WATER-RESOURCES DATA FOR THE MOUNT SHASTA AREA, NORTHERN CALIFORNIA

By K. R. Poeschel, T. G. Rowe, and J. C. Blodgett

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CONVERSION FACTORS

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

Multiply	By	To obtain
acres	4,047	square meters
acre-ft (acre-feet)	1,233	cubic meters
acre-ft/yr (acre-feet per year)	1,233	cubic meters per year
feet	0.3048	meters
ft/s (feet per second)	0.3048	meters per second
ft^3/s (cubic feet per second	0.02832	cubic meters per second
gal/min (gallons per minute)	0.003785	cubic meters per minute
inches	25.40	millimeters
miles	1.609	kilometers
mi^2 (square miles)	2.590	square kilometers

The use of firm, brand, or trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

Water year, as used in this report, includes the 12-month period from October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months.

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ABSTRACT

This report presents water-quantity and water-quality data for samples collected at wells, springs, streams, and lakes in the vicinity of Mount Shasta in northern California. The data are presented in graphs and tables. Groundwater data include water-level measurements made at 24 wells, analyses of water collected at 12 wells, discharge measurements made at 14 springs, and analyses of water collected at 17 springs. Surface-water data include streamflow measurements and(or) analyses of suspended sediment collected at 36 stream sites; analyses of water samples collected at 11 stream sites; profiles of temperature, specific conductance, dissolved oxygen, and pH for water samples from 6 lake sites; and analyses of water samples collected at 7 lake sites. Maps of the area show the location of data-collection sites.

INTRODUCTION

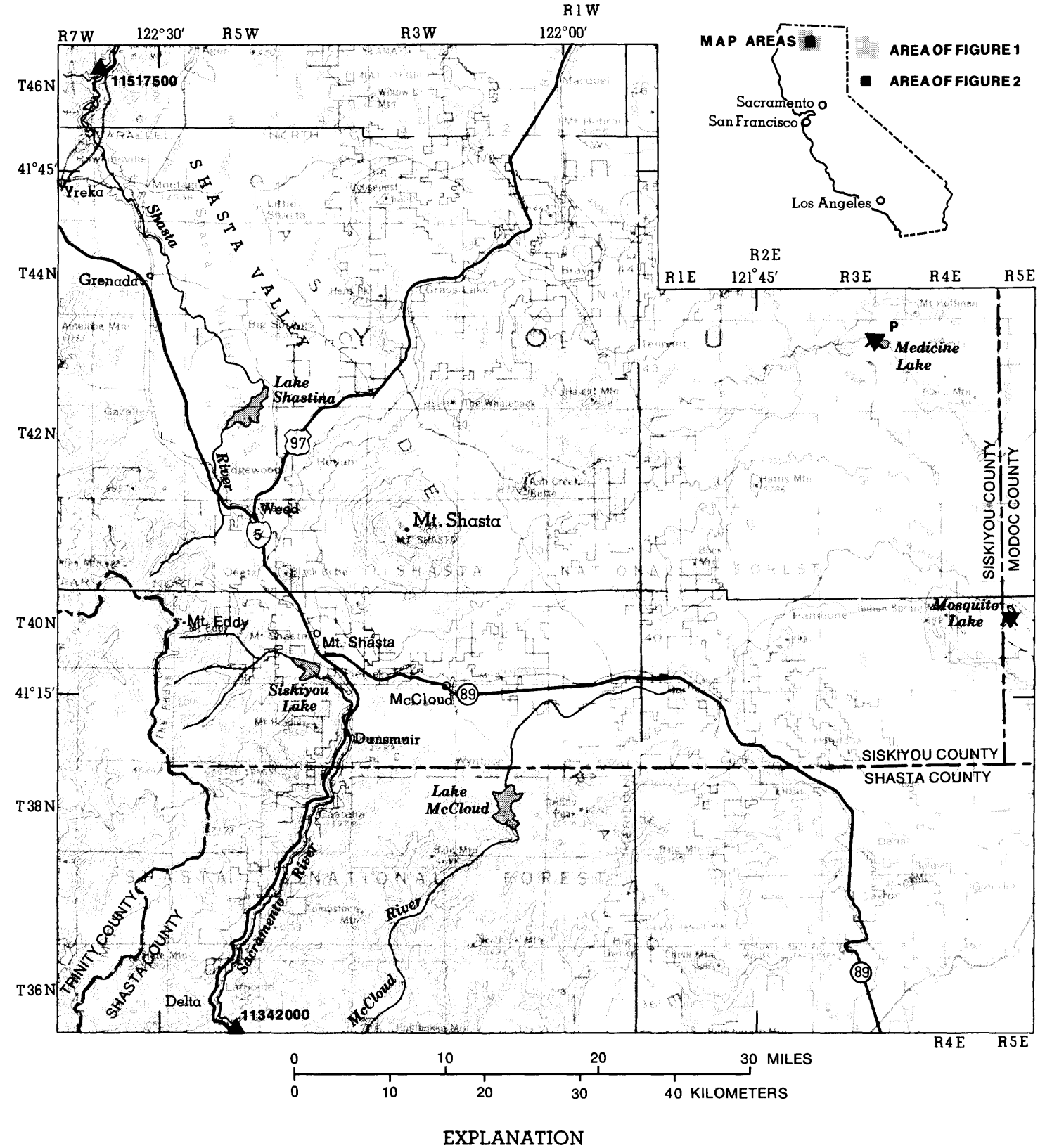
Mount Shasta in northern California is a stratovolcano near the southern end of the chain of Cascade Volcanos. The volcanic history of the mountain implies that Mount Shasta will erupt sometime in the future (Miller, 1980).

Purpose and Scope

As a part of an assessment of the water resources in the Mount Shasta area, water-quantity and water-quality data were obtained from March 1981 to August 1984 at wells, springs, streams, and lakes in an 800-mi^2 area in the vicinity of Mount Shasta (figs. 1 and 2). The assessment will be prepared as a benchmark to compare possible changes due to land use, volcanic activity, or other natural events. This report contains ground- and surface-water data to provide a documentation of the 1981-84 ground-water levels, discharges, temperatures, and chemistry of surface and ground water, in addition to previously published streamflow data.

Location of Sites

Measurement and sampling sites to be included in the data-collection program (figs. 1 and 2) were selected to provide complete areal coverage of the flanks of Mount Shasta. A lack of development on the northeast side of the mountain restricted the location of well sites to the north, west, and southeast sides of the mountain. Known spring sites are rare on the dry northern slopes, which restricted spring-sampling sites to the west, south, and east sides. Most creeks draining the slopes of Mount Shasta are intermittent and carry water that disappears completely into the sandy soils before it reaches easily accessible locations. This influenced the location of stream-sampling sites and the frequency with which the sites could be sampled. Mount Shasta has no large natural lakes on its flanks, but reservoirs provide lake-sampling sites on the northwest, west, and south sides of the mountain. Medicine Lake and Mosquito Lake, approximately 30 miles northeast and east of the Mount Shasta summit, provide lake-sampling sites in the rain shadow of the mountain.



EXPLANATION

STREAM SITES –

▲ 11517500 Gaging station and number

LAKE SITES –

P Chemical quality, temperature, and depth profile

Quality only

FIGURE 1. – Location of selected lake and stream sites in the Mount Shasta area.

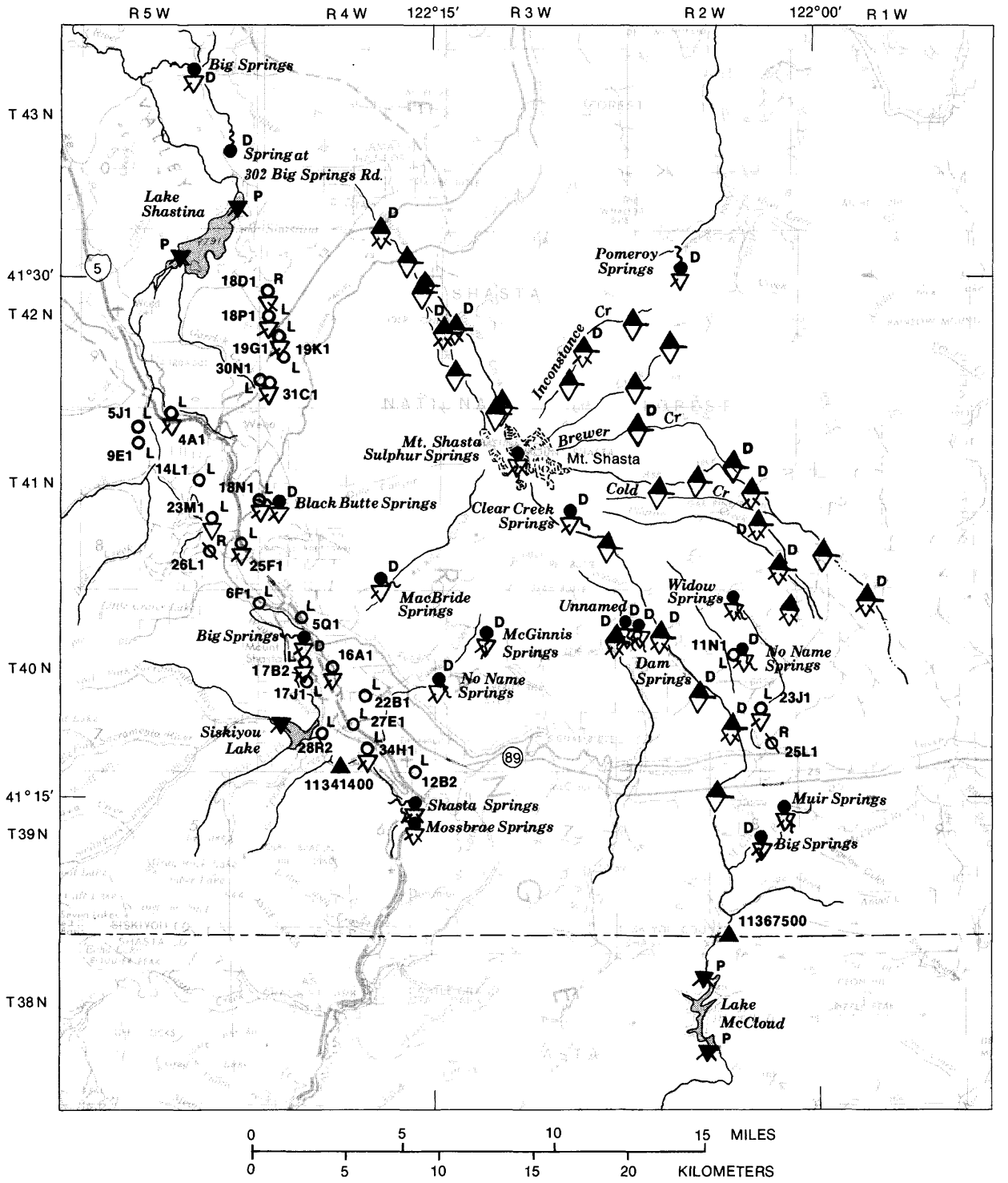
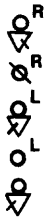


FIGURE 2.– Location of wells and springs and measuring sites on streams and lakes.

EXPLANATION

WELLS –



Continuously recorded temperatures

Continuously recorded levels

Levels and chemical quality

Levels only

Chemical quality only

SPRINGS –

Discharge and chemical quality

Chemical quality and temperature only

Discharge only

STREAM SITES –

Gaging station and number

Discharge, sediment, chemical quality, and temperature

Discharge and sediment only

LAKE SITES –

Chemical quality temperature, and depth profile

Note: Additional sites shown in figure 1.

FIGURE 2.– Continued.

Previous Data-Collection Activities

No previous water-data-collection program in this area has encompassed the area and scope of the present study. Previous studies have, however, included parts of the area covered in this report or other nearby areas. The ground water in the Shasta Valley was reported in Mack (1960), and the development of these water resources was discussed by the California Department of Water Resources (1961). Miscellaneous water-quality data were collected on Mud and Squaw Valley Creeks in 1959-61 and on Wagon Creek in 1965 by the California Department of Water Resources (written commun., 1982). Prior to the construction of the Box Canyon Dam on the Sacramento River, the California Department of Water Resources (1964) conducted investigations that included a water-supply study for the city of Mount Shasta and the Dunsmuir area. Data for springs near the city of Mount Shasta and in the Shasta Valley are reported in Berkstresser (1968). Water-bearing properties of some of the geologic units southwest of the city of Mount Shasta were discussed by Bertoldi (1973). A limnological study of Shasta Lake emphasizing the effects of the 1977 drought was reported by Rettig and Bortleson (1983). Surface-water records have been published for sites in the vicinity of Mount Shasta on the Shasta, the Sacramento, and the McCloud Rivers since 1934, 1945, and 1932, respectively (U.S. Geological Survey, 1959, 1964, 1970, 1972-75, 1976, and 1976-82).

METHODS

Historical discharge data contained in this report were summarized from published sources (U.S. Geological Survey, 1959; 1964; 1970; 1972-75; 1976; and 1976-82). For the present study, field data and samples for laboratory analysis were collected at 24 wells, 17 springs, 36 stream sites, and 7 lake sites.

Discharge

Discharge measurements reported for streams and springs were the result of wading measurements using Price AA or Pygmy meters according to U.S. Geological Survey procedures (Buchanan and Somers, 1969). Outside reference marks were established at most sites for comparison of water-surface elevations.

Water Quality

The field parameters measured at all water-quality sites included (1) temperature, by hand thermometer; (2) pH, by field instrument; (3) specific conductance, by field instrument; (4) alkalinity, by 4.5-pH end-point titration with a field instrument; and (5) dissolved oxygen by field Winkler titrations. Field instruments were calibrated immediately before each use.

Samples taken at each site were split and filtered immediately after sampling. They were kept chilled and in the dark until the end of the sampling run. The samples then were packed in chilled containers and sent via Express Mail to the U.S. Geological Survey Central Laboratory in Arvada, Colorado.

All samples were analyzed for major ions and nutrients. Water samples from wells, springs, and streams also were analyzed by semiquantitative methods for trace metals which yielded a rounded value for concentration of trace metals. Values below a specified lower limit or above an upper limit were reported, respectively, as "less than (<)" or "greater than (>)" results. Results were rounded to the nearest step of 1, 3, 5, 7, or 10. For example, a result that had a true value of 0.043 mg/L (milligram per liter) was reported as 0.050 mg/L, and one that had a true value of 0.035 mg/L was reported as 0.030 mg/L. The precision of a reported value is plus or minus one step at one standard deviation (E. J. Zayhowski, U.S. Geological Survey, written commun., 1983).

Stream samples were obtained using a depth-integrating hand sampler (DH-48) and by the equal-discharge increment method. Spring samples were taken using a battery-powered peristaltic pump with a long length of tygon tubing which permitted sampling as close as possible to the spring source. Samples were obtained at wells at the point source nearest the pump.

Lake samples, obtained by using a Van Dorn sampler at various depths, were composited in a churn splitter to form one sample per site. Depth profiles were conducted at 1-meter intervals at each lake site. A Martek Mark VI instrument, calibrated prior to each use, was used to measure parameters of pH, temperature, conductance, and dissolved oxygen. Light penetration was measured using a standard Secchi disc.

Suspended Sediment

Suspended-sediment samples were collected using a DH-48 sampler and by the equal-discharge increment method. These samples were analyzed for concentration of suspended sediment, percent sand, and particle-size distribution at the U.S. Geological Survey Sediment Laboratory in Sacramento, California.

WELLS

In the study area, ground water from wells is an important source of domestic water supply for the communities of Weed, Mount Shasta (City), and McCloud. It also is an important source of water for domestic and agricultural use in the outlying areas.

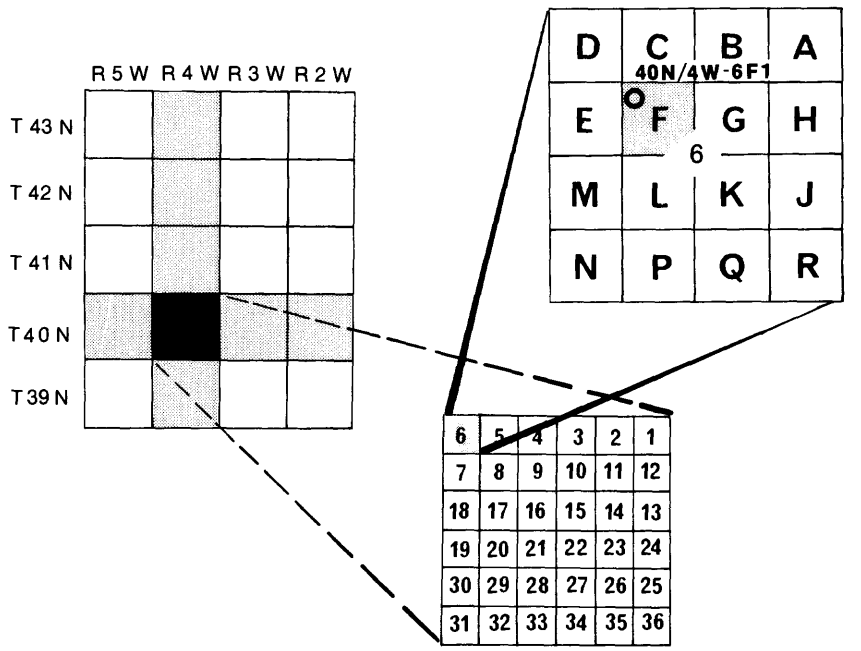
The wells in this report are listed by well number. The well-numbering system used by the U.S. Geological Survey in California indicates the location of wells according to the system for the subdivision of public lands. For example, in the number 40N/4W-6F1, the part of the number preceding the slash indicates the township (T. 40 N.), the number after the slash indicates the range (R. 4 W.), the digits after the hyphen indicate the section (sec. 6), and the letter after the section number indicates the 40-acre subdivision of the section as indicated on the diagram below. Within each 40-acre tract, the wells are numbered serially as indicated by the final digit of the well number. Thus, well 40N/4W-6F1 was the first well to be listed in the northeast quarter of the northwest quarter of section 6. The entire study area is north and west of the Mount Diablo base line and meridian.

The U.S. Geological Survey site-numbering system is based on the grid system of latitude and longitude which provides the geographic location of the well and a unique number for each site. The number consists of 15 digits; the first 6 digits denote the degrees, minutes, and seconds of latitude; the next 7 digits denote degrees, minutes, and seconds of longitude; and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid.

Water Levels

Ground-water levels were continuously recorded in two wells from August 1981 to September 1982 (fig. 2). Hydrographs show the fluctuation of water levels in each well (figs. 3 and 4).

Ground-water levels in 22 wells (fig. 2) were measured by steel and electric tape at approximately monthly intervals from July 1981 to October 1982 and again during June and August of 1983. Water-level data from these measurements are given in table 1. (Tables are at back of report.)



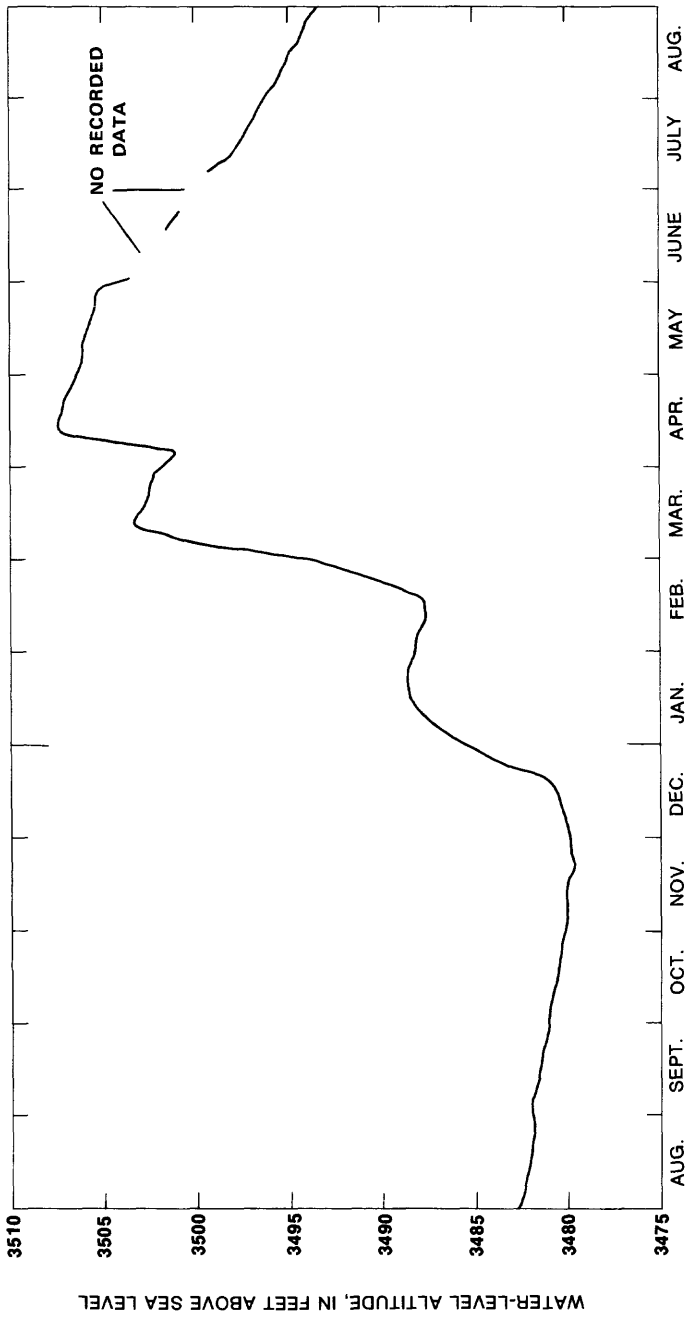


FIGURE 3. – Hydrograph of well 40N/2W–25L1, August 1981 through August 1982.

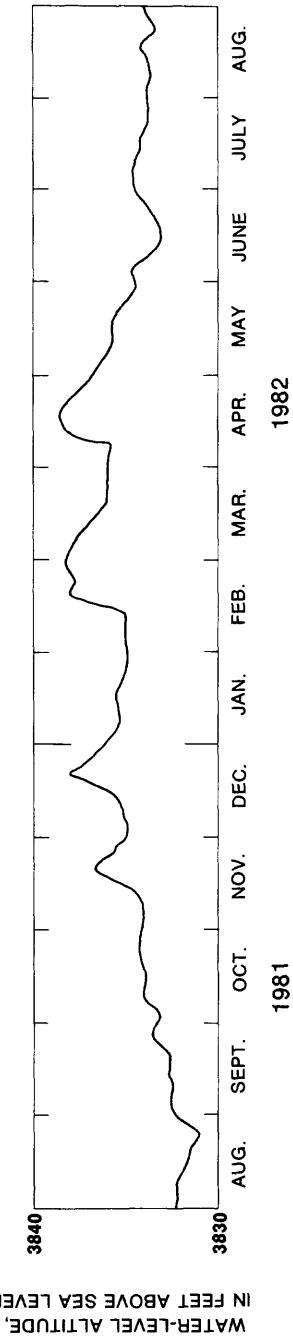


FIGURE 4. – Hydrograph of well 41N/5W–26L1, August 1981 through August 1982.

Water Quality

Water samples from 12 wells were collected for chemical analyses during May to September 1981. One well was re-sampled during August 1982. Results of the onsite analyses and laboratory analyses of major ions and nutrients are given in table 2. Results of the semiquantitative analyses for trace metals in well water are given in table 3.

Water temperature was continuously recorded in well 42N/4W-18D1 during 1982 from March to October. Mean monthly temperature values are plotted in figure 5.

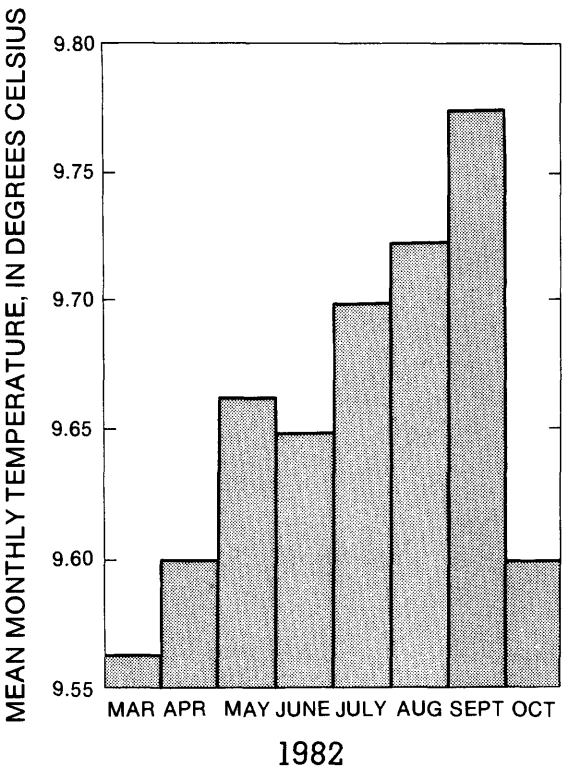


FIGURE 5. – Mean monthly temperatures of water from well 42N/4W–18D1 during 1982.

SPRINGS

The cities of Weed, Mount Shasta, McCloud, and Dunsmuir depend on springs as their major source of community water supplies. The discharge of other untapped springs supplies surface-water flow to numerous creeks and rivers, including the Sacramento and the McCloud Rivers.

The names of springs included in this report are the names shown on the U.S. Geological Survey topographic maps, most of which have been confirmed to be in common usage. If no name was indicated on the maps, the authors assigned a name that included the name of a nearby landmark. Spring locations shown in figure 2 are described in table 4 and are assigned a spring number. The spring-numbering system is the same as the well-numbering system described on page 7; an S is added before the final digit of the spring number.

Discharge

Discharge data for 14 springs (fig. 2) measured from April to September 1981 and during August 1982 are presented in table 4.

Water Quality

Water samples from 13 springs were collected for chemical analyses from May to September 1981. Two of these springs were resampled during August and September 1982; four additional springs were sampled at this time, bringing the total number of springs sampled to 17 (fig. 2). Results of the onsite analyses and laboratory analyses for major ions and nutrients are presented in table 5. Results of the semiquantitative analyses for trace metals in springs are given in table 6.

Water samples were taken from a thermal spring west of the summit of Mount Shasta at an altitude of 14,000 feet, and onsite measurements were made on August 13, 1981. Onsite measurements included temperature only due to the inaccessability of the site. Results are included in tables 5 and 6.

STREAMS

Glacial melt, snowmelt, and rain supply water to the numerous creeks that drain the slopes of Mount Shasta. Most of the precipitation falls during October through June. Annual precipitation averages 37.49 inches at the Mount Shasta (City) (National Oceanic and Atmospheric Administration, 1981-83) and over 60 inches at higher altitudes (California Department of Water Resources, 1964). Annual precipitation for the 1981, 1982, and 1983 water years was 47.69, 51.64, and 64.93 inches respectively (National Oceanic and Atmospheric Administration, 1981-83). Glacial melt supplies water during the summer. Whitney and Bolam Glaciers feed Whitney and Bolam Creeks, Wintun Glacier feeds Ash Creek, Konwakiton Glacier feeds Mud Creek, and Hotlum Glacier feeds Gravel Creek.

Tributaries to the McCloud River, which drains the southeast flanks of Mount Shasta, include Ash Creek, Mud Creek, Big Springs near McCloud, and Muir Springs below Lower Falls. Tributaries to the Sacramento River that drain the slopes of Mount Shasta include Big Canyon Creek and Big Springs near Mount Shasta (City). The Shasta River is supplied from the west by drainage from the slopes of Mount Shasta. Big Springs near Grenada, tributary to the Shasta River, is recharged on Mount Shasta.

The location of gaging stations on the Shasta, the Sacramento, and the McCloud Rivers is shown in figures 1 and 2; the station descriptions and measurements are shown in table 7. Discharge measurements were made at miscellaneous sites named according to creek name and nearby landmarks. Locations of miscellaneous streams sites shown in figure 2 are described in table 8, according to quarter section of township and range and the distance and direction from major landmarks.

Gaging Stations

Monthly and yearly mean discharges calculated from daily streamflow data obtained at the continuous-record gaging stations are listed in table 7. The gaging stations are located on major streams on the flanks of Mount Shasta and include the Sacramento, the Shasta, and the McCloud Rivers (figs. 1 and 2). Maximum and minimum yearly discharges for the complete period of record for each of the rivers also are given in table 7. The station numbers are the downstream-order numbers used in the U.S. Geological Survey streamflow-gaging system (U.S. Geological Survey, 1972-75; 1976-82).

Miscellaneous Sites

There were no continuous-recording streamflow gages operating on the creeks draining the slopes of Mount Shasta during the study period. Hydrographs of flow data obtained at temporary continuous-recording gages operated on Mud Creek from August 18 to November 2, 1981, and on Whitney Creek from August 18 to November 2, 1981 (no flow October 14 to November 2), and from August 13 to October 4, 1982 (no flow September 16 to October 4) are shown in figures 6 and 7. Measurements were made at miscellaneous sites on Ash, Bolam, Gravel, Inconstance, Mud, Pilgrim, Squaw Valley, and Whitney Creeks (fig. 2) during May through September 1981 and again during July through August 1984. Measurements were made at miscellaneous sites on Brewer, Cascade Gulch, and Cold Creeks during July through August 1984. Results of these measurements are shown in table 8.

Suspended Sediment

In conjunction with discharge measurements, suspended-sediment samples were collected at 25 sites on 9 creeks during May through August 1981 and at 11 sites on 11 creeks during July through August 1984. Concentrations of suspended sediment and percentage sand are given in table 8. Six samples from four sites were analyzed for particle-size distribution. Results are shown in table 9.

Water Quality

Samples of stream water were collected at 11 sites during May, July, and September 1981 (fig. 2). Results of the onsite analyses and laboratory analyses of major ions and nutrients are presented in table 10. Results of the semiquantitative analyses for trace metals at nine of the sites are given in table 11.

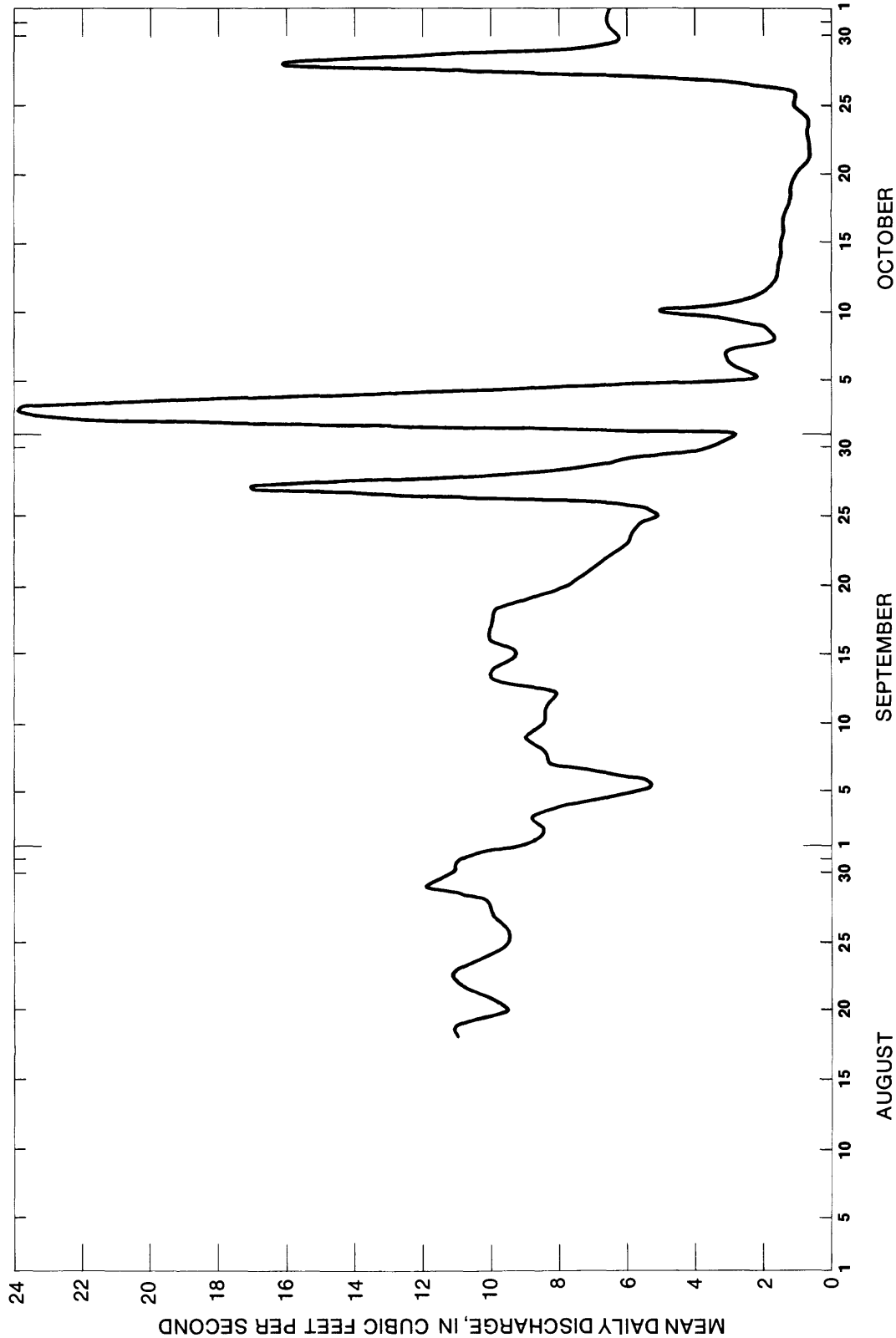


FIGURE 6. – Hydrograph of flows at temporary continuous-recording gage, Mud Creek at Road 13, near McCloud.

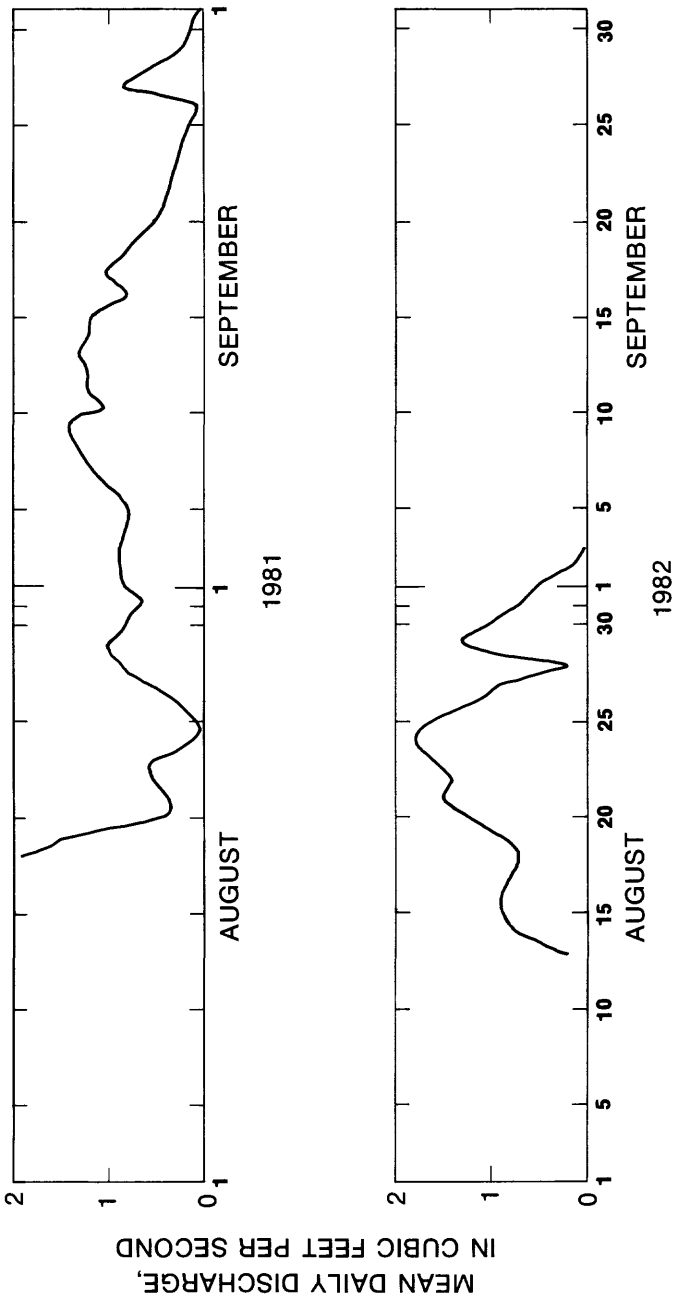


FIGURE 7. — Hydrographs of flows at temporary continuous-recording gage, Whitney Creek at Highway 97, near Weed.

LAKES

Siskiyou, McCloud, and Shastina Lakes are reservoirs used for recreation and regulation of flow of the Sacramento, the McCloud, and the Shasta Rivers, respectively. Siskiyou Lake was filled in 1968 after construction of the Box Canyon earthfill dam. Lake McCloud Dam, a rockfill dam, was constructed in 1965. Lake Shastina Dam was completed in 1928. Medicine Lake and Mosquito Lake are natural lakes.

Water Quality

During the summer of 1981, water samples were collected at seven sites on the five lakes. Two sampling sites--one at the dam and the other at the upstream end--were chosen at each reservoir except at the dam on Siskiyou Lake where a sampling site was not selected due to weather conditions and time limitations. The locations of the sampling sites on the reservoirs are shown in figure 2. At the natural lakes, Medicine Lake and Mosquito Lake, samples were obtained at the deepest portion of the lakes. The locations of the sampling sites on the natural lakes are shown in figure 1. Results of the laboratory analyses for major ions and nutrients are given in table 12.

Depth Profiles

Depth profiles were conducted at each lake site, except Mosquito Lake which was approximately 3 feet deep. The data from the profiles are plotted in figures 8 through 13.

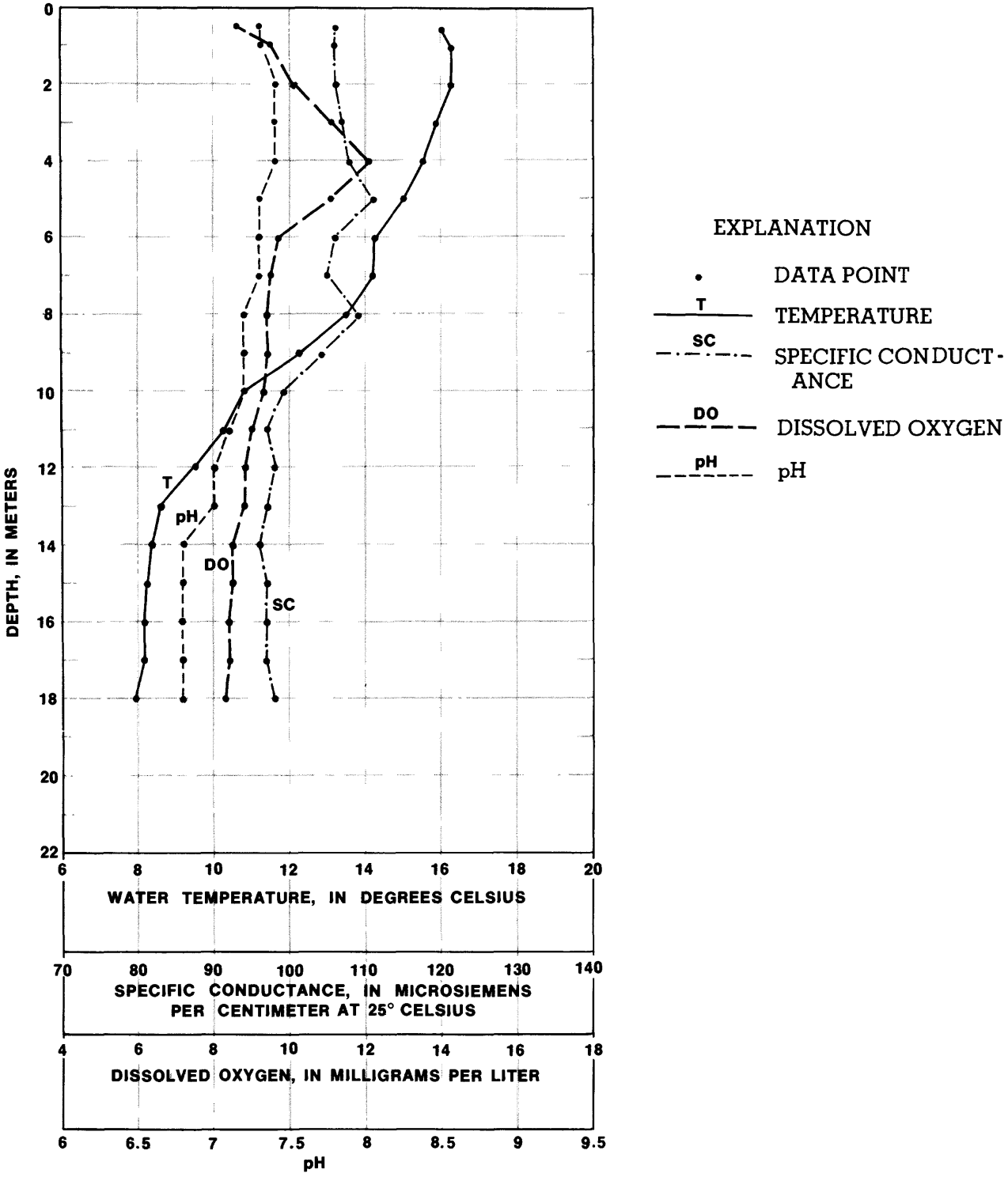


FIGURE 8. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from the upstream end of Siskiyou Lake, June 12, 1981.

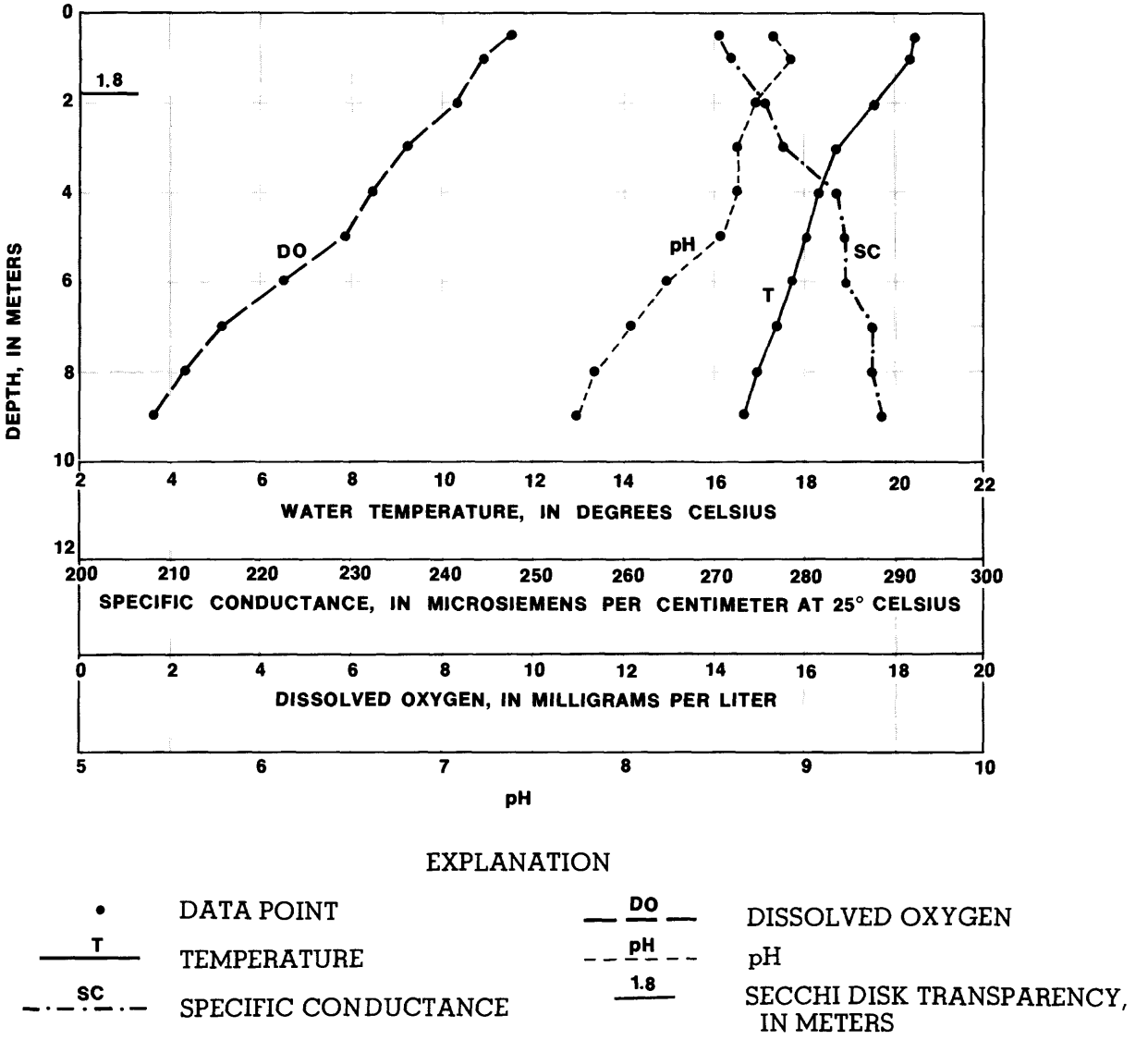


FIGURE 9. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from the upstream end of Lake Shastina, June 9, 1981.

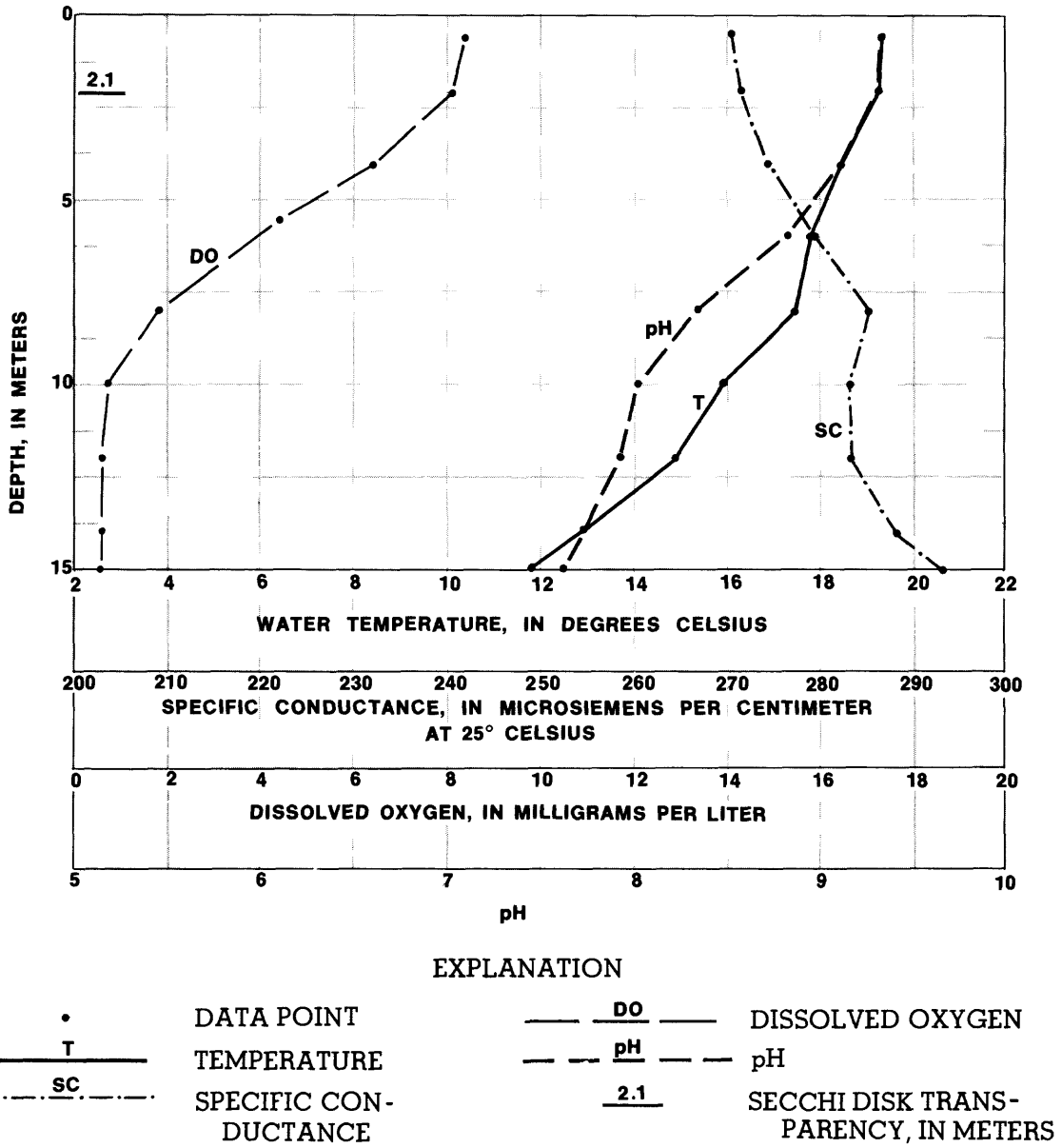


FIGURE 10. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from Lake Shastina at the dam, June 9, 1981.

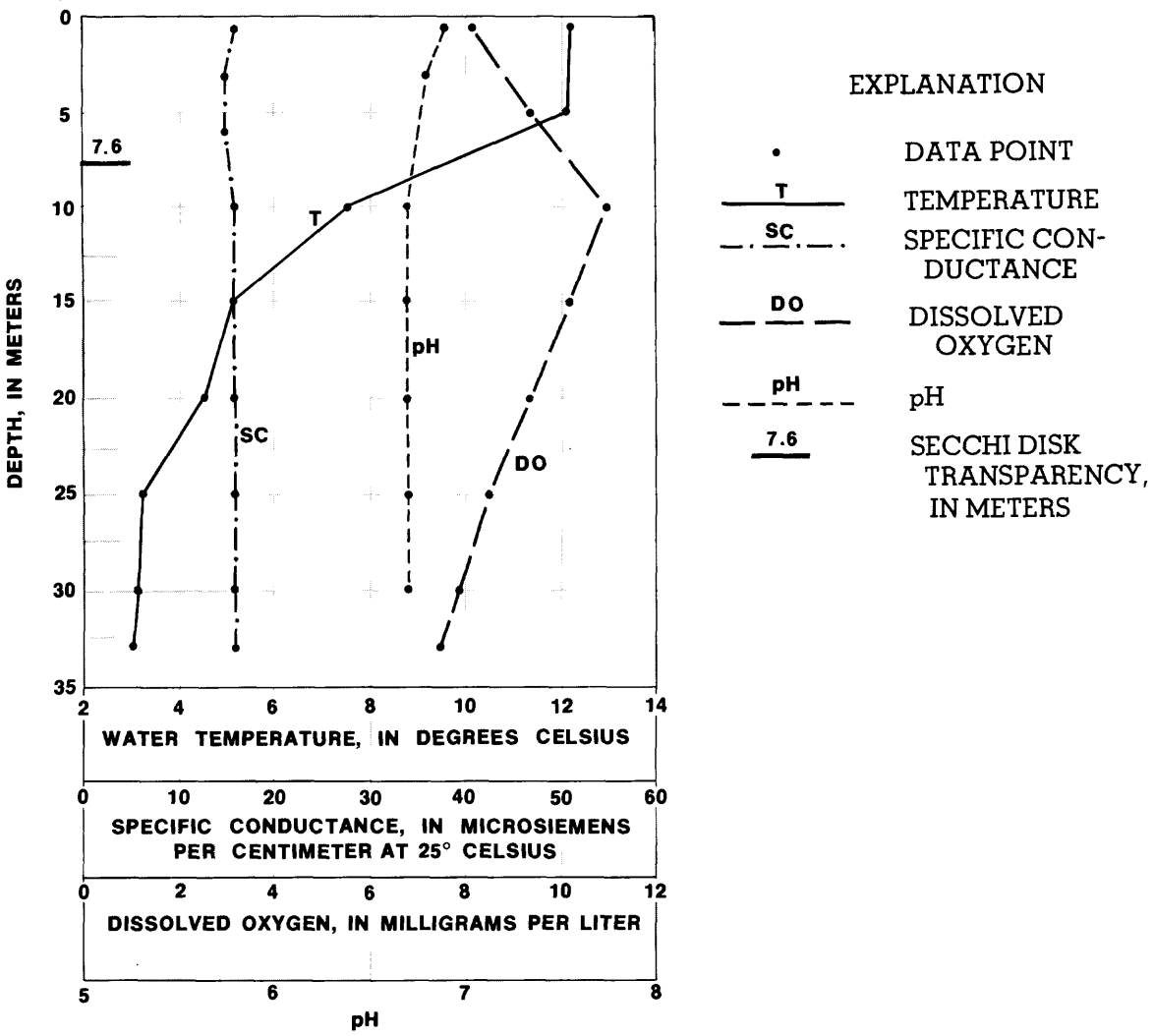


FIGURE 11. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from Medicine Lake, June 10, 1981.

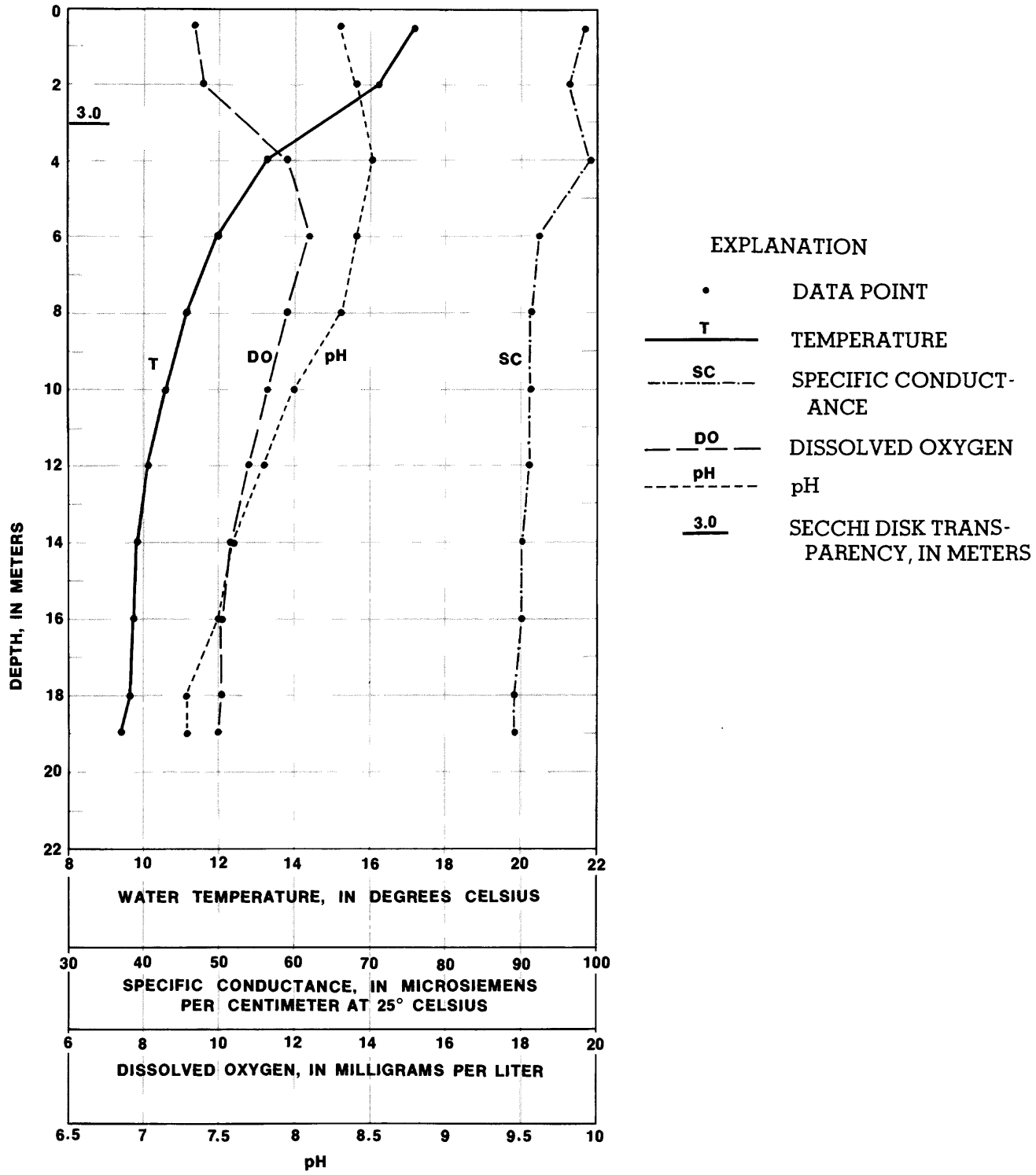


FIGURE 12. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from the upstream end of Lake McCloud, June 9, 1981.

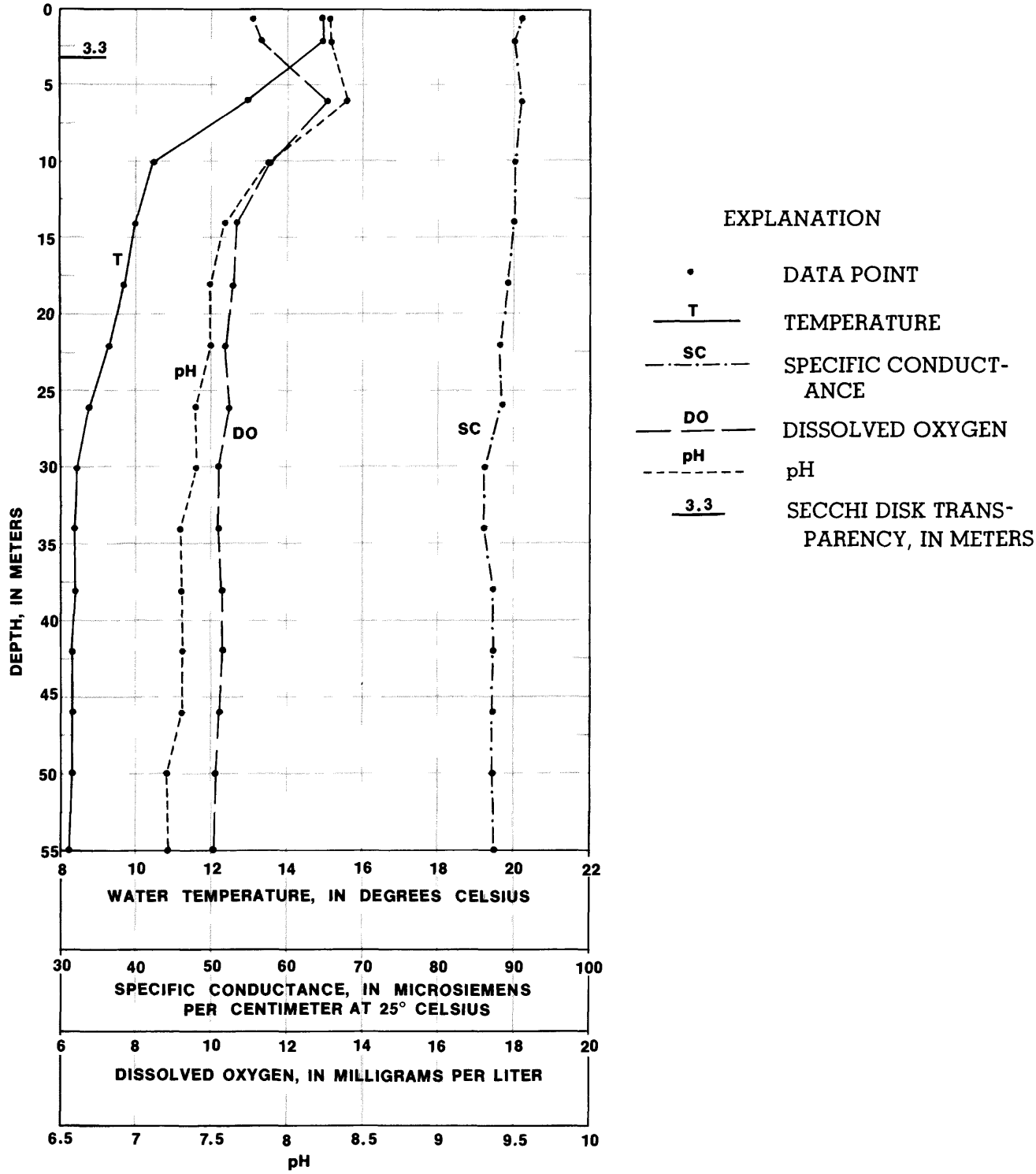


FIGURE 13. – Vertical profiles for pH, dissolved oxygen, temperature, and specific conductance for water sampled from Lake McCloud at the dam, June 9, 1981.

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TABLES 1-12

Table 1.--Water levels in wells

[Water levels reported in feet above sea level]

Date	Water level	Date	Water level	Date	Water level	Date	Water level

Well 39N/4W-12B2 Site No. 411541122161901

Altitude of land surface 3200 ft. Records available: 1981-82. Highest water level 3148.51 ft, Apr. 19, 1982; lowest 3129.89 ft, Sept. 2, 1981.

06/23/81	3129.99	01/19/82	3132.27	06/01/82	3148.28	08/11/82	3132.39
09/02	3129.89	04/19	3148.51	07/07	3132.69	09/01	3131.05
11/19	3130.17	05/03	3147.79				

Well 40N/2W-11N1 Site No. 411915122031001

Altitude of land surface 4080 ft. Records available: 1981. 06/24/81, 3994.38.

Well 40N/2W-23J1 Site No. 411755122021701

Altitude of land surface 3670 ft. Records available: 1981-83. Highest water level 3670.35 ft, June 23, 1983; lowest 3643.36 ft, Nov. 17, 1981.

07/09/81	3646.05	01/19/82	3647.78	06/02/82	3662.90	09/03/82	3657.54
09/02	3645.13	04/20	3662.68	07/08	3661.18	06/23/83	3670.35
11/17	3643.36	05/04	3663.84	08/11	3658.10		

Well 40N/4W-5Q1 Site No. 412008122195301

Altitude of land surface 3720 ft. Records available: 1981-83. Highest water level 3606.50 ft, June 22, 1983; lowest 3595.37 ft, Aug. 11, 1982.

06/22/81	3599.57	01/20/82	3599.52	06/01/82	3600.82	09/02/82	3600.79
07/07	3599.29	04/19	3600.36	07/07	3601.12	06/22/83	3606.50
30	3599.12	05/04	3598.10	08/11	3595.37	08/05	3605.73
11/19	3598.96						

Well 40N/4W-6F1 Site No. 412035122212001

Altitude of land surface 3760 ft. Records available: 1981-83. Highest water level 3674.55 ft, June 22, 1983; lowest 3662.06 ft, Sept. 2, 1982.

06/23/81	3670.40	11/19/81	3664.36	06/01/82	3668.36	09/02/82	3662.06
07/07	3670.30	01/20/82	3671.03	07/07	3672.15	06/22/83	3674.55
30	3670.00	04/19	3672.75	08/11	3671.05	08/05	3673.38
08/31	3666.65	05/04	3673.63				

Table 1.--Water levels in wells--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level

Well 40N/4W-17B2 Site No. 411903122200001

Altitude of land surface 3550 ft. Records available: 1981-83. Highest water level 3528.05 ft, Apr. 19, 1982; lowest 3503.82 ft, June 1, 1982.

06/23/81	3524.54	01/20/82	3527.30	06/01/82	3503.82	09/01/82	3515.00
07/30	3521.48	04/19	3528.05	07/07	3504.74	06/22/83	3525.86
11/19	3526.26	05/03	3504.90	08/11	3504.80	08/01	3525.62

Well 40N/4W-17J1 Site No. 411833122193901

Altitude of land surface 3450 ft. Records available: 1981-83. Highest water level 3440.36 ft, Apr. 19, 1982; lowest 3429.91 ft, July 30, 1981.

06/23/81	3438.91	01/20/82	3440.24	06/01/82	3439.24	09/01/82	3438.73
07/30	3429.91	04/19	3440.36	07/07	3440.04	06/22/83	3439.68
09/02	3438.28	05/03	3439.95	08/11	3438.85	08/01	3439.26
11/19	3439.84						

Well 40N/4W-22B1 Site No. 411807122173101

Altitude of land surface 3800 ft. Records available: 1981-82. Highest water level 3480.30 ft, Sept. 2, 1981; lowest 3452.46 ft, Aug. 11, 1982.

06/24/81	3477.05	01/19/82	3474.58	05/03/82	3479.39	07/07/82	3468.24
09/02	3480.30	04/19	3478.21	06/01	3471.27	08/11	3452.46
11/20	3479.82						

Well 40N/4W-27E1 Site No. 411712122181001

Altitude of land surface, 3252 ft. Records available: 1981-83. Highest water level 3132.00 ft, Aug. 1, 1983; lowest 3083.72 ft, Sept. 1, 1982.

06/23/81	3089.29	01/19/82	3088.99	06/01/82	3092.82	09/01/82	3083.72
07/30	3089.07	04/19	3090.22	07/06	3089.98	06/22/83	3127.83
11/19	3088.39	05/03	3088.13	08/11	3090.42	08/01	3132.00

Well 40N/4W-28R2 Site No. 411641122182801

Altitude of land surface 3260 ft. Records available: 1981-83. Highest water level 3226.45 ft, Apr. 19, 1982; lowest 3204.01 ft, Sept. 1, 1982.

06/23/81	3207.96	01/20/82	3206.32	06/01/82	3214.31	09/01/82	3204.01
09/02	3206.15	04/19	3226.45	07/08	3210.36	06/22/83	3215.53
11/19	3206.95	05/03	3216.49	08/11	3210.12	08/01	3211.70

Table 1.--Water levels in wells--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level

Well 40N/4W-34H1 Site No. 411622122171501

Altitude of land surface 3200 ft. Records available: 1981-83. Highest water level 3058.92 ft, June 22, 1983; lowest 3023.87 ft, Aug. 11, 1982.

06/26/81	3033.42	01/20/82	3034.64	06/01/82	3039.18	09/01/82	3032.55
07/30	3027.94	04/19	3041.78	07/08	3033.50	06/22/83	3058.92
09/02	3031.10	05/03	3040.53	08/11	3023.87	08/01	3058.44
11/19	3029.97						

Well 41N/4W-18N1 Site No. 412329122213901

Altitude of land surface 3840 ft. Records available: 1981-83. Highest water level 3735.2 ft, Aug. 2, 1983; lowest 3713.60 ft, Sept. 1, 1981.

07/15/81	3714.56	01/19/82	3714.58	06/01/82	3715.50	09/02/82	3715.88
09/01	3713.60	04/19	3714.81	07/07	3717.14	06/22/83	3734.55
11/19	3714.38	05/04	3714.98	08/11	3716.97	08/02	3735.2

Well 41N/5W-4A1 Site No. 412606122251001

Altitude of land surface 3200 ft. Records available: 1981-82. Highest water level 3118.55 ft, Aug. 10, 1982; lowest 3111.82 ft, Sept. 2, 1982.

07/17/81	3117.00	01/19/82	3117.58	06/01/82	3112.32	08/10/82	3118.55
30	3115.13	04/20	3115.82	07/07	3113.30	09/02	3111.82
11/18	3111.87	05/04	3118.52				

Well 41N/5W-5J1 Site No. 412530122262101

Altitude of land surface 3200 ft. Records available: 1981-82. Highest water level 3091.75 ft, July 15, 1981; lowest 3073.13 ft, July 30, 1981.

07/15/81	3091.75	07/30/81	3073.13	05/04/82	3075.25

Well 41N/5W-9E1 Site No. 412458122255401

Altitude of land surface 3275 ft. Records available: 1981-82. Highest water level 3265.05 ft, May 4, 1982; lowest 3264.16 ft, July 15, 1981.

07/15/81	3264.16	04/20/82	3264.93	06/01/82	3264.41	07/07/82	3264.81
01/19/82	3264.44	05/04	3265.05				

Table 1.--Water levels in wells--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level

Well 41N/5W-14L1 Site No. 412346122231801

Altitude of land surface 3750 ft. Records available: 1981-83. Highest water level 3721.34 ft, June 22, 1983; lowest 3697.17 ft, Apr. 19, 1982.

07/15/81	3712.54	04/19/82	3697.17	07/07/82	3714.32	06/22/83	3721.34
11/19	3712.33	05/04	3714.57	08/10	3714.12	08/02	3721.32
01/19/82	3713.58	06/01	3714.37	09/02	3713.81		

Well 41N/5W-23M1 Site No. 412259122235101

Altitude of land surface 3840 ft. Records available: 1981-83. Highest water level 3840.24 ft, June 21, 1983; lowest 3834.95 ft, July 30, 1981.

06/25/81	3836.07	11/18/81	3835.46	06/01/82	3837.90	09/02/82	3837.01
07/14	3835.59	01/20/82	3836.59	07/07	3836.91	06/21/83	3840.24
30	3834.95	04/19	3838.45	08/11	3837.34	08/02	3839.42
09/02	3835.07	05/04	3838.52				

Well 41N/5W-25F1 Site No. 412225122222101

Altitude of land surface 3900 ft. Records available: 1981-83. Highest water level 3856.86 ft, Jan. 19, 1982; lowest 3851.03 ft, June 1, 1982.

06/25/81	3852.89	01/19/82	3856.86	06/01/82	3851.03	09/02/82	3853.95
07/14	3854.22	04/19	3855.98	07/07	3853.15	06/22/83	3856.75
09/01	3853.78	05/04	3856.78	08/11	3854.32	08/02	3855.58
11/18	3852.84						

Well 42N/4W-18P1 Site No. 412853122210801

Altitude of land surface 3360 ft. Records available: 1981. 07/08/81, 3102.89.

Well 42N/4W-19G1 Site No. 412828122210201

Altitude of land surface 3440 ft. Records available: 1981-82. Highest water level 3402.01 ft, Mar. 29, 1982; lowest 3401.00 ft, Jan. 19, 1982.

07/15/81	3401.37	11/18/81	3401.05	03/29/82	3402.01	06/01/82	3401.75
30	3401.08	01/19/82	3401.00				

Table 1.--Water levels in wells--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level

Well 42N/4W-19K1 Site No. 412813122205701

Altitude of land surface 3460 ft. Records available: 1981-83. Highest water level 3427.89 ft, June 21, 1983; lowest 3423.24 ft, July 7, 1982.

07/09/81	3426.44	01/19/82	3424.18	06/01/82	3426.63	09/02/82	3424.22
09/01	3426.22	03/30	3427.21	07/07	3423.24	06/21/83	3427.89
11/18	3426.65	05/04	3427.31	08/10	3426.92	08/05	3427.60

Well 42N/4W-30N1 Site No. 412704122212901

Altitude of land surface 3490 ft. Records available: 1981-83. Highest water level 3431.22 ft, June 21, 1983; lowest 3424.89 ft, Jan. 19, 1982.

07/10/81	3429.86	01/19/82	3424.89	06/01/82	3430.02	09/02/82	3429.58
30	3429.70	04/20	3430.16	07/07	3430.02	06/21/83	3431.22
09/01	3429.57	05/04	3430.13	08/10	3429.78	08/02	3431.18
11/18	3429.44						

Table 2.--Water-quality data for samples collected from wells

[µS, microsiemen per centimeter at 25°C; °C, degree Celsius; NTU, Nephelometric turbidity units; mg/L, milligram per liter; <, less than. The analysis of each sample is displayed as one line on three consecutive pages]

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Hardness (mg/L as $CaCO_3$)	Hardness noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
			Well 40N/2W-23J1 Site No. 411755122021701							
09/17/81	0900	53	6.2	7.5	0.30	16	0	4.7	1.1	4.5
			Well 40N/4W-16A1 Site No. 411900122182101							
09/16/81	1100	87	6.4	10.5	45	27	0	5.4	3.2	6.4
			Well 40N/4W-17B2 Site No. 411903122200001							
09/16/81	1345	116	6.9	12.5	1.1	33	0	5.2	4.9	12
			Well 40N/4W-34H1 Site No. 411622122171501							
09/16/81	1430	88	6.2	10.0	.40	33	0	8.1	3.1	4.9
			Well 41N/4W-18N1 Site No. 412339122213901							
09/16/81	0815	84	6.1	10.0	1.0	23	0	6.6	1.5	7.5
			Well 41N/5W-4A1 Site No. 412606122251001							
09/15/81	1625	170	6.5	12.0	.50	60	9	12	7.4	10
08/10/82	----	156	6.5	13.5	.40	50	5	12	4.9	6.7

Table 2.--Water-quality data for samples collected from wells--Continued

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved, (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
			Well 40N/2W-23J1 Site No. 411755122021701						
09/17/81	34	0.5	2.3	<5.0	0.7	0.1	52	70	0.18
			Well 40N/4W-16A1 Site No. 411900122182101						
09/16/81	32	.6	1.8	<5.0	.9	.1	46	83	.24
			Well 40N/4W-17B2 Site No. 411903122200001						
09/16/81	42	.9	2.0	<5.0	2.1	.1	59	121	.83
			Well 40N/4W-34H1 Site No. 411622122171501						
09/16/81	23	.4	1.6	<5.0	.6	.0	51	93	.45
			Well 41N/4W-18N1 Site No. 412339122213901						
09/16/81	40	.7	1.6	<5.0	.8	.1	61	98	1.3
			Well 41N/5W-4A1 Site No. 412606122251001						
09/15/81	25	.6	2.8	18	7.6	.1	67	149	1.4
08/10/82	21	.4	3.0	9.0	6.4	<.1	60	146	3.1

Table 2.--Water-quality data for samples collected from wells--Continued

Date	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)
			Well 40N/2W-23J1 Site No. 411755122021701						
09/17/81	0.09	0.52	39	0.43	39	0.57	0.75	0.01	0.02
			Well 40N/4W-16A1 Site No. 411900122182101						
09/16/81	.11	.60	.56	.49	.42	.80	.83	.06	.02
			Well 40N/4W-17B2 Site No. 411903122200001						
09/16/81	.05	.62	.43	.57	.29	1.3	1.3	.14	.14
			Well 40N/4W-34H1 Site No. 411622122171501						
09/16/81	.10	.45	.46	.35	.34	.91	.89	.01	.02
			Well 41N/4W-18N1 Site No. 412339122213901						
09/16/81	.09	.64	.62	.55	.52	1.9	2.0	.08	.07
			Well 41N/5W-4A1 Site No. 412606122251001						
09/15/81	.12	.62	.62	.50	.51	2.0	2.6	.08	.08
08/10/82	.06	2.2	.80	2.1	--	3.9	6.6	.05	.06

Table 2.--Water-quality data for samples collected from wells--Continued

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Hardness (mg/L as $CaCO_3$)	Hardness noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
			Well 41N/5W-23M1 Site No. 412259122235101							
09/15/81	1830	130	6.2	8.0	20	51	0	11	5.8	7.5
			Well 41N/5W-25F1 Site No. 412225122222101							
09/16/81	0915	72	6.2	8.5	.80	23	0	7.1	1.2	4.9
			Well 42N/4W-18P1 Site No. 412853122210801							
09/15/81	1330	314	6.3	13.0	45	120	0	22	15	22
			Well 42N/4W-19G1 Site No. 412828122210201							
09/15/81	1400	323	6.0	13.0	16	130	0	24	16	24
			Well 42N/4W-31C1 Site No. 412656122211401							
09/15/81	----	354	6.2	11.0	.60	140	0	26	18	26
			Well 43N/3W-9K1 Site No. 413507122113101							
09/15/81	1000	184	7.5	16.0	1.0	68	0	20	4.3	10

Table 2.--Water-quality data for samples collected from wells--Continued

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved, (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
			Well 41N/5W-23M1 Site No. 412259122235101						
09/15/81	23	0.5	1.8	<5.0	1.2	0	64	117	0.13
			Well 41N/5W-25F1 Site No. 412225122222101						
09/16/81	30	.5	2.0	<5.0	.7	0	58	91	.92
			Well 42N/4W-18P1 Site No. 412853122210801M						
09/15/81	29	.9	2.0	<5.0	3.7	.2	71	229	<.10
			Well 42N/4W-19G1 Site No. 412828122210201						
09/15/81	29	1	2.0	<5.0	3.6	.3	78	243	<.10
			Well 42N/4W-31C1 Site No. 412656122211401						
09/15/81	28	1	2.4	6.0	10	.3	80	260	.19
			Well 43N/3W-9K1 Site No. 413507122113101						
09/15/81	22	.5	5.8	<5.0	2.2	.1	60	146	.59

Table 2.--Water-quality data for samples collected from wells--Continued

Date	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)
			Well 41N/5W-23M1 Site No. 412259122235101						
09/15/81	<0.06	0.28	0.23	--	0.08	0.36	1.2	0.01	<0.01
			Well 41N/5W-25F1 Site No. 412225122222101						
09/16/81	.09	.55	.77	0.46	.68	1.7	1.5	.02	.03
			Well 42N/4W-18P1 Site No. 412853122210801						
09/15/81	<.06	.53	.46	.49	.37	.59	.60	.05	<.01
			Well 42N/4W-19G1 Site No. 412828122210201						
09/15/81	<.06	.47	.30	.43	.19	.49	.56	.05	.03
			Well 42N/4W-31C1 Site No. 412656122211401						
09/15/81	.09	.58	.55	.49	.48	.74	.81	.15	.15
			Well 43N/3W-9K1 Site No. 413507122113101						
09/15/81	.06	.67	.66	.61	.47	1.3	1.3	.02	.01

Table 3.--Semiquantitative analyses of dissolved trace metals for samples collected from wells

[Results of chemical analyses in milligrams per liter; <, less than]

Well No.	Date	Aluminum	Antimony	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Gallium	Germanium
40N/2W-23J1	09-17-81	0.3	<0.03	0.01	<0.001	<1	0.01	<0.001	5	<0.05	<0.005	<0.01	<0.03	<0.03
40N/4W-16A1	09-16-81	.3	<.03	.01	<.001	<1	.03	<.001	5	<.05	.01	.01	<.03	<.03
40N/4W-17B2	09-16-81	.1	<.03	.01	<.001	<1	.05	<.001	5	<.05	<.005	<.01	<.03	<.03
40N/4W-34H1	09-16-81	.1	<.03	.01	<.001	<1	.01	<.001	7	<.05	<.005	<.01	<.03	<.03
41N/4W-18N1	09-16-81	.1	<.03	.01	<.001	<1	.01	<.001	7	<.05	<.005	<.01	<.03	<.03
41N/5W-4A1	09-15-81	.1	<.03	.03	<.001	<1	.03	.001	10	<.05	<.005	<.01	<.03	--
41N/5W-23M1	09-15-81	.1	<.03	.01	<.001	<1	.01	.001	10	<.05	.007	<.01	<.03	--
41N/5W-25F1	09-16-81	.1	<.03	.01	<.001	<1	.01	<.001	7	<.05	<.005	<.01	<.03	<.03
42N/4W-18P1	09-15-81	.1	<.03	.03	<.001	<1	.05	.003	30	<.05	<.005	.01	<.03	--
42N/4W-19G1	09-15-81	.3	<.03	.03	<.001	<1	.05	<.001	30	<.05	<.005	<.01	<.03	--
42N/4W-31C1	09-15-81	.3	--	.03	<.001	<1	.1	<.001	30	<.05	<.005	<.01	<.03	--
43N/3W-9K1	09-15-81	.1	<.03	.03	<.001	<1	.03	<.001	30	<.05	<.005	<.01	<.03	<.03

Well No.	Iron	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Silica	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc	Zirconium
40N/2W-23J1	<0.005	<0.005	1	<0.001	<0.01	<0.05	50	<0.01	5	0.05	<0.05	<0.005	<0.01	<0.03	<0.005
40N/4W-16A1	3	.005	3	.1	<.01	<.05	50	<.01	7	.05	<.05	<.005	<.01	.05	<.005
40N/4W-17B2	<.005	.007	5	.001	<.01	<.05	50	<.01	10	.07	<.05	<.005	.03	.01	<.005
40N/4W-34H1	.007	<.005	3	.003	<.01	<.05	50	<.01	5	.1	<.05	<.005	<.01	.1	<.005
41N/4W-18N1	.005	<.005	1	.003	<.01	<.05	50	<.01	7	.07	<.05	<.005	<.01	1	<.005
41N/5W-4A1	.01	.007	7	.003	<.01	<.05	70	<.01	10	.1	--	<.005	<.01	.01	--
41N/5W-23M1	.1	<.005	5	.1	<.01	<.05	70	<.01	7	.3	<.05	<.005	<.01	.01	<.005
41N/5W-25F1	.01	<.005	1	.01	<.01	<.05	50	<.01	5	.1	<.05	<.005	.01	.03	<.005
42N/4W-18P1	.01	.07	10	.1	<.01	<.05	70	<.01	30	.1	<.05	<.005	<.01	3	<.005
42N/4W-19G1	.01	.07	10	.1	<.01	<.05	70	<.01	30	.1	<.05	<.005	<.01	.1	<.005
42N/4W-31C1	<.005	.07	10	.001	<.01	<.05	70	<.01	30	.1	--	<.005	.05	.07	--
43N/3W-9K1	<.005	<.005	5	.001	<.01	<.05	50	<.01	10	.1	<.05	<.005	.01	.1	<.005

Table 4.--Discharge at springs

[gal/min, gallon per minute; e, estimated discharge]

Spring		Tributary to	Location	Measurements	
Name	No.			Date	Discharge (gal/min)
Big Springs near Grenada.	43N/5W-3LS1	Shasta River	NE¼SW¼ sec. 3, T. 43 N., R. 5 W., 11 miles north of Weed.	09-15-81	2,320
Big Springs near McCloud.	39N/2W-14AS1	McCloud River	NE¼NE¼ sec. 14, T. 39 N., R. 2 W., 4.5 miles east-southeast of McCloud.	08-19-81	276,000
Big Springs near Mount Shasta (City).	40N/4W-8HS1	Sacramento River	NE¼SE¼ sec. 8, T. 40 N., R. 4 W., in Mount Shasta City Park, 0.5 mile northwest of Mount Shasta (City).	09-16-81 08-10-82	9,780 8,750
Black Butte Springs near Black Butte.	41N/4W-18PS1	----------	SE¼SW¼ sec. 18, T. 41 N., R. 4 W., 3 miles south-southeast of Weed.	05-01-81 05-19-81 09-15-81 08-11-82	e450 350 270 290
Clear Creek Springs near McCloud.	41N/3W-23CS1	Clear Creek	SW¼NE¼ sec. 23, T. 41 N., R. 3 W., 3 miles southeast of Mount Shasta summit.	09-17-81 08-09-82	200 210
Dam Springs above Mud Creek Dam, near McCloud.	40N/2W-7BS1	----------	NE¼NE¼ sec. 7, T. 40 N., R. 2 W., 4.5 miles north of McCloud.	08-09-82	200
MacBride Springs in MacBride Springs Campground, near Mount Shasta (City).	41N/4W-35MS1	----------	SW¼SW¼ sec. 35, T. 41 N., R. 4 W., in MacBride Springs Campground, 4 miles northeast of Mount Shasta (City).	05-01-81 05-19-81 05-27-81 07-13-81 07-24-81 09-16-81 08-10-82	0 0 0 e45 40 67 471

Table 4.--Discharge at springs--Continued

Spring		Tributary to	Location	Measurements	
Name	No.			Date	Discharge (gal/min)
McGinnis Springs near Mount Shasta (City).	40N/3W-8HS1	----------	NE¼SE¼ sec. 8, T. 40 N., R. 3 W., 9 miles east of Mount Shasta (City).	05-20-81 09-16-81 08-10-82	45 0 700
Mossbrae Springs near Dunsmuir.	39N/4W-13HS1	Sacramento River	SW¼NW¼ sec. 7, T. 39 N., R. 3 W., 1.5 miles north of Dunsmuir.	--------	(1)
Mount Shasta Sulphur Springs near Mount Shasta summit.	41N/3W-9QS1	----------	SW¼SE¼ sec. 9, T. 41 N., R. 3 W., 0.1 mile southwest of Mount Shasta summit.	--------	(1)
Muir Springs below Lower Falls, near McCloud.	39N/2W-13ES1	McCloud River	NE¼ sec. 12, T. 39 N., R. 2 W., 5.5 miles east-southeast of McCloud.	--------	(1)
No Name Springs near Mount Shasta (City).	40N/3W-18FS1	Big Canyon Creek	SE¼SW¼ sec. 18, T. 40 N., R. 3 W., 2.5 miles east of Mount Shasta (City).	04-30-81 05-20-81 09-16-81 08-10-82	e40 30 628 1,950
No Name Springs near Widow Springs, near McCloud.	40N/2W-11FS1	----------	NE¼SW¼ sec. 11, T. 40 N., R. 2 W., 5.5 miles northeast of McCloud.	04-30-81 05-21-81 09-17-81	e100 54 30
Pomeroy Springs near Deer Mountain Road, near Weed.	42N/2W-9FS1	----------	NE¼NW¼ sec. 9, T. 42 N., R. 2 W., 8.5 miles northeast of Mount Shasta summit.	06-11-81 08-14-81 08-10-82	e20 0 4

See footnote at end of table.

Table 4.--Discharge at springs--Continued

Spring		Tributary to	Location	Measurements	
Name	No.			Date	Discharge (gal/min)
Shasta Springs near Dunsmuir.	39N/4W-12RS1	Sacramento River	NW¼NW¼ sec. 7, T. 39 N., R. 3 W., 1.7 miles north of Dunsmuir.	--------	([1])
Spring at 302 Big Springs Road, near Grenada.	43N/5W-23HS1	----------	SE¼NE¼ sec. 23, T. 43 N., R. 5 W., 8 miles north of Weed.	08-13-82	3,480
Unnamed spring upstream from Dam Springs, near McCloud.	40N/2W-7GS1	----------	NE¼NW¼ sec. 7, T. 40 N., R. 2 W., 4.5 miles north of McCloud.	08-09-82	180
Widow Springs near McCloud.	40N/2W-3AS1	----------	NE¼NE¼ sec. 3, T. 40 N., R. 2 W., 6.5 miles north-northeast of McCloud.	05-01-81 05-21-81 09-17-81	e110 150 180

[1]Discharge measurement not obtained at this site.

Table 5.--Water-quality data for samples collected from springs

[µS, microsiemen per centimeter at 25°C; °C, degree Celsius; NTU, Nephelometric turbidity units; mg/L, milligram per liter; <, less than. The analysis of each sample is displayed as one line on three consecutive pages]

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Oxygen, dissolved (mg/L)	Hardness (mg/L as $CaCO_3$)	Hardness noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
Big Springs near Grenada 43N/5W-3LS1										
09/15/81	1115	378	6.1	11.0	0.40	8.0	130	0	18	20
Big Springs near McCloud 39N/2W-14AS1										
08/19/81	1230	84	7.8	7.0	.20	10.1	32	0	6.7	3.8
Big Springs near Mount Shasta (City) 40N/4W-8HS1										
09/16/81	1500	91	6.4	7.5	.80	9.3	25	0	5.5	2.8
Black Butte Springs near Black Butte 41N/4W-18PS1										
05/19/81	1500	84	7.3	8.7	.80	9.5	31	0	7.7	2.8
09/15/81	1700	90	6.9	13.0	1.1	8.2	26	0	5.5	2.9
Clear Creek Springs near McCloud 41N/3W-23CS1										
09/17/81	1130	--	6.7	2.0	15	9.8	3	2	.9	.2
08/09/82	----	11	6.3	1.5	.40	--	4	0	1.3	.2
Dam Springs above Mud Creek Dam, near McCloud 40N/2W-7BS1										
08/09/82	1215	44	7.0	5.0	.40	--	16	0	4.3	1.3
MacBride Springs in MacBride Springs Campground, near Mount Shasta (City) 41N/4W-35MS1										
07/24/81	0730	46	7.0	5.0	.00	10.0	16	0	4.9	.8
09/16/81	1130	47	6.5	5.5	.40	9.9	15	0	4.6	.8
McGinnis Springs near Mount Shasta (City) 40N/3W-8HS1										
05/20/81	0900	23	7.2	4.0	.70	10.0	8	0	2.7	.2

Table 5.--Water-quality data for samples collected from springs--Continued

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)
Big Springs near Grenada 43N/5W-3LS1										
09/15/81	31	34	1	2.8	170	<5.0	17	0.2	66	253
Big Springs near McCloud 39N/2W-14AS1										
08/19/81	4.6	23	.4	1.5	--	<1.0	2.6	.0	37	74
Big Springs near Mount Shasta (City) 40N/4W-8HS1										
09/16/81	10	44	.9	1.7	38	<5.0	2.5	.1	61	98
Black Butte Springs near Black Butte 41N/4W-18PS1										
05/19/81	9.5	39	.8	1.7	--	.8	.3	.2	54	92
09/15/81	9.7	43	.9	2.2	43	<5.0	.4	.1	60	100
Clear Creek Springs near McCloud 41N/3W-23CS1										
09/17/81	.9	37	.2	.5	4	<5.0	<.1	.0	15	15
08/09/82	1.2	37	.3	.3	--	<5.0	.4	<.1	8.3	19
Dam Springs above Mud Creek Dam, near McCloud 40N/2W-7BS1										
08/09/82	2.9	26	.3	1.4	--	<5.0	.3	<.1	37	75
MacBride Springs in MacBride Springs Campground, near Mount Shasta (City) 41N/4W-35MS1										
07/24/81	4.0	32	.5	2.1	26	.1	.1	.0	46	69
09/16/81	3.5	31	.4	1.8	22	<5.0	<.1	.0	45	68
McGinnis Springs near Mount Shasta (City) 40N/3W-8HS1										
05/20/81	2.6	41	.4	.5	--	.7	.1	.0	25	39

Table 5.--Water-quality data for samples collected from springs--Continued

Date	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)
Big Springs near Grenada 43N/5W-3LS1										
09/15/81	0.12	<0.06	0.53	0.38	0.48	0.32	0.50	0.65	0.18	0.18
Big Springs near McCloud 39N/2W-14AS1										
08/19/81	--	.16	.21	.21	.05	--	--	.40	.04	.05
Big Springs near Mount Shasta (City) 40N/4W-8HS1										
09/16/81	.15	.10	.31	.30	.21	.20	.45	.52	.10	.09
Black Butte Springs near Black Butte 41N/4W-18PS1										
05/19/81	.05	.07	1.9	.34	1.8	.27	.39	1.9	.15	.14
09/15/81	.12	.09	.63	.61	.54	.52	.73	--	.09	.09
Clear Creek Springs near McCloud 41N/3W-23CS1										
09/17/81	<.10	.08	.54	.67	.46	.60	.86	.70	<.01	<.01
08/09/82	.17	.08	1.2	.70	1.1	--	.87	1.6	.02	.03
Dam Springs above Mud Creek Dam, near McCloud 40N/2W-7BS1										
08/09/82	.60	<.06	1.0	1.2	--	1.1	1.8	1.2	.05	.06
MacBride Springs in MacBride Springs Campground, near Mount Shasta (City) 41N/4W-35MS1										
07/24/81	.02	.04	.60	.65	.56	.55	.67	.64	.03	.02
09/16/81	<.10	.08	.60	.30	.52	.24	.47	.63	.01	.02
McGinnis Springs near Mount Shasta (City) 40N/3W-8HS1										
05/20/81	.01	.06	.78	.64	.72	.56	.65	.78	.04	.04

Table 5.--Water-quality data for samples collected from springs--Continued

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Oxygen, dissolved (mg/L)	Hardness (mg/L as $CaCO_3$)	Hardness noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
Mossbrae Springs near Dunsmuir 39N/4W-13HS1										
09/03/82	1200	106	6.6	8.0	1.0	10.5	38	0	8.6	4.0
Mount Shasta Sulphur Springs near Mount Shasta summit 41N/3W-9QS1										
08/13/81	1600	--	--	74.0	4,500	--	350	--	72	41
Muir Springs below Lower Falls, near McCloud 39N/2W-13ES1										
08/19/81	1355	92	8.1	7.0	.40	10.2	43	0	10	4.3
No Name Springs near Mount Shasta (City) 40N/3W-18FS1										
05/20/81	1115	41	7.0	5.0	.40	10.2	15	0	4.7	.7
09/16/81	1745	41	6.1	5.0	17	10.0	15	0	4.5	.8
No Name Springs near Widow Springs, near McCloud 40N/2W-11FS1										
05/21/81	1300	65	6.9	7.9	.50	9.6	13	0	3.9	.7
Pomeroy Springs near Deer Mountain Road, near Weed 42N/2W-9FS1										
06/11/81	1600	28	6.7	6.0	1.0	9.0	11	1	3.0	.9
08/10/82	0950	37	6.7	5.5	.20	--	12	0	3.4	.9
Shasta Springs near Dunsmuir 39N/4W-12RS1										
09/03/82	1045	98	6.6	8.0	.80	10.1	33	0	7.5	3.4
Unnamed spring above Dam Springs, near McCloud 40N/2W-7GS1										
08/09/82	1350	5	7.1	4.5	.40	--	15	0	4.0	1.3
Widow Springs near McCloud 40N/2W-3AS1										
05/21/81	1000	--	7.0	5.1	.30	10.6	13	0	4.0	.7

Table 5.--Water-quality data for samples collected from springs--Continued

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)
Mossbrae Springs near Dunsmuir 39N/4W-13HS1										
09/03/82	5.8	24	0.4	1.8	49	10	1.9	<0.1	44	92
Mount Shasta Sulphur Springs near Mount Shasta summit 41N/3W-9QS1										
08/13/81	43	21	1	10	--	2,200	4.5	.1	240	2,780
Muir Springs below Lower Falls, near McCloud 39N/2W-13ES1										
08/19/81	4.1	17	.3	1.2	--	<1.0	2.3	.0	29	69
No Name Springs near Mount Shasta (City) 40N/3W-18FS1										
05/20/81	2.9	28	.3	1.2	--	.5	.0	.0	33	53
09/16/81	2.6	26	.3	1.3	19	<5.0	<.1	.0	35	51
No Name Springs near Widow Springs, near McCloud 40N/2W-11FS1										
05/21/81	3.8	35	.5	1.9	--	.4	.2	.0	50	77
Pomeroy Springs near Deer Mountain Road, near Weed 42N/2W-9FS1										
06/11/81	2.9	34	.4	1.0	--	.1	--	.0	32	52
08/10/82	2.6	30	.3	.8	--	<5.0	.4	<.1	31	43
Shasta Springs near Dunsmuir 39N/4W-12RS1										
09/03/82	5.5	26	.4	1.5	43	10	1.9	<.1	45	86
Unnamed spring above Dam Springs, near McCloud 40N/2W-7GS1										
08/09/82	2.9	27	.3	1.2	--	<5.0	.3	<.1	35	56
Widow Springs near McCloud 40N/2W-3AS1										
05/21/81	3.9	80	.5	1.7	--	.3	.3	.0	51	50

Table 5.--Water-quality data for samples collected from springs--Continued

Date	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)
Mossbrae Springs near Dunsmuir 39N/4W-13HS1										
09/03/82	0.10	0.14	0.90	0.80	0.76	--	0.90	1.0	0.09	0.11
Mount Shasta Sulphur Springs near Mount Shasta summit 41N/3W-9QS1										
08/13/81	.00	22	110	100	88	78	100	110	.90	.64
Muir Springs below Lower Falls, near McCloud 39N/2W-13ES1										
08/19/81	.19	.13	.36	.28	.23	.14	.47	.56	.03	.05
No Name Springs near Mount Shasta (City) 40N/3W-18FS1										
05/20/81	.18	.05	.33	.35	.28	.31	.53	.50	.05	.05
09/16/81	<.10	.08	.36	.30	.28	.13	--	.55	.01	.02
No Name Springs near Widow Springs, near McCloud 40N/2W-11FS1										
05/21/81	.32	.06	.87	.55	.81	.49	.87	1.2	.06	.05
Pomeroy Springs near Deer Mountain Road, near Weed 42N/2W-9FS1										
06/11/81	.00	.05	.37	.35	.32	.31	.35	.41	.04	.02
08/10/82	<.10	<.06	.80	.20	--	.60	.08	--	.01	.08
Shasta Springs near Dunsmuir 39N/4W-12RS1										
09/03/82	.20	<.06	.60	.70	--	--	.90	1.0	.08	.09
Unnamed spring above Dam Springs, near McCloud 40N/2W-7GS1										
08/09/82	.30	.06	.30	.50	.24	.41	.80	.49	.04	.09
Widow Springs near McCloud 40N/2W-3AS1										
05/21/81	.12	.05	.18	.17	.13	.10	.29	.28	.07	.06

Table 6.--Semiquantitative analyses of dissolved

[Results of chemical analyses in milligrams

Spring No.	Spring Name	Date	Aluminum	Antimony	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
39N/2W-14AS1	Big Springs near McCloud.	08-19-81	0.07	<0.03	0.01	<0.001	<1	0.01	<0.001	7	<0.05	<0.005	<0.01
40N/4W-8HS1	Big Springs near Mount Shasta (City).	09-16-81	.1	<.03	.03	<.001	<1	.03	.003	5	<.05	<.005	<.01
41N/4W-18PS1	Black Butte Springs near Black Butte.	04-15-81	.3	<.03	.03	<.001	<1	.03	<.001	5	<.05	<.005	<.01
		05-19-81	<.05	--	.02	<.001	<1	.3	.001	5	<.05	<.005	<.01
41N/3W-23CS1	Clear Creek Springs near upper Mud Creek, near McCloud.	09-17-81	.1	<.03	.007	<.001	<1	.005	<.001	<1	<.05	<.005	<.01
40N/2W-7BS1	Dam Springs above Mud Creek Dam, near McCloud.	08-09-82	.07	<.03	.01	<.001	<1	.03	<.001	3	<.05	<.005	<.01
41N/4W-35MS1	MacBride Springs in MacBride Springs Campground, near Mount Shasta (City).	07-24-81	<.05	<.03	.01	<.001	<1	.01	<.001	5	<.05	<.005	<.01
		09-16-81	<.05	<.03	.01	<.001	<1	.01	<.001	5	<.05	<.005	<.01
40N/3W-8HS1	McGinnis Springs near Mount Shasta (City).	05-20-81	<.05	<.03	.03	<.001	<1	.1	<.001	5	<.05	<.005	<.01
39N/4W-13HS1	Mossbrae Springs near Dunsmuir.	09-03-82	.07	<.03	.01	<.001	<1	.03	.003	5	<.05	.007	.01
41N/3W-9QS1	Mount Shasta Sulphur Springs near Mount Shasta summit.	08-13-81	>10	[1].5	.05	.001	<1	.3	[1].05	.05	[1].1	--	<.01
39N/2W-13ES1	Muir Springs below Lower Falls, near McCloud.	08-19-81	.05	<.03	.01	<.001	<1	.01	<.001	10	<.05	<.005	<.01
40N/3W-18FS1	No Name Springs near Mount Shasta (City).	05-20-81	<.05	<.03	.005	<.001	<1	.1	<.001	5	<.05	<.005	<.01
		09-16-81	.1	<.03	.03	<.001	<1	.03	<.001	5	<.05	<.005	<.01
40N/2W-11FS1	No Name Springs near Widow Springs, near McCloud.	05-21-81	<.05	<.03	.02	<.001	<1	.1	<.001	3	<.05	<.005	<.01
42N/2W-9FS1	Pomeroy Springs near Deer Mountain Road, near Weed.	06-11-81	.1	<.03	.02	<.001	<1	.01	<.001	3	<.05	<.005	<.01
		08-10-82	<.05	<.03	.01	<.001	<1	.03	<.001	1	<.05	<.005	<.01
39N/4W-12RS1	Shasta Springs near Dunsmuir.	09-03-82	.07	--	.01	<.001	<1	.05	.001	3	<.05	.007	.01
40N/2W-7GS1	Unnamed spring upstream from Dam Springs, near McCloud.	08-09-82	<.05	<.03	.01	<.001	<1	.03	.001	1	<.05	<.005	<.01
40N/2W-3AS1	Widow Springs near McCloud.	05-21-81	<.05	<.03	.03	<.001	<1	.3	.001	5	<.05	<.005	<.01

[1]Value is questionable due to limitations of the analysis technique when used on samples of this type.

trace metals for samples collected from springs

per liter; <, less than; >, greater than]

Gal-lium	Germa-nium	Iron	Lead	Lith-ium	Magne-sium	Manga-nese	Molyb-denum	Nickel	Sil-ica	Sil-ver	Sodi-um	Stron-tium	Tin	Tita-nium	Vana-dium	Zinc	Zirco-nium
0.03	<0.03	<0.005	--	<0.01	5	0.003	<0.01	<0.05	30	<0.01	3	0.05	<0.05	<0.005	<0.01	--	--
<.03	<.03	.007	--	.007	3	.001	<.01	<.05	50	<.01	10	.07	<.05	<.005	.03	--	--
<.03	<.03	.07	--	.007	3	.003	<.01	<.05	50	<.01	10	.05	<.05	<.005	.03	--	--
<.03	<.03	.05	--	.01	3	.003	<.01	<.05	50	<.01	7	.05	<.05	<.005	.03	--	--
<.03	<.03	<.005	--	<.005	<1	<.001	<.01	<.05	10	<.01	<1	.005	<.05	<.005	<.01	--	--
<.03	<.03	.01	<0.03	.01	1	.007	<.01	<.05	30	<.01	3	.05	<.05	<.005	.01	--	--
<.03	<.03	.02	--	<.01	<1	.007	<.01	<.05	30	<.01	1	.03	<.05	<.005	<.01	--	--
<.03	<.03	<.005	--	<.01	<1	.003	<.01	<.05	50	<.01	1	.05	<.05	<.005	<.01	--	--
<.03	<.03	<.005	--	<.005	<1	.003	<.01	<.05	50	<.01	3	.05	<.05	<.005	<.01	--	--
--	--	.007	.05	.01	3	.003	.01	<.05	30	.01	5	.05	--	<.005	.01	--	--
<.03	[1]3	>10	--	.03	.03	1	[1].1	<.05	>100	<.01	30	.5	[1].5	[1].1	[1].1	0.3	<0.005
<.03	--	<.005	--	<.01	5	.003	<.01	<.05	30	<.01	3	.07	<.05	<.005	<.01	.01	--
<.03	<.03	<.005	--	<.01	<1	.003	<.01	<.05	30	<.01	3	.03	<.05	<.005	<.01	--	--
<.03	<.03	<.005	--	<.005	<1	.001	<.01	<.05	30	<.01	1	.03	<.05	<.005	<.01	.005	--
<.03	<.03	<.005	--	<.01	<1	<.001	<.01	<.05	50	<.01	3	.05	<.05	<.005	<.01	--	--
<.03	<.03	.004	--	<.01	<1	.007	<.01	<.05	30	<.01	3	.03	<.05	<.005	<.01	--	--
<.03	<.03	<.005	<.03	<.005	<1	.005	<.01	<.05	30	<.01	3	.05	<.05	<.005	<.01	.01	<.005
--	--	.005	.05	.01	3	.003	.01	<.05	30	.01	5	.05	--	--	.01	<.009	.007
<.03	<.03	.01	<.03	.007	1	.005	<.01	<.05	30	<.01	3	.05	<.05	<.005	.01	.01	<.005
.03	<.03	.005	--	.01	<1	<.003	<.01	<.05	50	<.01	3	.05	<.05	<.005	<.01	--	--

Table 7.--Gaging-station descriptions and summaries of mean, maximum, and minimum discharge

11341400 SACRAMENTO RIVER NEAR MOUNT SHASTA

LOCATION.--Lat 41°15'56", long 122°18'32", in SE¼SE¼ sec.33, T.40 N., R.4 W., Siskiyou County, Hydrologic Unit 18020005, on left bank 200 ft upstream from Stink Creek, 0.3 mi upstream from Southern Pacific railroad bridge, 1.7 mi downstream from Box Canyon Dam, and 3.3 mi south of Mount Shasta (City).

DRAINAGE AREA.--135 mi^2.

PERIOD OF RECORD.--October 1959 to September 1982.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft, from topographic map. Prior to July 1, 1966, water-stage recorder at site 500 ft upstream at datum 7.26 ft higher; July 1, 1966, to Aug. 13, 1974, at datum 3.00 ft higher.

REMARKS.--Records good. Flow regulated by Box Canyon Dam 1.7 mi upstream beginning December 1968, capacity, 26,100 acre-ft.

AVERAGE DISCHARGE (adjusted for change in contents in Lake Siskiyou).--21 years, 248 ft^3/s, 179,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft^3/s Dec. 22, 1964, gage height, 15.6 ft from floodmarks, present site and datum, from slope-area measurement of maximum flow; minimum, 37 ft^3/s Sept. 6, 1962. Maximum discharge since construction of Box Canyon Dam in 1968, 11,500 ft^3/s Jan. 16, 1974, gage height, 13.25 ft from floodmarks, from rating curve extended above 2,900 ft^3/s, on basis of flow-over-dam computation of maximum flow; minimum daily, 14 ft^3/s Dec. 8-16, 1972.

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1960	63.4	65.3	74.5	109	282	409	352	402	208	55.3	46.6	45.9	176
1961	62.7	111	267	178	539	273	475	666	364	70.9	49.7	50.8	257
1962	63.0	99.6	145	119	331	199	793	529	241	64.8	52.3	49.4	222
1963	321	224	425	168	752	229	619	643	167	75.2	50.7	48.8	307
1964	96.0	264	156	179	167	182	294	231	146	57.4	40.2	46.8	154
1965	55.4	120	938	399	244	210	684	450	181	85.9	60.4	51.5	291
1966	54.4	336	156	192	174	418	725	480	132	58.7	46.9	48.3	235
1967	50.8	283	382	236	291	367	316	913	532	115	59.1	50.6	300
1968	70.4	76.2	95.5	167	394	303	319	346	152	62.7	54.4	48.8	173
1969	63.1	88.7	128	240	298	313	707	832	399	74.4	42.4	338	293
1970	77.1	44.1	262	891	428	298	223	398	188	67.3	41.0	51.0	247
1971	91.4	231	299	359	334	336	445	733	308	98.5	50.9	52.1	278
1972	71.4	115	132	215	198	662	400	392	169	54.5	48.9	55.3	210
1973	107	247	62.0	269	393	309	548	755	173	63.5	43.1	57.4	251
1974	162	884	472	1,069	286	577	659	871	520	137	78.7	60.5	482
1975	79.6	137	141	117	238	558	293	851	546	110	75.5	60.6	268
1976	113	119	112	104	99.9	118	298	370	95.4	59.0	61.0	52.8	134
1977	89.1	69.8	65.5	73.0	75.0	54.4	109	133	82.0	40.9	38.9	61.3	74.2
1978	100	96.5	351	833	470	649	520	727	515	164	80.1	105	384
1979	89.1	141	30.7	119	157	299	424	618	111	66.3	51.0	59.3	181
1980	123	156	174	423	628	304	482	445	222	94.9	57.1	57.3	262
1981	99.2	68.2	145	309	388	312	389	310	105	59.1	48.8	49.6	189
1982	121	589	610	248	502	448	639	696	322	152	76.9	78.3	372

MAXIMUM AND MINIMUM DAILY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Maximum daily		Minimum daily		Water year	Maximum daily		Minimum daily	
	Date	Discharge	Date	Discharge		Date	Discharge	Date	Discharge
1960	02-08-60	1,760	08-10-60	43	1972	03-05-72	1,070	06-28-72	41
1961	12-01-60	1,440	08-25-61	42	1973	01-16-73	1,420	12-08-72	14
1962	04-14-62	1,200	09-06-62	40	1974	11-11-73	4,220	08-18-74	45
1963	04-14-63	3,240	03-31-63	47	1975	03-08-75	1,320	10-18-74	52
1964	11-14-63	1,310	08-17-64	38	1976	04-08-76	703	09-07-76	49
1965	12-22-64	8,970	10-01-64	46	1977	04-29-77	188	06-28-77	36
1966	11-18-65	1,650	08-14-66	45	1978	01-15-78	2,540	10-18-77	23
1967	05-22-67	1,510	10-01-66	48	1979	05-09-79	1,020	12-08-78	29
1968	02-23-68	1,030	09-08-68	46	1980	02-18-80	2,270	08-19-80	42
1969	09-04-69	1,170	06-28-69	39	1981	01-23-81	1,580	09-23-81	42
1970	01-23-70	3,530	10-31-69	34	1982	11-16-81	3,700	10-01-81	58
1971	03-26-71	1,110	08-20-71	37					

11342000 SACRAMENTO RIVER AT DELTA

LOCATION.--Lat 40°56'23", long 122°24'58", in SW¼NW¼ sec.35, T.36 N., R.5 W., Shasta County, Hydrologic Unit 18020005, U.S. Bureau of Reclamation property, on left bank 0.2 mi downstream from Dog Creek, 0.6 mi southeast of Delta, and 2.8 mi south of Lamoine.

DRAINAGE AREA.--425 mi^2.

PERIOD OF RECORD.--October 1944 to September 1982. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 1,075.00 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Records excellent. Some regulation since December 1968 by Lake Siskiyou, capacity, 26,100 acre-ft. Some minor diversions for irrigation above station.

AVERAGE DISCHARGE.--36 years, 1,162 ft^3/s, 841,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft^3/s Jan. 16, 1974, gage height, 27.20 ft, from rating curve extended above 19,000 ft^3/s on basis of slope-area measurements at gage heights 19.50 ft in gage well, 20.0 ft from floodmarks; 27.20 ft in gage well, and 28.7 ft from flood marks; minimum daily, 117 ft^3/s Aug. 5, 6, 12-15, 1977.

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1945	150	600	1,200	813	2,646	1,023	1,497	1,424	598	265	182	163	867
1946	504	1,235	3,356	1,814	928	1,329	1,992	1,514	543	273	194	181	1,159
1947	204	529	521	295	1,080	1,636	1,173	558	1,038	279	190	165	634
1948	537	394	334	2,537	525	886	2,955	2,252	1,382	423	260	237	1,061
1949	257	325	341	279	960	3,390	2,526	1,477	499	237	184	168	886
1950	186	235	226	801	1,369	1,416	1,980	1,181	464	211	162	170	694
1951	1,837	1,584	2,580	1,423	2,730	1,319	1,447	1,476	459	260	201	185	1,284
1952	260	949	2,553	1,250	2,828	2,200	3,351	2,690	1,035	457	268	232	1,500
1953	220	271	1,093	4,261	1,332	1,806	2,152	1,931	1,348	503	289	241	1,290
1954	268	1,163	752	2,046	3,468	2,331	3,314	1,567	557	306	284	248	1,342
1955	256	824	1,332	554	677	709	1,275	1,556	472	247	173	177	688
1956	186	432	4,310	4,234	2,743	1,907	2,222	2,285	1,004	383	260	233	1,685
1957	282	289	261	430	2,979	2,247	1,664	2,741	705	313	219	514	1,040
1958	1,371	894	1,637	2,296	9,557	3,623	4,117	3,442	1,701	592	354	302	2,441
1959	271	283	297	2,897	2,166	1,632	1,693	1,003	431	236	196	231	938
1960	218	215	242	652	2,274	2,308	1,454	1,453	777	287	197	176	849
1961	233	622	1,989	885	3,103	1,969	1,700	1,760	879	293	226	211	1,143
1962	222	598	1,086	528	3,818	1,600	2,389	1,457	711	269	232	194	1,071
1963	1,335	706	1,704	765	3,198	1,380	4,264	2,280	680	374	265	242	1,418
1964	342	1,357	558	1,181	777	646	814	586	433	223	169	172	603
1965	195	585	4,265	2,545	1,032	744	2,990	1,257	353	278	243	204	1,243
1966	200	1,915	790	1,779	1,665	2,911	2,651	1,389	460	258	188	189	1,195
1967	195	1,767	2,548	1,636	1,955	2,518	2,433	3,202	1,477	461	290	242	1,558
1968	262	270	442	803	2,678	1,554	1,132	858	426	223	212	188	746
1969	252	355	1,042	2,533	2,742	2,076	3,434	2,963	1,071	341	229	506	1,453
1970	246	273	2,490	6,310	2,073	1,828	948	967	483	247	188	200	1,358
1971	280	1,487	2,138	2,458	1,525	2,056	1,819	1,913	789	343	229	215	1,271
1972	250	388	518	1,131	1,336	2,406	1,625	1,042	494	240	203	207	819
1973	348	1,065	1,102	2,302	3,394	2,237	1,911	2,062	601	271	205	224	1,297
1974	720	6,075	3,264	6,078	1,691	4,214	2,899	2,331	1,254	513	333	266	2,475
1975	284	409	614	536	2,145	3,969	1,928	2,798	1,558	440	287	253	1,264
1976	348	405	400	309	619	685	1,374	998	317	200	212	182	503
1977	217	213	197	220	226	243	264	410	229	145	122	249	228
1978	243	341	1,678	6,168	3,444	3,976	2,696	2,128	1,286	467	281	387	1,920
1979	282	351	222	525	1,198	1,956	1,519	1,852	459	268	197	198	750
1980	407	643	661	2,388	3,944	1,948	1,661	1,158	575	321	233	219	1,169
1981	268	252	606	1,467	1,820	2,147	1,319	843	383	234	184	186	804
1982	344	3,118	3,661	1,433	2,778	2,620	3,938	2,086	843	486	301	261	1,812

Table 7.--Gaging-station descriptions and summaries of mean, maximum, and minimum discharge--Continued

11342000 SACRAMENTO RIVER AT DELTA--Continued

MAXIMUM AND MINIMUM DAILY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Maximum daily		Minimum daily		Water year	Maximum daily		Minimum daily	
	Date	Discharge	Date	Discharge		Date	Discharge	Date	Discharge
1945	02-02-45	9,800	10-01-44	150	1965	12-22-64	34,400	10-06-64	162
1946	12-27-45	12,600	10-03-45	159	1966	11-18-65	9,500	09-06-66	172
1947	02-12-47	6,610	09-26-47	155	1967	11-20-66	13,000	10-01-66	188
1948	01-07-48	18,600	10-01-47	155	1968	02-21-68	7,710	09-28-68	178
1949	03-18-49	11,900	09-24-49	159	1969	02-11-69	11,300	10-01-68	182
1950	02-06-50	3,780	09-01-50	146	1970	01-23-70	22,800	08-17-70	182
1951	10-29-50	19,200	10-01-50	174	1971	03-26-71	8,360	10-01-70	185
1952	12-01-51	14,400	09-23-52	210	1972	02-28-72	6,860	08-26-72	192
1953	01-09-53	16,000	10-14-53	202	1973	01-16-73	13,100	09-11-73	190
1954	01-17-54	9,570	08-24-54	210	1974	01-16-74	53,900	10-18-73	219
1955	12-06-54	8,380	09-05-55	158	1975	03-08-75	12,100	10-20-74	245
1956	12-22-55	26,700	10-03-55	176	1976	04-08-76	4,090	09-09-76	170
1957	02-24-57	21,000	09-08-57	188	1977	09-19-77	1,150	08-05-77	117
1958	02-24-58	21,800	09-06-58	279	1978	01-16-78	24,700	10-20-77	141
1959	01-12-59	16,000	09-08-59	180	1979	03-27-79	6,970	08-27-79	179
1960	02-08-60	11,800	09-29-60	167	1980	02-18-80	15,700	10-03-79	185
1961	02-11-61	10,700	10-01-60	175	1981	01-23-81	7,610	09-03-81	166
1962	02-13-62	11,600	09-08-62	178	1982	11-16-81	19,400	10-01-81	197
1963	04-14-63	17,200	10-05-62	218					
1964	01-20-64	9,120	08-27-64	155					

Table 7.--Gaging-station descriptions and summaries of mean, maximum, and minimum discharge--Continued

11367500 McCLOUD RIVER NEAR McCLOUD

LOCATION.--Lat 41°11'18", long 122°03'52", in NW¼NE¼ sec.34, T.39 N., R.2 W., Siskiyou County, Hydrologic Unit 18020004, on right bank 0.4 mi downstream from Angel Creek and 6 mi southeast of McCloud.

DRAINAGE AREA.--358 mi^2.

PERIOD OF RECORD.--April 1931 to September 1982.

REVISED RECORDS.--WSP 843: 1936(M). WSP 1445: 1940 (M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,711.2 ft, National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Two small diversions above station for irrigation and one 22-inch pipeline for town of McCloud and millpond.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--49 years, 925 ft^3/s, 670,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft^3/s Dec. 21, 1955, gage heights, 9.42 ft in gage well and 10.7 ft from floodmarks, from rating curve extended above 8,800 ft^3/s, on basis of slope-area measurement of maximum flow; minimum, 524 ft^3/s Nov. 23, 24, 1932.

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1932	560	557	555	560	556	652	742	781	639	580	562	544	607
1933	536	537	534	539	549	602	729	745	744	591	573	577	605
1934	564	557	575	626	738	755	677	631	579	561	597	566	618
1935	552	554	549	547	559	568	1,006	1,045	768	653	624	595	669
1936	589	584	569	655	842	800	858	794	710	606	577	573	679
1937	578	573	561	546	557	578	828	1,035	819	654	613	604	663
1938	596	789	1,047	684	830	1,150	1,622	2,182	1,549	1,112	959	886	1,119
1939	853	833	825	771	748	845	928	819	748	720	707	695	791
1940	678	654	706	957	1,569	1,518	1,354	1,019	899	834	805	781	979
1941	755	740	1,010	988	1,259	1,600	1,644	1,684	1,244	1,073	993	954	1,166
1942	929	910	1,287	1,191	1,523	1,134	1,505	1,435	1,282	1,060	990	962	1,181
1943	946	944	945	941	938	1,225	1,378	1,133	998	905	863	832	1,004
1944	816	808	783	784	838	848	901	954	837	761	739	725	816
1945	719	724	772	734	959	798	896	1,092	829	762	729	716	810
1946	722	759	1,006	944	797	886	1,109	1,142	927	830	784	759	890
1947	745	775	758	731	793	884	882	794	870	738	709	703	782
1948	719	706	692	900	710	709	1,002	1,194	999	812	765	750	830
1949	734	730	715	704	713	838	988	949	801	760	736	719	783
1950	710	707	699	725	746	794	936	952	810	734	712	702	769
1951	850	952	1,158	830	979	880	1,057	1,004	859	794	776	754	907
1952	742	775	980	848	908	871	1,389	1,585	1,155	964	884	853	996
1953	829	810	808	1,208	963	955	1,213	1,325	1,191	995	919	890	1,009
1954	871	902	870	879	1,085	1,293	1,696	1,308	1,059	973	921	889	1,061
1955	887	909	888	823	811	842	917	1,028	878	803	785	775	863
1956	757	775	1,879	1,327	1,278	1,188	1,420	1,536	1,195	1,045	987	951	1,196
1957	908	883	857	836	1,199	1,205	1,079	1,156	965	888	856	843	972
1958	846	837	938	950	2,155	1,453	1,624	1,744	1,413	1,154	1,083	1,040	1,263
195	1,009	993	970	1,290	1,112	1,138	1,245	1,153	1,041	973	935	926	1,065
1960	902	879	869	864	1,023	1,177	1,094	1,027	954	841	807	791	935
1961	772	781	909	809	1,115	940	987	1,069	943	826	802	785	893
1962	773	799	828	774	1,000	850	1,212	1,146	972	838	805	781	897
1963	955	797	960	794	1,180	942	1,596	1,668	1,091	995	971	940	1,054
1964	911	964	851	896	855	834	902	914	849	780	758	733	854
1965	729	738	1,369	1,175	967	939	1,379	1,184	1,015	900	880	843	1,010
1966	799	833	781	780	777	1,008	1,336	1,135	907	829	793	770	896
1967	737	835	1,044	858	951	1,139	1,121	1,643	1,400	1,061	959	916	1,056
1968	863	839	822	848	1,016	1,051	1,105	1,085	916	827	801	777	912
1969	760	759	841	1,113	1,077	947	1,505	1,772	1,224	1,009	936	888	1,069
1970	854	830	1,174	2,348	1,385	1,365	1,139	1,075	994	926	872	848	1,151
1971	833	911	929	902	904	1,089	1,368	1,494	1,178	998	935	898	1,037

Table 7.--Gaging-station descriptions and summaries of mean, maximum, and minimum discharge--Continued

11367500 McCLOUD RIVER NEAR McCLOUD--Continued

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1972	864	850	842	856	866	1,155	1,149	1,007	900	844	817	797	912
1973	794	798	839	929	978	1,119	1,172	1,209	956	875	833	807	942
1974	815	1,569	1,148	2,134	1,223	1,911	1,896	1,589	1,370	1,161	1,050	997	1,406
1975	968	945	951	924	972	1,204	1,180	1,621	1,319	1,038	970	928	1,086
1976	911	894	876	839	859	867	869	857	795	767	761	746	837
1977	735	724	708	696	695	700	704	695	675	659	663	669	694
1978	645	654	764	1,354	1,149	1,406	1,267	1,116	963	844	802	776	978
1979	744	728	709	704	721	801	861	917	728	673	668	659	743
1980	678	689	664	969	1,249	1,044	1,027	978	821	756	724	705	857
1981	693	680	720	712	814	867	871	789	700	671	656	646	734
1982	654	1,104	1,194	856	1,205	1,277	1,560	1,478	1,135	948	876	845	1,093

MAXIMUM AND MINIMUM DAILY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Maximum daily		Minimum daily		Water year	Maximum daily		Minimum daily	
	Date	Discharge	Date	Discharge		Date	Discharge	Date	Discharge
1932	05-02-32	860	09-19-32	539	1958	02-24-58	4,980	12-12-57	799
1933	05-31-33	907	11-23-32	524	1959	01-12-59	3,830	09-16-59	912
1934	03-29-34	1,040	07-27-34	541	1960	02-08-60	1,790	09-14-60	785
1935	04-16-35	1,300	11-10-34	538	1961	02-11-61	1,630	11-02-60	755
1936	02-22-36	2,330	12-16-35	562	1962	02-10-62	1,620	01-22-62	755
1937	04-15-37	1,300	01-02-37	544	1963	04-15-63	2,690	01-23-63	758
1938	12-11-37	3,500	10-28-37	581	1964	11-15-63	1,400	09-25-64	713
1939	04-04-39	1,000	09-07-39	689	1965	12-22-64	5,650	10-01-64	713
1940	02-28-40	7,540	12-26-39	638	1966	04-10-66	1,650	02-02-66	749
1941	03-01-41	3,050	12-13-40	716	1967	05-23-67	2,150	10-28-66	728
1942	12-16-41	3,150	11-25-41	886	1968	02-23-68	1,620	09-30-68	765
1943	03-30-43	1,710	09-27-43	821	1969	01-21-69	3,130	12-02-68	737
1944	05-09-44	1,100	09-23-44	719	1970	01-23-70	10,000	12-07-69	803
1945	05-14-45	1,730	12-16-44	692	1971	03-26-71	2,130	10-14-70	823
1946	12-29-45	2,330	10-02-45	704	1972	04-06-72	2,080	09-23-72	788
1947	06-08-47	1,260	08-31-47	698	1973	03-01-73	1,650	12-08-72	753
1948	01-07-48	2,430	12-30-47	686	1974	01-16-74	10,100	10-19-73	782
1949	03-19-49	1,150	01-10-49	698	1975	05-15-75	1,850	01-29-75	908
1950	04-22-50	1,040	12-20-49	690	1976	02-28-76	1,180	09-30-76	739
1951	12-15-50	2,380	10-14-50	690	1977	10-02-76	742	07-28-77	651
1952	12-01-51	2,240	10-18-51	732	1978	01-16-78	2,770	10-02-77	609
1953	01-13-53	2,190	12-21-52	792	1979	05-06-79	1,090	09-20-79	635
1954	03-10-54	3,530	01-14-54	833	1980	02-19-80	3,760	12-20-79	641
1955	12-06-54	1,230	09-22-55	768	1981	03-26-81	1,280	09-18-81	641
1956	12-21-55	8,480	11-02-55	750	1982	12-20-81	3,540	10-26-81	642
1957	02-26-57	3,650	01-30-57	822					

11517500 SHASTA RIVER NEAR YREKA

LOCATION.--Lat 41°49'23", long 122°35'40", in SE¼NE¼ sec.24, T.46 N., R.7 W., Siskiyou County, Hydrologic Unit 18010207, on right bank 0.5 mi upstream from mouth and 7 mi north of Yreka.

DRAINAGE AREA.--793 mi^2.

PERIOD OF RECORD.--October 1933 to December 1941, December 1944 to September 1982.

REVISED RECORDS.--WSP 1929: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,000 ft, from topographic map. Prior to Nov. 2, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Lake Dwinnell beginning in 1928; storage limited to 50,000 acre-ft. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--43 years, 186 ft^3/s, 134,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft^3/s Dec. 22, 1964, gage height, 12.92 ft in gage well and 13.85 ft from floodmarks, from rating curve extended above 4,100 ft^3/s on basis of slope-area measurement of maximum flow; minimum, 3.4 ft^3/s Aug. 13, 1939, when about 2 ft^3/s was being diverted around gage.

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1934	112	131	134	145	133	98.9	36.4	38.9	35.9	18.3	13.8	41.5	77.9
1935	110	134	144	168	179	134	112	30.0	20.0	13.0	14.4	42.3	91.9
1936	108	123	129	306	204	188	89.1	47.0	48.9	15.3	14.1	39.5	109
1937	101	117	120	110	171	187	186	44.4	71.7	16.1	13.6	42.4	97.7
1938	123	176	331	292	589	621	554	335	144	116	96.2	104	288
1939	151	171	181	179	178	200	70.2	39.1	18.4	17.1	8.35	62.8	106
1940	116	121	212	234	381	503	448	104	73.6	58.0	59.8	111	201
1941	148	160	279	233	510	538	711	363	208	115	111	136	291
*	*	*	*	*	*	*	*	*	*	*	*	*	*
1945	--	--	--	--	--	--	126	150	103	30.9	31.6	66.7	--
1946	143	185	250	341	241	254	167	66.6	80.3	48.4	43.7	76.7	158
1947	142	189	180	179	200	157	79.4	30.0	77.1	22.5	29.2	55.7	111
1948	147	172	154	265	167	178	165	177	155	37.4	60.4	113	149
1949	172	209	247	183	245	201	100	92.2	66.4	20.1	26.7	83.6	137
1950	151	158	158	236	224	211	128	47.2	61.3	18.3	20.2	74.4	123
1951	192	216	383	427	634	240	129	109	32.6	16.2	22.2	61.3	203
1952	153	177	340	310	653	360	254	151	147	59.3	50.5	79.4	226
1953	146	184	339	712	403	326	173	269	284	46.3	48.6	82.6	251
1954	179	235	240	398	533	405	211	80.1	132	23.6	44.5	81.8	211
1955	154	182	186	190	181	129	67.1	53.8	18.0	12.7	11.3	49.8	102
1956	124	186	777	750	554	482	249	212	151	71.4	61.6	112	311
1957	180	204	219	218	361	488	211	107	59.1	20.8	35.6	103	183
1958	213	258	351	488	1,002	590	525	245	296	117	73.1	121	352
1959	166	201	208	248	312	206	104	125	55.7	20.4	32.5	84.9	146
1960	139	173	169	172	325	221	124	92.7	35.5	10.1	16.1	32.6	125
1961	118	183	264	171	305	232	122	108	96.4	17.2	34.6	105	145
1962	153	220	282	226	320	239	98.5	133	53.8	22.8	31.4	62.9	153
1963	351	237	389	227	539	260	292	240	132	78.4	49.8	104	240
1964	192	228	221	408	255	223	118	102	127	31.4	19.7	54.4	165
1965	136	191	1,223	783	396	224	360	120	98.7	66.4	81.7	91.5	315
1966	162	237	262	375	216	220	114	65.9	63.2	15.0	13.9	62.2	150
1967	125	200	282	297	238	271	222	231	162	38.4	28.6	72.3	180
1968	181	191	221	263	317	210	64.3	64.3	49.7	12.1	37.8	57.4	139
1969	147	184	222	503	336	254	224	123	127	72.5	34.0	80.7	191
1970	185	197	402	982	496	399	153	135	83.2	35.7	23.1	59.1	262
1971	165	284	439	471	320	454	315	359	202	66.6	34.5	84.8	266
1972	190	215	243	394	329	575	75.7	106	79.0	27.3	32.5	80.9	196
1973	152	186	223	229	213	178	75.7	65.4	28.1	19.9	16.0	55.4	120
1974	163	314	357	1,179	401	651	753	214	128	76.5	58.2	71.7	364

Table 7.--Gaging-station descriptions and summaries of mean, maximum, and minimum discharge--Continued

11517500 SHASTA RIVER NEAR YREKA--Continued

MEAN MONTHLY AND YEARLY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
1975	157	201	191	245	394	738	399	297	160	82.5	54.2	75.2	249
1976	172	193	226	225	251	258	130	86.8	49.3	21.8	110	72.7	150
1977	136	175	162	162	166	97.7	73.5	85.5	44.3	19.1	17.3	30.9	97.2
1978	117	155	306	436	299	344	351	133	101	77.6	70.8	182	214
1979	149	186	203	208	202	210	133	134	31.5	21.7	30.8	70.6	131
1980	142	233	221	525	394	290	180	108	122	36.5	29.2	62.3	193
1981	146	182	206	186	223	189	121	79.0	35.7	13.7	9.51	26.7	118
1982	135	289	588	334	671	587	376	128	136	136	47.3	96.1	291

MAXIMUM AND MINIMUM DAILY DISCHARGES, IN CUBIC FEET PER SECOND

Water year	Maximum daily		Minimum daily		Water year	Maximum daily		Minimum daily	
	Date	Discharge	Date	Discharge		Date	Discharge	Date	Discharge
1934	01-03-34	164	07-26-34	6.5	1962	12-21-61	723	08-03-62	10
1935	04-08-35	264	07-04-35	6.0	1963	02-03-63	1,440	08-01-63	32
1936	01-15-36	878	08-16-36	6.5	1964	01-20-64	2,620	08-24-64	7.5
1937	04-15-37	442	07-15-37	6.0	1965	12-23-64	10,400	07-30-65	31
1938	03-23-38	1,470	09-03-38	56	1966	01-05-66	1,050	07-26-66	6.4
1939	03-27-39	272	08-13-39	4.1	1967	12-05-66	969	08-07-67	14
1940	02-29-40	1,900	06-19-40	32	1968	02-23-68	645	07-19-68	4.9
1941	03-02-41	1,500	08-07-41	83	1969	01-21-69	2,090	08-18-69	16
* * *	* * * * * * * * * * * * * * *				1970	01-27-70	4,010	08-15-70	11
1946	01-04-46	712	08-19-46	19	1971	01-18-71	1,300	08-07-71	18
1947	11-26-46	347	07-03-47	14	1972	03-03-72	2,280	07-20-72	15
1948	01-07-48	828	07-27-48	78	1973	12-19-72	322	08-04-73	5.7
1949	02-23-49	435	08-02-49	9	1974	01-16-74	5,800	09-16-74	38
1950	01-20-50	568	07-23-50	7.7	1975	03-19-75	1,900	08-06-75	36
1951	02-05-51	1,510	07-29-51	11	1976	03-01-76	511	07-29-76	8.0
1952	02-02-52	1,610	08-21-52	25	1977	11-15-76	208	08-03-78	6.0
1953	01-19-53	1,830	07-26-53	22	1978	01-17-78	1,570	03-03-78	27
1954	01-28-54	1,380	08-07-54	12	1979	01-12-79	364	08-04-79	7.9
1955	11-13-54	220	07-22-55	5.9	1980	01-13-80	2,410	08-21-80	11
1956	12-22-56	5,440	07-18-56	46	1981	12-03-80	395	08-24-81	1.5
1957	03-12-57	1,610	07-07-57	10	1982	12-20-81	3,620	08-27-82	28
1958	01-29-58	2,720	08-13-58	41					
1959	02-23-59	483	07-18-59	9.5					
1960	02-09-60	1,550	07-17-60	5.5					
1961	12-02-60	1,020	07-28-61	7.0					

Table 8.--Discharge measurements and suspended-sediment data for samples collected at miscellaneous stream sites

[°C, degree Celsius; ft/s, foot per second; ft^3/s, cubic foot per second; mg/L, milligram per liter; e, estimated]

Site		Date (time)	Water temperature (°C)	Mean velocity (ft/s)	Discharge (ft^3/s)	Suspended sediment	
Name	Location					Concentration (mg/L)	Percent sand
Ash Creek at Military Pass Road.	NE¼SE¼ sec. 33, T. 41 N., R. 1 W., 1.5 miles downstream from Cold Creek and 9.2 miles northeast of McCloud.	05-26-81	9.5	2.51	4.97	174	--
		07-21-81	21	2.02	7.52	101	47
		08-19-81	13	1.77	4.57	98	44
		09-14-81	----	----	6.41	------	--
		07-30-84	----	2.72	17.5	64	74
Ash Creek at Road 13.	SW¼SW¼ sec. 33, T. 41 N., R. 1 W., at Road 13, 10 miles northeast of McCloud.	05-26-81	13	1.83	3.24	102	--
		08-19-81	15	1.56	3.19	66	23
		07-30-84	----	2.97	15.3	------	--
Ash Creek at Road 19.	NE¼SW¼ sec. 14, T. 41 N., R. 2 W., 1.3 miles upstream from Cold Creek and 10.3 miles north-northeast of McCloud.	05-26-81	----	----	4.97	------	--
		07-21-81	----	----	7.52	------	--
		08-19-81					
		(1100)	----	1.77	4.57	------	--
		(1140)	15	1.80	4.44	86	41
		09-14-81	----	----	6.41	------	--
		07-30-84	----	2.65	14.6	------	--
Ash Creek at upper road crossing.	NE¼NE¼ sec. 16, T. 41 N., R. 2 W., at logging road crossing, 9.8 miles north-northeast of McCloud.	08-19-81	12	1.77	4.43	172	30
		07-30-84	----	2.02	16.4	------	--
Ash Creek downstream from springs.	SE¼NW¼ sec. 17, T. 41 N., R. 2 W., near logging road, 9 miles north of McCloud.	08-19-81	8.0	1.38	5.38	125	57
		07-30-84	----	2.31	14.6	------	--
Bolam Creek at jeep trail crossing.	SW¼SW¼ sec. 18, T. 42 N., R. 3 W., 1.5 miles upstream from Whitney Creek and 7.7 miles east-northeast of Weed.	04-30-81	----	----	0	------	--
		05-28-81	----	----	0	------	--
		07-17-81	20	----	------	19,900	84
		07-20-81	25	2.37	.34	571	69
		07-21-81	9.0	1.78	1.19	1,760	53
		07-28-81	----	----	e.5	------	--
		07-29-81	----	----	e.5	------	--
		07-30-81	----	----	e.05	------	--
		08-04-81	----	----	0	------	--
		08-05-81	----	----	e.1	------	--
		08-07-81	----	----	e.1	------	--
		08-20-81	----	----	0	------	--
		08-24-81	----	----	e.05	------	--
		08-28-81	----	----	0	------	--
		07-31-84	----	2.94	3.16	3,240	44
Bolam Creek upstream from Whitney Creek.	SE¼SE¼ sec. 2, T. 42 N., R. 4 W., 100 feet upstream from Whitney Creek and 7.0 miles northeast of Weed.	07-17-81	22	2.37	1.02	15,200	87
		07-31-84	----	2.21	4.72	------	--
Bolam Creek (East Fork) upstream from Coquette Falls.	NW¼NE¼ sec. 32, T. 42 N., R. 3 W., 100 feet upstream from Coquette Falls and 9 miles east of Weed.	08-24-81	8.0	.87	.48	136	70
		07-31-84	----	1.32	1.16	------	--
Bolam Creek (West Fork) upstream from Coquette Falls.	NW¼NE¼ sec. 32, T. 42 N., R. 3 W., 200 feet upstream from Coquette Falls and 9 miles east of Weed.	08-24-81	5.5	1.40	.84	1,060	62
		07-31-84	----	1.15	1.81	------	--

Table 8.--Discharge measurements and suspended-sediment data for samples collected at miscellaneous stream sites--Continued

Site		Date (time)	Water temperature (°C)	Mean velocity (ft/s)	Discharge (ft^3/s)	Suspended sediment	
Name	Location					Concentration (mg/L)	Percent sand
Brewer Creek at lower crossing.	SW¼SE¼ sec. 10, T. 41 N., R. 2 W., 0.1 mile north of Road 19 junction.	08-09-84	----	1.63	1.53	610	90
Brewer Creek at upper crossing.	NW¼SE¼ sec. 6, T. 41 N., R. 2 W., 0.75 mile west of jeep trail.	08-09-84	----	1.48	2.74	------	--
Cascade Gulch.	SE¼SW¼ sec. 35, T. 41 N., R. 4 W., 0.05 mile northeast of Cascade Gulch and Memorial Highway intersection.	08-09-84	----	----	.002	[1]8,800	99
Cold Creek at Military Pass Road.	NW¼SE¼ sec. 23, T. 41 N., R. 2 W., 0.7 mile upstream from Ash Creek and 9.5 miles north-northeast of McCloud.	05-01-81	----	----	e.4	------	--
		05-21-81	9.5	.81	.13	2	--
		07-17-81	----	----	e.18	------	--
		07-21-81	----	----	e.05	------	--
		08-13-81	----	----	0	------	--
		08-22-81	----	----	e.005	------	--
		08-26-81	----	----	e.005	------	--
		07-30-84	----	1.60	3.84	------	--
Cold Creek at mouth.	NW¼SE¼ sec. 23, T. 41 N., R. 2 W., at Military Pass Road and Cold Creek intersection.	07-30-84	----	1.75	9.93	39	55
Gravel Creek at Military Pass Road (crossing No. 1).	SW¼SE¼ sec. 21, T. 42 N., R. 2 W., at Military Pass Road, 14.4 miles north-northeast of McCloud.	07-21-81	----	----	0	------	--
		08-19-81	----	----	0	------	--
		08-01-84	----	.76	.305	------	--
Gravel Creek at crossing No. 2.	SW¼NE¼ sec. 31, T. 42 N., R. 2 W., approximately 2.3 miles upstream from Military Pass Road and 12.8 miles north of McCloud.	05-27-81	----	----	0	------	--
		07-17-81	----	----	0	------	--
		07-21-81	----	----	0	------	--
		08-19-81	----	----	0	------	--
		08-01-84	----	1.08	1.12	89	69
Gravel Creek at crossing No. 3.	NE¼NE¼ sec. 31, T. 42 N., R. 2 W., near logging road.	08-01-84	----	1.09	1.32	------	--
Gravel Creek at crossing No. 4.	NE¼NW¼ sec. 31, T. 42 N., R. 2 W., near logging road.	08-01-84	----	1.10	1.45	------	--
Inconstance Creek, lower reach.	SW¼ sec. 23, T. 42 N., R. 3 W., approximately 2.3 miles upstream from Military Pass Road and 12 miles east-northeast of Weed.	07-21-81	----	----	.47	------	--
		08-19-81	17.0	.37	.22	40	--
Inconstance Creek, upper reach.	Sec. 26, T. 42 N., R. 3 W., approximately 4 miles upstream from Military Pass Road and 10.5 miles east of Weed.	08-19-81	17.5	.42	.29	34	--
		08-01-84	----	1.10	2.07	110	67
Inconstance Creek upstream from Military Pass Road.	NW¼NE¼ sec. 19, T. 42 N., R. 3 W., approximately 0.8 mile upstream from Military Pass Road and 13 miles east-northeast of Weed.	07-21-81	25.0	.85	.47	564	75
		08-19-81	----	----	0	------	--

See footnotes at end of table.

Table 8.--Discharge measurements and suspended-sediment data for samples collected at miscellaneous stream sites--Continued

Site		Date (time)	Water temperature (°C)	Mean velocity (ft/s)	Discharge (ft^3/s)	Suspended sediment	
Name	Location					Concentration (mg/L)	Percent sand
McCloud River upstream from Lower Falls.[2]	SW¼NE¼ sec. 12, T. 39 N., R. 2 W., approximately 250 feet upstream from Lower Falls and 7.2 miles east of McCloud.	09-15-64	----	----	22.4	------	--
		10-11-67	----	----	43.1	------	--
		09-20-68	----	----	34.6	------	--
		10-23-68	----	----	55.8	------	--
		08-31-70	----	----	56.7	------	--
		07-21-71	----	----	44.6	------	--
		09-11-72	----	----	35.8	------	--
		09-17-73	----	----	37.5	------	--
		09-06-74	----	----	77.0	------	--
		09-02-75	----	----	67.0	------	--
		08-02-76	----	----	36.7	------	--
		09-13-76	----	----	34.1	------	--
		05-31-77	----	----	22.4	------	--
		08-02-77	----	----	10.2	------	--
		09-06-77	----	----	9.31	------	--
		10-03-77	----	----	18.4	------	--
		09-28-78	----	----	36.0	------	--
Mud Creek at Highway 89.	SE¼NW¼ sec. 3, T. 39 N., R. 2 W., approximately 30 feet upstream from Highway 89 bridge and 2.8 miles east of McCloud.	08-18-81	24	2.31	8.00	1,790	80
		08-02-84	----	3.36	39.5	------	--
Mud Creek at Mud Creek Dam.	NE¼NW¼ sec. 8, T. 40 N., R. 2 W., at Mud Creek Dam, 5.0 miles north of McCloud.	05-20-81	7.5	4.43	18.5	125	66
		08-18-81	15	2.30	10.5	2,910	94
		08-02-84	----	3.84	36.4	------	--
Mud Creek at pipeline crossing.	NE¼NE¼ sec. 21, T. 40 N., R. 2 W., approximately 1.5 miles upstream from Road 13 and 3.2 miles northeast of McCloud.	08-18-81	18	2.55	9.7	2,280	90
		08-02-84	----	4.13	41.8	------	--
Mud Creek at Road 13.	NE¼NE¼ sec. 27, T. 40 N., R. 2 W., 1.3 miles upstream from McCloud River Railroad and 4.6 miles northeast of McCloud.	05-01-81	----	----	------	2,740	--
		05-20-81	12.5	2.29	14.8	60	61
		07-21-81	----	----	15.4	------	--
		08-13-81	23	----	------	1,040	--
		08-18-81	20.5	2.73	8.97	1,580	82
		08-19-81	15.5	----	------	1,220	87
		09-01-81	----	----	9.22	------	--
		09-14-81	----	----	11.3	------	--
		11-02-81	----	----	6.11	------	--
		08-02-84	----	3.59	36.8	716	80
Mud Creek downstream from Clear Creek fork.	NE¼ sec. 25, T. 41 N., R. 3 W., approximately 0.25 mile downstream from Clear Creek and 7.2 miles north of McCloud.	08-18-81	8.5	1.34	13.1	723	81
		08-02-84	----	3.13	30.5	------	--
Pilgrim Creek near Military Pass Road.	NE¼NW¼ sec. 36, T. 41 N., R. 2 W., at Road 31 crossing, 8.7 miles northeast of McCloud.	05-01-81	----	----	e.2	------	--
		05-21-81	8.5	.58	.14	3	--
		07-17-81	----	----	0	------	--
		07-21-81	----	----	0	------	--
		08-13-81	----	----	0	------	--
		08-22-81	----	----	0	------	--
		08-26-81	----	----	0	------	--
		08-09-84	----	1.87	4.78	13	52

See footnotes at end of table.

Table 8.--Discharge measurements and suspended-sediment data for samples collected at miscellaneous stream sites--Continued

Site		Date (time)	Water temperature (°C)	Mean velocity (ft/s)	Discharge (ft^3/s)	Suspended sediment	
Name	Location					Concentration (mg/L)	Percent sand
Squaw Valley Creek at Highway 89.	SE¼SW¼ sec. 6, T. 39 N., R. 2 W., at intersection of Highway 89 and Squaw Valley Creek.	08-02-84	----	2.81	24.4	20	48
Squaw Valley Creek at Road 31.	NW¼NE¼ sec. 12, T. 40 N., R. 3 W., at Road 31, 4.8 miles north of McCloud.	05-27-81	3.5	1.17	2.65	2	--
		08-26-81	----	----	0	------	--
		08-02-84	----	.96	2.21	------	--
Whitney Creek at county road crossing.	SE¼NE¼ sec. 34, T. 43 N., R. 4 W., 0.1 mile southeast of county road.	07-31-84	----	3.45	7.37	10,100	64
Whitney Creek at Highway 97.	SE¼SE¼ sec. 34, T. 43 N., R. 4 W., at Highway 97 bridge, 7.8 miles northeast of Weed.	05-01-81	----	----	0	------	--
		05-28-81	----	----	0	------	--
		07-01-81	27.0	----	------	17,300	--
		07-14-81					
		(0900)	7.0	1.45	1.23	111	41
		(0945)	17.0	----	------	744	32
		07-15-81	9.0	1.88	2.42	568	49
		07-20-81	25.0	2.10	2.41	1,310	76
		07-21-81	----	----	4.01	------	--
		07-31-81	25.5	1.12	.45	------	--
		08-04-81	----	----	.35	------	--
		08-13-81	20.0	1.3	.52	28	38
		08-18-81	----	----	e.4	------	--
		08-20-81	----	----	0	------	--
		08-23-81	----	----	0	------	--
		08-24-81	11.0	.73	.19	298	37
		08-27-81	----	----	0	------	--
		09-01-81	----	----	e.12	------	--
		09-09-81	----	----	0	------	--
		09-15-81	----	----	.65	------	--
		09-02-82	----	----	0	------	--
Whitney Creek at Southern Pacific railroad bridge.	SE¼SE¼ sec. 2, T. 42 N., R. 4 W., at Southern Pacific railroad bridge, 7.2 miles northeast of Weed.	07-17-81	10.0	----	------	3,280	62
		07-31-81	22.5	1.77	.78	------	--
		08-24-81	11.0	1.35	.50	6,350	89
		07-31-84	----	2.45	9.56	------	--
Whitney Creek downstream from Whitney Falls.	SE¼SE¼ sec. 13, T. 42 N., R. 4 W., 1.2 miles upstream from Bolam Creek and 6.8 miles northeast of Weed.	07-21-81	13.5	1.06	2.63	2,010	84
		08-20-81	----	----	0	------	--
		08-24-81	9.0	1.94	1.22	1,530	36
		08-27-81	----	----	e.2	------	--
Whitney Creek upstream from Bolam Creek.	SE¼SW¼ sec. 12, T. 42 N., R. 4 W., approximately 100 feet upstream from Bolam Creek and 7 miles northeast of Weed.	07-17-81					
		(1200)	17.0	1.52	1.70	463	49
		(1300)	21.0	----	------	3,960	86
		07-31-84	----	2.05	3.62	------	--
Whitney Creek upstream from Whitney Falls.	SE¼NW¼ sec. 30, T. 42 N., R. 3 W., approximately 100 feet upstream from Whitney Falls and 7 miles east-northeast of Weed.	07-31-81	8.5	2.44	1.66	------	--
		08-20-81	3.0	.33	.21	61	23
		08-24-81	14.5	1.28	.95	8,430	88
		07-31-84	----	2.23	6.01	------	--

[1]Total sediment discharge.
[2]U.S. Geological Survey (1964, 1970, 1972-75, 1976, 1976-82).

Table 9.--Particle-size distribution of suspended sediment for samples collected at miscellaneous stream sites

Date of sample	Percent finer than indicated size (millimeters)										
	2.0	1.0	0.50	0.25	0.12	0.062	0.031	0.016	0.008	0.004	0.002
Ash Creek at Military Pass Road											
05-26-81	--	100	93	71	44	30	--	--	--	--	--
Ash Creek at Road 13											
05-26-81	--	100	98	77	40	27	--	--	--	--	--
Mud Creek at Road 13											
05-27-81	100	90	74	48	26	15	--	--	--	--	--
07-21-81	100	99	94	73	50	29	19	11	7	4	3
Whitney Creek at Highway 97											
07-01-81	100	97	90	72	48	33	23	15	10	6	3
07-21-81	--	100	94	66	49	31	20	13	9	6	5

Table 10.--Water-quality data for samples collected at miscellaneous stream sites

[Number in parentheses indicates latitude-longitude location. µS, microsiemen per centimeter at 25°C; °C, degree Celsius; NTU, Nephelometric turbidity unit; mg/L, milligram per liter; pCi/L, picocurie per liter; <, less than. The analysis of each sample is displayed as one line on three consecutive pages]

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Oxygen, dissolved (mg/L)	Hardness (mg/L as $CaCO_3$)	Hardness, noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
Ash Creek at Military Pass Road (412358122025900)											
05/26/81	1300	20	7.7	10.7	4.5	9.3	6	0	2.0	0.2	2.1
09/14/81	1600	7	6.1	18.0	50	7.5	4	0	1.3	.2	.7
Ash Creek at Road 13 (412106121582500)											
05/26/81	1100	19	7.6	13.0	1.3	9.0	6	0	2.0	.2	2.2
Bolam Creek at jeep trail crossing (412855122143000)											
07/20/81	1600	3	6.8	23.0	65	6.6	3	3	.7	.3	.8
Cold Creek at Military Pass Road (412305122023900)											
05/21/81	1700	42	7.5	9.3	1.1	9.4	15	0	4.6	.8	3.2
Inconstance Creek upstream from Military Pass Road (412814122091400)											
07/21/81	1400	1	6.8	25.0	20	6.5	1	3	.2	.1	.7
Mud Creek at Mud Creek Dam (412007122063700)											
05/20/81	1415	27	7.5	7.6	13	10.1	12	0	4.0	.6	2.0

Table 10.--Water-quality data for samples collected at miscellaneous stream sites--Continued

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved, (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)
Ash Creek at Military Pass Road (412358122025900)										
05/26/81	40	0.4	0.8	--	0.6	0.1	0.0	18	29	30
09/14/81	27	.2	.1	2	<5.0	<.1	.0	8.3	14	--
Ash Creek at Road 13 (412106121582500)										
05/26/81	38	.4	1.6	--	.6	1.0	.0	17	30	31
Bolam Creek at jeep trail crossing (412855122143000)										
07/10/81	36	.2	.1	6	.6	1.5	.1	1.8	8	0
Cold Creek at Military Pass Road (412305122023900)										
05/21/81	29	.4	1.8	--	.4	.2	.1	45	66	70
Inconstance Creek upstream from Military Pass Road (412814122091400)										
07/21/81	57	.3	.2	2	.2	5.4	.0	.9	2	9
Mud Creek at Mud Creek Dam (412007122063700)										
05/20/81	24	.3	.9	--	.9	.2	.0	23	42	39

Table 10.--Water-quality data for samples collected at miscellaneous stream sites--Continued

Date	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)	Potassium 40, dissolved (pCi/L as K_{40})
Ash Creek at Military Pass Road (412358122025900)											
05/26/81	0.01	0.04	0.35	0.19	0.31	0.13	0.20	0.38	0.05	0.00	0.60
09/14/81	<.10	<.06	.67	.36	.62	1.1	--	.68	.08	.01	--
Ash Creek at Road 13 (412106121582500)											
05/26/81	.00	.06	1.2	.29	1.1	.25	.29	1.3	.02	.01	1.2
Bolam Creek at jeep trail crossing (412855122143000)											
07/20/81	.09	.01	.93	.56	.92	.53	.65	1.8	.19	.01	.10
Cold Creek at Military Pass Road (412305122023900)											
05/21/81	.02	.05	.72	.38	.67	.32	.40	.73	.05	.05	1.3
Inconstance Creek upstream from Military Pass Road (412814122091400)											
07/21/81	.02	.12	.54	.48	.42	.42	.50	.56	.06	.00	.20
Mud Creek at Mud Creek Dam (412007122063700)											
05/20/81	.05	.06	.79	.53	.73	.45	.58	.83	.06	.06	.70

Table 10.--Water-quality data for samples collected at miscellaneous stream sites--Continued

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Temperature (°C)	Turbidity (NTU)	Oxygen, dissolved (mg/L)	Hardness (mg/L as $CaCO_3$)	Hardness, noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
Mud Creek at Road 13 (411717122033400)											
05/20/81	1645	28	7.2	12.6	9.4	9.3	10	0	2.8	0.7	2.1
09/14/81	1800	39	6.5	19.0	330	8.1	9	0	2.6	.6	1.5
Pilgrim Creek near Military Pass Road (412151122014900											
05/21/81	1500	39	7.5	8.5	2.2	9.7	12	0	3.6	.7	3.0
Squaw Valley Creek at Road 31 (411953122083100)											
05/27/81	0800	7	7.3	4.1	1.2	10.8	5	1	1.6	.2	1.5
Whitney Creek at Highway 97 (413126122165900)											
07/20/81	1400	34	6.8	25.0	55	6.8	16	12	5.8	.3	1.0
09/15/81	0830	55	6.1	11.0	40	9.5	24	21	8.9	.4	.9
Whitney Creek downstream from Whitney Falls (412846122145300)											
07/21/81	1030	42	6.9	13.5	45	8.4	20	17	7.2	.4	1.0

Table 10.--Water-quality data for samples collected at miscellaneous stream sites--Continued

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved, (mg/L as SiO_2)	Solids, residue at 180°C, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)
Mud Creek at Road 13 (411717122033400)										
05/20/81	30	0.3	0.8	--	1.0	0.0	0.0	23	39	39
09/14/81	25	.2	.5	13	<5.0	<.1	.0	19	31	--
Pilgrim Creek near Military Pass Road (412151122014900)										
05/21/81	31	.4	2.0	--	.4	.2	.0	43	65	66
Squaw Valley Creek at Road 31 (411953122083100)										
05/27/81	39	.3	.3	--	1.3	.0	.0	7.5	14	15
Whitney Creek at Highway 97 (413126122165900)										
07/20/81	12	.4	.1	4	11	.1	.1	3.4	25	23
09/15/81	8	.1	.1	3	23	.1	.1	3.3	33	41
Whitney Creek downstream from Whitney Falls (412846122145300)										
07/21/81	0	.1	.1	4	15	5.8	.1	2.8	27	35

Table 10.--Water-quality data for samples collected at miscellaneous stream sites--Continued

Date	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Nitrogen, ammonia total (mg/L as N)	Nitrogen,ammonia + organic total (mg/L as N)	Nitrogen,ammonia + organic dis. (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, dissolved (mg/L as N)	Nitrogen, total (mg/L as N)	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)	Potassium 40, dissolved (pCi/L as K_{40})
Mud Creek at Road 13 (411717122033400)											
05/20/81	0.03	0.09	0.56	0.39	0.47	0.32	0.42	0.58	0.07	0.05	0.60
09/14/81	<.10	.17	.90	.34	.73	.24	.46	.92	.77	.02	--
Pilgrim Creek near Military Pass Road (412151122014900)											
05/21/81	.02	.06	1.0	.37	.94	.30	.39	1.0	.07	.06	1.5
Squaw Valley Creek at Road 31 (411953122083100)											
05/27/81	.00	.04	.54	.35	.50	.30	.35	.56	.02	.01	.20
Whitney Creek at Highway 97 (413126122165900)											
07/20/81	.05	.03	.91	.50	.88	.47	.55	.96	.16	.01	.30
09/15/81	<.10	<.07	.50	.52	--	.38	--	.72	.06	<.01	--
Whitney Creek downstream from Whitney Falls (412846122145300)											
07/21/81	.06	.01	.59	.42	.58	.38	.48	.64	.11	.01	.10

Table 11.--Semiquantitative analyses of dissolved trace metal

[Results of chemical analyses i

Site name	Date	Alumi-num	Anti-mony	Barium	Beryl-lium	Bis-muth	Boron	Cad-mium	Cal-cium	Chro-mium	Cobalt	Cop-per	Gal liu
Ash Creek at Military Pass Road.	05-26-81	<0.05	<0.03	0.02	<0.001	<1	0.3	<0.001	1	<0.05	<0.005	<0.01	<0.0
Bolam Creek at jeep trail crossing.	07-20-81	<.05	<.03	.01	<.001	<1	.01	<.001	<1	<.05	<.005	<.01	<.0
Cold Creek at Military Pass Road.	05-21-81	<.05	<.03	.02	<.001	<1	.3	<.001	5	<.05	<.005	<.01	<.0
Inconstance Creek up-stream from Military Pass Road.	07-21-81	<.05	<.03	.01	<.001	<1	.01	<.001	<1	<.05	<.005	<.01	<.0
Mud Creek at Mud Creek Dam.	05-20-81	<.05	<.03	.02	<.001	<1	.3	<.001	3	<.05	<.005	<.01	<.0
Pilgrim Creek near Military Pass Road.	05-21-81	<.05	<.03	.03	<.001	<1	.3	<.001	5	<.05	<.005	<.01	<.0
Squaw Valley Creek at Road 31.	05-27-81	<.05	<.03	.03	<.001	<1	.1	.001	5	<.05	<.005	<.01	<.0
Whitney Creek downstream from Whitney Falls.	07-21-81	<.05	<.03	.01	<.001	<1	.01	<.001	7	<.05	<.005	<.01	<.0
Whitney Creek at Highway 97.	07-20-81	<.05	<.03	.01	<.001	<1	.01	<.001	5	<.05	<.005	<.01	<.0

for samples collected at miscellaneous stream sites

milligrams per liter; <, less than]

Germa-nium	Iron	Lead	Lith-ium	Magne-sium	Manga-nese	Molyb-denum	Nickel	Sil-ica	Sil-ver	Sodium	Stron-tium	Tin	Tita-nium	Vana-dium
<0.03	0.005	--	<0.01	<1	0.003	<0.01	<0.05	10	0.01	1	<0.0	<0.05	<0.005	<0.01
<.03	<.005	<0.03	.01	<1	.007	<.01	<.05	0	<.01	<1	.003	<.05	<.005	<.01
<.03	.005	--	<.01	<1	.007	<.01	<.05	50	<.01	3	.05	<.05	<.005	<.01
<.03	<.005	<.03	<.01	<1	.005	<.01	<.05	0	<.01	<1	<.001	<.05	<.005	<.01
<.03	.05	--	.01	<1	.005	<.01	<.05	30	<.01	1	.03	<.05	--	<.01
<.03	.02	--	<.01	<1	.007	<.01	<.05	30	<.01	3	.05	<.05	<.005	<.01
<.03	<.02	--	<.01	<.001	.01	<.01	<.05	10	<.01	1	.01	<.05	<.005	<.01
<.03	.01	<.03	<.01	<.001	.01	<.01	<.05	0	<.01	<1	.03	<.05	<.005	<.01
<.03	.007	.03	.01	<1	.01	<.01	<.05	0	<.01	1	.03	<.05	<.005	<.01

Table 12.--Water-quality data for samples collected at lakes

[Number in parentheses indicates latitude-longitude location. µS, microsiemen per centimeter at 25°C; mg/L; milligram per liter; µg/L, microgram per liter; ac-ft, acre-foot; pCi/L, picocurie per liter; <, less than. The analysis of each sample is displayed as one line on four consecutive pages]

Date	Time	Specific conductance, field (µS)	pH, field (standard units)	Color (platinum-cobalt units)	Hardness (mg/L as $CaCO_3$)	Hardness, noncarbonate (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio
Lake McCloud at dam, near McCloud (410756122042500)											
06/09/81	0900	84	8.8	0	35	0	8.3	3.4	4.9	23	0.4
Lake McCloud at upstream end, near McCloud (411001122043800)											
06/09/81	1200	87	8.4	0	35	0	8.6	3.4	4.7	22	.4
Lake Shastina at dam, near Weed (413215122223300)											
06/09/81	1715	246	8.7	5	120	0	12	22	13	19	.5
Lake Shastina at upstream end, near Weed (413102122235000)											
06/09/81	1600	248	8.8	10	120	0	12	22	13	19	.5
Medicine Lake near Bartle (413432121361600)											
06/10/81	0900	12	6.9	0	5	0	1.1	.6	1.3	33	.3
Mosquito Lake near White Horse (411947121260900)											
06/11/81	1000	47	10.1	10	13	0	2.9	1.4	2.5	27	.3
Siskiyou Lake at upstream end, near Mount Shasta (City) (411716122205500)											
06/12/81	0800	102	7.4	5	50	0	3.5	10	3.1	12	.2

Table 12.--Water-quality data for samples collected at lakes--Continued

Date	Potassium, dissolved (mg/L as K)	Alkalinity lab (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as (SiO_2)	Solids, residue at 180°C, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Solids, dissolved (tons per ac-ft)	Nitrogen, nitrate total (mg/L as N)	Nitrogen, nitrite total (mg/L as N)
Lake McCloud at dam, near McCloud (410756122042500)											
06/09/81	1.4	45	0.4	0.3	0.1	31	74	77	0.10	0.01	0.02
Lake McCloud at upstream end, near McCloud (411001122043800)											
06/09/81	1.3	45	.4	.5	.1	29	64	75	.09	.02	.00
Lake Shastina at dam, near Weed (413215122223300)											
06/09/81	1.9	140	.7	5.4	.1	33	169	172	.23	.00	.00
Lake Shastina at upstream end, near Weed (413102122235000)											
06/09/81	2.0	140	.5	5.4	.1	33	176	172	.24	.01	.01
Medicine Lake near Bartle (413432121361600)											
06/10/81	.4	8	.9	4.4	.0	1.4	7	16	.01	.02	.01
Mosquito Lake near White Horse (411947121260900)											
06/11/81	1.4	18	.5	4.2	.1	1.6	24	26	.03	.00	.01
Siskiyou Lake at upstream end near Mount Shasta (City) (411716122205500											
06/12/81	.6	55	.2	.7	.0	20	69	71	.09	.04	.00

Table 12.--Water-quality data for samples collected at lakes--Continued

Date	Nitrogen, NO_2+NO_3 total (mg/L as N)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia dissolved (mg/L as N)	Nitrogen, organic total (mg/L as N)	Nitrogen, organic dissolved (mg/L as N)	Nitrogen, ammonia + organic total (mg/L as N)	Nitrogen, ammonia + organic dis. (mg/L as N)	Nitrogen, total (mg/L as N)	Nitrogen, dissolved (mg/L as N)
Lake McCloud at dam, near McCloud (410756122042500)										
06/09/81	0.03	0.02	0.03	0.02	0.54	0.33	0.57	0.35	0.60	0.37
Lake McCloud at upstream end, near McCloud (411001122043800)										
06/09/81	.02	.03	.04	.02	.42	.24	.46	.26	.48	.29
Lake Shastina at dam, near Weed (413215122223300)										
06/09/81	.01	.00	.02	.04	.95	.50	.97	.54	.98	.54
Lake Shastina at upstream end, near Weed (413102122235000)										
06/09/81	.02	.00	.03	.04	.79	.45	.82	.49	.84	.49
Medicine Lake near Bartle (413432121361600)										
06/10/81	.03	.12	.08	.03	.53	.52	.72	.55	.64	.67
Mosquito Lake near White Horse (411947121260900)										
06/11/81	.01	.05	.04	.02	1.4	.84	1.4	.86	1.4	.91
Siskiyou Lake at upstream end near Mount Shasta (City) (411716122205500)										
06/12/81	.04	.01	.04	.06	.68	1.0	.72	1.1	.76	1.1

Table 12.--Water-quality data for samples collected at lakes--Continued

Date	Phosphorus, total (mg/L as P)	Phosphorus, dissolved (mg/L as P)	Phosphorus, ortho, total (mg/L as P)	Boron, dissolved (µg/L as B)	Iron, dissolved (µg/L as Fe)	Manganese, dissolved (µg/L as Mn)	Potassium 40, dissolved (pCi/L as K_{40})	Carbon, organic dissolved (mg/L as Ca)
Lake McCloud at dam, near McCloud (410756122042500)								
06/09/81	0.06	0.02	0.02	10	<10	2	1.0	3.4
Lake McCloud at upstream end, near McCloud (411001122043800)								
06/09/81	.06	.02	.02	10	<10	2	1.0	4.8
Lake Shastina at upstream end, near Weed (413102122235000)								
06/09/81	.07	.04	.03	90	10	3	1.5	--
Lake Shastina at dam, near Weed (413215122223300)								
06/09/81	.08	.04	.03	90	<10	2	1.4	--
Medicine Lake near Bartle (413432121361600)								
06/10/81	.03	.02	.02	170	20	5	.30	2.4
Mosquito Lake near White Horse (411947121260900)								
06/11/81	.05	.04	.02	0	120	8	1.0	8.8
Siskiyou Lake at upstream end, near Mount Shasta (City) (411716122205500)								
06/12/81	.03	.02	.02	10	30	4	.40	14