	40	.4	42	401	---	<.01	---	---	---
5S-23E-17CAA1	3/12/81	613	8.5	14.5	55	22	45	6.1	---	---	67	41	.3	40	407	---	.03	---	---	---
LINCOLN COUNTY																				
5S-23E-17CAA1	9/15/66	206	8.2	13.5	12	6.5	19	3.8	78	0	10	16	0.5	5.2	111	---	---	---	---	---
	4/11/67	281	7.7	13.0	24	14	15	4.3	140	0	20	9.0	.6	26	183	---	---	---	---	---

Table 1.--Chemical analyses of water from selected wells and springs--Continued

Well, spring, or station No.	Date of sample	Specific conductance (μ mho)	pH	Water temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (calculated)	Nitrite plus nitrate as N (NO ₂ +NO ₃)	Phosphorus, total as P	Coliform, fecal, 0.7 μ m-MP (coils/100 mL)	Streptococci, fecal, KF Agar (coils/100 mL)	Methylene blue active substance
LINCOLN COUNTY--Continued																				
6S-17E- 2ABB1	6/ 5/53	395	7.8	13.5	46	15	15	2.7	220	0	18	8.2	0.4	30	247	---	---	---	---	---
	5/19/54	382	7.4	13.0	44	15	15	2.6	210	0	19	7.9	---	31	241	---	---	---	---	---
	10/30/56	404	8.0	13.0	48	14	16	2.2	220	0	19	8.0	.3	33	255	---	---	---	---	---
	2/14/73	331	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/15/73	323	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6S-20E-15DAB1	8/ 3/73	415	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/25/29	---	---	---	26	13	---	---	140	---	25	14	---	22	---	---	---	---	---	---
	9/28/53	295	7.7	---	25	13	16	3.5	140	---	25	12	.6	34	198	---	---	---	---	---
	10/30/56	291	8.1	---	25	12	16	3.4	140	0	21	10	.5	33	191	---	---	---	---	---
7S-23E- 5CCB1	11/10/47	320	8.0	12.0	35	15	11	.6	160	---	30	7.0	---	---	---	---	---	---	---	---
	6/ 3/53	349	7.8	10.0	32	15	18	3.3	150	---	30	17	.5	31	222	---	---	---	---	---
	5/18/54	349	7.7	10.0	32	12	---	---	150	---	30	16	.6	30	216	---	---	---	---	---
MADISON COUNTY																				
5N-39E- 8ABC1	7/20/76	524	7.6	10.5	69	17	12	2.4	190	0	51	12	0.4	13	274	1.4	< 0.01	---	---	---
	11/29/79	517	7.5	10.5	68	15	12	2.5	250	0	46	11	.3	14	290	---	< .01	---	---	---
6N-40E-15AAA1	7/20/76	333	7.3	11.0	46	13	4.5	1.4	160	0	8.4	3.1	.3	17	173	.93	.02	< 1	---	---
	11/29/79	294	7.8	9.0	37	10	3.9	1.2	170	0	8.0	2.6	.1	17	164	---	.01	< 1	---	---
	18AAD1	6/25/76	370	7.6	12.0	47	16	4.5	2.0	220	0	12	2.5	.2	28	220	2.8	.04	---	---
4S-24E- 6BBC1	11/29/79	379	7.6	9.0	50	14	4.1	1.9	200	0	17	2.6	.2	26	215	---	.02	< 1	---	---
	9/25/62	197	7.3	13.5	19	7.9	12	1.6	100	0	11	8.1	.3	27	138	---	---	---	---	---
	9/15/66	246	7.9	12.0	24	9.3	13	2.1	130	0	14	8.0	.5	28	163	---	---	---	---	---
	4/12/67	257	7.7	11.5	26	9.6	13	2.0	130	0	16	7.5	.5	26	164	---	---	---	---	---
6S-24E-35CAC1	6/23/53	337	8.2	14.5	33	13	17	3.2	150	0	29	13	.7	31	216	---	---	---	---	---
	5/18/54	337	7.9	---	31	14	---	---	150	---	26	13	.8	31	208	---	---	---	---	---
	4/21/48	560	---	---	62	30	19	1.1	140	0	48	21	---	---	---	---	---	---	---	---
8S-23E-27BDC1	9/17/50	609	---	14.0	58	22	---	---	250	0	50	44	---	43	386	---	---	---	---	---
	6/29/51	614	7.8	12.0	57	22	37	7.6	250	0	46	42	.3	36	376	---	---	---	---	---
	9S-24E-11BAC1	410	---	---	47	21	11	1.4	100	0	42	12	---	---	---	---	---	---	---	---
9S-24E-11BAC1	9/17/50	477	---	13.5	43	17	---	---	190	0	44	31	---	41	300	---	---	---	---	---
	6/29/51	457	7.8	12.0	43	17	16	4.0	190	0	44	26	.5	37	290	---	---	---	---	---
	9/13/66	630	7.8	13.0	52	23	41	5.8	200	0	63	58	.6	31	377	---	---	---	---	---
	8S-25E- 1CBB3	11/10/47	---	7.8	11.5	44	14	8.2	1.2	130	---	38	8.3	---	---	---	---	---	---	---
9S-22E-33ADA1	5/13/48	368	---	12.0	39	14	---	---	150	---	38	17	.7	34	---	---	---	---	---	---
	5/18/54	432	8.1	11.5	40	16	---	---	180	---	39	22	1.0	33	272	---	---	---	---	---
	11/ 1/56	384	8.1	11.0	38	15	19	3.2	170	0	37	18	.7	35	249	---	---	---	---	---
9S-24E-29ABB3	6/29/51	984	7.9	---	81	30	92	5.2	370	0	100	74	0	32	612	---	---	---	---	---
	9/13/66	819	7.9	15.5	71	26	79	7.4	380	0	87	44	.3	26	537	---	---	---	---	---
9S-24E-29ABB3	6/ 3/53	901	7.6	21.5	40	15	110	19	190	0	21	170	.8	47	526	---	---	---	---	---
	5/18/54	905	8.0	21.0	36	14	---	---	190	---	21	160	.8	49	532	---	---	---	---	---
	11/ 1/56	901	7.9	21.0	32	15	120	18	---	0	20	170	.7	52	528	---	---	---	---	---

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