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DATA FOR SPRINGS IN THE NORTHERN COAST RANGES AND KLAMATH MOUNTAINS OF CALIFORNIA

By

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Prepared in cooperation with the
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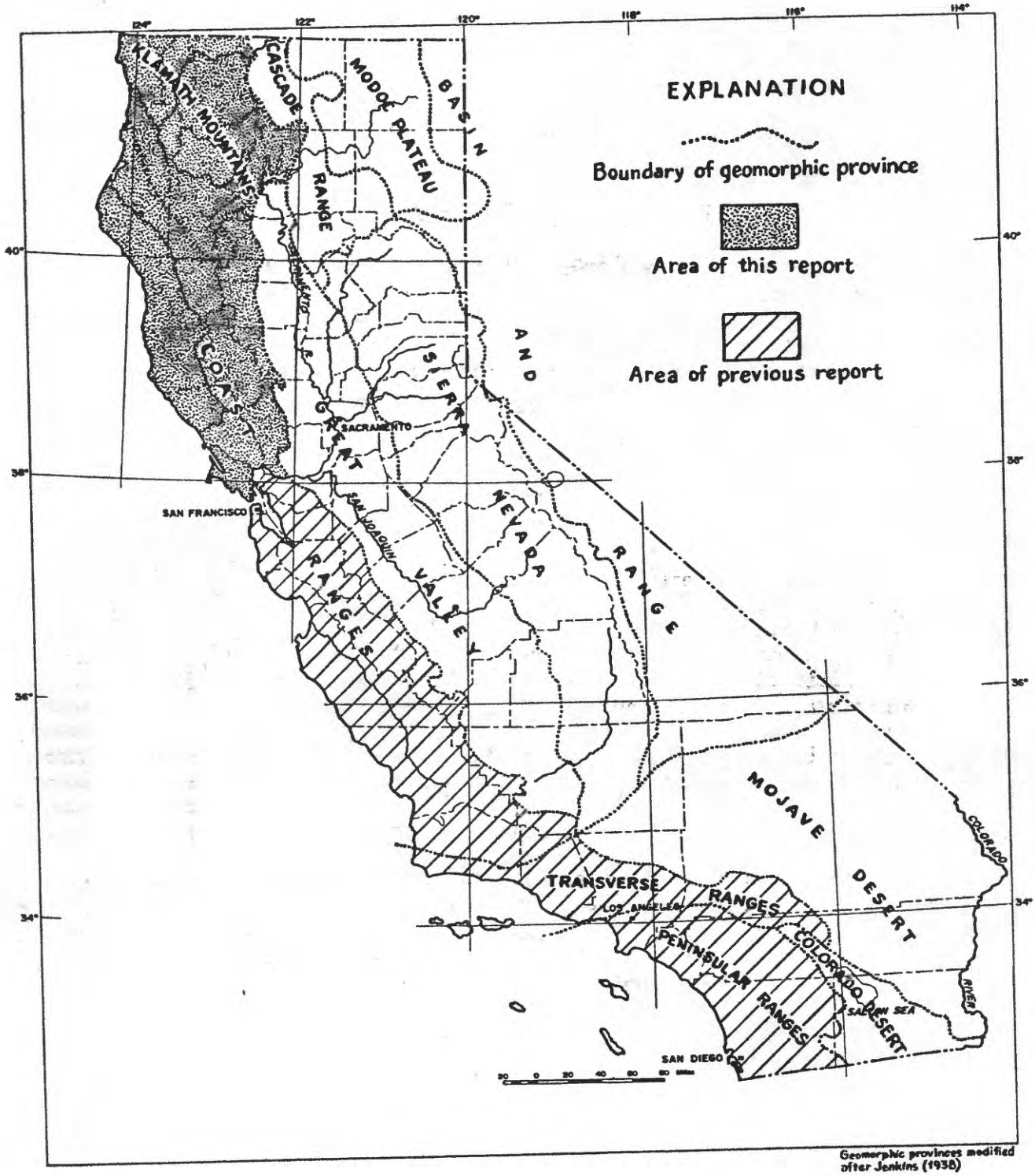

Figure 1.—Index map.

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INTRODUCTION

The area covered in this investigation includes the Coast Ranges north of San Francisco and the Klamath Mountains northward to the Oregon border (fig. 1). The area probably includes more than 100,000 springs, but only about 200 are described here. Appendix A describes 223 springs, spring groups, and a few wells that have been designated as springs by their owners. Appendix B lists the results of chemical analyses of water from 204 springs. Because many springs occur in groups of two or more and the chemical quality of water from each of the springs in a group is often similar, one analysis has been used to represent a group. Both appendixes list the spring data alphabetically by county, and within each county, numerically by township and range.

In a few instances wells are designated as springs. In most cases, these are flowing wells that have been developed for use by health resorts and are named as springs on maps, or are ingrained in the literature as springs. A conscious effort has been made to avoid naming new springs which are in fact wells.

Purpose and Scope

The purpose of this report is to provide basic data about selected springs in the Coast Ranges and Klamath Mountains of California north of San Francisco. The scope of this report includes description of the springs and the results of up-to-date analyses of water from the springs.

Criteria used to select springs for this study included accessibility, availability of previous data, and geologic or hydrologic significance. Temperature and pH were measured at the spring site and ammonium was determined qualitatively since January 1963. Flow from springs was measured or estimated, depending on the situation at each site. The location of each site was determined on topographic or other available maps. Chemical and spectrographic analyses were made by personnel of the U.S. Geological Survey. Analyses include most of the major, minor, and trace inorganic constituents that occur in natural water.

This report represents the direct or indirect effort of many people who supplied information and aided in collection of samples. Individuals employed by the U.S. Forest Service, the California Division of Forestry, and the California State Library were of particular help.

Previous Investigations

Two statewide reports on springs have been published. Anderson (1890) described about 200 springs in California. Waring (1915) described about 590 spring areas representing nearly 1,600 springs; he included about 300 chemical analyses for 250 springs. A comprehensive tabulation of thermal springs throughout the United States, including California, was made by Stearns and others (1937) and by Waring (1965). Other reports that describe springs in California include the works of Whitney (1865), Gilbert (1875), Peale (1886; 1894), Becker (1888), Crook (1899), Clarke(1924), and Fitch (1927). A report by Berkstresser (1968) that is similar to this one has been released; the report describes springs in the southern Coast, Transverse, and Peninsular Ranges of California (fig. 1).

Additional descriptions of springs and analyses of their water have been published in many areal reports that describe water resources, mineral deposits, and geology. The references at the end of this report list many such reports and include all publications cited above or in appendix A.

MINERAL CONSTITUENTS IN SPRING WATER

All natural water contains dissolved mineral matter. Water in contact with soil or rock, even for a few minutes, will dissolve some mineral or organic materials. This is one part of the weathering process. The type and quantity of dissolved matter depends on many variables such as the type of rocks or soils, the length of time of contact, and the temperature.

The mineral constituents and physical properties of natural water reported in the table of analyses (appendix B) include those that have a practical bearing on the value of the water for most domestic and industrial purposes. Others, such as the trace metals, may presently be only of academic interest but may assume importance as knowledge of the relation of water quality to health grows. Analyses include results for silica, arsenic, mercury, calcium, magnesium, strontium, barium, sodium, potassium, lithium, nitrogen as ammonia, bicarbonate, carbonate, sulfate, chloride, fluoride, nitrate, phosphate, boron, pH, sum of the determined constituents, and specific conductance. In addition, many analyses include spectrographic determinations for trace metals, aluminum, beryllium, bismuth, cadmium, cobalt, chromium, copper, iron, gallium, germanium, manganese, molybdenum, nickel, lead, titanium, vanadium, and zinc.

The chemistry of natural water has been described by Hem (1959) and White and others (1963), and standards of chemical quality for domestic, industrial, and irrigation use are available (U.S. Salinity Laboratory Staff, 1954; U.S. Public Health Service, 1962; McKee and Wolf, 1963; and Pomeroy and Orlob, 1967).

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Appendix A.--Description of springs in the northern Coast Ranges and Klamath Mountains

Location number: Each spring is assigned a number according to its location in the rectangular system for the subdivision of public land. For example, in the number 1S/3W-30B,M, the part of the number preceding the slash indicates the township (T. 1 S.), and the number between the slash and the hyphen indicates the range (R. 3 W.); the number between the hyphen and letter indicates the 40-acre subdivision of the section, as shown in the accompanying diagram. The letter X is used where the location of the site was determined only to the section. Unverified sites are indicated by the letter Z. The letter following the comma indicates the base line and meridian: M, Mount Diablo base line and meridian; H, Humboldt base line and meridian. The location is also listed according to latitude and longitude.

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Name of spring and owner or user: First name given is the name of the spring. When the spring is known by two or more names, preferred or current usage is given first and other names are in parentheses. Where a group of springs has a name and individual springs in the group are also named, the individual names are indented under the group name. Spring names may be singular or plural without regard to the number of spring orifices.

Date of observation: The date given is the date the spring was visited.

Altitude: In feet above mean sea level; interpolated from Geological Survey topographic maps.

Discharge: In gallons per minute (gpm); estimated, except as noted. The letter m preceding a figure indicates measured discharge; r indicates reported.

Temperature: Water temperature, in degrees Fahrenheit, at orifice.

Physical appearance, development, and use: Information given is the condition and use of the spring on the date of observation.

Water type and related remarks: Where only one cation (aluminum, iron, calcium, magnesium, sodium) and one anion (bicarbonate, sulfate, chloride) are given, those ions each constitute more than 50 percent of the total reacting values of cations or anions. Where two cations or anions are given, they are given in order of decreasing abundance, and the sum of the percentage-reacting values of the two cations or anions is more than 50 percent of the total cations and anions.

References: For complete titles, see selected references in text.

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				COLUSA COUNTY				
14N/5W-6N,M 39°05'10"N,122°27'37"	Deadshot Spring Terhel Farms, Inc.	4-27-66	2,380	<1	60	Spring issues from orifices in low travertine cones. Unused.	Sodium chloride. Bubbles of carbon dioxide observed. Bad taste.	Waring (1915, p. 195; 1965, p. 21).
14N/5W-7C,M 39°04'55"N,122°27'25"	Eaton Springs	4-27-66	2,320	>10		Springs issue in dense growth of brush. Unused.		
14N/5W-17K,M 39°03'39"N,122°25'59"	Melaney Flat Spring Terhel Farms, Inc.	4-27-66	2,020	m3.5	64	Spring issues into rock-cribbed pit. Water piped to tank. Stock use.	Magnesium bicarbonate.	
14N/5W-20P,M 39°02'23"N,122°26'05"	Terhel Farms, Inc.	4-27-66	1,650	<.1		Spring issues from travertine deposits. Unused.		
14N/5W-21A,M 39°03'05"N,122°24'33"	Oil Spring Terhel Farms, Inc.	4-26-66	1,300	>0		Springs issue from seeps in bedrock and poorly defined orifices in travertine. Unused.		Waring (1915, p. 194).
14N/5W-28C,M 39°02'19"N,122°25'15"	Wilbur Springs Simmons Hot Springs Hot White Sulphur Spring	4-26-66	1,350	21	120	Spring issues from orifices into concrete collection box with plank cover. Piped to bathhouse. Resort bathing use.	Sodium chloride. Sulfur deposited in discharge pipe.	Anderson (1890, p. 244, 265). Becker (1888, p. 367-368). Bowen (1962, p. 64). Bradley (1916a, p. 181-187, 189-191; 1918, p. 36-40). Crook (1899, p. 173-174). Fitch (1927, p. 269-270). Gudde (1962, p. 346). Lachenbruch (1962, p. 64). Logan (1929, p. 292). Scott and Barker (1962, p. 24, 27). Waring (1915, p. 99-103; 1965, p. 21). White (1955, p. 130-131; 1957b, p. 1674-1677). White and others (1963, p. 11, 36-37).
14N/5W-28C,M 39°02'17"N,122°25'12"	Cold Magnesia Spring	4-27-66	1,350	>0	54	Water collects in concrete crib with plank cover. Resort use.	Magnesium bicarbonate.	
14N/5W-28C,M 39°02'18"N,122°25'13"	Beauty Spring	4-27-66	1,325	>1	115	Spring issues from small orifices in serpentine into concrete bathing tub. Resort use.	Sodium chloride.	
14N/5W-28C,M 39°02'18"N,122°25'14"	Eye-bath pool Seaton G. Parker, Jr.	4-27-66	1,325	m.2	94	Spring issues from small orifices in serpentine into natural rock basin. Resort use.	Sodium chloride. Sulfur deposited.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
					COLUSA COUNTY--Continued			
15N/5W-4A,M 39°10'56"N,122°24'46"	Skinnerville Spring Wilson Huffmaster	4-28-66	1,600	<0.1		Spring issues at head of gully and is covered; water is piped to tank. Seasonal variation in discharge reported. Stock use.		
15N/5W-4H,M 39°10'41"N,122°24'44"	Jim Dunlap	4-28-66	1,750	m>.2	59	Spring is covered; pipeline leads water to concrete tank. Reported seasonal variation in flow. Stock use.	Magnesium bicarbonate.	
16N/6W-9H,M 39°15'19"N,122°31'38"	Cooks Springs Mrs. Mildred Sutliff	4-25-66	1,525	<.1	62	Spring issues into, or is piped to, a concrete crib covered by planks. Unused.	Magnesium bicarbonate. Much iron oxide precipitated in spring pit.	Anderson (1890, p. 120). Bradley (1916a, p. 182). Crook (1899, p. 176). Fitch (1927, p. 246-247). Logan (1929, p. 291). Waring (1915, p. 204-205).
16N/6W-9X,M 39°15'20"N,122°31'48"	Mrs. Mildred Sutliff	4-26-66	1,600	>2	60	Water delivered by long pipeline. Domestic and stock use.	Magnesium bicarbonate.	
17N/7W-5N,M 39°21'02"N,122°40'14"	Fouts Springs Red Eye Spring	4-26-66	1,725	m>2	78	Spring discharges through bank of gravel terrace deposited by floods of 1964-65. Unused, 1966; formerly resort.	Sodium chloride. Water is highly carbonated and tastes like seltzer water. Iron oxide deposited on rocks in discharge area.	Bradley (1916a, p. 184). Logan (1929, p. 291). Scott and Barker (1962, p. 24, 27). Waring (1915, p. 205-207).
17N/7W-8B,M 39°20'48"N,122°39'40"	Champagne Spring Fouts Springs Boy's Ranch	4-25-66	1,725	<1	64	Spring discharges into covered plank-cribbed collector. Unused.	Magnesium bicarbonate.	
18N/4W-32E,M 39°22'20"N,122°20'17"	Salt Spring W. O. Pearson	4-25-66	320	1	68	Springs issue through at least three orifices. Unused.	Calcium chloride. Moderate amount of flammable gas discharges with water.	Bradley (1916a, p. 191). Kirby (1943, p. 606-608). Lachenbruch (1962, p. 34). Waring (1915, p. 298-299).
18N/4W-32F,M 39°22'21"N,122°20'02"	W. O. Pearson	4-25-66	340	>10	61	Water is collected in concrete reservoir and piped to troughs. Stock use.	Sodium calcium chloride bicarbonate. Water has musty odor.	Kirby (1943, p. 606-608) Lachenbruch (1962, p. 64).
					DEL NORTE COUNTY			
16N/4E-5X,H 41°48'30"N,123°44'30"	Maple Springs U.S. Forest Service	7-27-64	4,400		46	Stock use.	Calcium bicarbonate.	
17N/3E-30P,H 41°49'57"N,123°52'55"	Cedar Spring U.S. Forest Service	7-27-64	3,400		44	Public supply use.	Magnesium bicarbonate.	
17N/3E-35P,H 41°49'02"N,123°48'06"	U.S. Forest Service	7-27-64	2,750		58		Calcium sodium bicarbonate.	
17N/4E-18X,H 41°52'30"N,123°46'10"	U.S. Forest Service	7-27-64	1,850				Calcium sodium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						DEL NORTE COUNTY--Continued		
18N/1E-14X,H 41°57'24"N,124°01'42"	Wimer Spring U.S. Forest Service	7-15-64	2,200			Unused.		Waring (1915, p. 371).
18N/1E-35G,H 41°54'47"N,124°01'29"	U.S. Forest Service	7-15-64	1,950	0.1	58	Spring issues from partly serpentinized ultramafic rocks. Unused.	Magnesium bicarbonate.	Bradley (1918, p. 41). Whitney (1865, p. 361-363).
18N/3E-10D,H 41°58'30"N,123°49'42"	Cedar Trough Springs U.S. Forest Service	7-26-64	3,500		55	Public supply use.	Calcium magnesium bicarbonate.	
18N/3E-29M,H 41°55'27"N,123°52'00"	U.S. Forest Service	7-26-64	1,750				Magnesium bicarbonate.	
						GLENN COUNTY		
18N/6W-9D,M 39°26'01"N,122°32'23"	Sulphur Spring D. A. Garlin	4-22-66	1,175	>10	67	Spring issues from several orifices in gully at edge of Salt Spring valley. Unused.	Sodium chloride. Small quantity of flammable gas discharges with water. Strong odor of hydrogen sulfide.	
18N/6W-9E,M 39°25'50"N,122°32'16"	Salt Spring D. A. Garlin	4-22-66	1,150	>.5	75	Spring issues through at least six orifices onto salty travertine apron. Unused.	Sodium chloride. Small quantity of odorless gas discharges with water Iron-stained travertine is deposited.	Averill (1929a, p. 423). Bradley (1916b, p. 199). Waring (1915, p. 299).
18N/7W-8X,M 39°26'07"N,122°39'27"	Twin Springs U.S. Forest Service	4-26-66	3,300	>100	53	Springs issue as numerous seeps along channel. Domestic, stock, and irrigation use.	Calcium bicarbonate.	
18N/7W-21X,M 39°24'02"N,122°38'31"	U.S. Forest Service	4-26-66	2,250	25		Spring seeps from metamorphic rocks. Unused.	Calcium magnesium bicarbonate.	
18N/7W-23D,M 39°24'14"N,122°36'44"	Black Diamond Glades U.S. Forest Service	4-22-66	2,300	>10		Spring issues as many seeps from soil. Discharge reported, varies seasonally. Stock use.	Magnesium bicarbonate.	
20N/7W-24C,M 39°34'46"N,122°35'48"	Knight Estate	4-21-66	1,175	<.1		Spring discharges through at least six poorly defined orifices in alluvium. Main spring area covered by new road. No variation in flow reported. Unused.	Water tastes salty. Small quantity of odorless, flammable gas discharged with water.	
20N/7W-24F,M 39°34'31"N,122°35'47"	Knight Estate	4-21-66	1,200	>2	57	Spring discharges through two openings in metamorphic rocks. Small seasonal variation in flow reported. Stock use.	Sodium chloride.	
21N/6W-15F,M 39°40'49"N,122°31'21"		4-21-66	650	m.8	67	Spring is covered; water is piped to trough. Stock use.	Calcium magnesium sulfate bicarbonate.	
21N/8W-24N,M 39°39'20"N,122°43'14"	Alder Springs U.S. Forest Service	4-21-66	4,325		50	Spring is covered by shelter. Water is piped to storage tank. Public supply use.	Calcium bicarbonate.	Averill (1929a, p. 423). Bradley (1916b, p. 198). Waring (1915, p. 359).
22N/7W-5N,M 39°47'10"N,122°40'30"	Del Harleson Spring U.S. Forest Service	4-20-66	4,250	m7.5	46	Spring is protected by galvanized crib and cover. Water is piped to faucets. Public supply use.	Calcium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				HUMBOLDT COUNTY				
1N/2E-11H,H 40°29'06"N,123°54'42"	California Division Beaches and Parks	7-11-64	550	r>25		Springs issue into covered weir boxes for delivery to supply system. Public supply use.	Calcium bicarbonate.	
3N/1E-20X,H 40°37'30"N,124°05'30"	Felts Springs					Unused.		Anderson (1890, p. 135). Crook (1899, p. 132). Laizure (1925, p. 320). Waring (1915, p. 300).
3N/3E-8P,H 40°39'04"N,123°51'51"	Dugs Spring C. E. Johnson	7- 9-64	2,450	m2	51	Spring flow is collected in brushy area and piped to trough. Stock use.	Calcium bicarbonate.	
3N/3E-28E,H 40°36'50"N,123°51'04"	Cook Spring Iaqua Ranch		1,300			Unused.		Laizure (1925, p. 320). Waring (1915, p. 261).
4N/3E-32C,H 40°41'16"N,123°51'51"	Mountain View Spring L. M. Shaw	7- 9-64	1,000	>20	53	Weir box collects water for use at ranch. Domestic and stock use.	Calcium bicarbonate.	
4N/2W-27R,H 40°41'49"N,124°16'25"	Wayne Harrison	7-13-64	50	r>7	54	Spring issues from sand and sandstone. Water is piped to 20,000-gallon tank and pumped to water tower. Domestic, stock, and irrigation use.	Sodium chloride. Salt is derived from windborne ocean spray.	
1S/2E-17P,H 40°22'28"N,123°58'48"	California Division Beaches and Parks	7- 8-64	2,250	1	54	Spring issues from soil. Unused.	Calcium bicarbonate.	
1S/2E-20N,H 40°21'35"N,123°59'13"	California Division Beaches and Parks	7- 8-64	950	1		Spring is a series of seeps in and along creek channel. Collected by pipes and delivered to farm. Unused.		
1S/2W-19M,H 40°21'55"N,124°20'32"	Joe Zanone	7-10-64	500	r.5	62	Spring is covered and protected by concrete culvert; water is piped to troughs. Discharge reported variable but reliable. Stock use.	Calcium bicarbonate. Musty odor.	
1S/2W-19P,H 40°21'42"N,124°20'27"	Joe Zanone	7-10-64	650	ml.7	62	Two springs, each covered, are piped into concrete storage tank. Domestic and stock use.	Sodium bicarbonate.	
1S/3W-3K,H 40°24'34"N,124°23'24"	Joe Zanone or Joe Russ	7-10-64	1,000	>500	63	Springs discharge into creek channel. Unused.	Calcium bicarbonate.	
2S/3E-20X,H 40°16'40"N,123°51'40"	Hidden Springs California Division Beaches and Parks	7- 8-64	400	10	56	Spring covered or concealed by vegetation. Water is piped to storage tanks and pumped into distribution system. Seasonal variation in flow reported. Public supply use.	Calcium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
					HUMBOLDT COUNTY--Continued			
2S/3E-34Q,H 40°14'33"N,123°49'09"	California Division Beaches and Parks	7- 8-64	300	m3	55	Springs covered by weir boxes; water piped to storage tanks and then into distribution system. Public supply use.	Calcium magnesium bicarbonate.	
3S/3E-4L,H 40°13'58"N,123°50'56"	Smith Estate	7- 9-64	700	>10	54	Springs issue as seeps along creek. Water is impounded by earth dam and piped to house and barn. Domestic and stock use.	Calcium bicarbonate.	
3S/4E-23E,H 40°11'28"N,123°42'09"	Pepperwood Springs John B. Stewart	7- 7-64	2,950	1	52	Spring issues from sandstone into rock and concrete crib. Water is piped to farm. Domestic and stock use.	Calcium bicarbonate.	
4S/4E-23C,H 40°06'21"N,123°42'06"		7- 7-64	2,850	m.5	61	Spring issues from sandstone into plank crib. Water is piped to concrete trough. Stock use.	Calcium bicarbonate.	
					LAKE COUNTY			
11N/7W-20Q,M 38°47'19"N,122°39'23"	Harbin Hot Springs Sulphur Spring	10- 5-66	1,660	5	119	Spring is covered by rock cribbing. Water is piped to swimming pool. Very little variation in flow reported. Resort use.	Sodium bicarbonate. Water tastes of sulfides. Strong odor of hydrogen sulfide.	Anderson (1890, p. 164-168). Averill (1929b, p. 347; 1947, p. 23). Bradley (1916c, p. 218). Crook (1899, p. 143-144). Fitch (1927, p. 249-250). Gudde (1962, p. 127). Waring (1915, p. 93-95; 1965, p. 21).
11N/7W-20Q,M 38°47'18"N,122°39'22"	Iron and Soda Water Spring	10- 5-66	1,660	m.5	116	Spring is covered. Water is piped to edge of walkway. Resort use.	Sodium bicarbonate.	
11N/7W-20X,M 38°47'00"N,122°39'00"	Arsenic Spring	10-31-56	1,600				Calcium bicarbonate.	
11N/7W-20X,M 38°47'00"N,122°39'00"	Magnesium Spring Harbin Hot Springs	10-31-56	1,600	r1.5	59	Spring reportedly issues from orifice in shale behind main building. Resort use.	Sodium bicarbonate.	
11N/7W-29A,M 38°47'03"N,122°38'57"		10- 5-66	1,400	m>3	62	Spring consists of many seeps in spring channel. Water is collected and delivered by pipe to roadside. Public supply use.	Magnesium bicarbonate.	
11N/8W-26R,M 38°46'22"N,122°42'26"	Hot Spring Anderson Hot Springs	10- 5-66	1,620	m>.4	128	Spring issues from cracks in an old mine tunnel. Unused.	Calcium magnesium bicarbonate, odor of hydrogen sulfide, and sulfide taste.	Anderson (1890, p. 82-89). Averill (1929b, p. 344-345; 1947, p. 22). Crook (1899, p. 113-115). Fitch (1927, p. 232-233). Gudde (1962, p. 10). Stearns and others (1937, p. 122). Waring (1915, p. 89-91; 1965, p. 21). Yates and Hilpert (1946, p. 283-284).
12N/5W-34D,M 38°51'08"N,122°23'51"	M. D. Fails	10- 4-66	2,040			Spring issues from serpentine into small galvanized metal shelter. Water is piped to storage tank. Domestic and stock use.	Magnesium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				LAKE COUNTY--Continued				
12N/6W-8P,M 38°53'46"N,122°33'00"		10- 4-66	1,600	<0.1		Unused.		
12N/6W-16C,M 38°53'33"N,122°31'54"	Baker Soda Spring Baker Salt Spring L. H. Fugua	10- 5-66	1,480	>2	76	Numerous springs issue from orifices on or near tall travertine terrace. Sampled spring issues into pit near summit of terrace. Unused.	Sodium chloride. Abundant non-flammable gas bubbles into spring pit.	Averill (1929b, p. 351-352). Bradley (1918, p. 55-56). Waring (1915, p. 193).
12N/8W-24H,M 38°52'34"N,122°41'17"	Seigler Springs Hot Sulphur Spring	10- 5-66	2,180	10	126	Spring issues from cracks and orifices in serpentine into collection pit. Piped to swimming pool. Resort use.	Magnesium bicarbonate. Water has odor and taste of sulfide; abundant gas, not flammable, discharges with water.	Anderson (1890, p. 243). Averill (1929b, p. 349; 1947, p. 23). Bradley (1916c, p. 222-223). Crook (1899, p. 165-166). Simoons (1954). Stearns and others (1937, p. 122). Waring (1915, p. 96-98; 1965, p. 21).
12N/8W-24J,M 38°52'27"N,122°41'19"	Geyser Spring Seigler Springs Resort	10- 5-66	2,300		108	Spring is covered with concrete tile crib. Resort use.	Magnesium sodium bicarbonate. Water sample was turbid with iron oxide before filtration. Abundant gas bubbles through water. Musty odor.	
12N/8W-26N,M 38°51'16"N,122°43'09"	Adams Springs Adams Springs Development Co.	10- 5-66	2,720		57	Spring is covered by rock and concrete cribbing, topped by shelter house. Resort use.	Magnesium bicarbonate. Water is turbid with iron oxide.	Anderson (1890, p. 68-69). Averill (1929b, p. 344; 1947, p. 22). Bradley (1916c, p. 211). Crook (1899, p. 106-107). Fitch (1927, p. 231-232). Simoons (1954). Waring (1915, p. 189-190).
13N/6W-2X,M 39°00'05"N,122°29'55"	Grizzly Spring Grizzly Medical Springs Richardson Spring	10- 7-66	1,360			Spring issues through orifices in travertine deposited on side of hill. Unused.		Averill (1929b, p. 347; 1947, p. 23). Bradley (1916c, p. 217). Waring (1915, p. 193-194).
13N/7W-5L,M 39°00'13"N,122°39'41"	Bradley Mining Co.	10- 4-66	1,340		210	This is an artificial geyser from a well about 1,500 feet deep. Unused.	Sodium bicarbonate. Odor of hydrogen sulfide.	
13N/7W-5X,M 39°00'10"N,122°39'00"	Sulphur Bank Hot Springs Borax Springs Bradley Mining Co.	3-26-57	1,300		157	Spring is in Sulphur Bank mine. Unused.	Sodium bicarbonate.	Anderson (1936, p. 649-651). Anderson (1890, p. 101-102). Averill (1929b, p. 358-365; 1947, p. 34-37). Bradley (1916c, p. 234-238, 240; 1918, p. 63-68). Becker (1888, p. 251-269). Clarke (1924, p. 197-198). Everhart (1946, p. 125-153). Roberson and Whitehead (1961). Stearns and others (1937, p. 121). Waring (1915, p. 191-193; 1965 p. 21). White (1955, p. 117-120). White and others (1963, p. 10, 50-51). Whitney (1865, p. 97-100).
13N/8W-6X,M 39°00'29"N,122°47'14"	Big Soda Spring California Division Beaches and Parks	10- 6-66	1,326			Spring issues from many poorly defined orifices in beach sand and well-defined orifices in bedrock. Discharge is largely below surface of Clear Lake as indicated by gas bubbles in the lake. Unused.		Anderson (1890, p. 245-246). Averill (1929b, p. 349; 1947, p. 24). Bradley (1916c, p. 223). Waring (1915, p. 191-193).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				LAKE COUNTY--Continued				
14N/5W-31X,M 39°01'20"N,122°26'50"	Abbott Mine	3-27-57	2,000	25	79	Spring issues from Abbott Mine.	Sodium chloride.	Becker (1888, p. 367-368). Bradley (1918, p. 53-54). White and others (1963, p. 50-51).
15N/6W-3P,M 39°10'11"N,122°30'42"	Complexion Spring U.S. Bureau Land Management	4-28-66	1,700	<.1		Spring seeps into shallow pits dug into soil. Discharge reportedly reliable. Unused.	Sodium chloride. White crystaline precipitate covers surface of pit. Water tastes bitter or metallic, and has pungent odor. Very small amount of non-flammable gas.	Averill (1929b, p. 346; 1947, p. 23). Bradley (1916c, p. 217) Waring (1915, p. 297-298).
15N/6W-3X,M 39°10'12"N,122°30'43"	U.S. Bureau Land Management	4-28-66	1,750	>10	66	Spring issues as seeps along creek channel. Unused.	Sodium chloride.	
15N/7W-8N,M 39°09'36"N,122°39'50"	Allen Springs	11-21-60	1,880		51	Spring issues from bedrock and alluvial cover. Water is collected in rock and mortar crib. Unused.	Magnesium bicarbonate.	Anderson (1890, p. 77-78). Averill (1929b, p. 344; 1947, p. 22). Bradley (1916c, p. 211-212). Crook (1899, p. 111). Waring (1915, p. 198-199).
15N/7W-8N,M 39°09'36"N,122°39'50"	J. P. Contou	4-28-66	1,880	<.2	51	Water is collected in rock and mortar crib. Unused.	Magnesium bicarbonate. Tastes like carbonated water.	
15N/7W-10J,M 39°09'39"N,122°36'45"	Hough Springs J. F. Garliepp	4-28-66	1,560	<.1	56	Spring discharges through at least three orifices. Water is collected in travertine covered rock and mortar box.	Calcium bicarbonate. Tastes like carbonated water.	Averill (1929b, p. 348; 1947, p. 23). Bradley (1916c, p. 220). Crook (1899, p. 147-148). Waring (1915, p. 197-198).
15N/8W-2A,M 39°11'04"N,122°42'02"	Bartlett Springs William Murphy	4-29-66	2,130		58	Spring is covered by pagoda-like shelter. Water is piped to bottling works and to drinking fountain. Resort use.	Magnesium bicarbonate. Tastes like carbonated water.	Anderson (1890, p. 91-94). Averill (1929b, p. 345; 1947, p. 22). Bradley (1916c, p. 212-215). Crook (1899, p 118-119). Fitch (1927, p. 237-238). Waring (1915, p. 200-201).
15N/10W-4L,M 39°10'32"N,122°58'43"	Saratoga Springs Pearsons Spring Pierson Springs Center Spring	10- 6-66	1,600	1		Springs are covered by rock and timber shelters. Resort use.	Magnesium bicarbonate. Small amount of gas bubbles into spring with odor of hydrogen sulfide.	Anderson (1890, p. 220-221, 242-243). Averill, (1929b, p. 348-349; 1947, p.24). Bradley (1916c, p. 221-222). Fitch (1927, p. 265-266). Gudde (1962, p. 284). Waring (1915, p. 179-180).
15N/10W-4L,M 39°10'30"N,122°58'40"	Sulphur Spring	11-22-60	1,600					
15N/10W-4L,M 39°10'32"N,122°58'43"	Arsenic Spring	11-22-60	1,600					
15N/10W-4L,M 39°10'34"N,122°58'44"	Black Sulphur Spring	10- 6-66	1,600	>1	61			
15N/10W-4P,M 39°10'30"N,122°58'41"	Iron Spring Matt Callan	10- 6-66	1,600	.1	61			

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				LAKE COUNTY--Continued				
15N/10W-5R,M 39°11'26"N,122°59'28"	Witter Spring Witter Medical Springs Frank Ledford	10- 6-66	1,520	0.5	61	Spring area concealed. Owner reports concrete-lined tunnel to spring. Water is piped to bottling plant. Medicinal use.	Sodium bicarbonate. Tastes like carbonated water.	Anderson (1890, p. 265-266). Averill (1929b, p. 350; 1947, p. 24). Bradley (1916c, p. 223-224). Crook (1899, p. 174-175). Gudde (1962, p. 348). Waring (1915, p. 177-179).
15N/10W-5R,M 39°11'24"N,122°59'26"	Hurmingbird Spring Frank Ledford	10- 6-66	1,515	ml.2	58	Spring is covered by concrete block shelter. Water is piped into bottling works. Seasonal variation of flow reported. Public supply and medicinal use.	Calcium bicarbonate.	Bradley (1916c, p. 223-224).
16N/10W-1M,M 39°16'14"N,122°55'24"	U.S. Forest Service	4-29-66	2,630	m.8	62	Spring is covered and concealed. Water is piped to concrete tank. Public supply use.	Calcium bicarbonate.	
17N/8W-28B,M 39°18'07"N,122°45'59"	Fir Root Spring U.S. Forest Service	2- 7-61	4,700	10			Calcium bicarbonate.	
17N/9W-21F,M 39°18'52"N,122°52'48"	Parramore Spring Paramore Springs J. J. Bosch and Freer Burk	4-30-66	2,125		55	Spring issues through many orifices into rock basin along edge of creek. Unused.	Magnesium sodium bicarbonate. Tastes carbonated. Nonflammable gas discharges with water. Travertine and iron oxide deposited in basin.	Waring (1915, p. 203).
17N/9W-21F,M 39°18'52"N,122°52'48"	J.J. Bosch and Freer Burk	2- 6-61	2,125		46	Domestic use.	Calcium bicarbonate.	
17N/9W-36B,M 39°17'26"N,122°49'16"	Crabtree Hot Springs U.S. Forest Service	4-29-66	1,275	>10	105	Spring issues from many orifices and cracks in bedrock along river. Unused.	Sodium bicarbonate. Weak odor of hydrogen sulfide. Travertine stained with iron oxide deposited on rocks above spring. Gas bubbles with water.	Averill (1929b, p. 346). Bradley (1916c, p. 217). Waring (1915, p. 106-107; 1965, p. 21). White and others (1963, p. 48-49).
17N/9W-36B,M 39°17'25"N,122°49'14"	U.S. Forest Service	4-29-66	1,275		60	Spring issues in creek channel. Location in creek indicated by bubbling gas.	Calcium bicarbonate.	
17N/9W-36K,M 39°16'30"N,122°49'00"	Madrone Spring U.S. Forest Service	4-29-66	2,500	m6.0	53	Spring is covered and concealed. Water is piped to roadside. Public supply use.	Calcium bicarbonate.	
18N/10W-15L,M 39°24'48"N,122°58'36"	Soda Spring Morton Soda Spring U.S. Forest Service	11-17-60	1,730		64	Spring is reportedly covered by road-fill. Piped to edge of road. Unused.	Sodium bicarbonate.	Waring (1915, p. 204).
18N/10W-15M,M 39°24'46"N,122°58'41"	Sulphur Spring U.S. Forest Service	11-17-60	1,800	.05	64	Spring issues from orifices and cracks in travertine deposited on bedrock, and from seeps in alluvium. Unused.	Sodium bicarbonate chloride.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						LAKE COUNTY--Continued		
18N/10W-15M,M 39°24'46"N,122°58'41"	U.S. Forest Service	4-30-66	1,800	m>0.7	64	Spring issues from orifices and cracks in travertine mantle on bedrock and from seeps in alluvium. Unused.	Sodium bicarbonate. Large deposits of travertine, stained with iron oxide. Gas, in part flammable, issues with water.	
18N/10W-22C,M 39°24'23"N,122°58'21"	Logan Spring U.S. Forest Service	4-30-66	1,950	m>1.5	53	Spring is in a concrete crib with plank cover. Water is piped to roadside. Public supply use.	Calcium bicarbonate.	
18N/10W-33Q,M 39°21'52"N,122°59'23"	Violet Spring U.S. Forest Service	4-30-66	3,375	m6.0	50	Spring is covered, water is piped to roadside. Public supply use.	Calcium magnesium bicarbonate.	
						MARIN COUNTY		
1N/6W-31C,M 37°53'57"N,122°34'16"	California Division Beaches and Parks	5-13-65	360	10	51	Spring issues as seeps into creek channel. Unused.	Calcium magnesium bicarbonate.	
1N/7W-10X,M 37°57'38"N,122°37'42	Marin Municipal Water District	5-13-65	740	5	58	Spring issues from joints in rock exposed in road cut. Part of discharge is collected in concrete weir box and piped to roadside. Public supply use.	Magnesium bicarbonate.	
1N/7W-26D,M 37°54'40"N,122°36'41"	Rock Springs Marin Municipal Water District	5-13-65	1,960	m2.5	56	Spring issues from joints in bedrock. Water is collected in concrete weir box and piped to fountain. Public supply use.	Calcium magnesium bicarbonate.	
1N/7W-34X,M 37°53'09"N,122°37'43"	Rocky Point Springs Rocky Point Hot Sulphur Springs California Division Beaches and Parks	6-16-65	Sea level	2	90	Spring issues through beach sand and is exposed only during minus tides. Spring area is covered by landslide. Unused.	Sodium chloride. Gas, partly hydrogen sulfide, discharges with water. Sulfur deposited on rocks and sand.	Bradley (1916d, p. 250). Laizure (1926a, p. 321). Lawson (1914). Stearns and others (1937, p. 123). Waring (1915, p. 80-81; 1965, p. 22).
2N/8W-10Q,M 38°01'40"N,122°43'49"	Deadmans Springs Dead Man Springs California Division Beaches and Parks	5-14-65	300		53	Springs seep into concrete weirs in channel. Water is treated and delivered to park area. Seasonal variation in discharge reported. Public supply use.	Calcium magnesium bicarbonate.	
2N/8W-14Q,M 38°00'45"N,122°42'50"	Crystal Spring California Division Beaches and Parks	5-13-65	240	m>10	54	Spring area covered by dense growth of poison oak. Small seasonal variation in flow reported. Public supply use.	Magnesium calcium bicarbonate.	
2N/10W-5L,M 38°02'41"N,122°59'12"	U.S. National Park Service	5-14-65	60	25	66	Spring issues from dune sand and siltstone along creek channel. Unused.	Sodium chloride. Salt derived from windborne ocean spray.	
2N/10W-11E,M 38°02'10"N,122°56'28"	W. T. Hall	5-14-65	120	<.1		Spring issues from contact of sand and siltstone, high on bluff. Water is piped to tank. Domestic use.	Sodium chloride.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				MENDOCINO COUNTY				
12N/13W-4P,M 38°54'48"N,121°18'37"	Mailliard Ranch	9-30-66	1,680	>2		Spring is covered. Water is piped to storage tanks, then to buildings. Domestic and stock use.	Calcium magnesium bicarbonate.	
12N/13W-4Q,M 38°54'41"N,121°18'22"	Ornbaum Springs Mailliard Ranch	9-30-66	1,560	<.1	61	Spring issues into covered concrete crib. Slight variation in flow reported. Resort use.	Calcium bicarbonate. Iron oxide precipitate in spring pool and suspended in water. Small amount of nonflammable gas, slightly musty odor.	Averill (1929c, p. 464). Waring (1915, p. 170).
12N/15W-27G,M 38°52'38"N,123°30'33"	Hot Spring Point Arena Hot Springs Hollow Tree Lumber Co.	10-12-66	300	5	112	Spring issues from joints or orifices in rock into rock and mortar tub. Unused.	Sodium bicarbonate carbonate. Some hydrogen sulfide bubbles observed.	Jennings (1968, p. 61). Stearns and others (1937, p. 121). Waring (1915, p. 82-83; 1965, p. 21).
12N/17W-2J,M 38°55'56"N,123°42'26"	California Division of Highways	10-11-66	120	3	56	Spring is covered. Water is piped to roadside. Public supply use.	Sodium chloride. Turbid with organic debris.	
14N/15W-19G,M 39°03'31"N,123°26'39"	D. H. Van Zandt	10-12-66	300	m1.5	60	Spring issues into concrete crib covered with galvanized metal and planks; piped to storage tanks and pumped into pressure system. Reliable discharge reported. Domestic and stock use.	Sodium calcium bicarbonate.	
15N/12W-14D,M 39°09'56"N,123°09'22"	Vichy Springs Doolins Ukiah Vichy Springs Arnold Erikson	10- 7-66	800	17	85	Spring issues from many orifices in rock. Water is collected in rock and mortar crib and piped to baths. Resort use.	Sodium bicarbonate. Travertine and iron oxide deposited on rock. Water has weak odor of petroleum. Some carbon dioxide bubbles with water.	Anderson (1890, p. 257-259). Averill (1929c, p. 464). Crook (1899, p. 171-172). Lowell (1916, p. 422-423). Stearns and others (1937, p. 121). Waring (1915, p. 171-173; 1965, p. 21).
16N/14W-24F,M 39°13'52"N,123°21'57"	Orrs Springs (Orr's Mineral Springs) (Orrs Hot Springs) Cold Sulphur Spring	10- 7-66	940	0	64	Spring is covered by shelter. Resort use.	Sodium bicarbonate. Weak odor of hydrogen sulfide. Gas bubbles observed. White sulfur precipitated in spring.	Averill (1929c, p. 464). Cudde (1962, p. 218). Lowell (1916, p. 423-424). Stearns and others (1937, p. 121). Waring (1915, p. 83; 1965, p. 21).
16N/14W-24L,M 39°13'45"N,123°21'51"	Hot Spring Alfred Weger	10- 7-66	960	m3.0	104	Spring discharges through vertical pipe set in spring orifices in creek bed. Resort use.		
17N/17W-17X,M 39°20'00"N,123°47'10"	California Division Beaches and Parks	9-30-66	340	10	53	Spring issues from seeps along creek channel. Earthen dam impounds water, which is piped to camp area. Discharge reportedly varies seasonally. Public supply use.	Sodium chloride. Salt probably from windborne ocean spray.	
18N/13W-9E,M 39°25'44"N,123°18'45"	Gas Spring Muir Springs Henry Harms, Jr.	10- 7-66	1,370	0	67	Springs seep through soil at low places in field. Unused.	Sodium chloride. Some gas bubbles out with the water.	Averill (1929c, p. 464). Waring (1915, p. 259).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						MENDOCINO COUNTY--Continued		
21N/15W-1R,M 39°41'45"N,123°28'46"	Sulphur Spring O. L. Pinches	9-29-66	1,750	50	70	Springs issue from many orifices in rock. Reliable discharge reported. Stock use.	Sodium chloride. Small amount of flammable gas issues with water. Odor of hydrogen sulfide noted.	Waring (1915, p. 259).
21N/15W-19M,M 39°39'25"N,123°35'15"	Mud Springs (Jackson Valley Mud Springs) Branscomb Enterprises	9-29-66	2,010		80	Springs issue from cones of precipitated carbonate or bicarbonate mud. Caretaker reports that temperature varies from about 60° to 100°F, seasonally. Unused.	Sodium bicarbonate. Abundant carbon dioxide bubbles through mud in springs.	Waring (1915, p. 176-177). White and others (1963, p. 48-49).
23N/15W-19L,M 39°49'34"N,123°34'48"	California Division of Highways	9-28-66	1,400	m.5	56	Two springs, about 15 feet apart, issue as seeps into channels. Variable but dependable flow reported. Unused.	Magnesium bicarbonate.	
						NAPA COUNTY		
5N/4W-17C,M 38°17'04"N,122°19'43"	Congress Spring F. A. Stearns	5- 6-65	160	0.5	64	Spring issues into concrete crib covered with sheet metal. Water discharges through pipe onto ground. Unused.	Sodium chloride. Water tastes carbonated. Some travertine and iron oxide on ground.	Bradley (1916e, p. 278). Waring (1915, p. 156, 385).
6N/3W-19X,M 38°20'50"N,122°14'06"	Pete Imboden	5-11-65	450	m>.3		Public facility, domestic, and stock use.	Sodium calcium bicarbonate.	
6N/4W-2N,M 38°23'23"N,122°16'39"	Napa Soda Springs Jacksons Napa Soda Springs Al Nasser	5- 6-65-	700	m.2	61	Spring issues from orifices in bedrock and is piped to masonery fountain. Reportedly, no variation in discharge. Unused.	Magnesium calcium bicarbonate. Water tastes carbonated. Nonflammable gas bubbles noted. Large deposit of iron oxide.	Anderson (1890, p. 201-207). Bradley (1916e, p. 278-279). Davis (1948, p. 169). Fitch (1927, p. 257-258). Peale (1886, p. 207). Waring (1915, p. 155-156).
6N/4W-25E,M 38°20'20"N,122°15'33"	Napa Vichy Springs Lepori Vichy Springs M. E. Harris	5- 6-65	80		76	Water rises in cemented basin in springhouse. Spring was developed by drilling. Water is pumped to swimming pool. Resort use.	Weak odor of hydrogen sulfide.	Averill (1929d, p. 224). Bradley (1916e, p. 280). Fitch (1927, p. 272). Kunkel and Upson (1960, p. 110). Waring (1915, p. 255).
6N/5W-1L,M 38°23'49"N,122°22'00"	California State Veterans Home	5- 6-65	150		59	Spring issues from alluvium covered by plank shelter. Water discharges into channel. Irrigation use.	Calcium magnesium bicarbonate.	Waring (1915, p. 356).
7N/3W-6E,M 38°29'04"N,122°14'29"	California Division of Highways	5- 7-65	700	20	58	Spring area is along highway road cut; water issues from joints in rock. Unused.	Magnesium bicarbonate.	
7N/6W-2D,M 38°29'26"N,122°29'42"	White Sulphur Springs Original White Sulphur Springs California-Nevada Methodist Camps, Inc.	5-11-65	400	m9.0	96	Springs issue from joints and orifices in sandstone; water is collected in concrete weirs and piped to concrete bathing tub. Resort use.	Sodium chloride. White sulfur precipitates from water. Odor of hydrogen sulfide noted.	Anderson (1890, p. 263-264). Averill (1929d, p. 224). Bradley (1916e, p. 280-281). Peale (1886, p. 209). Waring (1915, p. 254-255).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				NAPA COUNTY--Continued				
8N/4W-25D,M 38°31'07"N,122°15'35"	Napa Rock Soda Springs Priests Soda Springs Ravenwood Realty Co.	5- 6-65	1,100	r22	79	Springs issue into bottom of pool behind rock and mortar weir. Unused.	Magnesium bicarbonate. Tastes like carbonated water, abundant gas observed. Large travertine terrace is stained with iron oxide.	Averill (1929d, p. 224). Bradley (1916e, p. 281). Stearns and others (1937, p. 123). Waring (1915, p. 161; 1965, p. 22).
8N/5W-4B,M 38°34'51"N,122°25'11"	Martin Spring Martins Spring Pacific Union College	5- 7-65	1,650	20	58	Spring issues from sandy gravel lying on volcanic rock. Water is impounded behind a small weir and discharged through pipe to ground. Unused.	Sodium potassium bicarbonate.	Waring (1915, p. 357).
8N/6W-13K,M 38°32'33"N,122°28'22"	Crystal Spring St. Helena Sanitarium and Hospital	5-11-65	580	50	62	Spring area covered. Water is piped to large concrete tank for distribution. Public supply and irrigation use.	Sodium calcium bicarbonate.	Waring (1915, p. 357).
8N/6W-17Q,M 38°32'23"N,122°32'49"	California Division Beaches and Parks	5-12-65	1,100	40	58	Spring issues from volcanic rock. Unused.	Calcium magnesium bicarbonate.	
9N/5W-12A,M 38°39'14"N,122°21'26"	Walter Springs Walters Mineral Springs Mabel Wise	5- 7-65	1,010	ml.5	66	Water discharges from pipe in pagoda-like springhouse. Resort use.	Magnesium bicarbonate. Small amount of travertine deposited; contains abundant iron oxide. Large quantity of gas discharges with water.	Averill (1929d, p. 225). Waring (1915, p. 159).
9N/6W-1M,M 38°39'29"N,122°28'44"	Aetna Springs Aetna Spring	5- 7-65	760	10	71	Spring is cribbed and surmounted by a small pavillion. Water discharges onto ground. Unused.	Sodium bicarbonate. Iron oxide precipitated in spring channel.	Anderson (1890, p. 69-71). Becker (1888, p. 371). Waring (1915, p. 156-159, 385; 1965, p. 22). White and others (1963, p. 50-51). Yates and Hilpert (1946, p. 254-260).
9N/6W-1N,M 38°39'08"N,122°29'00"	Sulphur Spring G. B. Heibel	5- 7-65	780	0	91	Spring issues from old mine shaft. Unused.	Sodium bicarbonate.	
9N/6W-31M,M 38°34'56"N,122°34'26"	Pacheteau's Calistoga Hot Springs J. P. Lambrecht and W. L. Fox	10-13-66	r>350	520	210	Drilled well, 152 feet deep. Resort use.	Sodium chloride. Silica deposite in pipes. Much gas, largely steam, accompanies water from ground. Weak odor of hydrogen sulfide. Steam temperature 214°F.	Allen and Day (1927, p. 98). Anderson (1890, p. 114-116). Crook (1899, p. 125-126). Fitch (1927, p. 245-247). Peale (1886, p. 203). Stearns and others (1937, p. 123). Waring (1915, p. 108-109; 1965, p. 22).
11N/5W-1B,M 38°50'16"N,122°21'40"	One-shot Mining Co. Joe Matsumoto	10- 4-66	2,000			Spring developed in mercury mine tunnel. Water is delivered through 650 foot pipeline. Domestic and industrial use.	Magnesium sulfate.	
11N/5W-1H,M 38°50'00"N,122°21'24"	One-shot Mining Co. Joe Matsumoto	10- 4-66	1,820	50	72	Spring issues from single orifice at back of short tunnel-like entry into sandstone. Unused.	Sodium magnesium chloride bicarbonate. Abundant iron-stained carbonate in spring channel. Tastes like carbonated soda water.	Becker (1888, p. 282). Bradley (1916e, p. 288; 1918, p. 86-87).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				SHASTA COUNTY				
32N/6W-14X,M 40°38'14"N,122°31'22"		11-14-62	2,035	m0.3		Unused.	Calcium magnesium bicarbonate.	
32N/6W-32X,M 40°36'33"N,122°30'49"	California Division of Highways	9-21-65	1,300	m2.0	62	Water is piped from spring to rock and mortar font in roadside rest area. Public supply use.	Calcium sodium bicarbonate.	
32N/7W-12X,M 40°39'00"N,122°36'30"		11-15-62		.5		Unused.	Calcium bicarbonate.	
33N/7W-34X,M 40°40'12"N,122°38'44"	Salt Springs	9-21-65	1,325	>5	68	Spring issues from orifice in travertine cone on greenstone. Unused.	Sodium chloride. Tastes salty.	Albers (1964, p. 18-27, pl. 1). White and others (1963, p. 38-39, 58).
35N/4W-14R,M 40°52'54"N,122°16'56"	U.S. Forest Service	9-20-65	1,600	5	56	Spring issues as seeps in and along creek. Unused.	Calcium bicarbonate.	
35N/6W-3K,M 40°54'49"N,122°31'54"	U.S. Forest Service	9-20-65	3,875	m.1	49	Spring issues from eroded place on mountainside; water is impounded by earthen dam. Discharge reportedly varies seasonally. Public supply use.	Calcium sodium bicarbonate.	
37N/1W-26J,M 41°02'03"N,121°55'47"	Hunt Hot Spring Kosk Creek Hot Springs	9-13-65	1,640	1	136	Spring issues from orifices or joints in rock. Reportedly little variation in flow. Unused.	Sodium sulfate. Some bubbles rise with water; odor of hydrogen sulfide noted.	Logan (1926a, p. 199). Stearns and others (1937, p. 119). Waring (1915, p. 116-117; 1965, p. 20).
37N/1W-26J,M 41°02'03"N,121°55'47"	F. E. Rayner, Jr.	9-13-65	1,640	1	105	Spring issues from orifices or joints in greenish rock in bottom of concrete tub. Resort use.	Sodium sulfate. Gas bubbles through pool; odor of hydrogen sulfide noted.	
37N/1W-36G,M 41°01'20"N,121°55'07"	Big Bend Hot Springs Mrs. Martha E. Lofton	9-13-65	1,680	>10	180	Spring issues into bottom of pit dug into terrace gravel and cribbed with planks. Water flows through old bathhouse and down bank to river. Unused.	Sodium chloride. Large amount of gas bubbles through pit. Water tastes sulfurous and salty.	Brown (1916a, p. 808). Logan (1926a, p. 199). Stearns and others (1937, p. 119). Waring (1915, p. 115-116; 1965, p. 20).
37N/5W-24X,M 41°02'40"N,122°23'37"	Shiloah Mineral Springs	9-17-65	1,800			Unused.		Dudde (1962, p. 292).
37N/5W-25C,M 41°02'38"N,122°23'35"	California Division of Highways	9-17-65	1,680	75	56	Spring issues as seeps from alluvium. Unused.	Magnesium bicarbonate.	
37N/5W-25C,M 41°02'39"N,122°23'34"	California Division of Highways	9-17-65	1,700	1	59	Spring issues from pipe set in hole drilled into rock. Unused.	Sodium chloride. Odor of hydrogen sulfide; small deposit of sulfur on discharge pipe.	
38N/1W-11G,M 41°10'02"N,121°56'22"	Star City Spring Star City Mining Co.	9-14-65	5,320	>10	38	Spring issues from channel in alluvium on igneous rock. Unused.	Calcium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				SHASTA COUNTY--Continued				
38N/4W-8N,M 41°09'44"N,122°21'33"	Sulphur Springs U.S. Forest Service	9-17-65	2,560	0.1	53	Spring issues from many openings in granitic rock into weir box. Unused.	Sodium chloride.	Peale (1886, p. 208). Waring (1915, p. 266).
38N/4W-12E,M 41°10'07"N,122°17'00"	Castle Crag Spring Lower Soda Spring Hibbs Soda Spring Berry Holding Co.	7-20-64	2,150	20	51	Spring issues through orifices in travertine on creek terrace. Resort use.	Sodium bicarbonate. Gas discharges with water. Large travertine terrace is stained with iron oxide. Water tastes like carbonated water.	Anderson (1890, p. 246). Logan (1926a, p. 199). Scott and Barker (1962, p. 24, 27). Waring (1915, p. 224-225).
38N/4W-15J,M 41°08'59"N,122°18'21"	Castle Rock Springs Soda Springs California Division Beaches and Parks	7-20-64	2,000	<.1	58	Spring is covered; water discharges from pipe in fountain. Decorative use.	Sodium bicarbonate. Weak odor of hydrogen sulfide. Gas discharges intermittently.	Anderson (1890, p. 119). Averill (1939, p. 168). Brown (1916a, p. 808). Logan (1926a, p. 199). Peale (1886, p. 204). Waring (1915, p. 226).
38N/4W-16K,M 41°09'45"N,122°19'45"	Indian Springs California Division Beaches and Parks	7-20-64	2,680	>1,000	56	Water is piped to park. Public supply use.	Calcium bicarbonate.	
				SISKIYOU COUNTY				
15N/8E-29K,H 41°39'39"N,123°19'12"	Sulphur Springs U.S. Forest Service	7-16-64	2,160	>2	84	Springs issue from poorly defined orifices or joints in granitic rock. Orifices are partly filled with sand and gravel. Main spring area discharges into bottom of bathing pool. Resort use.	Sodium chloride. Odor of hydrogen sulfide noted. Gas bubbles up through pool. Water has pale blue-gray color.	Stearns and others (1937, p. 117). Waring (1965, p. 20).
39N/2W-13E,M 41°13'40"N,122°02'00"	Big Springs	9-14-65	3,100	>2,000	45	Water issues from joints and tubes in volcanic rocks. Spring area is about 200 feet high and about 0.5 mile long. Discharge estimated at sample site; total discharge may be 10 times greater. Unused.	Calcium magnesium bicarbonate.	
39N/3W-7D,M 41°14'50"N,122°15'53"	Shasta Springs St. Germaine Foundation	9-16-65	2,600	2,500	46	Spring issues from joints and tubes in volcanic rocks. Unused.	Calcium magnesium bicarbonate.	
39N/3W-13B,M 41°13'57"N,122°08'19"	U.S. Plywood Corp.	9-15-65	3,100	75	46	Spring area partly concealed by dense vegetation. Water seeps through alluvium. Unused.	Calcium bicarbonate.	
39N/3W-13H,M 41°13'42"N,122°08'15"	Soda Springs Warm Castle Soda Springs U.S. Plywood Corp.	9-15-65	3,020	m>4	46	Springs issue through orifices in red soil or travertine. Unused.	Calcium bicarbonate. Small amount of gas discharges with water. Tastes like carbonated water. Abundant iron oxide on ground.	Anderson (1890, p. 246). Brown (1916b, p. 869). Peale (1886, p. 208). Waring (1915, p. 223).
39N/4W-13A,M 41°14'48N,122°15'55"	Shasta Springs Oxone Springs Castle Springs Keystone Springs	9-16-65	2,500			Four groups of springs observed along riverbank. Unused.		Anderson (1890, p. 244, 246-247). Brown (1916b, p. 868). O'Brien (1947, p. 456). Waring (1915, p. 220-221).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						SISKIYOU COUNTY--Continued		
39°/4W-24F,M 41°13'40"N,122°16'34"	Cave Springs Robert E. Dewey	9-16-65	2,440	2	51	Springs seep from small joints in volcanic rocks. Water is pumped from sump to grounds of motel. Domestic use.	Sodium bicarbonate. Tastes like carbonated water.	Waring (1915, p. 224).
39N/4W-24L,M 41°13'18"N,122°16'31"	Upper Soda Springs Campbells Soda Springs Freys Soda Springs H. B. Chappel	9-16-65	2,360	ml.5	52	Spring rises in cement shelter near base of low hill. Water discharges through pipe onto ground. Unused.	Sodium bicarbonate. Tastes like carbonated water.	Anderson (1890, p. 260). Brown (1916b, p. 868). Crook (1899, p. 172).
40N/4W-8H,M 41°19'43"N,122°19'34"	Big Springs Sisson Springs City of Mount Shasta	9-15-65	3,580	10,000	45	Water emerges from at least three well-defined joints or tubes in volcanic rocks. Water is impounded for diversion by low dam. Irrigation use.	Sodium calcium bicarbonate.	Gudde (1962, p. 290). Meinzer (1927, p. 62-63). Waring (1915, p. 332).
40N/4W-32R,M 41°15'45"N,122°19'43"	Ney Springs Aqua de Ney	7-22-64 9-15-65	3,040		53 54	Spring rises in cribbed pool. Unused.	Sodium chloride carbonate. Water tastes salty, but with metallic bitterness. Strong odor of hydrogen sulfide and ammonia. Water has pale blue-gray color.	Feth and others (1961, p. 75-86). Scott and Barker (1962, p. 24, 27). Strand (1964). Waring (1915, p. 264-265). Wilson (1962, p. 519-521).
40N/4W-32R,M 41°15'46"N,122°19'42"	Ney Springs Wilbur C. Howe	7-22-64 9-15-65	3,080	ml.7	49 48	Spring is concealed by rock and mortar font set in volcanic rock. Water discharges through pipe onto ground. Unused.	Calcium magnesium bicarbonate.	
40N/5W-26J,M 41°16'50"N,122°23'01"		9-15-65	3,520	m>10	45	Spring issues from volcanic rock. Unused.	Magnesium bicarbonate.	
41N/6W-2H,M 41°25'50"N,122°29'47"	E. F. Powers	9-15-65	3,520	>10	51	Spring seeps from alluvium and soil on bedrock. Small earthen dam impounds water for pipeline to house. Reservoir is covered by planks. Domestic, stock, and irrigation use.	Magnesium bicarbonate.	
41N/6W-11B,M 41°25'09"N,122°30'15"	Stewart Mineral Springs Scottish Rite Bodies of Sacramento	9-15-65	3,920	r1.8	54	Water seeps from joints in rocks and is collected in springhouse. Water is piped to bathhouse. Resort use.	Sodium chloride. Small amount of nonflammable gas, bubbles from spring. Water has pungent odor similar to petroleum, weak odor of hydrogen sulfide, and foul taste. Soft white crystalline deposit in bottom of pool.	O'Brien (1947, p. 456).
47N/9W-1R,M 41°56'49"N,122°49'59"	Keller Soda Spring	7-18-64	2,560	m.5	54	Spring area is covered by soil and rocky rubble. Water is piped out of area and discharges on ground. Unused.	Calcium sodium bicarbonate. Tastes like carbonated water.	Waring (1915, p. 217).
47N/10W-1B,M 41°57'29"N,122°57'13"	Mud Spring U.S. Forest Service	7-17-64	6,680	100		Springs issue as seeps on several acres of muddy soil. Unused.	Calcium sodium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				SISKIYOU COUNTY--Continued				
47N/10W-9K,M 41°56'18"N,123°00'31"	Reeves Ranch Springs U.S. Forest Service	7-17-64	6,240	m>26	43	Water issues from soil in three areas and flows in well-defined channels. Stock and firefighting use.	Calcium sodium bicarbonate nitrate.	
47N/10W-31K,M 41°52'15"N,123°02'43"	Siskiyou Mountain Spring U.S. Forest Service	7-17-64	2,720	m.2	51	Spring is concealed by cover. Water is piped to concrete storage trough. Public supply and fire-fighting use.	Calcium bicarbonate.	
48N/9W-31H,M 41°58'08"N,122°55'45"	Bearground Spring U.S. Forest Service	7-17-64	5,920	100	41	Spring area is concealed by dense vegetation. Small earthen dam impounds water. Stock and fire-fighting use.	Calcium bicarbonate.	
48N/9W-34L,M 41°57'57"N,122°52'44"	Lower Cinnabar Springs Garretson Soda Springs Siskiyou Mineral Springs	7-17-64	3,360	r11	52	Spring issues into bottom of shallow hole cribbed with planks. Unused.	Sodium bicarbonate. Small amount of gas discharges in spring. Water tastes like carbonated water.	Brown (1916b, p. 869). Waring (1915, p. 216-217).
48N/9W-34Q,M 41°57'42"N,122°52'44"	Mine Spring Open Pit Cinnabar Corp.	7-17-64	3,400	2	52	Spring issues from alluvium on mountainside. Developed by small, planked tunnel into bedrock. Low earthen dam impounds water. Domestic and stock use.	Calcium bicarbonate.	
				SOLANO COUNTY				
3N/3W-14N,M 38°06'04"N,122°10'08"	Sulphur Spring Anton Borges	1-20-66	220	r17	73	Spring issues underneath a pumphouse. Domestic and stock use.	Sodium bicarbonate. Gas and odor of hydrogen sulfide noted at discharge.	
5N/2W-2F,M 38°18'33"N,122°03'21"	Tolenas Springs	5-11-65	750	5	64	Spring issues from quarry blasthole. Unused.	Sodium chloride. Water discharges in a very thick deposit of travertine, locally stained with iron oxide, that covers at least 20 acres. Abundant carbon dioxide discharged with water, making a foamy froth.	Anderson (1890, p. 255-256). Bradley (1916f, p. 309-310). Crook (1899, p. 169-170). Peale (1886, p. 209). Waring (1915, p. 162-163). Weaver (1949, p. 106). White and others (1963, p. 36-37).
5N/2W-2M,M 38°18'28"N,122°03'33"	Tolenas Spring Ray McRoberts	3-17-66 10-13-66	850	.5	62	Spring issues inside partly destroyed rock and mortar curb and discharges through vertical 2-inch pipe stuck into spring area. Unused.	Sodium bicarbonate. Moderate amount of gas discharges with water. Small amount of iron-stained travertine in spring pit and channel. Tastes carbonated.	
5N/2W-9R,M 38°17'21"N,122°04'47"	Willow Spring Solano Ranch Co.	5-10-65	215	.5	61	Water is collected in concrete crib and piped to troughs. Seasonal variation in flow reported. Stock use.	Calcium bicarbonate.	
5N/3W-2J,M 38°18'31"N,122°09'20"	Kimble Spring Tindle Spring Ted Rush	5-11-65	1,190	r30	58	Spring issues from joints or fractures in dark gray volcanic rock. Water is impounded by small dam and piped to tanks. Large seasonal variation reported. Stock use.	Calcium sodium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				SONOMA COUNTY				
5N/6W-1X,M 38°18'40"N,122°28'15"	Boyes Hot Springs	10-10-66	150		112	Resort use.		Bradley (1916g, p. 335-336). Laizure (1926b, p. 340). Stearns and others (1937, p. 123). Waring (1915, p. 112-113; 1965, p. 22).
6N/6W-5X,M 38°23'40"N,122°33'00"	Los Guilicos Warm Springs Morton's Warm Springs	11- 1-56	350	<1	87	Resort use.	Sodium bicarbonate.	Bradley (1916g, p. 341). Stearns and others (1937, p. 123). Waring (1915, p. 114; 1965, p. 22).
6N/6W-5X,M 38°23'40"N,122°33'00"		11- 1-56	350	20	84	Resort use.	Sodium bicarbonate.	
6N/6W-5X,M 38°23'42"N,122°33'00"		10-10-66	350		87	Spring is covered by shelter. Water is pumped through processing unit to remove manganese and iron. Resort use.	Sodium bicarbonate. Odor of hydrogen sulfide.	
6N/6W-6P,M 38°23'18"N,122°34'01"	Fred Kieser	10-10-66	420	20	73	Spring issues from alluvium sides and bottom of pit-like area at head of discharge channel. Water is pumped into pressure system. Discharge reported variable but reliable. Domestic, stock, and irrigation use.	Magnesium sodium bicarbonate. Gas bubbles observed.	
6N/6W-22X,M 38°21'24"N,122°30'31"	Warm Spring Sonoma State Hospital	10-10-66	240	10	70	Spring is developed on bank of creek and covered by concrete shelter. Water drains through pipe into creek. Unused.	Sodium bicarbonate.	Stearns and others (1937, p. 123). Waring (1915, p. 114; 1965, p. 22).
7N/8W-36A,M 38°24'56"N,122°41'09"	Kawana Springs Taylors White Sulphur Spring Kawana Sulphur Springs J. S. Taylor	11- 1-56	170	4	53	Spring is in small tank under shelter.	Sodium bicarbonate.	Anderson (1890, p. 264). Bradley (1916g, p. 337). Laizure (1926b, p. 341). Peale (1886, p. 209). Waring (1915, p. 256).
8N/8W-11N,M 38°32'56"N,122°43'12"	Mark West Springs Rene Pavel	10-10-66	430	.2	87	Spring issues into bottom of crib. Unused.	Magnesium calcium bicarbonate. Weak odor of hydrogen sulfide.	Anderson (1890, p. 192-193). Bradley (1916g, p. 337). Crook (1899, p. 151-152). Oudde (1962, p. 183). Laizure (1926b, p. 341). Peale (1886, p. 206). Stearns and others (1937, p. 123). Waring (1915, p. 115; 1965, p. 22).
8N/10W-6L,M 38°33'51"N,123°00'33"	Redwood Lake Spring California Division Beaches and Parks	10-11-66	1,350		56	Springs issue as seeps in bottom of brick and mortar crib. Unused.	Calcium sodium bicarbonate.	
8N/10W-18K,M 38°32'05"N,123°00'18"	California Division Beaches and Parks	10-11-66	200	<.1		Spring issues from soil on bedrock along nature trail. Unused.	Calcium sodium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						SONOMA COUNTY--Continued		
8N/12W-30X,M 38°30'28"N,123°13'20"	A. M. Pedotti	10-11-66	400	m>0.5		Water piped to storage tank, then distributed to farm. Domestic and stock use.	Calcium magnesium bicarbonate.	
9N/12W-13G,M 38°37'17"N,123°07'53"		8-23-66	900			Unused.	Calcium hydroxide.	
9N/12W-13H,M 38°37'21"N,123°07'45"		8-23-66	1,000			Unused.	Magnesium bicarbonate.	
10N/9W-2C,M 38°44'58"N,122°49'39"	Sonoma County	10-12-66	2,300	m>6.0	55	Spring discharges through pipe into concrete trough. Public supply use.	Magnesium calcium bicarbonate.	
10N/11W-25B,M 38°41'33"N,123°01'32"	Skaggs Springs Skaggs Hot Springs Star Springs Hans Larvick	10-12-66	320	m4.0	132	Spring rises in cemented drinking basin. Unused.	Sodium bicarbonate. Flammable gas discharges with water. Weak odor of hydrogen sulfide.	Anderson (1890, p. 244-245). Bradley (1916g, p. 338). Crook (1899, p. 166-167). Gudde (1962, p. 296). Peale (1886, p. 207). Stearns and others (1937, p. 122). Waring (1915, p. 81-82; 1965, p. 21).
11N/9W-13A,M 38°48'10"N,122°48'15"	The Geysers	9-21-54	1,800		113		Acid magnesium sulfate.	Allen and Day (1927, p. 1-106). Anderson (1890, p. 136-154). Becker (1888, p. 377). Bradley (1916g, p. 338-341). Clarke (1924, p. 200). Crook (1899, p. 133-139). Fitch (1927, p. 242-245). Peale (1886, p. 204). Scott and Barker (1962, p. 24, 27). Stearns and others (1937, p. 123). Waring (1915, p. 83-88; 1965, p. 22). White (1957a, p. 1648). White and others (1963, p. 46-47, 58).
11N/9W-13H,M 38°48'00"N,122°48'15"		10-12-66	1,400		112	Spring issues from seeps along creek. Unused.	Magnesium bicarbonate sulfate. Weak odor of hydrogen sulfide. Sulfur and metallic sulfides deposited in spring channel.	
11N/9W-13X,M 38°48'00"N,122°48'00"	The Devils Kitchen		1,400		212		Ammonium sulfate.	
11N/9W-13X,M 38°48'00"N,122°48'00"	Geyser Development Co.	10-12-66	1,400		128	Spring supplies water to a bath house. Resort use.	Magnesium bicarbonate. Weak odor of hydrogen sulfide.	
						TEHAMA COUNTY		
23N/9W-13N,M 39°50'48"N,122°49'42"	Dead Mule Spring U.S. Forest Service	4-20-66	5,150	m2.0	43	Spring area is covered. Water is piped downhill and discharges on ground. Variable seasonal discharge reported. Public supply use.	Calcium bicarbonate.	
24N/6W-22E,M 39°55'24"N,122°31'55"		4-20-66	825	m.6	59	Spring issues into crib; water is piped to stock tank. Stock use.	Calcium sodium bicarbonate.	
24N/7W-19R,M 39°55'07"N,122°41'10"	U.S. Forest Service	4-19-66	4,350	>5	41	Spring issues as seeps from soil in ditch along road. Unused.	Calcium magnesium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
					TEHAMA COUNTY--Continued			
24N/7W-29D,M 39°54'49"N,122°40'48"	Government Spring U.S. Forest Service	4-19-66	4,025	ml.5	51	Spring issues into crib. Water discharges from pipe. Public supply use.	Magnesium calcium bicarbonate.	
25N/6W-21E,M 40°00'38"N,122°33'01"	Jungle Spring Jack Wing and Fred Robinson	4-19-66	825	>10	55	Springs issue from a series of seeps. Discharge reportedly varies seasonally. Domestic and stock use.	Magnesium calcium bicarbonate.	
25N/7W-6J,M 40°03'03"N,122°41'12"	Diamond National Corp.	4-19-66	3,350	2		Spring is covered. Pipe carries water to two storage tanks, then to houses. Domestic, stock, and firefighting use.	Calcium bicarbonate.	
25N/7W-10F,M 40°02'21"N,122°38'16"	Salt Lick	4-19-66	1,500	<.1		Springs issue from salt-coated joints in rock. Unused.	Tastes salty.	
25N/7W-16B,M 40°01'39"N,122°39'05"		4-20-66	2,025	m.8		Springs issue from joints in rocks.	Magnesium bicarbonate. Tastes slightly sweet.	O-Brien (1946, p. 186-188). Rynearson (1946, p. 208-209).
25N/7W-16G,M 40°01'30"N,122°39'10"	Salt Springs Hickman Mineral Salt Spring Tehama Mineral Spring State of California	4-20-66	1,650			Unused.		O'Brien (1946, p. 186-188, 192). Waring (1915, p. 299).
26N/7W-30Q,M 40°04'16"N,122°41'42"	Colyear Springs Diamond National Corp.	4-19-66	3,050	m4.0	53	Spring is covered; water is piped to concrete slab. Unused.	Calcium bicarbonate. Very weak odor of hydrogen sulfide.	O'Brien (1946, p. 192). Tucker (1919, p. 82). Waring (1915, p. 266).
27N/8W-3G,M 40°13'22"N,122°44'58"	Stinking Springs Bill Heitman	9-27-66	1,500	15	101	Spring issues from joints in sandstone. Unused.	Sodium chloride. Odor of hydrogen sulfide noted. Flammable gas discharges with water.	
					TRINITY COUNTY			
3N/6E-13C,H 40°38'35"N,123°26'57"	U.S. Forest Service	9-23-65	2,250	3	57	Water issues from joints in rocks. Unused.	Magnesium bicarbonate.	
4N/8E-21C,H 40°42'49"N,123°17'18"	Mud Spring U.S. Forest Service	9-24-65	3,700	m.4	53	Spring is covered; water collects in concrete weir and is piped to a galvanized tank. Public supply use.	Calcium bicarbonate.	
4S/6E-12R,H 40°07'27"N,123°26'27"	Eugene Wixson	7- 6-64	2,750	>25	51	Spring reportedly issues from soil mantle in thicket of poison oak. Small earth dam impounds water which is piped to farm. Domestic and stock use.	Calcium bicarbonate.	
4S/7E-9L,H 40°07'56"N,123°23'45"	Theodore Shannon	7- 6-64	2,425	5	53	Spring discharge area obscured by dense vegetation. Reliable but variable flow reported. Domestic use.	Calcium bicarbonate.	

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
						TRINITY COUNTY--Continued		
28N/10W-19M,M 40°15'36"N,123°02'25"	McCullah Spring U.S. Forest Service	9-22-65	5,350	2	47	Water issues from gravelly soil beneath large tree. Public supply use.	Calcium bicarbonate.	
30N/9W-7D,M 40°28'22"N,122°55'44"	Deer Lick Springs Deerlick Springs "98" Spring	9-22-65	2,975	m>3	52	Spring area is covered by weir box. Water discharges from pipe into creek. Reliable discharge reported. Public supply use.	Calcium bicarbonate.	Averill (1941, p. 69). Brown (1916c, p. 921-922). Gudde (1962, p. 81). Logan (1926b, p. 63). O'Brien (1965, p. 120). Peale (1886, p. 208). Waring (1915, p. 261-263).
30N/10W-1J,M 40°28'43"N,122°55'51"	Deadshot Springs Nipicuro Spring Nipisan Spring H. J. Raymos	9-22-65	2,950	rl	57	Springs issue from numerous joints in rock. Water is collected in chiseled-out basins in rock, piped to concrete storage tanks, and then to heater for bathtubs. Resort use.	Calcium chloride. Small amount of gas, not flammable, discharges with water. Smells strongly of hydrogen sulfide.	
30N/11W-34K,M 40°24'20"N,123°05'17"	U.S. Forest Service	9-23-65	3,550	>5	53	Water issues from alluvium. Small earthen dam impounds water that is piped to roadside. Public supply use.	Calcium bicarbonate.	
30N/12W-19C,M 40°26'28"N,123°15'39"	Mud Spring U.S. Forest Service	9-23-65	4,100	m.5		Spring is covered by weir box, piped to faucet and stock tank. Reliable discharge reported. Public supply use.	Calcium bicarbonate.	
31N/10W-25A,M 40°30'59"N,122°56'10"	U.S. Forest Service	9-22-65	2,875	ml.2	51	Spring is protected by concrete weir and plank cover. Water discharges through short pipe. Public supply use.	Calcium bicarbonate.	
33N/9W-8B,M 40°44'05"N,122°54'28"	Shasta Spring	9-22-65	2,500			Unused.		
34N/12W-11X,M 40°48'30"N,123°11'40"	Trimble Springs U.S. Forest Service	9-24-65	4,500	m>1.2	49	Spring issues from alluvium. Public supply use.	Calcium bicarbonate.	
35N/7W-1L,M 40°54'56"N,122°36'41"	Quartz Spring U.S. Forest Service	9-21-65	4,529	>.1	45	Spring issues from rock on steep slope above road. Water is piped to wooden storage tank. Public supply use.		
35N/7W-33E,M 40°50'34"N,122°39'56"	Crystal Spring U.S. Forest Service	9-21-65	3,300	<.2	52	Spring issues from seeps in channel above the road. Public supply use.	Calcium bicarbonate.	
36N/7W-22L,M 40°57'44"N,122°39'32"	Jackass Spring U.S. Forest Service	9-21-65	2,600	m>5.0	51	Water is collected by infiltration gallery in stream channel, and piped to storage tank for distribution to campground. Public supply use.	Calcium magnesium bicarbonate.	
38N/5W-19L,M 41°08'10"N,122°29'11"	Soda Springs U.S. Forest Service	9-17-65	4,880	>1	54	Spring issues from orifice in travertine terrace on landslide material. Water discharges down mountainside. Unused.	Sodium bicarbonate. Water tastes carbonated. Gas, nonflammable, discharges with water; weak odor of hydrogen sulfide.	Becker (1888, p. 366-367). Bradley (1918, p. 200-201). Brown (1916c, p. 923-924). Logan (1926b, p. 65-66). O'Brien (1965, p. 48-49, 120). White and others (1963, p. 48-49).

Location number	Name of spring and owner or user	Date of observation	Altitude (feet)	Discharge (gpm)	Temperature (°F)	Physical appearance, development, and use	Water type and related remarks	References
				YOLO COUNTY				
10N/3W-25X,M 38°41'04"N,122°08'09"	Big Spring M & S Livestock Co.	10- 3-66	800	20	68	Spring issues from numerous seeps in channel and along banks of creek.	Sodium chloride.	
11N/4W-13R,M 38°47'52"N,122°14'45"	Duncan Spring Orva T. McGrew	10- 3-66	1,840	r.3	68	Spring issues from alluvium on bedrock along edge of small drainage. Spring is covered and cribbed. Large seasonal variation in discharge reported. Domestic and stock use.	Calcium bicarbonate.	
11N/4W-24P,M 38°47'36"N,122°15'12"	Wilgamot Spring Sulphur Spring Orva T. McGrew	10- 3-66	2,000	r1	63	Spring issues from sandstone into covered crib. Water is piped to troughs. Stock use.	Sodium calcium bicarbonate. Odor of hydrogen sulfide noted. Small amount of gas discharges with water.	Bradley (1916h, p. 369).

Appendix B.--Chemical and spectrographic analyses of water from springs

All analyses are by the U.S. Geological Survey. Exceptionally high concentrations of some metals reported with spectrographic determinations may result from passage of particulate matter of colloidal or subcolloidal size through filters, from solution of particulate matter during acid fixation, or from unidentified causes. Those values do not necessarily represent metallic ions in solution in the water sample. Symbols: ≤ equal to or less than; < less than; > greater than; + present in qualitative test; x constituent determined by means other than spectrographic analysis; u nitrogen cycle compounds were not fixed, and data may not represent concentration at the time of sampling. For exact location of springs, refer to appendix A. Springs in this appendix are listed in the same order as those in appendix A.

Location number	Date collected	Results of chemical analyses in parts per million																						Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
COLUSA COUNTY																									
14N/5W- 6N,M	4-27-66	97	trace	0	167	367	4.8	5.0	2,190	179	9.6	101	3,280	0	18	3,210	0.9	0.2	0.07	0.10	126	8,120	1,930		12,700	6.7
14N/5W-17K,M	4-27-66	78	trace		7.6	150	.0	.0	10	.4	.03	.0	682	33	4.0	20	.1	1.3	.12	.18	.2	641	636	0.0	1,000	8.6
14N/5W-28C,M	4-26-66	186	trace	2.0	3.9	54	1.9	.1	9,030	511	11	302	7,430	0	9.8	10,900	2.4	.0	.42	1.1	274	24,900	234	+	36,400	7.5
14N/5W-28C,M	4-27-66	32	0.01	0	32	240	1.1	.0	186	3.1	.15	.0	1,110	49	128	240	.3	1.9	.17	.22	9.6	1,470	1,070	.0	2,350	8.4
14N/5W-28C,M	4-27-66	193	.01	1.2	3.9	55	1.9	.2	8,640	511	11	306	6,820	0	403	10,700	2.5	.0	1.2	1.2	281	24,500	238	+	36,100	8.2
14N/5W-28C,M	4-27-66	189	trace	1.2	5.7	53	1.9	.1	8,840	491	10	299	7,050	0	285	10,400	2.4	.0	1.2	1.5	288	24,300	234	+	35,700	8.1
15N/5W- 4H,M	4-28-66	39	trace		54	50	.5	.0	45	.8	.02	.0	420	0	93	4.1	.2	1.5	.00	.00	.2	495	340	.0	767	8.0
16N/6W- 9H,M	4-25-66	91	.01		21	576	.7	.0	710	50	2.0	14	3,420	0	6.0	880	.3	3.1	.03	.05	27	4,060	2,420	.0	6,320	6.8
16N/6W- 9X,M	4-26-66	51	trace		7.2	126	.0	.0	8.0	.1	.00	.0	486	71	3.0	11	.1	.7	.00	.05	.1	517	536	.0	796	9.0
17N/7W- 5N,M	4-26-66	100	.01	1.6	119	209	17		5,050	69	5.8	49	4,790	0	8.0	6,040	2.2	.0	.00	.13	162	14,200	1,180	+	21,500	7.2
17N/7W- 8B,M	4-25-66	68	.01		135	138	1.3	.4	13	1.4	.03	.0	1,130	0	4.0	4.2	1.0	.0	.00	.02	.2	923	905	.0	1,470	7.0
18N/4W-32E,M	4-25-66	13	.00	17	9,450	62	405	145	9,250	65	.75	21	16	0	19	31,600	1.4	.1	.00	.00	19	51,500	24,400	.0	72,300	6.0
18N/4W-32F,M	4-25-66	41	trace		86	24	5.4	.0	140	.2	.02	.0	320	0	40	206	.9	8.1	.03	.04	.3	710	319	.0	1,210	7.7
DEL NORTE COUNTY																									
16N/4E- 5X,H	7-27-64	13	trace		25	3.5	0.0		1.8	1.3	0.00	u0.0	91	0	4.0	0.7	0.1	u0.2	0.00		0.0	95	77	0.0	159	7.6
17N/3E-30P,H	7-27-64	18	trace		1.2	16	.0		1.2	.0	.00	u.0	82	0	2.0	1.1	.0	u.2	.00		.0	80	70	.0	132	7.6
17N/3E-35P,H	7-27-64	9.8	0.01		3.0	.4	.0		2.5	.9	.00	u.0	13	0	1.0	1.2	.1	u.3	.00		.0	25	9	.0	32	6.9
17N/4E-18X,H	7-27-64	15	trace		5.6	1.3	.2		4.0	.4	.00	u.0	28	0	2.0	1.5	.2	u.3	.00		.0	44	20	.0	56	7.1
18N/1E-35G,H	7-15-64	25	.00		2.2	33	.0		1.7	.0	.00	.0	172	0	1.0	1.7	.0	.4	.00		.0	150	143	.0	253	8.2
18N/3E-10D,H	7-26-64	14	trace		4.6	1.8	.0		2.1	.0	.00	u.0	24	0	1.0	1.3	.1	u.3	.00		.1	37	19	.0	47	7.2
18N/3E-29M,H	7-26-64	19	.00		1.2	18	.0		1.7	.4	.00	u.0	94	0	1.0	1.0	.1	u.3	.00		.0	89	78	.0	149	8.0
GLENN COUNTY																									
18N/6W- 9D,M	4-22-66	54	trace	0	30	80	3.4	0.3	680	16	0.47	14	660	0	64	980	0.2	0.0	0.00	0.05	13	2,260	408	+	3,950	7.8
18N/6W- 9E,M	4-22-66	132	trace	1.6	26	266	33	6.3	8,080	113	6.3	153	3,050	0	9.8	12,000	1.6	.0	.00	.03	159	22,500	1,200	+	34,700	7.6
18N/7W- 8X,M	4-26-66	18	trace		40	4.1	.5	.0	4.2	.3	.00	.0	152	0	1.0	.6	.1	1.6	.00	.04	.1	146	118	0.0	234	8.1
18N/7W-21X,M	4-26-66	29	trace		43	20	.4	.0	18	.8	.00	.0	258	0	6.0	8.2	.1	1.3	.00	.01	.2	254	190	.0	414	8.0
18N/7W-23D,M	4-22-66	54	trace		8.2	130	.0	.0	1.5	.3	.00	.0	544	61	1.0	1.3	.1	.6	.06	.14	.0	526	555	.0	819	8.9
20N/7W-24F,M	4-21-66	23	trace		33	19	.7	.0	132	.6	.01	.0	210	12	28	163	.4	.1	.01	.09	.1	515	162	.0	908	8.7
21N/6W-15F,M	4-21-66	25	trace		65	32	.6	.0	54	.2	.03	.0	224	0	188	14	.6	4.6	.00	.00	.2	494	294	.0	741	8.1
21N/8W-24N,M	4-21-66	20	trace		22	6.5	.2	.0	6.9	.6	.02	.0	102	4	7.0	.6	.2	.2	.00	.00	.0	118	82	.0	186	8.5
22N/7W- 5N,M	4-20-66	16	trace		16	5.0	.1	.0	5.0	.5	.01	.0	79	0	6.0	.8	.1	.0	.00	.01	.0	89	60	.0	141	6.6

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
COLUSA COUNTY																	
14N/5W- 6N,M					9.4	100		x8,200		86	270		>17				
14N/5W-17K,M	290			66		97		110					6.6			3.9	
14N/5W-28C,M								x120		67	160		8.5				
14N/5W-28C,M								5.7			270		8.9				
14N/5W-28C,M	17				27			x90		12	29		14				
14N/5W-28C,M								x100		240			10				
15N/5W- 4H,M	30							36			18		2.5		1.4		
16N/6W- 9H,M	60							150		63	220		49				
16N/6W- 9X,M	21			51		40		140					5.8			.7	
17N/7W- 5N,M	17				5.1	19		x1,900		>200	340		18			.6	
17N/7W- 8B,M	71							150			x1,300		6.9				
18N/4W-32E,M	≤1.4				>200			x7,000			x7,400		>60				
18N/4W-32F,M	19							51			19		2.7			.5	
DEL NORTE COUNTY																	
16N/4E- 5X,H	10							30					16			0.8	
17N/3E-30P,H	18							28					29				
17N/3E-35P,H	77							42			43		1.9				
17N/4E-18X,H	24							80			13	≤0.4	.9			.6	
18N/1E-35G,H	16			5.4				13					28				
18N/3E-10D,H	18							60			100		1.0			1.0	
18N/3E-29M,H	9.0				≤1.7			17					45				
GLENN COUNTY																	
18N/6W- 9D,M	≤1.4							x1,500		120	190						
18N/6W- 9E,M	17							x430		10	150		280				
18N/7W- 8X,M	11							x70			15		1.4			1.0	
18N/7W-21X,M	12							3.4					2.4			.5	
18N/7W-23D,M	16							21					8.8			3.1	
20N/7W-24F,M	12							18			11		4.0			.5	
21N/6W-15F,M	11							18					5.7			.4	
21N/8W-24N,M	13							31					2.3				
22N/7W- 5N,M	18							42					4.3				36

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																							Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
HUMBOLDT COUNTY																										
1N/ 2E-11H,H	7-11-64	16	0.00		48	11	0.4		16	1.0	0.00	0.0	217	1	11	6.2	0.2	0.4	0.00		0.0	218	167	0.0	365	8.3
3N/ 3E- 8P,H	7- 9-64	14	.00		13	2.3	.1		3.3	.1	.00	.0	51	0	1.0	1.4	.1	2.0	.00		.1	62	42	.0	98	7.0
4N/ 3E-32C,H	7- 9-64	11	trace		45	6.9	.5		7.2	.2	.00	.0	136	1	38	.8	.1	.4	.00		.3	178	141	.0	299	8.3
4N/ 2W-27R,H	7-13-64	15	.00		4.2	6.2	.0		36	.5	.00	.0	18	0	13	57	.1	3.6	.05		.0	145	36	.0	267	6.9
1S/ 2E-17P,H	7- 8-64	15	.00		33	7.7	.1		8.8	.4	.00	.0	146	0	5.0	5.6	.1	.3	.00		.1	148	114	.0	253	6.9
1S/ 2W-19M,H	7-10-64	18	.00		43	6.2	.0		18	1.8	.00	.0	178	0	9.0	11	.2	1.4	.05		.2	197	133	.0	311	7.2
1S/ 2W-19P,H	7-10-64	25	.00		8.0	2.2	.0		18	.2	.04	.0	58	0	7.0	9.2	.0	2.6	.00		.1	101	29	.0	134	7.0
1S/ 3W- 3R,H	7-10-64	16	.00		34	7.5	.0		16	2.6	.00	.0	135	0	16	20	.2	1.9	.00		.4	182	116	.0	299	8.2
2S/ 3E- 4L,H	7- 9-64	18	.00		23	6.9	.1		9.4	.6	.00	.0	113	0	4.0	4.6	.1	.4	.00		.0	123	86	.0	199	7.3
2S/ 3E-20X,H	7- 8-64	19	trace		21	6.0	.0		8.3	.7	.00	.0	103	0	3.0	3.1	.2	.3	.00		.0	113	77	.0	183	7.2
2S/ 3E-34Q,H	7- 8-64	27	.00		20	11	.0		15	.6	.00	.0	142	0	1.0	6.4	.3	.5	.05		.0	152	95	.0	242	7.6
3S/ 4E-23E,H	7- 7-64	28	.00		35	14	.0		3.9	.0	.00	.0	164	0	11	2.8	.0	1.0	.00		.2	169	145	.0	284	7.2
4S/ 4E-23C,H	7- 7-64	10	.00		15	2.7	.2		7.4	.7	.00	.0	61	0	7.0	3.9	.1	.2	.10		.1	77	48	.0	131	7.6
LAKE COUNTY																										
11N/ 7W-20Q,M	10- 5-66	55	trace	0	0.7	0.2	0.0	0.0	138	0.6	0.02	1.0	240	24	11	30	3.7	0.1	0.01	0.01	1.3	384	2	+	561	9.0
11N/ 7W-20Q,M	10- 5-66	57	0.00	0	.9	.1	.0	.0	138	.6	.02	.9	236	28	10	31	3.7	.0	.01	.02	1.3	388	2	+	563	9.0
11N/ 7W-20X,M	10-31-56	64			62	26			23	1.3			361	0	7.1	7.9		u.4					262		548	7.6
11N/ 7W-20X,M	10-31-56	37			17	2.3			133	.4			324	0	24	33		u.3					52		646	8.0
11N/ 7W-29A,M	10- 5-66	29	trace		19	68	.0	.0	7.9	.1	.00	.0	362	20	6.0	3.5	.2	.7	.00	.01	.0	332	327	.0	556	8.6
11N/ 8W-26R,M	10- 5-66	59	.00	0	106	46	.4	.0	38	6.7	.22	15	286	0	335	1.0	.4	.1	.01	.10	.2	753	454	+	1,020	7.9
12N/ 9W-34B,M	10- 4-66	90	trace		9.2	99	.0	.0	1.7	.1	.00	.0	486	12	3.0	2.8	.1	.9	.15	.17	.0	458	430	.0	686	8.5
12N/ 6W-16C,M	10- 5-66	81	.01	0	69	336	.5	1.5	2,630	189	7.0	167	4,560	0	9.9	3,010	.8	1.6	.22	.67	179	8,930	1,560	.0	13,300	7.6
12N/ 8W-24H,M	10- 5-66	181	.01	0	33	224	.2	.0	168	19	.90	11	1,270	0	1.0	275	.2	.8	.05	.80	21	1,560	905	+	2,450	7.9
12N/ 8W-34J,M	10- 5-66	169	trace	0	19	106	.1	.6	182	32	1.2	7.7	740	0	.0	230	.4	.1	.90	1.9	14	1,130	484		1,740	6.7
12N/ 8W- 6H,M	10- 5-66	92	.00	1.1	168	378	3.9	1.6	300	6.8	.43	1.4	3,180	0	15	34	.3	.4	.11	.14	1.4	2,570	1,980	.0	3,730	6.8
12N/ 7W- 5L,M	10- 4-66	103	.05	0	26	23	.6	.3	1,340	44	6.4	354	2,600	0	680	900	1.4	14	.23	.32	828	5,700	160	+	7,300	8.1
13N/ 7W- 5X,M	3-26-57	42	.00		20	55	.6	.3	1,190	23	4.4	u464	3,290	0	598	644	1.0	u0			620	6,970		12	7,430	6.8
14N/ 5W-31X,M	3-27-57	16	.00		64	443	.5	.2	1,500	39	1.8	u22	2,710	0	467	1,900	1.0	u4			56	7,250		<1	8,960	7.1
15N/ 6W- 3P,M	4-28-66	120	.01	4.5	8.3	1.3	.6	.0	13,200	391	.01	84	a0	390	20	20,200	2.0	2.3	.06	.15	23	34,700	26	.0	53,000	11.2
15N/ 6W- 3X,M	4-28-66	44	trace		3.7	220	.0	.0	552	14	.00	4.6	835	152	7.0	820	.1	4.7	.00	.07	1.4	2,230	914	.0	3,770	9.0
15N/ 7W- 8N,M	11-21-60	60	.00		160	282	.2		26	1.1	.1	u.3	1,880	0	15	35	.0	b.0	.05		.2	1,510	1,560	.6	2,260	7.6
15N/ 7W- 8N,M	4-28-66	50	.06	1.0	63	190	.9	.0	11	1.1	.09	.0	1,150	0	17	5.8	.3	.3	.11	.23	.2	907	940	.0	1,480	7.9
15N/ 7W-10J,M	4-28-66	62	.01	1.6	366	39	3.8	4.0	70	5.9	.18	.0	1,500	0	5.0	2.2	1.2	1.0	.06	.07	1.6	1,300	1,080	.0	1,950	6.8
15N/ 8W- 2A,M	4-29-66	63	.07		22	400	.0	.9	10	.6	.02	.0	2,010	0	9.0	5.8	.2	1.1	.17	.22	.1	1,500	1,700	.0	2,330	8.2
15N/10W- 4L,M	10- 6-66	97	.01	0	208	440	.0	2.4	176	6.8	.21	.0	3,280	0	1.0	41	.7	1.1	.02	.09	28	2,620	2,330	+	3,830	7.1
15N/10W- 4L,M	11-22-60	81	.00		99	179	.2		36	2.7	.1	u.5	1,250	0	5.0	12	.2	c.0	.10		33	1,040	985	.7	1,630	7.5
15N/10W- 4L,M	11-22-60	78	.00		96	426	.4		136	5.6	.1	u.7	2,720	0	3.0	38	.0	d.0	.05		20	2,140	1,990	.1	3,190	7.8
15N/10W- 4M,M	10- 6-66	90	trace	0	63	183	.5	1.0	37	2.5	.07	.4	1,200	0	2.0	11	.7	.6	.10	.39	5.2	988	910	+	1,530	8.1
15N/10W- 4P,M	10- 6-66	99	.01	1.7	280	498	3.3	4.1	224	7.9	.25	.0	3,860	0	5.0	50	.7	2.2	.00	.29	37	3,110	2,750	.0	4,350	6.7
15N/10W- 5B,M	10- 6-66	74	trace	0	122	496	.5	3.1	2,240	62	1.5	4.1	7,940	0	7.0	544	1.0	2.5	.70	.93	462	7,930	2,350	.0	10,100	7.2
15N/10W- 5R,M	10- 6-66	23	.01	0	65	16	.5	.0	9.2	1.0	.00	.0	274	0	20	4.8	.4	.1	.01	.03	.2	275	228	.0	448	8.1
16N/10W- 1M,M	4-29-66	14	trace		33	5.7	.3	.0	6.6	.6	.00	.0	108	4	25	1.1	.2	1.6	.00	.07	.2	145	106	.0	232	8.5
17N/ 8W-28B,M	2- 7-61	18			18	4.6			3.5	.3			82	0	4.0	2.0	.1	u.0			.1	91	64		143	7.7
17N/ 9W-21F,M	4-30-66	91	trace	0	139	145	3.1	5.5	270	7.6	.28		1,670	0	1.0	108	.5	.1	.07	.29	32	1,640	945	.0	2,460	6.6
17N/ 9W-21F,M	2- 6-61	19			5.2	2.7			1.7	.3			34	0	.0	.5	.1	u.0				47	24		58	7.4
17N/ 9W-36B,M	4-29-66	154	1.0	0	50	188	1.2	1.8	1,650	34	4.4	32	3,680	0	29	1,120	.4	.0	2.0	2.3	277	5,350	900	+	7,570	7.8

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
HUMBOLDT COUNTY																	
1N/ 2E-11H,H	11				≤1.4			12			≤1.4	≤0.3	0.6			0.5	
3N/ 3E- 8P,H	14							13					.7		1.4	1.2	
4N/ 3E-32C,H	9.4				≤1.4			4.6			≤1.4	1.0	.4			.9	
4N/ 2W-27R,H	11							21			≤2.0		4.3			≤.3	
1S/ 2E-17P,H	11	≤0.6			1.7			25			3.1		1.2			≤.3	
1S/ 2W-19M,H	13							11			7.4	≤.3	1.0			.6	
1S/ 2W-19P,H	24							37			4.9	≤.3	.9		≤.6	1.1	
1S/ 3W- 3K,H	9.7							10			≤1.4	.8	.6			.7	
2S/ 3E- 4L,H	9.7							8.6			2.1		.7			.5	
2S/ 3E-20X,H	6.0				≤1.4			8.0			≤1.4		.7	≤1.4			
2S/ 3E-34Q,H	8.6	≤.6			≤1.4			17			≤4.6	≤.3	1.9			.4	
3S/ 4E-23E,H	9.1							29			≤1.4	≤.3	.7		≤.6	2.6	
4S/ 4E-23C,H	8.0							6.3			.6	.6				.4	
LAKE COUNTY																	
11N/ 7W-20Q,M	33							24		61			1.6				
11N/ 7W-20Q,M	37							12		50			1.3				
11N/ 7W-29A,M	17					13		3.1					2.7			5.4	
11N/ 8W-26R,M	290							x3,500			x8,400		7.1			23	
12N/ 5W-34B,M								63					10			8.0	
12N/ 6W-16C,M	10							x60		130	x210		5.4			.8	
12N/ 8W-24H,M	74							x90		7.4	46		4.6				
12N/ 8W-24J,M	19							x680		6.0	140		1.9				
12N/ 8W-26N,M	69							x70		2.9	x810		7.4			.6	
13N/ 7W- 5L,M	89				5.4			x390		>120	130		13				
15N/ 6W- 3P,M	18							x190			11	3.0	5.7			2.0	
15N/ 6W- 3X,M	17			41		29		86			26		11			1.8	
15N/ 7W- 8N,M								x30			510		9.7			1.9	
15N/ 7W-10J,M								54			1,700		10				
15N/ 8W- 2A,M	230							38					57			1.8	
15N/10W- 4L,M	5.7				3.7			x1,400		4.6	400	3.1	1.2			.5	
15N/10W- 4L,M	71							900			2,000		6.6				
15N/10W- 4P,M	63							x5,000			530		21				
15N/10W- 5B,M	9.1				3.7			x2,000		54	310	2.7	4.6			.7	
15N/10W- 5B,M	69							29					2.8				
16N/10W- 1M,M	23							67					11			.4	
17N/ 9W-21F,M	≤23				18	21		x19,000			160		16			510	
17N/ 9W-36B,M	13							x770		>150	130		2.4				

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																								Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
LAKE COUNTY																											
17N/ 9W-36B,M	4-29-66	32	0.02	0	36	16	0.5	0.0	8.6	0.7	0.01	0.0	135	0	58	0.8	0.4	0.2	0.00	0.10	0.0	224	156		346	6.2
17N/ 9W-36X,M	4-29-66	26	trace		15	4.1	.1	.0	6.5	.2	.00	.0	80	0	1.0	1.0	.1	.4	.11	.15	.1	94	54	0.0	133	8.1
18N/10W-15L,M[3/]	11-17-60	100	.00		56	518	4.3		1,460	74	5.0	u26	5,690	0	9.0	638	.3	e1.3	.05		356	6,020	2,270	.4	8,110	7.6
18N/10W-15M,M[3/]	11-17-60	35	.00		8.0	392	25		1,430	156	4.4	u19	2,500	246	1,100	900	.4	f2.3	.05		456	5,960	1,630	.4	7,550	8.3
18N/10W-15M,M	4-30-66	26	.00	1.6	58	64	1.1	.0	235	11	.94	.0	820	0	60	130	.1	.6	.01	.02	61	1,050	409	+	1,560	8.2
18N/10W-22C,M	4-30-66	23	.01		29	9.3	.2	.0	3.1	.7	.00	.0	136	0	6.0	1.1	.0	.4	.00	.01	.4	140	111	.0	219	8.1
18N/10W-33Q,M	4-30-66	25	trace		11	6.3	.0	.5	3.8	.4	.00	.0	70	0	1.0	2.7	.0	.4	.05	.05	.1	85	54	.0	120	8.2
MARIN COUNTY																											
1N/ 6W-31C,M	5-13-65	17	trace		35	14	0.1		21	0.9	0.03	0.0	149	0	34	26	0.1	1.8	0.00		0.0	223	147	0.0	374	8.1
1N/ 7W-10X,M	5-13-65	70	0.01		9.6	61	.0		6.0	.3	.02	.0	320	0	2.0	10	.1	2.7	.00		.0	320	274	.0	486	8.0
1N/ 7W-26D,M	5-13-65	20	.00		15	7.4	.2		11	.3	.03	.0	75	0	4.0	21	.0	1.4	.05		.0	117	68	.0	188	6.7
1N/ 7W-34X,M	6-16-65	41	.02		327	456	4.9		4,160	149	1.8	10	112	0	704	8,030	2.5	11	.50		15	14,000	2,700	+	22,700	6.7
2N/ 8W-10Q,M	5-14-65	24	.00		29	13	.0		11	.4	.03	.0	142	0	9.0	11	.3	6.8	.05		.1	175	124	.0	282	7.9
2N/ 8W-14Q,M	5-13-65	24	.00		25	16	.0		11	.3	.03	.0	151	0	7.0	16	.1	1.9	.00		.0	175	130	.0	293	7.4
2N/10W- 5L,M	5-14-65	13	.00		9.2	13	.2		86	2.1	.03	.0	36	0	21	152	.1	.9	.00		.1	316	76	.0	598	7.2
2N/10W-11E,M	5-14-65	47	.00		34	54	.1		212	3.0	.06	.0	16	0	91	480	.1	1.5	.00		.0	931	306	.0	1,700	6.5
MENDOCINO COUNTY																											
12N/13W- 4P,M	9-30-66	17	0.01	0	16	7.2	trace	0.0	13	0.4	0.00	0.0	110	0	1.0	3.2	0.2	0.1	0.70	1.0	0.1	112	70	0.0	183	8.2
12N/13W- 4Q,M	9-30-66	81	trace	0	117	12	0.5	.0	15	1.3	.03	.0	456	0	1.0	7.4	.4	.4	.00	.26	.1	461	342	.0	674	7.6
12N/15W-27G,M	10-12-66	53	.00	0	.9	.1	.0	.0	105	.4	.05	.3	128	44	11	22	6.3	.1	.04	.02	5.2	310	2	+	441	9.3
12N/17W- 2J,M	10-11-66	21	trace		1.9	2.3	.0	.0	25	.8	.00	.0	18	0	7.0	31	.2	2.0	.00	.01	.0	100	14	.0	157	7.5
14N/15W-19G,M	10-12-66	40	trace		5.9	3.0	trace	.0	12	.4	.01	.0	43	0	3.0	9.0	.2	1.5	.25	.31	.0	96	27	.0	111	6.2
15N/12W-14D,M	10- 7-66	91	.01	0	49	35	.3	1.4	924	30	.92	1.4	2,510	0	1.0	178	1.2	.0	.02	.39	112	2,670	268	.0	3,730	7.7
16N/14W-24F,M	10- 7-66	51	.01	0	14	2.4	.2	.0	115	.8	.09	.6	218	20	4.0	36	9.3	.1	.00	.21	29	390	45	+	544	8.4
16N/14W-24L,M	10- 7-66	61	.01	0	4.8	.1	.1	.0	140	1.3	.10	.8	170	41	1.0	50	14	.0	.02	.22	38	436	12	+	594	8.6
17N/17W-17X,M	9-30-66	37	.01	0	1.2	1.9	trace	.0	14	.4	.00	.0	14	0	1.0	20	.1	.0	.00	.12	.0	83	11	.0	99	7.1
18N/13W- 9E,M	10- 7-66	71	.02	0	83	29	.6	.0	525	3.0	.07	4.1	479	0	2.0	745	3.1	.0	.04	.14	125	1,830	327		2,950	7.9
21N/15W- 1R,M[4/]	9-29-66	42	.01	0	70	11	5.0	.0	275	2.6	.12	.4	129	0	2.0	470	.5	.0	.01	.21	20	994	225	+	1,780	7.9
21N/15W-19M,M[4/]	9-29-66	40	.50	2.9	7.7	382	.3	4.3	12,700	198	7.6	4.7	29,800	2,240	53	968	1.5	.2	.55	.94	617	31,900	1,590	.0	30,800	8.3
23N/15W-19L,M	9-28-66	17	.01	0	25	19	.4	.0	5.1	3.3	.00	.0	180	2	1.0	2.2	.1	.0	.00	.11	.0	164	141	.0	275	8.3

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
LAKE COUNTY																	
17N/ 9W-36B,M	150				9.7	57		x3,900			600		14				
17N/ 9W-36X,M	18							54					1.9			1.3	
18N/10W-15L,M	<.7						89	70		>50	>200	≤0.1	13	10			
18N/10W-15M,M	230				≤.6			>50		>50	>200	≤<.1	18				
18N/10W-15M,M	70							200		51	60		7.7				
18N/10W-22C,M	8.6							38					12			.5	
18N/10W-33Q,M	13							54			11		29			.4	
MARIN COUNTY																	
1N/ 6W-31C,M	8.6							20			2.2		1.3			0.4	
1N/ 7W-10X,M	27							4.9					7.4			2.7	
1N/ 7W-26D,M	11							18					.6			1.5	
1N/ 7W-34X,M	67							340		64	490		3.7		5.7	4.6	
2N/ 8W-10Q,M	30							31			9.4	≤.3	1.2		.9	14	
2N/ 8W-14Q,M	6.3							6.6				≤<.3	.4			6.0	
2N/10W- 5L,M	24				≤1.4			x190			32		3.4		1.3	.5	
2N/10W-11E,M	46				≤2.2			110			110		12		3.7	1.0	
MENDOCINO COUNTY																	
12N/13W- 4P,M	40							40					4.6			3.4	
12N/13W- 4Q,M	140							130			1,510		8.3				
12N/15W-27G,M	77							34		86			1.7				
12N/17W- 2J,M	74							40					11				
14N/15W-19G,M	15							43					6.3				
15N/12W-14D,M	1,400							x1,600		110	1,300		3.4				
16N/14W-24F,M	64							23		>260	80		3.4				
16N/14W-24L,M	63							21		>260			3.4				
17N/17W-17X,M	33							860					4.9				
18N/13W- 9F,M	17							70			>430		3.4			.6	
21N/15W- 1P,M								12		220	290		4.3				
21N/15W-19M,M	23				31			x2,000		41	56	6.3	41			25	
23N/15W-19L,M	17							21					1.7			1.3	

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																								Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
NAPA COUNTY																											
5N/4W-17C,M[5]	5- 6-65	28	0.00		63	73	4.0		4,560	56	2.1	18	5,230	0	29	4,460	1.8	12	0.00		108	12,000	298	0.0	18,000	6.6
6N/3W-19X,M	5-11-65	44	.00		4.8	1.7	.0		10	2.5	.04	.0	29	0	9.0	7.6	.2	1.2	.00		.0	95	19	.0	99	7.2
6N/4W- 2N,M	5- 6-65	126	.00		82	76	.2		49	9.6	.09	.0	750	0	1.0	4.6	.4	1.9	.00		.1	729	515	.0	1,060	5.9
6N/5W- 1L,M	5- 6-65	57	.01		9.8	6.0	.0		7.7	3.1	.01	.0	52	0	14	6.2	.3	5.9	.74		.1	136	49	.0	147	6.5
7N/3W- 6F,M	5- 7-65	61	.01		9.4	128	.0		5.9	.6	.01	.0	620	14	4.0	7.2	.1	1.4	.00		.1	537	550	.0	872	8.4
7N/6W- 2D,M	5-11-65	46	.00		4.6	.6	.0		232	3.0	.36	13	120	64	12	224	5.7	1.3	.00		32	698	14	+	1,110	8.8
8N/4W-25D,M	5- 6-65	111	.00		22	349	.0		136	5.6	.55	4.8	1,920	0	.0	146	.1	1.4	.20		23	1,750	1,480	.0	2,760	6.4
8N/5W- 4B,M	5- 7-65	78	.01		2.2	1.3	.0		7.3	4.9	.02	.0	30	0	.0	5.9	.2	2.3	.30		.0	117	11	.0	79	6.3
8N/6W-13K,M	5-11-65	57	trace		3.8	1.3	.0		7.5	2.8	.03	.0	26	0	4.0	5.0	.1	2.4	.25		.0	97	15	.0	86	6.1
8N/6W-17Q,M	5-12-65	73	.01		16	7.5	.0		7.2	3.0	.02	.0	105	0	1.0	3.1	.1	1.9	.22		.0	165	71	.0	174	8.1
9N/5W-12A,M	5- 7-65	94	.00		28	265	.1		232	5.6	.31	+	1,560	0	54	208	.1	1.7	.00		38	1,700	1160	.0	2,630	6.1
9N/6W- 1M,M	5- 7-65	96	.00		22	79	.6		352	6.0	.19	+	1,130	0	.0	166	1.1	3.2	.10		43	1,330	380	+	2,030	6.7
9N/6W- 1N,M	5- 7-65	88	.00		18	84	.8		608	11	.25	3.0	1,620	0	8.0	266	1.6	2.0	.15		80	1,970	390	+	2,920	6.5
9N/6W-31M,M	10-13-66	139	.13	0	4.5	.0	.0	0.0	193	8.8	2.1	.6	52	42	12	215	12	.1	.06	0.08	9.2	663	11	+	976	9.0
11N/5W- 1B,M	10- 4-66	28	.01	0	298	204	1.8	.0	16	.6	.04	.0	324	0	1,270	2.9	.4	.2	.01	.05	.0	1,980	1,580	.0	2,220	7.4
11N/5W- 1H,M	10- 4-66	95	.06	0	218	224	.2	.0	604	34	1.8	12	1,500	0	261	940	.7	.0	.04	.65	59	3,190	1,470	.0	5,000	6.9
SHASTA COUNTY																											
32N/6W-14X,M	11-14-62	28			18	9.2			9.9	0.0			118	0	2.0	3.0	0.3	1.3			0.0	130	83		184	7.2
32N/6W-23X,M	9-21-65	33	trace		7.4	1.1	0.0		8.1	.2	0.00	0.0	43	0	3.0	.6	.1	.7	0.13	0.12	.0	75	23	0.0	81	6.4
32N/7W-12X,M[6]	11-15-62	29			36	15			10	.0			195	0	4.0	4.0	.3	.7			.0	195	152		295	7.5
33N/7W-34X,M[6]	9-21-65	55	0.01		1,180	4.4	7.6		3,030	12	2.4	44	80	15	48	6,660	.2	3.4	.00	.00	1.9	11,100	2,960	+	18,000	9.2
35N/4W-14R,M	9-20-65	23	trace		19	5.7	.0		6.7	.2	.00	.0	93	0	9.0	.5	.2	.5	.03	.03	.0	111	71	.0	164	8.2
35N/6W- 3K,M[6]	9-20-65	22	trace		4.8	1.1	.0		3.5	.3	.00	.0	20	0	6.0	.4	.1	.8	.13	.13	.0	49	16	.0	51	7.1
37N/1W-26J,M[6]	9-13-65	49	.02		53	.0	.4		300	6.5	.15	+	80	23	504	152	3.5	.0	.02	.05	13	1,120	132	+	1,630	9.0
37N/1W-26J,M[7]	9-13-65	48	.02		53	.0	.4		305	7.0	.15	7.7	10	24	510	150	3.4	.0	.02	.00	13	1,120	132	+	1,660	8.9
37N/1W-36G,M[8]	9-13-65	73	.93		88	.6	1.0		565	20	.66	9.3	40	0	276	850	1.2	.0			32	1,940	222	+	3,320	8.1
37N/5W-25C,M	9-17-65	19	trace		2.8	17	.0		7.0	.5	.00	.0	99	1	1.0	6.2	.1	1.1	.00	.00	.1	105	78	.0	177	8.3
37N/5W-25C,M[6]	9-17-65	6.3	.01		3.0	27	.3		380	17	.03	4.9	264	62	74	392	.3	1.0	.00	.00	.8	1,100	120	+	1,880	9.2
38N/1W-11G,M	9-14-65	20	trace		28	4.1	.0		3.5	.5	.00	.0	86	0	23	.2	.2	.1	.06	.08	.0	122	87	.0	188	7.2
38N/4W- 8N,M	9-17-65	64	.09		.0	2.9	.0		3,780	139	1.6	40	2,070	134	676	3,010	7.5	1.9	.12	.12	62	10,100	12	+	14,700	9.8
38N/4W-12E,M	7-20-64	74	.00		207	239	2.1		1,130	36	1.5	.0	2,960	0	5.0	1,160	.3	.6	.00		46	4,370	1,500	.0	6,720	6.4
38N/4W-15J,M	7-20-64	87	.00		179	192	1.7		830	23	.86	+	2,280	0	2.0	925	.5	.4	.00		41	3,400	1,240	+	5,380	6.3
39N/4W-16X,M	7-20-64	21	.00		10	1.5	.2		4.8	.2	.00	.0	39	0	5.0	2.0	.1	1.0	.00		.1	65	31	.0	83	7.9

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
NAPA COUNTY																	
5N/4W-17C,M	21							650		15	350		3.3				
6N/3W-19X,M	83							210			5.7		1.0		4.9	1.0	
6N/4W- 2N,M	90							x9,100			53		4.3				
6N/5W- 1L,M	190							170					1.5		11	9.7	
7N/3W- 6E,M	8.3		0.4	66	3.7	79		4.0					2.3			1.2	
7N/6W- 2D,M	49							30		26			.7				
8N/4W-25D,M	65							850		18	37		57				
8N/5W- 4B,M	31							23					1.2			1.0	
8N/6W-13K,M	240							400					1.5		8.9	2.2	
8N/6W-17Q,M	23							440					.7		.8	16	
9N/5W-12A,M	62							x7,900		7.1	100		>500				
9N/6W- 1M,M	68							670		61	37		6.0				
9N/6W- 1N,M	91							180		80	98		8.6				
9N/6W-31M,M	70							94	5.4	>77	9.7	3.7	1.1				
11N/5W- 1B,M	20				34			110			x1,600		89				
11N/5W- 1H,M	46				29	180		x17,000		86	x3,000	25	34			3.1	
SHASTA COUNTY																	
32N/6W-23X,M	31							6.9					2.2			0.6	
33N/7W-34X,M	9.4							230		15			.8				
35N/4W-14R,M	19							4.0					1.5			.7	
35N/6W- 3K,M	30						9.4	>70					5.1		0.6	.4	14
37N/1W-26T,M	40							8.6		77		4.3	3.1				
37N/1W-26J,M	12						5.7	3.1		>250		3.1	4.0				
37N/1W-36G,M	76							31		71		32	3.4				
37N/5W-25C,M	5.1			8.9				2.9					>30				
37N/5W-25C,M	3.1						2.1	2.8				1.3	1.1				
38N/1W-11G,M	19							>70			43		4.0				
38N/4W- 8N,M	31						12	110		37			2.0				9.1
38N/4W-12F,M	<1.4							x9,700			130	≤.3	3.4				
38N/4W-15J,M	<1.4							40			340		2.9			3.1	
38N/4W-16X,M	<2.3						≤1.4	8.0				≤.3	1.3			.4	

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																								Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrete (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$		Sulfide as H_2S		
SISKIYOU COUNTY																											
15N/ 8E-29K,H	7-16-64	49	0.00		4.0	0.0	0.0		82	0.7	0.07	1.9	40	20	16	90	0.4	0.1	0.00		1.0	277	10	+		439	10.0
39N/ 2W-13E,M	9-14-65	33	.00		8.4	3.5	.0		3.6	1.2	.02	.0	52	0	1.0	.3	.1	.6	.11	0.11	.0	78	36	.0		87	7.7
39N/ 3W- 7D,M	9-16-65	46	trace		8.8	5.1	.0		8.3	1.8	.01	.0	68	0	.0	3.1	.1	.8	.18	.10	.1	107	43	.0		123	7.0
39N/ 3W-13B,M	9-15-65	32	trace		7.0	2.1	.0		3.4	.9	.00	.0	38	0	1.0	.2	.1	1.0	.02	.00	.0	67	26	.0		67	6.4
39N/ 3W-13H,M	9-15-65	68	trace		214	31	.9		75	4.7	.13	.0	925	0	1.0	43	.1	.2	.00	.07	2.3	906	660	.0		1,400	5.9
39N/ 4W-24F,M	9-16-65	78	trace		122	97	.9		465	23	.92	+	1,380	0	1.0	420	.2	.1	.42	.44	22	1,920	705	.0		3,060	6.1
39N/ 4W-24L,M	9-16-65	81	trace		98	82	.6		368	20	.76	4.4	1,180	0	1.0	338	.2	.0	.00	.25	17	1,590	580	.0		2,560	6.0
40N/ 4W- 8H,M	9-15-65	56	trace		5.4	2.3	.0		7.7	1.4	.00	.0	46	0	.0	.9	.2	.8	.37	.35	.0	98	23	.0		82	7.3
40N/ 4W-32R,M	7-22-64	4,940	trace		.0	1.2	.2		11,100	130	3.9	150	k0	5,330	71	7,630	1.7	9.4			273	32,500	5	+		36,000	11.8
40N/ 4W-32R,M	7-22-64	32	.00		12	7.2	.0		5.5	1.6	.00	.0	82	0	.0	2.5	.0	1.2	.00		.1	102	60	.0		127	7.2
40N/ 5W-26J,M	9-15-65	29	trace		11	10	.0		3.2	.5	.00	.0	92	0	1.0	.3	.1	.9	.07	.08	.0	101	68	.0		142	7.5
41N/ 6W- 2H,M	9-15-65	45	trace		2.8	70	.0		5.0	.3	.00	.0	344	12	1.0	2.3	.1	1.8	.01	.01	.1	309	296	.0		508	8.5
41N/ 6W-11B,M	9-15-65	44	.02		2.4	.2	.2		900	33	.66	24	m0	160	260	755	.3	.0	.03	.02	20	5,910	7			4,650	11.7
47N/ 9W- 1R,M	7-18-64	57	.00		168	34	.6		153	3.8	.61	+	960	0	10	92	.1	.4	.00		8.9	1,010	560	.0		1,590	6.0
47N/10W- 1B,M	7-17-64		1.6	trace	.6	.1	.0		.7	.0	.00	.0	3	0	1.0	.2	.0	.4	.00		.0	6	2	.0		7	6.3
47N/10W- 9K,M	7-17-64	3.5	.00		.8	.7	.0		.8	.0	.00	.0	3	0	1.0	.3	.0	2.8	.00		.0	11	5	.0		15	5.4
47N/10W-31K,M	7-17-64	15	.00		60	18	.0		5.6	.2	.00	.0	262	0	12	1.1	.1	.8	.00		.6	242	222	.0		411	7.7
48N/ 9W-31H,M	7-17-64	4.5	.00		2.4	.6	.0		.9	.0	.00	.0	10	0	1.0	.2	.0	.8	.00		.2	16	8	.0		19	6.9
48N/ 9W-34L,M	7-17-64	29	.00		114	77	1.3		1,880	40	5.0	.0	3,680	0	5.0	1,330	.3	.7	.00		79	5,350	605	.0		8,270	6.6
48N/ 9W-34Q,M	7-17-64	18	.00		95	50	.3		5.0	.4	.00	.0	476	0	53	3.0	.1	1.0	.00		.1	460	444	.0		763	7.0
SOLANO COUNTY																											
3N/ 3W-14N,M[5]	1-20-66	56	trace		34	54	0.2		170	2.7	0.12	3.4	432	0	2.0	243	0.4	0.8	0.04	0.03	8.2	788	306	+		1,370	7.9
5N/ 2W- 2F,M[2]	5-11-65	71	trace		453	228	1.2		6,110	173	9.9	70	6,110	0	47	7,740	.3	1.2	.00		331	18,300	2,070	0.0		25,500	6.7
5N/ 2W- 2M,M	3-17-66	46			217	55	2.0		1,330	53	2.4	17	2,360	0	.0	1,320	.1	.0	.00	.00	78	4,280	770	.0		6,760	6.5
5N/ 2W- 9R,M	5-10-65	26	.00		58	15	.2		34	.3	.04	.0	268	0	33	14	.5	2.1	.00		.4	316	208	.0		510	7.7
5N/ 3W- 2J,M	5-11-65	54	trace		8.8	4.7	.0		9.0	1.6	.04	.0	55	0	7.0	6.4	.1	2.6	.25		.0	121	42	.0		128	7.7
SONOMA COUNTY																											
6M/ 6W- 5X,M	11- 1-56	100			15	6.0			179	15			393	0	6.0	105		u0.2				620	62			924	7.5
6M/ 6W- 5X,M	11- 1-56	86			19	6.4			104	13			290	0	.8	61		u.1				433	74			625	7.3
6M/ 6W- 5X,M	10-10-66	86	trace	0	20	7.2	trace	0.0	123	12	0.11	0.4	252	12	1.0	100	0.9	.0	0.04	0.12	3.9	491	80	+		684	8.4
6M/ 6W- 6P,M	10-10-66	88	0.01		21	14	0.0	.0	26	3.8	.04	.0	187	0	8.0	6.4	.4	.5	.21	.26	.1	260	110	0.0		311	8.2
6M/ 6W-22X,M	10-10-66	77	.01	0	19	9.8	.0	.0	73	12	.09	.5	172	8	33	51	.5	.2	.11	.19	.8	370	88	.0		521	8.6
7N/ 8W-36A,M	11- 1-56	28			7.2	2.4			53	.4			145	0	1.3	20		u.2				184	28			282	7.4
8N/ 8W-11N,M	10-10-66	105	.00	0	31	19	.1	.0	29	3.9	.04	.3	226	10	1.0	16	.2	.0	.15	.19	1.0	327	156	+		399	8.5
8N/10W- 6L,M	10-11-66	35	.00		13	5.3	trace	.0	11	.9	.01	.0	78	0	6.0	5.6	.4	.6	.10	.12	.0	116	54	.0		153	7.8
8N/10W-18K,M	10-11-66	25	trace		22	7.0	.1	.0	17	1.1	.00	.0	122	0	10	8.2	.3	.5	.19	.21	.1	151	84	.0		232	8.2
8N/17W-30X,M	10-11-66	19	trace		46	21	.3	.0	20	.7	.01	.0	193	4	44	21	.3	1.4	.02	.02	.0	273	202	.0		452	8.4

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
SISKIYOU COUNTY																	
15N/ 8E-29K,H	23			50	≤1.4	46		140		1.1			24	1.9	≤0.6		
39N/ 2W-13E,M	4.9							3.1					.9			3.4	7.7
39N/ 3W- 7D,M	14						7.1	>70			10		1.4			4.0	≤9.1
39N/ 3W-13B,M	32							15					2.1			1.9	
39N/ 3W-13H,M					26			x9,900					5.7		110	5.1	
39N/ 4W-24F,M					16			x7,700					4.9		51	2.3	
39N/ 4W-24L,M	31				9.4			x1,500		28			2.6				
40N/ 4W- 8H,M	16							7.7					1.6		1.4	19	
40N/ 4W-32R,M	230			400	4.3		42	43		2.4	38		>120	2.2	2.1		
40N/ 4W-32R,M	8.6							10					.8		3.1		
40N/ 5W-26J,M	11			8.3				5.7					2.3			1.7	
41N/ 6W- 2H,M	10			1.7				1.7					2.9			2.4	
41N/ 6W-11B,M	11							5.7					3.4				
47N/ 9W- 1R,M	25				6.0			x5,200			120		2.0				
47N/10W- 1B,M	31				≤1.4			25			1.7	≤.3	.8		≤.6	.7	≤5.7
47N/10W- 9K,M	34							9.4			3.7	≤.3	1.1			≤.3	≤5.7
47N/10W-31K,M	5.7							6.6			≤1.4	≤.3	.7			.5	
48N/ 9W-31H,M	9.1							12			≤1.4	≤.3	.6				
48N/ 9W-34L,M	22							x40			>200		1.9				
48N/ 9W-34Q,M	7.4							≤1.4			86		1.2			≤.3	
SOLANO COUNTY																	
3N/ 3W-14N,M	10							x30		26	16		2.9				
5N/ 2W- 2F,M	36							x9,400		5.4	290		21			3.4	
5N/ 2W- 2M,M	(n)							x2,900			130		(n)	510			
5N/ 2W- 9R,M	8.9							2,100			360		2.1			1.4	
5N/ 3W- 2J,M	400							540					.6		13	4.6	
SONOMA COUNTY																	
6N/ 6W- 5X,M	7.7							x80		16	21		1.5				
6N/ 6W- 6P,M	40							19			490		4.3				
6N/ 6W-22X,M	76							140		<290	400		4.9				
8N/ 8W-11N,M	74							740			310		4.3				
8N/10W- 6L,M	14							91					4.3				
8N/10W-18K,M	25							57			370		5.4				
8N/12W-30X,M								14					6.3				

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																								Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
SONOMA COUNTY--Continued																											
9N/12W-13G,M[9]	8-23-66	0.3			53	0.3	0.1		50	1.2	0.02	u0.1	p0	0	0.0	55	0.0	1.0			0.0					11.8
9N/12W-13H,M[10]	8-23-66	5.4			5.4	40	.0		3.6	.2	.01	u0	195	8	.4	5.8	.1	u.2			.0					8.9
10N/ 9W- 2C,M	10-12-66	26	trace		26	17	.0	0.0	5.8	.0	.00	.0	155	5	10	1.9	.1	.6	0.00	0.00	.0	168	135	0.0	265	8.6
10N/11W-25B,M	10-12-66	124	.06	0	14	4.5	.3	1.8	945	29	.62	1.8	2,470	0	5.0	54	9.8	.0	.03	.13	90	2,500	56	+	3,440	7.2
11N/ 9W-13A,M[11]	9-21-54	282			42	453			9.5	2.6			0	0	8,060	1,590	.2	u12	.2		3.6		1,970		15,800	2.2
11N/ 9W-13H,M[12]	10-12-66	91	.01	0	32	58	.1	.0	4.7	.9	.00	11	180	0	139	1.3	.3	3.4	.02	.14	.6	431	318	+	599	7.5
11N/ 9W-13X,M		225			47	281			12	5		1,400	0	0	5,710	.5					3.1	7,770				1.8
11N/ 9W-13X,M	10-12-66	93	.00	0	32	60	.1	.0	5.5	1.2	.00	7.7	212	0	160	1.1	.2	.9	.00	.05	.7	466	327	+	670	7.2
TEHAMA COUNTY																											
23N/ 9W-13N,M	4-20-66	16	trace		6.0	1.7	0.0	0.0	2.9	0.3	0.00	0.0	31	0	0.0	0.5	0.1	0.1	0.12	0.07	0.0	43	22	0.0	56	7.6
24N/ 6W-22E,M	4-20-66	16	trace		51	15	.3	.0	39	.6	.02	.0	282	0	34	5.6	.8	.6	.01	.04	.1	302	189	.0	492	8.1
24N/ 7W-19R,M	4-19-66	18	trace		10	4.7	.0	.0	3.0	.4	.00	.0	58	0	1.0	.7	.1	.2	.03	.05	.0	67	44	.0	100	8.0
24N/ 7W-29D,M	4-19-66	28	0.00		18	12	.0	.0	4.3	.4	.00	.0	114	4	2.0	.7	.1	.2	.08	.01	.0	126	94	.0	191	8.5
25N/ 6W-21E,M	4-19-66	22	trace		38	27	.2	.0	8.2	.5	.00	.0	232	5	17	2.4	.2	.2	.00	.06	.0	235	206	.0	388	8.3
25N/ 7W- 6J,M	4-19-66	25	trace		39	18	.1	.0	5.3	.4	.00	.0	197	11	4.0	.7	.1	.3	.00	.00	.0	201	172	.0	319	8.8
25N/ 7W-16B,M	4-20-66	6.8	.01		1.1	88	.0	.0	1.0	.2	.00	.0	314	63	1.0	1.8	.0	.6	.00	.01	.0	319	364	.0	552	9.2
26N/ 7W-30Q,M	4-19-66	22	.00	0	38	18	.4	.0	5.2	.3	.01	+	216	0	3.0	1.8	.1	.1	.03	.03	.0	195	170	+	332	7.4
27N/ 8W- 3G,M	9-27-66	44	.01	0	170	.0	5.6	.0	555	4.8	.08	.9	2	9	4.0	1,160	1.4	.0	.00	.18	2.8	1,960	430	+	3,610	8.8
TRINITY COUNTY																											
3N/ 6E-13C,H	9-23-65	58	trace		17	71	0.0		3.0	0.2	0.00	0.0	408	0	6.0	1.2	0.1	1.2	0.06	0.01	0.0	359	336	0.0	574	7.9
4N/ 8E-21C,H	9-24-65	21	trace		39	5.7	.3		4.7	.7	.00	.0	156	0	1.0	.7	.0	1.6	.03	.01	.0	152	121	.0	243	7.9
4S/ 6E-12R,H	7- 6-64	22	0.00		19	5.5	.2		8.1	.7	.00	.0	96	0	3.0	2.0	.1	.9	.00		.0	108	70	.0	165	6.9
4S/ 7E- 9L,H	7- 6-64	14	.00		5.4	1.6	.0		3.0	.3	.00	.0	28	0	1.0	1.4	.0	.9	.00		.0	42	20	.0	53	6.2
28N/10W-19M,M	9-22-65	13	.00		67	16	.5		2.9	.3	.00	.0	284	0	4.0	.6	.1	.8	.02	.10	.0	245	232	.0	423	7.8
30N/ 9W- 7D,M	9-22-65	20	.00		34	7.3	.0		3.8	.6	.00	.0	144	0	6.0	.8	.1	1.2	.02	.01	.0	145	115	.0	235	7.1
30N/10W- 1J,M	9-22-65	62	.01		1,600	4.1	20		1,290	11	.30	1.3	524	86	986	3,690	1.1	3.9	.00	.00	6.6	8,020	4,030	+	12,400	9.4
30N/11W-34K,M	9-23-65	31	.00		36	12	.0		5.6	.2	.00	.0	176	4	4.0	.8	.1	1.2	.04	.06	.0	182	140	.0	279	8.4
30N/12W-19C,M	9-23-65	21	.00		70	12	.0		3.0	.4	.00	.0	268	0	9.0	.7	.2	1.0	.11	.11	.0	249	222	.0	414	8.0
31N/10W-25A,M	9-22-65	21	.00		58	9.6	.4		4.9	.3	.00	.0	217	0	17	.6	.2	.8	.06	.03	.0	220	184	.0	357	7.5
34N/12W-11X,M	9-24-65	15	trace		18	2.4	.0		3.4	.3	.00	.0	73	0	.0	.4	.1	2.0	.03	.03	.0	78	55	.0	124	7.5
35N/ 7W- 1L,M	9-21-65	13	.00		1.2	.7	.0		1.4	.2	.00	.0	10	0	1.0	.3	.1	.3	.12	.12	.0	23	6	.0	21	7.0
35N/ 7W-33E,M	9-21-65	12	trace		6.6	3.0	.0		1.6	.2	.00	.0	32	0	6.0	.4	.1	1.3	.04	.04	.0	47	29	.0	68	7.7
36N/ 7W-22L,M	9-21-65	9.2	.00		1.2	.6	.0		.4	.2	.02	.0	8	0	.0	.3	.1	.9	.02	.02	.0	17	6	.0	17	6.6
38N/ 5W-19L,M	9-17-65	76	.02		47	227	3.1		3,420	308	10	45	8,300	0	149	1,380	4.3	.3	.14	.21	115	9,880	1,050	.0	13,600	6.5

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
SONOMA COUNTY--Continued																	
10N/ 9W- 2C,M								40					4.9			40	
10N/11W-25B,M	9.7							x160			14		1.8				
11N/ 9W-13H,M	12							17			19		3.1				
11N/ 9W-13X,M								21			540		5.1				
TEHAMA COUNTY																	
23N/ 9W-13N,M	29							47			17		2.8				
24N/ 6W-22E,M	13							130			36		6.8				
24N/ 7W-19R,M	17							47					3.1				
24N/ 7W-29D,M								120					5.4				
25N/ 6W-21E,M	7.7				1.6		5.7	x20			88		4.3			0.3	
25N/ 7W- 6J,M	11							x50					2.3			1.3	
25N/ 7W-16B,M	15				3.1	6.9		x40			20		2.2				
26N/ 7W-30Q,M	13				1.5			x260			23		4.2		4.2	6.0	
27N/ 8W- 3G,M	47							36		67	37		2.3				
TRINITY COUNTY																	
3N/ 6E-13C,H	130			107				6.0					8.0				
4N/ 8E-21C,H	6.0							6.9					1.1				
4S/ 6E-12R,H	12							6.0			≤1.4	≤0.3	1.2			≤0.3	
4S/ 7E- 9L,H	150							47			=1.4	=.3	2.6	≤1.4	8.6	=.4	
28N/10W-19M,M	15							10					1.9			.4	
30N/ 9W- 7D,M	17							8.6					3.4				6.9
30N/10W- 1J,M	54						27	15		60			2.5				
30N/11W-34K,M	5.1							3.7					.9			5.1	
30N/12W-19C,M	6.9							6.0					2.8	2.9	.7	59	21
31N/10W-25A,M	15			11				7.7				1.4	1.4		.9		
34N/12W-11X,M	7.7				2.3		4.3	5.7					1.3				
35N/ 7W- 1L,M	7.1						6.6	10					3.7				6.3
35N/ 7W-33E,M	8.0				3.4			6.6					2.9				
36N/ 7W-22L,M	26						2.3	>200					1.3		.7		
38N/ 5W-19L,M	64							x1,400		>250			>100	11			

See footnotes at end of table.

Location number	Date collected	Results of chemical analyses in parts per million																								Specific conductance (micromhos at 25°C)	pH
		Silica (SiO_2)	Arsenic (As)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Barium (Ba)	Sodium (Na)	Potassium (K)	Lithium (Li)	Ammonium (NH_4)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Total phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Sulfide as H_2S		
YOLO COUNTY																											
10N/ 3W-25X,M	10- 3-66	6.2	0.01	5.3	964	115	51	23	5,780	25	0.32	q0.0	119	0	64	11,000	1.8	37	0.01	0.04	77	18,200	2,950	0.0	28,900	7.8
11N/ 4W-13R,M	10- 3-66	27	trace		40	12	.1	.0	20	.3	.01	.0	160	0	42	8.4	.4	3.1	.05	.07	.1	232	150	0.0	371	8.0
11N/ 4W-24B,M	10- 3-66	42	trace	0	40	21	.2	.0	75	1.1	.02	+	320	0	58	15	.2	.0	.02	.02	.4	411	186	+	624	8.1

Location number	Results of spectrographic analyses in micrograms per liter (approximately parts per billion)																
	Aluminum (Al)	Beryllium (Be)	Bismuth (Bi)	Cadmium (Cd)	Cobalt (Co)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Gallium (Ga)	Germanium (Ge)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
YOLO COUNTY																	
10N/ 3W-25X,M	34							x180			370		12				
11N/ 4W-13R,M	37							54			43		9.4			0.5	
11N/ 4W-24B,M	69							31			160		2.7				

1. Analysis from White and others (1963, p. 50-51). Al, 0.6 ppm; Fe, 0.0 ppm; Mn, 0.1 ppm; Bromide (Br), 1.6 ppm; I, 3.2 ppm; Nitrite (NO_2), u 0.0 ppm.
2. Analysis from White and others (1963, p. 50-51). Al, 1.6 ppm; Fe, 0.0 ppm; Mn, 0.0 ppm; Br, 3.8 ppm; I, 6.3 ppm; NO_2, u 14 ppm.
3. Selenium (Se) 0.00 ppm; Br, 0.00 ppm; I, 0.00 ppm.
4. Analytical data for unfiltered sample: Na, 13,400 ppm; HCO_3, 35,000 ppm; pH, 7.9; specific conductance, 55,000 micromhos.
5. Organic carbon, 1.5 ppm.
6. Organic carbon, 0.0 ppm.
7. Organic carbon, trace.
8. Organic carbon, 3.0 ppm.
9. Analysis from Barnes and others (1967, p. 831); Al, 0.0 ppm; Fe, 0.01 ppm; Mn, 0.05 ppm.
10. Analysis from Barnss and others (1967, p. 831); Fe, 0. ppm; Mn, 0.04 ppm.
11. Analysis from Scott and Barker (1962, no. 9, p. 27). Al, 32 ppm; Fe, 100 ppm; Mn, 2.4 ppm; Acidity as H_2SO_4, 375 ppm; Residue at 180°C., 10,700 ppm; Radium (Ra) 0.1 μμc/l (micro-micro curies per liter); Uranium (U), 0.6 μg/l (micrograms per liter).
12. Analysis from White and others (1963, p. 46-47) and Allen and Day (1927, p. 33). Al, 14 ppm; Fe (ferrous) 63 ppm; Mn, 1.4 ppm.

a. Hydroxide (OH) 170 ppm.
b. NO_2, u 0.01 ppm; NO_3, u 1.7 ppm.
c. NO_2, u 0.01 ppm; NO_3, u 0.4 ppm.
d. NO_2, u 0.01 ppm; NO_3, u 0.6 ppm.
e. NO_2, u 0.01 ppm.
f. NO_2, u 1.3 ppm; NO_3, u 28 ppm.
g. OH, 8 ppm.
h. OH, 3 ppm.
i. OH, 2 ppm.
j. OH, 6 ppm.
k. OH, 1,640 ppm.
m. OH, 128 ppm.
n. Spectral line present; background too dark for quantitative determination.
p. OH, 63 ppm.
q. Ammonium probably oxidized to nitrate before sampling.