1969

# Water Resources Data for Colorado

## Part 2. Water Quality Records


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of Colorado
and with other agencies

# CALENDAR FOR WATER YEAR 1969

## OCTOBER 1968

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | | |

## NOVEMBER 1968

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |

## DECEMBER 1968

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

## JANUARY 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 | |

## FEBRUARY 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | |

## MARCH 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |

## APRIL 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | | | |

## MAY 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

## JUNE 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | | | | | |

## JULY 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | | |

## AUGUST 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | | | | | | |

## SEPTEMBER 1969

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | | | | |

# 1969

# Water Resources Data for Colorado

## Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of Colorado
and with other agencies

Prepared in cooperation with

Colorado Water Conservation Board
Bureau of Reclamation, U.S. Department of the Interior
Federal Water Quality Administration, U.S. Department of the Interior

Water resources records, 1969, for Colorado are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for Colorado
   Part 1: Surface Water Records

2. Water Resources Data for Colorado
   Part 2: Water Quality Records

Copies of this report may be obtained from
District Chief, Water Resources Division
U.S. Geological Survey
Denver Federal Center
Denver, Colorado 80225

1971

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ILLUSTRATION

IV WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

[*Letters after station name designate type of data: (c), chemical; (t), water temperature; (s), sediment*]

Water Resources Data for Colorado, 1969

Part 2: Water Quality Records

## INTRODUCTION

Water-resources investigations of the U.S. Geological Survey include the collection of water quality data on the chemical and physical characteristics of surface- and ground-water supplies of the Nation. These water quality data for surface waters in Colorado for the 1969 water year are presented in this report. Data for a few water quality stations in bordering States are also included. The data were collected by the Water Resources Division of the U.S. Geological Survey under the direction of E. A. Moulder, district chief, Water Resources Division.

Water quality information is presented for chemical quality, fluvial sediment, and water temperatures. The chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, sodium-adsorption-ratio, specific conductance, and pH. Fluvial sediment information is given for suspended-sediment discharges and concentrations and for particle size distribution of suspended sediment and bed material. Water temperature data represent once-daily observations except for stations where a continuous temperature recorder furnishes information from which daily minimums and maximums are obtained.

The Geological Survey has published an annual series of water-supply papers, "Quality of Surface Waters of the United States," from 1941 through 1963 which contain the chemical quality, temperature, and fluvial sediment data of the water. Each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records for Colorado are contained in Parts 5-6, 7-8, and 9-14 of the water-supply paper series. (See table, p. 14.) These publications are available in most public libraries. Beginning with the 1964 water year, water quality records for surface and ground water obtained by the Geological Survey were published in a new series of annual releases on a state boundary basis. This report is primarily for local and immediate use, and its distribution is limited. These records will be published later in Geological Survey water-supply papers.

## COOPERATION

Most data in this report were obtained as part of the Federal Program of the U.S. Geological Survey or in cooperation with the Bureau of Reclamation and Federal Water Quality Administration, U.S. Department of the Interior. Investigations of some ground water and surface water were made under cooperative agreement between the U.S. Geological Survey and the Colorado Water Conservation Board, F. L. Sparks, director.

## DEFINITION OF TERMS

The terms and abbreviations of water-quality and hydrologic data as used in the text and tabular data of this report, are as follows:

Acre-foot (ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or 325,851 gallons.

Cfs-days is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It equals 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons.

Cubic feet per second (cfs) is a unit expressing rates of discharge. One cubic foot per second is equal to the discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Discharge, in its simplest concept, means outflow; therefore, the use of this term is not restricted as to course or location. In this report it represents the total fluids measured in the stream.

Daily mean discharge is the mean discharge for one day.

Mean daily discharge is the arithmetic mean discharge for the same day during a specific period of years.

Mean discharge is the arithmetic mean of individual daily mean discharge during a specific period.

Instantaneous discharge (at time of sampling). If the discharge at the time of sampling is reported instead of the daily mean, the heading of the discharge column is "Discharge (cfs)."

Drainage area is that area, in a specified location, measured in a horizontal plane, which is enclosed by a drainage divide.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is the property of water attributable to the presence of alkaline earths and is expressed as equivalent calcium carbonate ($CaCO_3$). Hardness is a physical-chemical characteristic, not a substance.

Micrograms per liter (ug/l, UG/L) is a more precise unit for expressing the concentration of chemical constituents in solution. One thousand micrograms per liter is equivalent to one milligram per liter. See below.

Milligrams per liter (mg/l, MG/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 4. Concentration of suspended sediment expressed in milligrams per liter is based on the weight of sediment in a liter of water-sediment mixture. Sediment concentrations that are expressed in parts per million may be converted to milligrams per liter by using the factors in table 2, page 5.

Particle size is the diameter, in millimeters (mm) of suspended sediment or bed material determined by sieve and sedimentation methods.

Particle size classification agrees closely with recommendations made by the American Geophysical Union Subcommittee on sediment terminology (Lane and others, 1947, p. 937). The classification is as follows:

| | |
|---|---|
| Clay: | Smaller than 0.004 mm. |
| Silt: | Between 0.004 and 0.062 mm. |
| Sand: | Between 0.062 and 2.0 mm. |
| Gravel: | Between 2.0 and 64.0 mm. |

The particle size distributions given in this report are not necessarily representative of the particle sizes of sediment in transport in the natural stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis of the silt and clay.

Table 1.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

| Ion | Multiply by | Ion | Multiply by |
|---|---|---|---|
| Aluminum ($Al^{+3}$)... | 0.11119 | Iodide ($I^{-1}$)..... | 0.00788 |
| Ammonia as $NH_4^{+1}$.. | .05544 | Iron ($Fe^{+3}$)*..... | .05372 |
| Barium ($Ba^{+2}$)..... | .01456 | Lead ($Pb^{+2}$)*..... | .00965 |
| Bicarbonate ($HCO_3^{-1}$) | .01639 | Lithium ($Li^{+1}$)*... | .14411 |
| Bromide ($Br^{-1}$).... | .01251 | Magnesium ($Mg^{+2}$).. | .08226 |
| Calcium ($Ca^{+2}$).... | .04990 | Manganese ($Mn^{+2}$)*. | .03640 |
| Carbonate ($CO_3^{-2}$). | .03333 | Nickel ($Ni^{+2}$)*.... | .03406 |
| Chloride ($Cl^{-1}$)... | .02821 | Nitrate ($NO_3^{-1}$)... | .01613 |
| Chromium ($Cr^{+6}$)*.. | .11539 | Nitrite ($NO_2^{-1}$)... | .02174 |
| Cobalt ($Co^{+2}$)*.... | .03394 | Phosphate ($PO_4^{-3}$). | .03159 |
| Copper ($Cu^{+2}$)*.... | .03148 | Potassium ($K^{+1}$)... | .02557 |
| Cyanide ($CN^{-1}$)*... | .03844 | Sodium ($Na^{+1}$)..... | .04350 |
| Fluoride ($F^{-1}$).... | .05264 | Strontium ($SR^{+2}$)*. | .02283 |
| Hydrogen ($H^{+1}$).... | .99209 | Sulfate ($SO_4^{-2}$)... | .02082 |
| Hydroxide ($OH^{-1}$).. | .05880 | Zinc ($Zn^{+2}$)*..... | .03060 |

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Specific conductance x ($0.65 \pm 0.05$) = mg/l dissolved solids;

$$\frac{\text{Specific conductance}}{100} = \frac{\text{total epm}}{2}$$

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

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the water year.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Water year in Geological Survey reports dealing with surface water supply is the 12-month period, 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. Thus, the year ending September 30, 1969, is called the "1969 water year."

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

## SPECIAL NETWORKS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

Irrigation network stations are water-quality stations located at or near certain streamflow gaging stations west of the main stem of the Mississippi River. Data collected at these stations are used to evaluate the chemical quality of surface waters used for irrigation and the changes resulting from the drainage of irrigated lands. Prior to water year 1966, the data for these stations were published in the annual water-supply paper series, "Quality of Surface Water for Irrigation, Western States."

## DOWNSTREAM ORDER AND STATION NUMBERS

A station number has been assigned as an added means of identification for each stream location where regular measurements of streamflow and determinations of water quality have been made. The numbers have been assigned in the same downstream order used in the annual series of water-supply papers. In assigning station numbers, no distinction is made between surface water gaging stations and water quality record stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive.

## Temperature

Water temperatures were measured at most of the water-quality stations. For daily stations, the water temperatures were taken at about the same time each day in order that the data would be relatively unaffected by diurnal variations in water temperature. Most large swiftly flowing streams probably have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining the water temperature were accurate to plus or minus 0.5°C.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day and the monthly averages of maximum daily and minimum daily temperatures.

## Sediment

Suspended-sediment samples generally were collected periodically with depth-integrating cable-suspended or hand samplers at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of periodic measurements of the particle-size distribution of the suspended sediment and the bed material are included.

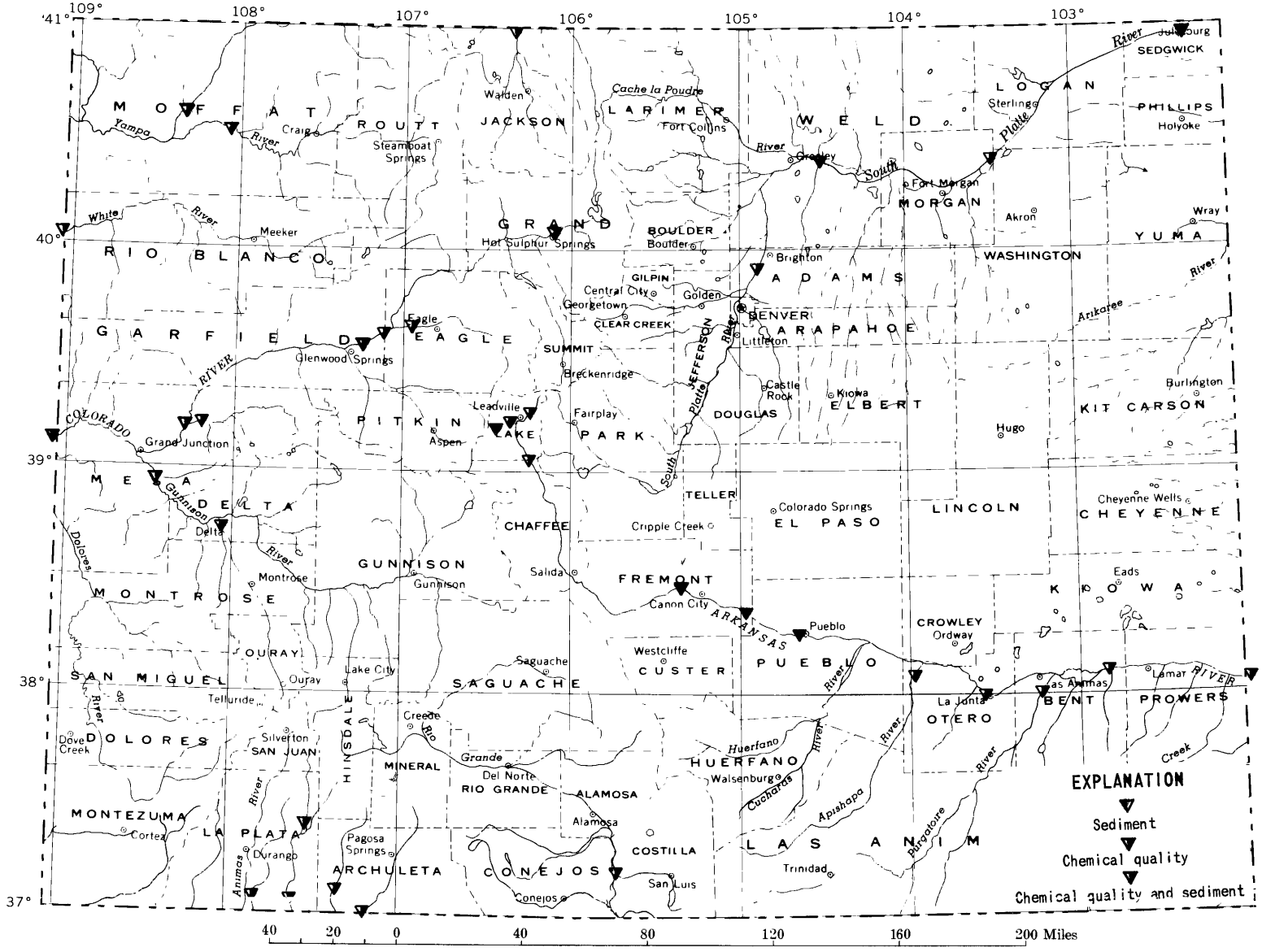


Figure 1.—Map of Colorado showing locations of sites where data on quality of surface water were obtained during the water year. Water-temperature data were obtained daily at some of these sites.

## SELECTED REFERENCES

The following publications are available for background information on the methods for collecting, analyzing and evaluating the chemical and physical properties of surface waters:

Clarke, F. W., 1924, The composition of the river and lake waters of the United States: U.S. Geol. Survey Prof. Paper 135, 199 p.

Colby, B. R., 1963, Fluvial sediments--a summary of source, transportation, deposition, and measurements of sediment discharge: U.S. Geol. Survey Bull. 1181-A, 47 p.

Colby, B. R., and Hubbell, D. W., 1961, Simplified methods for computing total sediment discharge with the modified Einstein procedure: U.S. Geol. Survey Water-Supply Paper 1593, 17 p.

Collins, W. D., and Howard, C. S., 1928, Quality of water of Colorado River in 1925-26: U.S. Geol. Survey Water-Supply Paper 596-B, p. 33-43.

Gregg, D. O., and others, 1961, Public Water Supplies of Colorado (1959-60): Colorado State Univ. Agr. Expt. Sta., Gen. Ser. 757, 128 p.

Hem, John D., 1959, Study and interpretation of the chemical characteristics of natural water: U.S. Geol. Survey Water-Supply Paper 1473, 269 p.

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Iorns, W. V., and others, 1964, Water resources of the Upper Colorado River Basin--basic data: U.S. Geol. Survey Prof. Paper 442, 1,036 p., 4 pls., 1 fig.

_____1965, Water resources of the Upper Colorado River Basin--technical report: U.S. Geol. Survey Prof. Paper 441, 370 p., 9 pls., 147 figs.

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McGuinness, C. L., 1963, The role of ground water in the national water situation: U.S. Geol. Survey Water-Supply Paper 1800, 1,121 p.

Meinzer, O. E., 1923, The occurrence of ground water in the United States: U.S. Geol. Survey Water-Supply Paper 489, 321 p.

_____1923, Outline of ground-water hydrology, with definitions: U.S. Geol. Survey Water-Supply Paper 494, 71 p.

Rainwater, F. H., and Thatcher, L. L., 1960, Methods for collection and analysis of water samples: U.S. Geol. Survey Water-Supply Paper 1454, 301 p.

Stabler, Herman, 1911, Some stream waters of the Western United States: U.S. Geol. Survey Water-Supply Paper 274, 188 p.

U.S. Inter-Agency Committee on Water Resources, A study of methods used in measurement and analysis of sediment loads in streams:

Report 11, 1957, The development and calibration of visual accumulation tube: St. Anthony Falls Hydraulic Lab., Minneapolis, Minn., 109 p., 43 figs.
Report 12, 1957, Some fundamentals of particle-size analysis: Washington, U.S. Govt. Printing Office, 55 p., 9 figs.
Report AA, 1959, Federal Inter-agency sedimentation instruments and reports: St. Anthony Falls Hydraulic Lab., Minneapolis, Minn., 41 p., 27 figs.
Report 13, 1961, The single-stage sampler for suspended sediment: Washington, U.S. Govt. Printing Office, 105 p., 51 figs.
Report 14, 1963, Determinations of fluvial sediment discharge: Washington, U.S. Govt. Printing Office, 151 p., 70 figs.

Water-quality records begin on next page.

PART 6. MISSOURI RIVER BASIN

PLATTE RIVER BASIN

06620000 NORTH PLATTE RIVER NEAR NORTHGATE, COLO.

LOCATION.--Lat 40°56'10", long 106°20'21", in SW¼SE¼ sec.11, T.11 N., R.80 W., Jackson County, at gaging station at bridge on State Highway 125, 0.8 mile upstream from Camp Creek, 4.2 miles northwest of Northgate, and 4.4 miles south of Colorado-Wyoming State line.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 11... | 179 | 6.5 | 9.6 | 31 | 9.8 | 16 | 2.2 | 137 | 34 | 2.4 | .6 |
| NOV. | | | | | | | | | | | |
| 07... | 103 | 1 | 15 | 32 | 7.2 | 14 | 1.7 | 137 | 23 | 2.5 | .6 |
| DEC. | | | | | | | | | | | |
| 10... | 105 | 0 | 14 | 33 | 9.0 | 12 | 1.3 | 146 | 27 | 1.8 | .5 |
| JAN. | | | | | | | | | | | |
| 08... | 81 | 0 | 13 | 31 | 7.1 | 14 | 2.0 | 135 | 21 | 1.7 | .5 |
| MAR. | | | | | | | | | | | |
| 06... | 111 | -- | 16 | 35 | 6.8 | 14 | 1.8 | 137 | 26 | 2.5 | .6 |
| APR. | | | | | | | | | | | |
| 09... | 803 | -- | 9.5 | 27 | 10 | 24 | 5.1 | 128 | 58 | 5.2 | .4 |
| MAY | | | | | | | | | | | |
| 08... | 979 | -- | 9.0 | 22 | 5.8 | 10 | 1.6 | 88 | 21 | 3.5 | .5 |
| JUNE | | | | | | | | | | | |
| 03... | 750 | 18 | 10 | 39 | 5.4 | 16 | 1.9 | 146 | 30 | 4.1 | .5 |
| 17... | 2140 | -- | 12 | 37 | 13 | 25 | 2.3 | 165 | 53 | 5.3 | .6 |
| JULY | | | | | | | | | | | |
| 16... | 594 | -- | 10 | 37 | 8.3 | 15 | 1.6 | 153 | 30 | 2.1 | .6 |

06720500 SOUTH PLATTE RIVER AT HENDERSON, COLO.

LOCATION.--Lat 39°55'19", long 104°52'05", Adams County, at bridge on State Highway 22, 1,200 ft downstream from gaging station and 0.2 mile west of Henderson.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | | |
| 05... | 104 | 8 | 17 | 160 | 88 | 21 | 120 | 9.7 | 245 | 215 | 99 | 1.3 |
| DEC. | | | | | | | | | | | | |
| 05... | 112 | 4 | 18 | 50 | 87 | 22 | 129 | 11 | 218 | 218 | 102 | 1.4 |
| JAN. | | | | | | | | | | | | |
| 06... | 100 | 7 | 17 | 50 | 88 | 21 | 130 | 11 | 195 | 230 | 106 | 1.4 |
| FEB. | | | | | | | | | | | | |
| 04... | 98 | 3 | 17 | 90 | 89 | 22 | 134 | 10 | 219 | 218 | 125 | 1.3 |
| MAR. | | | | | | | | | | | | |
| 10... | 88 | 3 | 15 | 450 | 85 | 27 | 148 | 8.7 | 274 | 207 | 135 | 1.3 |
| APR. | | | | | | | | | | | | |
| 09... | 63 | 18 | 15 | 220 | 89 | 21 | 125 | 9.4 | 219 | 202 | 107 | 1.3 |
| MAY | | | | | | | | | | | | |
| 19... | 1800 | 14 | 14 | 80 | 31 | 7.9 | 25 | 3.3 | 80 | 62 | 19 | .9 |
| JUNE | | | | | | | | | | | | |
| 17... | 3420 | 12 | 10 | 310 | 28 | 8.8 | 23 | 2.4 | 74 | 50 | 26 | 1.0 |
| JULY | | | | | | | | | | | | |
| 11... | 681 | 19 | 14 | 24 | 46 | 13 | 59 | 4.5 | 128 | 95 | 52 | 1.4 |
| AUG. | | | | | | | | | | | | |
| 14... | 386 | 18 | 13 | 0 | 66 | 16 | 84 | 5.9 | 187 | 127 | 70 | 1.2 |
| 14... | 386 | 18 | 13 | 0 | 66 | 17 | 84 | 5.9 | 185 | 127 | 70 | 1.2 |
| SEPT. | | | | | | | | | | | | |
| 19... | 338 | 23 | 13 | 0 | 67 | 17 | 100 | 6.9 | 196 | 149 | 81 | 1.2 |
| 19... | 338 | 23 | 13 | 0 | 68 | 17 | 100 | 6.9 | 195 | 149 | 81 | 1.2 |

06620000 NORTH PLATTE RIVER NEAR NORTHGATE, COLO.--Continued

DRAINAGE AREA.--1,431 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

Water temperatures: October 1965 to September 1966.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | |
| 11... | .1 | 30 | 176 | .24 | 85.1 | 119 | 7 | .6 | 309 | 7.2 |
| NOV. | | | | | | | | | | |
| 07... | .2 | 10 | 166 | .23 | 46.2 | 110 | 0 | .6 | 269 | 7.3 |
| DEC. | | | | | | | | | | |
| 10... | .2 | 30 | 174 | .24 | 49.3 | 120 | 0 | .5 | 294 | 7.5 |
| JAN. | | | | | | | | | | |
| 08... | .1 | 40 | 162 | .22 | 35.9 | 107 | 0 | .6 | 269 | 7.5 |
| MAR. | | | | | | | | | | |
| 06... | .2 | 0 | 180 | .24 | 53.9 | 115 | 3 | .6 | 286 | 7.5 |
| APR. | | | | | | | | | | |
| 09... | 1.0 | 60 | 204 | .28 | 442 | 111 | 6 | 1.0 | 333 | 7.4 |
| MAY | | | | | | | | | | |
| 08... | .7 | 10 | 124 | .17 | 328 | 80 | 8 | .5 | 196 | 7.2 |
| JUNE | | | | | | | | | | |
| 03... | .3 | 60 | 192 | .26 | 358 | 120 | 0 | .6 | 319 | 8.1 |
| 17... | .4 | 0 | 240 | .33 | 1390 | 145 | 10 | .9 | 384 | 8.1 |
| JULY | | | | | | | | | | |
| 16... | .3 | 0 | 188 | .26 | 302 | 127 | 1 | .6 | 321 | 8.2 |

06720500 SOUTH PLATTE RIVER AT HENDERSON, COLO.--Continued

DRAINAGE AREA.--4,713 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1955 to September 1957, June 1962 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | |
| 05... | 31 | 17 | 250 | 730 | .99 | 205 | 307 | 106 | 3.0 | 1120 | 7.0 |
| DEC. | | | | | | | | | | | |
| 05... | 68 | 22 | 230 | 762 | 1.04 | 230 | 306 | 127 | 3.2 | 1240 | 7.0 |
| JAN. | | | | | | | | | | | |
| 06... | 89 | 26 | 260 | 797 | 1.08 | 215 | 308 | 148 | 3.2 | 1190 | 7.1 |
| FEB. | | | | | | | | | | | |
| 04... | 1.9 | 21 | 300 | 775 | 1.05 | 205 | 311 | 131 | 3.3 | 1280 | 7.2 |
| MAR. | | | | | | | | | | | |
| 10... | 40 | 10 | 400 | 828 | 1.13 | 197 | 324 | 99 | 3.6 | 1320 | 7.2 |
| APR. | | | | | | | | | | | |
| 09... | 57 | 12 | 380 | 782 | 1.06 | 133 | 310 | 130 | 3.1 | 1220 | 7.4 |
| MAY | | | | | | | | | | | |
| 19... | 7.0 | 1.2 | 90 | 252 | .34 | 1230 | 110 | 44 | 1.0 | 342 | 7.6 |
| JUNE | | | | | | | | | | | |
| 17... | 6.3 | .74 | 60 | 207 | .28 | 1910 | 106 | 45 | 1.0 | 309 | 7.2 |
| JULY | | | | | | | | | | | |
| 11... | 20 | 3.5 | 27 | 376 | .51 | 691 | 170 | 65 | 2.0 | 602 | 7.0 |
| AUG. | | | | | | | | | | | |
| 14... | 26 | -- | 30 | 615 | .84 | 641 | 230 | 77 | 2.4 | 829 | 7.4 |
| 14... | 29 | 6.8 | 30 | 615 | .84 | 641 | 234 | 82 | 2.4 | 825 | 7.1 |
| SEPT. | | | | | | | | | | | |
| 19... | 23 | -- | 23 | 575 | .78 | 525 | 236 | 75 | 2.8 | 860 | 7.7 |
| 19... | 23 | -- | 23 | 575 | .78 | 525 | 240 | 80 | 2.8 | 888 | 6.9 |

06754000 SOUTH PLATTE RIVER NEAR KERSEY, COLO.

LOCATION.--Lat 40°24'44", long 104°33'46", in NW¼SW¼ sec.9, T.5 N., R.64 W., Weld County, at gaging station at bridge on State Highway 37, 1.9 miles north of railroad in Kersey and 2.5 miles downstream from Cache la Poudre River.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | | |
| 05... | 482 | 8 | 12 | 20 | 152 | 90 | 155 | 6.5 | 348 | 666 | 49 | 2.2 |
| DEC. | | | | | | | | | | | | |
| 05... | 428 | 5 | 13 | 10 | 152 | 93 | 147 | 6.7 | 368 | 683 | 48 | 1.9 |
| JAN. | | | | | | | | | | | | |
| 06... | 522 | 4 | 14 | 20 | 160 | 63 | 147 | 7.8 | 364 | 583 | 70 | 2.0 |
| FEB. | | | | | | | | | | | | |
| 04... | 450 | 1 | 14 | 20 | 140 | 68 | 141 | 7.4 | 355 | 565 | 73 | 1.1 |
| MAR. | | | | | | | | | | | | |
| 10... | 433 | 1 | 13 | 450 | 130 | 74 | 147 | 6.2 | 317 | 555 | 73 | 1.2 |
| APR. | | | | | | | | | | | | |
| 09... | 243 | 12 | 12 | 110 | 153 | 85 | 152 | 6.8 | 331 | 654 | 70 | 1.3 |
| MAY | | | | | | | | | | | | |
| 19... | 4130 | 17 | 12 | 80 | 51 | 20 | 47 | 4.0 | 131 | 150 | 24 | 1.0 |
| JUNE | | | | | | | | | | | | |
| 17... | 7720 | 12 | 10 | 110 | 45 | 23 | 42 | 3.2 | 118 | 160 | 22 | 1.1 |
| JULY | | | | | | | | | | | | |
| 11... | 239 | 18 | 16 | 0 | 132 | 63 | 117 | 6.0 | 290 | 520 | 44 | 1.1 |
| AUG. | | | | | | | | | | | | |
| 06... | 147 | 18 | 16 | 0 | 160 | 78 | 139 | 6.7 | 338 | 675 | 48 | 1.4 |
| SEPT. | | | | | | | | | | | | |
| 02... | 380 | 7 | 13 | 0 | 128 | 92 | 138 | 5.8 | 321 | 642 | 50 | 1.9 |

06760000 SOUTH PLATTE RIVER AT BALZAC, COLO.

LOCATION.--Lat 40°24'24", long 103°27'58", in NE¼NE¼ sec.13, T.5 N., R.55 W., Morgan County, at gaging station just upstream from highway bridge at Balzac siding, 2.8 miles northeast of Union and 7.0 miles downstream from Beaver Creek.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | | |
| 05... | 6.9 | 9 | 12 | 10 | 170 | 74 | 171 | 8.5 | 253 | 804 | 63 | .8 |
| DEC. | | | | | | | | | | | | |
| 05... | 12 | 8 | 11 | 10 | 162 | 73 | 161 | 8.4 | 236 | 788 | 62 | .8 |
| JAN. | | | | | | | | | | | | |
| 06... | 55 | 8 | 14 | 20 | 180 | 72 | 158 | 7.5 | 319 | 737 | 63 | .8 |
| FEB. | | | | | | | | | | | | |
| 04... | 18 | 1 | 12 | 20 | 174 | 71 | 143 | 7.1 | 294 | 712 | 57 | .8 |
| MAR. | | | | | | | | | | | | |
| 10... | 22 | 10 | 11 | 450 | 156 | 73 | 153 | 8.3 | 265 | 728 | 62 | 1.0 |
| APR. | | | | | | | | | | | | |
| 09... | 6.8 | 10 | 12 | 290 | 174 | 72 | 162 | 8.6 | 278 | 770 | 64 | 1.0 |
| MAY | | | | | | | | | | | | |
| 19... | 2590 | 13 | 12 | 100 | 71 | 26 | 64 | 5.6 | 158 | 249 | 30 | 1.0 |
| JUNE | | | | | | | | | | | | |
| 17... | 5880 | 14 | 11 | 0 | 64 | 30 | 56 | 4.0 | 153 | 230 | 29 | .8 |
| JULY | | | | | | | | | | | | |
| 11... | 36 | 24 | 15 | 0 | 164 | 51 | 135 | 9.1 | 276 | 570 | 54 | .9 |
| AUG. | | | | | | | | | | | | |
| 07... | 146 | 18 | 15 | 0 | 169 | 80 | 172 | 10 | 296 | 248 | 70 | 1.1 |
| SEPT. | | | | | | | | | | | | |
| 04... | 254 | 16 | 15 | 0 | 176 | 80 | 176 | 10 | 306 | 789 | 70 | 1.4 |

06754000 SOUTH PLATTE RIVER NEAR KERSEY, COLO.--Continued

DRAINAGE AREA.--9,598 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1949 to September 1953, August 1954 to August 1957, June 1962 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | |
| 05... | 23 | 1.2 | 270 | 1460 | 1.99 | 1900 | 752 | 467 | 2.5 | 1800 | 7.8 |
| DEC. | | | | | | | | | | | |
| 03... | 24 | 1.1 | 270 | 1460 | 1.99 | 1690 | 764 | 462 | 2.3 | 1790 | 7.7 |
| JAN. | | | | | | | | | | | |
| 06... | 11 | 3.7 | 280 | 1270 | 1.73 | 1790 | 660 | 362 | 2.5 | 1680 | 7.5 |
| FEB. | | | | | | | | | | | |
| 04... | 2.9 | 6.9 | 490 | 1200 | 1.62 | 1460 | 630 | 339 | 2.4 | 1630 | 7.2 |
| MAR. | | | | | | | | | | | |
| 10... | 36 | 4.0 | 310 | 1290 | 1.63 | 1510 | 630 | 370 | 2.5 | 1670 | 7.5 |
| APR. | | | | | | | | | | | |
| 09... | 27 | 2.4 | 300 | 1410 | 1.81 | 925 | 730 | 458 | 2.4 | 1750 | 7.7 |
| MAY | | | | | | | | | | | |
| 19... | 6.6 | .09 | 90 | 421 | .57 | 4700 | 208 | 101 | 1.4 | 617 | 7.8 |
| JUNE | | | | | | | | | | | |
| 17... | 7.5 | .74 | 110 | 377 | .51 | 7860 | 206 | 109 | 1.3 | 558 | 7.7 |
| JULY | | | | | | | | | | | |
| 11... | 18 | .84 | 120 | 1130 | 1.44 | 729 | 590 | 352 | 2.1 | 1470 | 7.6 |
| AUG. | | | | | | | | | | | |
| 06... | 11 | .70 | 240 | 1360 | 1.77 | 540 | 720 | 443 | 2.3 | 1660 | 7.9 |
| SEPT. | | | | | | | | | | | |
| 02... | 7.6 | .22 | 280 | 1240 | 1.69 | 1270 | 700 | 437 | 2.3 | 1590 | 7.3 |

06760000 SOUTH PLATTE RIVER AT BALZAC, COLO.--Continued

DRAINAGE AREA.--16,852 sq mi.

PERIOD OF RECORD.--Chemical analyses: January 1950 to September 1951, August 1954 to September 1957, June 1962 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV. | | | | | | | | | | | |
| 05... | .9 | .18 | 390 | 1500 | 1.94 | 27.9 | 730 | 523 | 2.8 | 1830 | 8.0 |
| DEC. | | | | | | | | | | | |
| 05... | 1.3 | .16 | 420 | 1450 | 1.88 | 47.0 | 705 | 511 | 2.6 | 1790 | 7.9 |
| JAN. | | | | | | | | | | | |
| 06... | 5.7 | .36 | 70 | 1470 | 1.90 | 218 | 745 | 483 | 2.5 | 1830 | 8.0 |
| FEB. | | | | | | | | | | | |
| 04... | 2.6 | .20 | 420 | 1380 | 1.81 | 67.1 | 725 | 484 | 2.3 | 1730 | 7.9 |
| MAR. | | | | | | | | | | | |
| 10... | 1.9 | .23 | 200 | 1430 | 1.81 | 84.9 | 690 | 473 | 2.5 | 1770 | 8.1 |
| APR. | | | | | | | | | | | |
| 09... | 3.0 | .23 | 270 | 1480 | 1.92 | 27.2 | 733 | 505 | 2.6 | 1820 | 8.0 |
| MAY | | | | | | | | | | | |
| 19... | 0.2 | .64 | 130 | 563 | .77 | 3940 | 283 | 153 | 1.6 | 809 | 7.8 |
| JUNE | | | | | | | | | | | |
| 17... | 7.5 | .69 | 150 | 548 | .75 | 5740 | 284 | 159 | 1.4 | 787 | 8.0 |
| JULY | | | | | | | | | | | |
| 11... | 3.8 | .40 | 240 | 1240 | 1.55 | 121 | 620 | 394 | 2.4 | 1600 | 7.7 |
| AUG. | | | | | | | | | | | |
| 07... | 6.2 | .36 | 260 | 1500 | 1.92 | 591 | 730 | 487 | 2.8 | 1840 | 2.9 |
| SEPT. | | | | | | | | | | | |
| 04... | 4.6 | .25 | 290 | 1530 | 2.00 | 1050 | 770 | 519 | 2.8 | 1910 | 7.7 |

06764000 SOUTH PLATTE RIVER AT JULESBURG, COLO.
(Irrigation network station)

LOCATION.--Lat 40°58'46", long 102°15'15", in NW¼NE¼ and SE¼NE¼ (two channels) sec.33, T.12 N., R.44 W., Sedgwick County, at gaging station at bridge on U.S. Highway 385, 0.9 mile southeast of Julesburg, 3 miles upstream from Colorado-Nebraska State line, and 8 miles downstream from Lodgepole Creek.

DRAINAGE AREA.--23,138 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1969.
Water temperatures: October 1945 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 01... | 92 | 18 | 27 | 195 | 58 | 210 | 17 | 267 | 837 | 72 | .7 |
| 29... | 131 | 14 | 28 | 205 | 54 | 184 | 20 | 320 | 730 | 78 | .6 |
| DEC. | | | | | | | | | | | |
| 02... | 294 | 3 | 32 | 220 | 65 | 200 | 29 | 364 | 810 | 73 | .7 |
| 30... | 170 | 0 | 36 | 228 | 71 | 230 | 19 | 371 | 892 | 87 | .7 |
| JAN. | | | | | | | | | | | |
| 30... | 240 | 0 | 29 | 230 | 64 | 218 | 18 | 465 | 842 | 82 | .7 |
| FEB. | | | | | | | | | | | |
| 27... | 257 | 4 | 30 | 198 | 62 | 223 | 16 | 335 | 820 | 77 | 1.3 |
| MAR. | | | | | | | | | | | |
| 28... | 202 | 6 | 28 | 200 | 61 | 214 | 16 | 322 | 815 | 76 | 1.4 |
| MAY | | | | | | | | | | | |
| 02... | 33 | 16 | 27 | 215 | 55 | 200 | 15 | 314 | 782 | 81 | 1.3 |
| 29... | 1320 | 22 | 16 | 133 | 46 | 141 | 12 | 244 | 522 | 52 | 1.3 |
| JUNE | | | | | | | | | | | |
| 27... | 8240 | 19 | 15 | 82 | 26 | 75 | 26 | 190 | 263 | 30 | .8 |

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 2020 | 1960 | 2140 | 2480 | 2450 | 2080 | 2040 | 2000 | 1580 | 997 | 1760 | 1890 |
| 2..... | 2140 | 2010 | 2180 | 2200 | 2370 | 2080 | 2000 | 2000 | 1660 | 1090 | 1780 | 1880 |
| 3..... | 2050 | 1980 | 2210 | 2270 | 2530 | 2100 | 2010 | 1950 | 1650 | 1160 | 1770 | 1890 |
| 4..... | 2020 | 1960 | 2180 | 2340 | 2390 | 2070 | 1990 | 1950 | 1720 | 1270 | 1700 | 1880 |
| 5..... | 2010 | 1980 | 2210 | 2110 | 2120 | 2070 | 2000 | 553 | 1760 | 1420 | 1800 | 1880 |
| 6..... | 2040 | 1980 | 2170 | 2110 | 2160 | 2070 | 2010 | 1110 | 1710 | 1450 | 1810 | 1860 |
| 7..... | 2040 | 1990 | 2210 | 2090 | 2090 | 2080 | 2020 | 1810 | 1710 | 1520 | 1820 | 1860 |
| 8..... | 2020 | 1960 | 2230 | 2090 | 2190 | 2140 | 2010 | 1900 | 1160 | 1560 | 1840 | 1900 |
| 9..... | 1990 | 1960 | 2150 | 2160 | 2160 | 2190 | 2010 | 2060 | 1620 | 1590 | 1810 | 1880 |
| 10..... | 2000 | 1980 | 2140 | 2200 | 2140 | 2100 | 2000 | 2070 | 1830 | 1550 | 1800 | 1910 |
| 11..... | 2000 | 1980 | 2140 | 2210 | 2130 | 2040 | 2000 | 2080 | 1430 | 1610 | 1780 | 1910 |
| 12..... | 2050 | 1940 | 2180 | 2180 | 2090 | 2080 | 2010 | 988 | 1710 | 1630 | 1790 | 1910 |
| 13..... | 2040 | 1980 | 2260 | 2140 | 2090 | 2100 | 1980 | 826 | 1300 | 1630 | 1800 | 1870 |
| 14..... | 2060 | 1950 | 2290 | 2140 | 2160 | 2100 | 2020 | 914 | 1070 | 1660 | 1810 | 1910 |
| 15..... | 2050 | 2150 | 2320 | 2110 | 2140 | 2070 | 2000 | 1070 | 1010 | 1660 | 1820 | 1870 |
| 16..... | 2010 | 2160 | 2230 | 2130 | 2140 | 2060 | 2040 | 1060 | 1000 | 1670 | 1820 | 1910 |
| 17..... | 2000 | 2160 | 2170 | 2110 | 2130 | 2070 | 2060 | 924 | 1010 | 1710 | 1830 | 1960 |
| 18..... | 2000 | 2200 | 2140 | 2130 | 2130 | 2080 | 2060 | 1480 | 1050 | 931 | 1780 | 1990 |
| 19..... | 1990 | 2130 | 2210 | 2180 | 2140 | 2070 | 2040 | 1570 | 1070 | 1150 | 1840 | 2000 |
| 20..... | 1980 | 2180 | 2230 | 2170 | 2130 | 2060 | 1950 | 1490 | 1060 | 1580 | 1810 | 2000 |
| 21..... | 1990 | 2150 | 2260 | 2160 | 2160 | 2080 | 2020 | 1130 | 1030 | 1630 | 1820 | 1980 |
| 22..... | 1990 | 2160 | 2390 | 2130 | 2130 | 2070 | 1990 | 1200 | 978 | 1700 | 1820 | 1980 |
| 23..... | 2000 | 2160 | 2340 | 2500 | 2130 | 2070 | 1950 | 1280 | 914 | 1380 | 1810 | 1990 |
| 24..... | 1980 | 2150 | 2450 | 2480 | 2120 | 2060 | 1940 | 1300 | 867 | 1650 | 1860 | 1970 |
| 25..... | 1960 | 2160 | 2230 | 2420 | 2100 | 2030 | 1920 | 1320 | 833 | 1740 | 1870 | 1980 |
| 26..... | 1940 | 2150 | 2260 | 2290 | 2090 | 2040 | 2020 | 1340 | 860 | 1720 | 1880 | 1980 |
| 27..... | 2000 | 2120 | 2240 | 2290 | 2070 | 2060 | 2020 | 1330 | 870 | 1740 | 1880 | 1980 |
| 28..... | 2010 | 2130 | 2230 | 2290 | 2100 | 2070 | 2040 | 1380 | 928 | 1770 | 1890 | 2000 |
| 29..... | 1960 | 2130 | 2200 | 2260 | -- | 2060 | 2000 | 1410 | 909 | 1780 | 1880 | 2030 |
| 30..... | 1960 | 2160 | 2360 | 2290 | -- | 2040 | 2000 | 1460 | 936 | 1740 | 1890 | 2050 |
| 31..... | 1950 | -- | 2430 | 2240 | -- | 2050 | -- | 1510 | -- | 1770 | 1890 | -- |
| AVERAGE | 2010 | 2070 | 2240 | 2220 | 2170 | 2080 | 2010 | 1430 | 1240 | 1530 | 1820 | 1940 |

06764000 SOUTH PLATTE RIVER AT JULESBURG, COLO.--Continued

EXTREMES, 1968-69.--Specific conductance: Maximum daily, 2,530 micromhos Feb. 3; minimum daily, 553 micromhos May 5.

Water temperatures: Maximum, 27°C Sept. 6; minimum, freezing point several days during December and March.

EXTREMES, 1945-69.--Specific conductance: Maximum daily, 3,000 micromhos Dec. 28, 30, 1962; minimum daily, 348 micromhos Aug. 15, 1968.

Water temperatures: Maximum (1946-49, 1950-69), 34°C July 28, Aug. 1, 1953, July 7, 18, 1963; minimum, freezing point on many days during winter months.

REMARKS.--Samples for chemical analysis collected from channel no. 2 (06763990).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 01... | .6 | .15 | 300 | 1600 | 2.18 | 400 | 723 | 504 | 3.4 | 2010 | 7.6 |
| 29... | 1.1 | .41 | 220 | 1580 | 2.15 | 559 | 732 | 469 | 3.0 | 1950 | 7.9 |
| DEC. | | | | | | | | | | | |
| 02... | 6.7 | 1.7 | 300 | 1800 | 2.45 | 1430 | 816 | 518 | 3.0 | 2160 | 7.7 |
| 30... | 6.6 | 1.3 | 340 | 1890 | 2.57 | 868 | 858 | 553 | 3.4 | 2280 | 7.6 |
| JAN. | | | | | | | | | | | |
| 30... | 4.3 | .47 | 310 | 1860 | 2.53 | 1210 | 835 | 454 | 3.3 | 2200 | 8.0 |
| FEB. | | | | | | | | | | | |
| 27... | 6.9 | .01 | 270 | 1660 | 2.26 | 1150 | 748 | 473 | 3.5 | 2070 | 8.1 |
| MAR. | | | | | | | | | | | |
| 28... | 6.9 | .34 | 220 | 1640 | 2.23 | 894 | 750 | 486 | 3.4 | 2010 | 7.8 |
| MAY | | | | | | | | | | | |
| 02... | 1.7 | .00 | 280 | 1610 | 2.19 | 143 | 763 | 505 | 3.2 | 1990 | 7.7 |
| 29... | 4.2 | .48 | 220 | 1070 | 1.46 | 3810 | 518 | 318 | 2.7 | 1430 | 7.8 |
| JUNE | | | | | | | | | | | |
| 27... | 1.3 | .35 | 120 | 615 | .84 | 13700 | 309 | 153 | 1.9 | 888 | 7.8 |

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13.0 | 10.0 | 02.0 | 01.0 | 02.0 | 02.0 | 14.0 | 10.0 | 14.0 | 19.0 | 19.0 | 16.0 |
| 2 | 12.0 | 14.0 | 02.0 | 01.0 | 01.0 | 02.0 | 17.0 | 11.0 | 13.0 | 21.0 | 20.0 | 18.0 |
| 3 | 10.0 | 08.0 | 01.0 | 01.0 | 01.0 | 04.0 | 16.0 | 12.0 | 14.0 | 22.0 | 20.0 | 17.0 |
| 4 | 17.0 | 13.0 | 02.0 | 01.0 | 01.0 | 01.0 | 18.0 | 16.0 | 14.0 | 21.0 | 21.0 | 17.0 |
| 5 | 12.0 | 10.0 | 04.0 | 01.0 | 03.0 | 01.0 | 17.0 | 11.0 | 19.0 | 24.0 | 19.0 | 23.0 |
| 6 | 09.0 | 09.0 | 02.0 | 03.0 | 01.0 | 01.0 | 19.0 | 13.0 | 21.0 | 20.0 | 19.0 | 27.0 |
| 7 | 13.0 | 07.0 | 00.0 | 02.0 | 01.0 | 02.0 | 12.0 | 13.0 | 19.0 | 20.0 | 19.0 | 24.0 |
| 8 | 12.0 | 13.0 | 00.0 | 01.0 | 02.0 | 00.0 | 05.0 | 10.0 | 17.0 | 20.0 | 19.0 | 16.0 |
| 9 | 08.0 | 06.0 | 02.0 | 01.0 | 01.0 | 00.0 | 14.0 | 12.0 | 19.0 | 21.0 | 18.0 | 16.0 |
| 10 | 09.0 | 06.0 | 01.0 | 01.0 | 01.0 | 00.0 | 19.0 | 12.0 | 17.0 | 19.0 | 17.0 | 17.0 |
| 11 | 11.0 | 03.0 | 03.0 | 01.0 | 01.0 | 00.0 | 19.0 | 11.0 | 14.0 | 20.0 | 23.0 | 16.0 |
| 12 | 19.0 | 04.0 | 04.0 | 02.0 | 01.0 | 01.0 | 16.0 | 16.0 | 14.0 | 20.0 | 19.0 | 18.0 |
| 13 | 12.0 | 06.0 | 01.0 | 01.0 | 01.0 | 00.0 | 14.0 | 17.0 | 14.0 | 21.0 | 19.0 | 24.0 |
| 14 | 14.0 | 08.0 | 01.0 | 02.0 | 02.0 | 00.0 | 12.0 | 22.0 | 11.0 | 21.0 | 18.0 | 16.0 |
| 15 | 13.0 | 04.0 | 01.0 | 02.0 | 03.0 | 01.0 | 09.0 | 18.0 | 16.0 | 20.0 | 17.0 | 23.0 |
| 16 | 11.0 | 04.0 | 01.0 | 02.0 | 03.0 | 04.0 | 08.0 | 12.0 | 16.0 | 20.0 | 18.0 | 19.0 |
| 17 | 08.0 | 02.0 | 01.0 | 03.0 | 03.0 | 04.0 | 13.0 | 10.0 | 16.0 | 20.0 | 22.0 | 17.0 |
| 18 | 04.0 | 01.0 | 01.0 | 01.0 | 03.0 | 07.0 | 19.0 | 16.0 | 19.0 | 21.0 | 21.0 | 16.0 |
| 19 | 13.0 | 03.0 | 01.0 | 02.0 | 02.0 | 07.0 | 20.0 | 18.0 | 19.0 | 21.0 | 20.0 | 18.0 |
| 20 | 08.0 | 04.0 | 00.0 | 02.0 | 02.0 | 04.0 | 16.0 | 16.0 | 18.0 | 22.0 | 20.0 | 17.0 |
| 21 | 09.0 | 04.0 | 01.0 | 03.0 | 06.0 | 11.0 | 22.0 | 12.0 | 17.0 | 18.0 | 20.0 | 17.0 |
| 22 | 07.0 | 04.0 | 01.0 | 02.0 | 03.0 | 07.0 | 21.0 | 12.0 | 19.0 | 19.0 | 19.0 | 16.0 |
| 23 | 10.0 | 07.0 | 01.0 | 01.0 | 04.0 | 06.0 | 17.0 | 13.0 | 19.0 | 20.0 | 20.0 | 16.0 |
| 24 | 07.0 | 06.0 | 00.0 | 01.0 | 04.0 | 03.0 | 20.0 | 14.0 | 20.0 | 19.0 | 19.0 | 14.0 |
| 25 | 08.0 | 04.0 | 00.0 | 01.0 | 04.0 | 01.0 | 10.0 | 19.0 | 18.0 | 21.0 | 19.0 | 13.0 |
| 26 | 10.0 | 04.0 | 01.0 | 01.0 | 04.0 | 01.0 | 10.0 | 19.0 | 19.0 | 26.0 | 18.0 | 14.0 |
| 27 | 07.0 | 02.0 | 01.0 | 02.0 | 02.0 | 02.0 | 06.0 | 20.0 | 16.0 | 22.0 | 18.0 | 13.0 |
| 28 | 08.0 | 04.0 | 01.0 | 01.0 | 02.0 | 02.0 | 04.0 | 20.0 | 17.0 | 20.0 | 19.0 | 20.0 |
| 29 | 08.0 | 01.0 | 00.0 | 01.0 | -- | 07.0 | 09.0 | 19.0 | 20.0 | 20.0 | 19.0 | 14.0 |
| 30 | 09.0 | 01.0 | 01.0 | 01.0 | -- | 09.0 | 10.0 | 21.0 | 20.0 | 20.0 | 17.0 | 16.0 |
| 31 | 11.0 | -- | 01.0 | 01.0 | -- | 16.0 | -- | 19.0 | -- | 19.0 | 19.0 | -- |
| AVG | 10.0 | 06.0 | 01.0 | 01.0 | 02.0 | 03.0 | 14.0 | 15.0 | 17.0 | 21.0 | 19.0 | 17.0 |

ARKANSAS RIVER BASIN

07079200 LEADVILLE DRAIN NEAR LEADVILLE, COLO.

LOCATION.--Lat 39°16'28", long 106°17'18", Lake County, at Parshall flume 500 ft below Leadville Drainage Tunnel, 0.4 mile from mouth, and 1.6 miles from courthouse in Leadville.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | ZINC (ZN) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | 3.6 | 9.5 | 340 | 2100 | 6400 | 82 | 44 | 3.2 | 1.3 | 144 | 270 | 1.8 |
| NOV. | | | | | | | | | | | | |
| 06... | 3.4 | 9.0 | 410 | 3600 | 10000 | 90 | 40 | 3.5 | 1.1 | 140 | 275 | 4.0 |
| DEC. | | | | | | | | | | | | |
| 06... | 3.2 | 9.4 | 60 | 3400 | 8900 | 91 | 42 | 3.6 | .9 | 142 | 291 | 3.5 |
| JAN. | | | | | | | | | | | | |
| 09... | -- | 9.7 | 20 | 4000 | 7000 | 99 | 47 | 3.8 | .9 | 142 | 327 | 3.5 |
| FEB. | | | | | | | | | | | | |
| 10... | 3.2 | 9.8 | 1300 | 3900 | 8000 | 107 | 48 | 3.7 | .8 | 142 | 348 | 4.0 |
| MAR. | | | | | | | | | | | | |
| 17... | 3.0 | 9.9 | 160 | 3100 | 6000 | 106 | 51 | 4.6 | 1.7 | 145 | 322 | 4.0 |
| APR. | | | | | | | | | | | | |
| 14... | 2.9 | 10 | 100 | 2900 | 5800 | 110 | 50 | 4.0 | 1.6 | 151 | 362 | 1.2 |
| MAY | | | | | | | | | | | | |
| 27... | 2.8 | 11 | 1300 | 7500 | 20000 | 114 | 64 | 4.2 | 1.7 | 118 | 464 | .8 |
| JUNE | | | | | | | | | | | | |
| 19... | 3.5 | 9.1 | 310 | 6300 | 9600 | 87 | 45 | 3.9 | 1.4 | 106 | 305 | .1 |

07081200 ARKANSAS RIVER NEAR LEADVILLE, COLO.

LOCATION.--Lat 39°15'26", long 106°20'35", in NW¼NW¼ sec.21, T.9 S., R.80 W., Lake County, at gaging station, 500 ft downstream from confluence of East Fork Arkansas River and Tennessee Creek, 0.5 mile downstream from highway bridge, and 3 miles northwest of Leadville.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | ZINC (ZN) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | 26 | 6.6 | 50 | 230 | 640 | 23 | 14 | 2.1 | .8 | 91 | 44 | 1.2 |
| NOV. | | | | | | | | | | | | |
| 06... | 24 | 7.5 | 60 | 310 | 530 | 28 | 12 | 2.2 | .7 | 88 | 49 | 1.5 |
| DEC. | | | | | | | | | | | | |
| 06... | 18 | 7.8 | 40 | 280 | 520 | 30 | 12 | 2.5 | .6 | 94 | 52 | 1.5 |
| JAN. | | | | | | | | | | | | |
| 09... | 13 | 8.5 | 50 | 340 | 600 | 32 | 13 | 2.7 | .7 | 92 | 62 | 2.0 |
| FEB. | | | | | | | | | | | | |
| 10... | 11 | 8.4 | 40 | 460 | 960 | 40 | 17 | 2.6 | .7 | 100 | 89 | 2.0 |
| MAR. | | | | | | | | | | | | |
| 17... | 14 | 8.0 | 30 | 370 | 590 | 36 | 16 | 3.0 | 1.1 | 99 | 70 | 2.0 |
| APR. | | | | | | | | | | | | |
| 14... | 53 | 8.4 | 1800 | 90 | 150 | 14 | 5.0 | 2.7 | 4.4 | 56 | 15 | 2.6 |
| MAY | | | | | | | | | | | | |
| 22... | 406 | 4.4 | 150 | 80 | 230 | 8.3 | 3.6 | 1.7 | .9 | 30 | 11 | 1.2 |
| JUNE | | | | | | | | | | | | |
| 19... | 221 | 5.7 | 140 | 80 | 160 | 14 | 6.3 | 2.0 | .6 | 51 | 18 | 1.6 |

07079200 LEADVILLE DRAIN NEAR LEADVILLE, COLO.--Continued

PERIOD OF RECORD.--Chemical analyses: October 1967 to June 1969 (discontinued).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | FLUORIDE (F) (MG/L) | NITRATE (NO3) (MG/L) | ORTHO PHOSPHATE (PO4) (MG/L) | BORON (B) (UG/L) | DISSOLVED SOLIOS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | SODIUM ADSORPTION RATIO | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | .5 | 2.3 | .00 | 0 | 515 | .70 | 5.01 | 386 | 268 | .1 | 710 | 7.2 |
| NOV. | | | | | | | | | | | | |
| 06... | .2 | .1 | .01 | 70 | 525 | .71 | 4.82 | 390 | 275 | .1 | 709 | 7.3 |
| DEC. | | | | | | | | | | | | |
| 06... | .2 | .1 | .01 | 70 | 541 | .74 | 4.67 | 402 | 286 | .1 | 730 | 7.4 |
| JAN. | | | | | | | | | | | | |
| 09... | .2 | .0 | .01 | 0 | 591 | .80 | -- | 440 | 324 | .1 | 786 | 7.2 |
| FEB. | | | | | | | | | | | | |
| 10... | .2 | .0 | .01 | 30 | 625 | .85 | 5.40 | 464 | 348 | .1 | 829 | 7.2 |
| MAR. | | | | | | | | | | | | |
| 17... | .2 | 2.7 | .00 | 30 | 646 | .88 | 5.23 | 475 | 356 | .1 | 825 | 7.3 |
| APR. | | | | | | | | | | | | |
| 14... | .3 | 2.9 | .00 | 30 | 649 | .88 | 5.08 | 481 | 357 | .1 | 844 | 7.5 |
| MAY | | | | | | | | | | | | |
| 22... | .2 | 3.0 | .00 | 40 | 762 | 1.04 | 5.76 | 548 | 451 | .1 | 949 | 7.2 |
| JUNE | | | | | | | | | | | | |
| 19... | .3 | 2.3 | .00 | 170 | 569 | .77 | 5.38 | 400 | 313 | .1 | 751 | 7.6 |

07081200 ARKANSAS RIVER NEAR LEADVILLE, COLO.--Continued

DRAINAGE AREA.--97.2 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to June 1969 (discontinued).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | FLUORIDE (F) (MG/L) | NITRATE (NO3) (MG/L) | ORTHO PHDSPHATE (PO4) (MG/L) | BORON (B) (UG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | SODIUM ADSORPTION RATID | SPECIFIC CONDUCTANCE (MICRDMHDS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | .6 | .6 | .00 | 10 | 143 | .19 | 10.0 | 116 | 41 | .1 | 234 | 7.3 |
| NOV. | | | | | | | | | | | | |
| 06... | .4 | .1 | .01 | 90 | 148 | .20 | 9.59 | 118 | 46 | .1 | 239 | 7.4 |
| DEC. | | | | | | | | | | | | |
| 06... | .4 | .1 | .01 | 50 | 163 | .22 | 7.92 | 124 | 47 | .1 | 255 | 7.3 |
| JAN. | | | | | | | | | | | | |
| 09... | .3 | .0 | .01 | 70 | 171 | .23 | 6.00 | 132 | 57 | .1 | 273 | 7.3 |
| FEB. | | | | | | | | | | | | |
| 10... | .3 | .0 | .01 | 50 | 220 | .30 | 6.53 | 168 | 86 | .1 | 337 | 7.4 |
| MAR. | | | | | | | | | | | | |
| 17... | .4 | 1.2 | .00 | 70 | 305 | .28 | 11.5 | 155 | 73 | .1 | 305 | 7.8 |
| APR. | | | | | | | | | | | | |
| 14... | .4 | 2.0 | .03 | 70 | 105 | .14 | 15.0 | 56 | 10 | .2 | 130 | 7.3 |
| MAY | | | | | | | | | | | | |
| 22... | .3 | .8 | .00 | 60 | 58 | .08 | 63.6 | 35 | 11 | .1 | 76 | 7.2 |
| JUNE | | | | | | | | | | | | |
| 19... | .6 | .5 | .00 | 60 | 73 | .10 | 43.6 | 60 | 18 | .1 | 112 | 7.5 |

07083000 HALFMOON CREEK NEAR MALTA, COLO.
(Hydrologic bench-mark station)

LOCATION.--Lat 39°10'20", long 106°23'20", in SE¼SE¼ sec.13, T.10 S., R.81 W., Lake County, at gaging station, 1.4 miles upstream from culvert, 3.3 miles upstream from mouth, and 4.3 miles southwest of Malta.

DRAINAGE AREA.--23.6 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1966 to September 1969.

Water temperatures: May 1967 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | ZINC (ZN) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | 10 | 5.3 | 40 | 20 | 20 | 6.0 | 6.8 | 1.3 | .5 | 48 | 4.8 | .9 |
| 31... | 7.0 | 5.1 | -- | -- | -- | 11 | 2.9 | 1.6 | .7 | 46 | 3.8 | 1.1 |
| JAN. | | | | | | | | | | | | |
| 20... | 5.5 | 5.9 | -- | -- | -- | 11 | 4.4 | 2.5 | .6 | 56 | 6.0 | 1.1 |
| FEB. | | | | | | | | | | | | |
| 10... | 7.5 | 6.2 | -- | -- | -- | 11 | 4.9 | 1.9 | .7 | 57 | 5.6 | 1.1 |
| MAR. | | | | | | | | | | | | |
| 17... | 7.2 | 6.6 | -- | -- | -- | 11 | 5.0 | 2.1 | .9 | 54 | 5.6 | 1.8 |
| APR. | | | | | | | | | | | | |
| 14... | 7.5 | 5.5 | -- | -- | -- | 10 | 4.8 | 1.8 | .8 | 52 | 6.0 | 1.4 |
| MAY | | | | | | | | | | | | |
| 22... | 71 | 3.3 | 120 | 10 | 10 | 5.6 | 3.4 | .8 | .5 | 29 | 3.0 | 1.3 |
| JUNE | | | | | | | | | | | | |
| 24... | 63 | 4.6 | -- | -- | -- | 4.6 | 4.2 | .9 | .4 | 31 | 3.2 | 1.0 |
| JULY | | | | | | | | | | | | |
| 24... | 50 | 2.1 | -- | -- | -- | 8.0 | 2.9 | .8 | .6 | 37 | 4.0 | 2.0 |
| AUG. | | | | | | | | | | | | |
| 06... | 39 | 2.7 | -- | -- | -- | 8.0 | 2.9 | -- | .5 | 38 | 5.0 | 1.5 |
| SEPT. | | | | | | | | | | | | |
| 05... | 18 | 3.6 | -- | -- | -- | 10 | 2.9 | 1.5 | .6 | 51 | 6.2 | 1.0 |

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

| DATE | TIME | WATER TEMP-ERA-TURE (°C) | DISCHARGE (CFS) | CONCEN-TRATION (MG/L) | SUSPENDED SEDIMENT DISCHARGE (TONS/DAY) | PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002 | .004 | .008 | .016 | .031 | .062 | .125 | .250 | .500 | 1.00 | 2.00 | METHOD OF ANALY-SIS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16, 1968 | 1225 | 2.0 | 10 | 6 | 0.2 | | | | | | | | | | | | |
| OCT 31..... | 1345 | 4.5 | 7.2 | 12 | .2 | | | | | | | | | | | | |
| MAY 22, 1969 | 1200 | 6.5 | 73 | 8 | 1.6 | | | | | | | | | | | | |
| JUN 7..... | 0930 | 3.5 | 102 | 6 | 1.7 | | | | | | | | | | | | |
| JUN 19..... | 1000 | 4.0 | 62 | 4 | .7 | | | | | | | | | | | | |
| JUL 24..... | 1730 | 10.5 | 52 | 15 | 2.1 | | | | | | | | | | | | |
| AUG 6..... | 1345 | 14.0 | 39 | 2 | .2 | | | | | | | | | | | | |
| SEP 5..... | 0900 | 6.0 | 18 | 1 | T | | | | | | | | | | | | |

07083000 HALFMOON CREEK NEAR MALTA, COLO.--Continued

EXTREMES, 1968-69.--Water temperatures: Maximum, 17°C July 28; minimum, freezing point on many days during October to May.

EXTREMES, May 1967 to September 1969.--Water temperatures: Maximum, 17°C July 28, 1969; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | FLUORIDE (F) (MG/L) | NITRATE (ND3) (MG/L) | PHOSPHATE (PO4) (MG/L) | BORON (B) (UG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | SODIUM ADSORPTION RATIO | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 16... | .2 | .5 | .00 | 0 | 40 | .05 | 1.08 | 43 | 4 | .1 | 86 | 7.4 |
| 31... | .2 | .4 | .00 | 40 | 53 | .07 | 1.00 | 40 | 2 | .1 | 85 | 7.6 |
| JAN. | | | | | | | | | | | | |
| 20... | .2 | .9 | .00 | 20 | 58 | .08 | .86 | 45 | 0 | .2 | 96 | 7.6 |
| FEB. | | | | | | | | | | | | |
| 10... | .2 | 1.0 | .02 | 40 | 58 | .08 | 1.17 | 48 | 1 | .1 | 95 | 7.6 |
| MAR. | | | | | | | | | | | | |
| 17... | .1 | 1.2 | .01 | 40 | 63 | .09 | 1.22 | 49 | 5 | .1 | 98 | 7.4 |
| APR. | | | | | | | | | | | | |
| 14... | .2 | .8 | .04 | 50 | 51 | .07 | 1.03 | 46 | 3 | .1 | 88 | 7.5 |
| MAY | | | | | | | | | | | | |
| 22... | .1 | .5 | .00 | 70 | 32 | .04 | 6.13 | 28 | 4 | .1 | 50 | 7.2 |
| JUNE | | | | | | | | | | | | |
| 24... | .1 | .6 | .03 | 20 | 37 | .05 | 6.29 | 29 | 3 | .1 | 57 | 6.1 |
| JULY | | | | | | | | | | | | |
| 24... | .1 | .2 | .00 | 0 | 56 | .08 | 7.56 | 32 | 2 | .1 | 61 | 7.2 |
| AUG. | | | | | | | | | | | | |
| 06... | .1 | .3 | .00 | 0 | 64 | .09 | 6.74 | 32 | 1 | .1 | 67 | 7.3 |
| SEPT. | | | | | | | | | | | | |
| 05... | .1 | .1 | .01 | 0 | 73 | .10 | 3.55 | 38 | 0 | .1 | 84 | 7.3 |

07083000 HALFMOON CREEK NEAR MALTA, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 196B TO SEPTEMBER 1969

| DAY | OCT | | NOV | | DEC | | JAN | | FEB | | MAR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 08.0 | 04.0 | 02.0 | 00.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 2 | 09.5 | 02.0 | 06.5 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 3 | 10.0 | 01.5 | 03.5 | 00.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 4 | 07.0 | 03.5 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 5 | 09.5 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 6 | 09.0 | 02.0 | 00.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 7 | 09.0 | 03.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 8 | 04.5 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 9 | 08.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 10 | 08.5 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 11 | 06.5 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 12 | 08.5 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 13 | 09.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 14 | 09.5 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 15 | 06.5 | 03.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 16 | 04.5 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 17 | 01.5 | 00.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 18 | 01.0 | 00.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 19 | 05.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 20 | 05.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 21 | 05.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 22 | 05.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 23 | 04.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 24 | 06.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 25 | 07.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 26 | 05.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 27 | 04.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 28 | 04.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 29 | 05.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 00.5 | 00.0 |
| 30 | 04.5 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 00.5 | 00.0 |
| 31 | 04.5 | 00.0 | -- | -- | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 00.5 | 00.0 |
| AVG | 6.3 | 1.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

07086000 ARKANSAS RIVER AT GRANITE, COLO.

LOCATION.--Lat 39°02'38", long 106°15'55", in SW¼ sec.31, T.11 S., R.79 W., Chaffee County, at gaging station at Granite, 100 ft east of U.S. Highway 24, 100 ft downstream from county bridge and 200 ft upstream from Cache Creek.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | TOTAL IRON (FE) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | ZINC (ZN) (UG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | | |
| 15... | 150 | 7.2 | 90 | 160 | 270 | 15 | 9.0 | 3.3 | .8 | 62 | 27 | 1.8 |
| NOV. | | | | | | | | | | | | |
| 06... | 127 | 8.2 | 50 | 340 | 540 | 20 | 7.1 | 3.8 | 1.0 | 64 | 27 | 2.5 |
| DEC. | | | | | | | | | | | | |
| 05... | 114a | 8.5 | 60 | 320 | 470 | 21 | 7.B | 4.2 | 1.0 | 66 | 37 | 3.0 |
| JAN. | | | | | | | | | | | | |
| 0B... | 87a | 9.2 | 50 | 350 | 810 | 23 | 8.B | 4.8 | 1.0 | 78 | 39 | 3.1 |
| FEB. | | | | | | | | | | | | |
| 10... | 80a | 9.0 | 30 | 310 | 820 | 24 | 9.2 | 4.4 | 1.0 | B1 | 43 | 3.0 |
| MAR. | | | | | | | | | | | | |
| 17... | 78a | 8.6 | 60 | 2B0 | 420 | 22 | 8.0 | 4.7 | 2.5 | 71 | 33 | 3.0 |
| APR. | | | | | | | | | | | | |
| 09... | 112a | 8.0 | 130 | 140 | 220 | 20 | 7.3 | 4.7 | 1.6 | 64 | 32 | 3.0 |
| MAY | | | | | | | | | | | | |
| 22... | 1190 | 4.9 | B0 | 120 | 390 | 11 | 3.3 | 2.3 | .8 | 33 | 16 | .8 |
| JUNE | | | | | | | | | | | | |
| 19... | 636 | 7.0 | 240 | 130 | 370 | 15 | 5.8 | 2.4 | .8 | 53 | 19 | 2.0 |

a Daily mean discharge.

07083000 HALFMOON CREEK NEAR MALTA, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | APR | | MAY | | JUN | | JUL | | AUG | | SEP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 01.0 | 00.0 | 11.0 | 00.0 | 08.5 | 01.5 | 13.5 | 04.5 | 14.0 | 08.0 | 14.5 | 08.0 |
| 2 | 01.0 | 00.0 | 11.0 | 00.0 | 09.0 | 01.0 | 13.0 | 04.5 | 15.0 | 07.0 | 13.5 | 06.5 |
| 3 | 01.5 | 00.0 | 08.5 | 00.5 | 10.0 | 01.5 | 12.0 | 05.0 | 14.0 | 09.5 | 16.0 | 06.5 |
| 4 | 03.5 | 00.0 | 08.0 | 00.5 | 08.0 | 01.5 | 10.5 | 05.0 | 14.0 | 08.5 | 14.5 | 08.0 |
| 5 | 03.0 | 00.0 | 03.0 | 00.0 | 08.5 | 02.0 | 10.0 | 04.5 | 15.5 | 09.0 | 13.5 | 06.5 |
| 6 | 04.5 | 00.0 | 06.0 | 00.0 | 06.0 | 02.0 | 13.0 | 04.5 | 16.0 | 08.5 | 13.0 | 05.5 |
| 7 | 02.0 | 00.0 | 02.0 | 00.0 | 06.5 | 03.5 | 13.0 | 03.5 | 16.0 | 08.0 | 12.0 | 06.5 |
| 8 | 04.5 | 00.0 | 08.5 | 00.0 | 09.0 | 03.0 | 12.0 | 04.0 | 16.5 | 08.0 | 12.0 | 06.5 |
| 9 | 06.0 | 00.0 | 11.0 | 00.5 | 10.0 | 03.5 | 10.5 | 05.0 | 15.5 | 08.5 | 12.0 | 06.5 |
| 10 | 06.5 | 00.0 | 11.0 | 00.5 | 09.0 | 03.5 | 11.0 | 05.0 | 15.0 | 08.5 | 11.0 | 06.5 |
| 11 | 05.0 | 00.0 | 10.0 | 01.0 | 06.5 | 02.0 | 11.5 | 05.0 | 13.5 | 08.5 | 13.0 | 06.0 |
| 12 | 03.5 | 00.0 | 09.0 | 01.5 | 08.0 | 03.0 | 12.0 | 06.0 | 13.5 | 08.5 | 13.0 | 06.0 |
| 13 | 02.0 | 00.0 | 11.0 | 01.5 | 10.0 | 03.5 | 11.5 | 05.5 | 13.5 | 08.5 | 10.5 | 05.0 |
| 14 | 04.5 | 00.0 | 06.5 | 01.0 | 08.5 | 03.5 | 10.5 | 05.5 | 15.0 | 09.0 | 11.0 | 05.0 |
| 15 | 05.0 | 01.0 | 08.0 | 00.5 | 09.0 | 04.0 | 13.5 | 06.0 | 16.5 | 07.0 | 10.0 | 05.0 |
| 16 | 06.0 | 00.0 | 08.0 | 00.5 | 06.5 | 04.0 | 10.5 | 05.5 | 15.0 | 07.0 | 09.5 | 05.5 |
| 17 | 05.0 | 00.0 | 11.0 | 01.5 | 06.0 | 04.0 | 11.0 | 06.5 | 14.5 | 08.0 | 08.5 | 05.0 |
| 18 | 06.0 | 00.0 | 10.0 | 01.0 | 08.0 | 03.0 | 14.5 | 06.5 | 12.0 | 08.0 | 12.0 | 04.0 |
| 19 | 08.0 | 00.5 | 10.0 | 01.0 | 10.0 | 03.0 | 10.5 | 07.0 | 12.0 | 08.5 | 11.0 | 04.5 |
| 20 | 10.0 | 00.5 | 10.0 | 01.0 | 11.5 | 03.5 | 11.0 | 06.5 | 13.5 | 06.5 | 09.0 | 05.5 |
| 21 | 10.5 | 00.5 | 09.5 | 01.5 | 11.5 | 03.5 | 13.0 | 06.0 | 13.0 | 06.5 | 09.5 | 05.5 |
| 22 | 07.0 | 00.5 | 09.0 | 02.0 | 10.0 | 03.5 | 15.0 | 06.0 | 15.5 | 08.0 | 09.0 | 06.0 |
| 23 | 10.0 | 01.0 | 06.0 | 01.0 | 09.0 | 04.0 | 14.5 | 06.0 | 12.0 | 08.5 | 11.0 | 03.5 |
| 24 | 09.5 | 00.0 | 09.5 | 01.0 | 06.5 | 04.5 | 10.5 | 07.0 | 16.0 | 06.5 | 11.5 | 03.5 |
| 25 | 06.0 | 00.0 | 09.5 | 01.0 | 06.5 | 02.0 | 15.0 | 07.0 | 14.0 | 07.0 | 11.5 | 04.0 |
| 26 | 03.5 | 00.0 | 09.5 | 01.5 | 07.0 | 02.0 | 14.5 | 07.0 | 14.5 | 08.0 | 12.0 | 03.5 |
| 27 | 07.0 | 00.0 | 08.5 | 01.5 | 11.5 | 01.5 | 15.5 | 07.0 | 14.5 | 08.0 | 10.5 | 04.0 |
| 28 | 09.5 | 00.0 | 08.0 | 01.5 | 12.0 | 03.5 | 17.0 | 09.5 | 14.5 | 08.5 | 10.5 | 04.5 |
| 29 | 09.5 | 00.0 | 09.0 | 01.5 | 12.0 | 03.5 | 14.0 | 08.5 | 15.5 | 09.0 | 12.0 | 04.0 |
| 30 | 10.0 | 00.0 | 08.5 | 01.5 | 12.0 | 03.5 | 13.0 | 09.5 | 13.5 | 09.0 | 09.0 | 04.5 |
| 31 | -- | -- | 08.0 | 02.0 | -- | -- | 14.0 | 08.5 | 14.5 | 07.0 | -- | -- |
| AVG | 5.7 | 0.1 | 8.6 | 0.9 | 8.8 | 2.9 | 12.6 | 6.0 | 14.4 | 8.0 | 11.5 | 5.3 |

07086000 ARKANSAS RIVER AT GRANITE, COLO.--Continued

DRAINAGE AREA.--427 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to June 1969 (discontinued).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | FLUORIDE (F) (MG/L) | NITRATE (NO3) (MG/L) | ORTHO PHOSPHATE (PO4) (MG/L) | BORON (B) (UG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | SODIUM ADSORPTION RATIO | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. 15... | .3 | .1 | .3 | 0 | 93 | .13 | 37.7 | 74 | 23 | .2 | 158 | 7.2 |
| NOV. 06... | .3 | .0 | .01 | 50 | 120 | .08 | 41.1 | 78 | 26 | .2 | 175 | 7.1 |
| DEC. 05... | .3 | .1 | .01 | 50 | 115 | .16 | 35.4 | 85 | 31 | .2 | 186 | 7.1 |
| JAN. 08... | .4 | 2.3 | .07 | 50 | 135 | .18 | 31.7 | 94 | 30 | .2 | 215 | 7.5 |
| FEB. 10... | .3 | 1.1 | .10 | 50 | 145 | .20 | 31.3 | 98 | 32 | .2 | 220 | 7.6 |
| MAR. 17... | .3 | 1.3 | .16 | 100 | 128 | .17 | 27.0 | 88 | 29 | .2 | 201 | 7.5 |
| APR. 09... | .3 | 1.5 | .06 | 40 | 127 | .17 | 38.4 | 80 | 28 | .2 | 185 | 7.4 |
| MAY 22... | .3 | .6 | .00 | 50 | 69 | .09 | 222 | 40 | 13 | .2 | 93 | 7.2 |
| JUNE 19... | .5 | .6 | .03 | 60 | 76 | .10 | 131 | 62 | 19 | .1 | 131 | 7.2 |

07099200 ARKANSAS RIVER NEAR PORTLAND, COLO.

LOCATION.--Lat 38°20'16", long 104°56'24", in NW¼SW¼ sec.6, T.20 S., R.67 W., Fremont County, at gaging station, 1.2 miles downstream from Willow Spring Creek and 5.3 miles southeast of Portland.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 24... | 256 | 9 | 12 | 82 | 28 | 34 | 2.9 | 212 | 202 | 13 | .8 |
| NOV. | | | | | | | | | | | |
| 22... | 468 | 6 | 13 | 63 | 23 | 26 | 2.2 | 184 | 138 | 9.9 | .9 |
| DEC. | | | | | | | | | | | |
| 17... | 367 | 3 | 13 | 67 | 22 | 28 | 2.6 | 175 | 154 | 9.5 | .7 |
| JAN. | | | | | | | | | | | |
| 24... | 308 | 4 | 14 | 69 | 23 | 32 | 2.7 | 184 | 161 | 14 | .8 |
| FEB. | | | | | | | | | | | |
| 20... | 231 | 6 | 12 | 67 | 25 | 33 | 2.4 | 181 | 177 | 12 | .9 |
| APR. | | | | | | | | | | | |
| 08... | 177 | 13 | 11 | 77 | 28 | 38 | 2.9 | 188 | 215 | 14 | .9 |
| MAY | | | | | | | | | | | |
| 21... | 1460 | 20 | 9.3 | 36 | 9.2 | 13 | 1.8 | 101 | 57 | 4.2 | .7 |
| JUNE | | | | | | | | | | | |
| 17... | 1880 | 14 | 7.6 | 29 | 11 | 13 | 1.5 | 87 | 61 | 3.3 | .2 |
| JULY | | | | | | | | | | | |
| 07... | 2590 | 20 | -- | 25 | 6.7 | 7.6 | 1.3 | 81 | 34 | 2.9 | -- |
| AUG. | | | | | | | | | | | |
| 05... | 1720 | 19 | 9.0 | 41 | 9.3 | 13 | 1.7 | 131 | 49 | 5.8 | .5 |
| SEPT. | | | | | | | | | | | |
| 03... | 488 | 23 | 12 | 66 | 19 | 26 | 2.1 | 175 | 138 | 9.0 | .7 |

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHORAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

| DATE | TIME | WATER TEMP-ERA-TURE (°C) | DISCHARGE (CFS) | CONCEN-TRATION (MG/L) | SUSPENDED SEDIMENT DISCHARGE (TONS/DAY) | PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002 | .004 | .008 | .016 | .031 | .062 | .125 | .250 | .500 | 1.00 | 2.00 | METHOD OF ANALY-SIS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 14, 1968 | 1615 | 17.0 | 175 | 17 | 8 | | | | | | | | | | | | |
| OCT 24..... | 1120 | 9.0 | 256 | 41 | 28 | | | | | | | | | | | | |
| NOV 7..... | 1330 | 8.5 | 300 | 16 | 13 | | | | | | | | | | | | |
| NOV 22..... | 1115 | 6.0 | 468 | 57 | 72 | | | | | | | | | | | | |
| DEC 4..... | 1645 | 4.0 | 390 | 26 | 27 | | | | | | | | | | | | |
| DEC 17..... | 1215 | 3.0 | 367 | 34 | 34 | | | | | | | | | | | | |
| JAN 7, 1969 | 1400 | 6.0 | 312 | 35 | 29 | | | | | | | | | | | | |
| JAN 27..... | 1115 | 4.0 | 308 | 79 | 66 | | | | | | | | | | | | |
| FEB 6..... | 1315 | 4.0 | 270 | 27 | 20 | | | | | | | | | | | | |
| FEB 20..... | 1300 | 6.0 | 231 | 17 | 11 | | | | | | | | | | | | |
| MAR 12..... | 1430 | 5.0 | 252 | 19 | 13 | | | | | | | | | | | | |
| APR 8..... | 1315 | 13.0 | 177 | 27 | 13 | | | | | | | | | | | | |
| MAY 9..... | 0830 | 9.0 | 1350 | 486 | 1770 | | | | | | | | | | | | |
| MAY 21..... | 1430 | 20.0 | 1460 | 880 | 3470 | | | | | | | | | | | | |
| JUN 5..... | 1400 | 18.0 | 1790 | 470 | 227D | | | | | | | | | | | | |
| JUN 17..... | 1200 | 14.0 | 1880 | 302 | 153D | | | | | | | | | | | | |
| JUL 7..... | 2020 | 20.0 | 2590 | 324 | 2270 | 8 | 11 | -- | -- | -- | 40 | 58 | 84 | 98 | 100 | -- | VPWC |
| JUL 24..... | 1215 | 2D.0 | 1550 | 238 | 996 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| AUG 5..... | 0900 | 19.D | 1720 | 1390 | 6460 | 43 | 51 | -- | 84 | -- | 93 | 96 | 88 | 100 | -- | -- | VPWC |
| AUG 18..... | 1315 | 21.0 | 1180 | 92 | 293 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| SEP 3..... | 1700 | 23.0 | 488 | 78 | 103 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| SEP 15..... | 1410 | 17.0 | 413 | 65 | 72 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |

07099200 ARKANSAS RIVER NEAR PORTLAND, COLO.--Continued

DRAINAGE AREA.--4,280 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 24... | 1.7 | .18 | 60 | 483 | .66 | 334 | 320 | 146 | .8 | 709 | 7.9 |
| NOV. | | | | | | | | | | | |
| 22... | 2.8 | .15 | 60 | 389 | .53 | 492 | 252 | 101 | .7 | 580 | 7.6 |
| DEC. | | | | | | | | | | | |
| 17... | 3.7 | .21 | 250 | 401 | .55 | 397 | 258 | 114 | .8 | 600 | 7.5 |
| JAN. | | | | | | | | | | | |
| 24... | 3.3 | .25 | 50 | 407 | .55 | 338 | 267 | 116 | .9 | 611 | 7.7 |
| FEB. | | | | | | | | | | | |
| 20... | 3.1 | .23 | 190 | 426 | .58 | 266 | 268 | 118 | .9 | 640 | 8.0 |
| APR. | | | | | | | | | | | |
| 08... | 1.7 | .27 | 210 | 505 | .69 | 241 | 308 | 141 | .9 | 708 | 8.1 |
| MAY | | | | | | | | | | | |
| 21... | 2.7 | .16 | 60 | 205 | .28 | 808 | 128 | 45 | .5 | 308 | 7.6 |
| JUNE | | | | | | | | | | | |
| 17... | 1.3 | .08 | 50 | 182 | .25 | 924 | 115 | 44 | .5 | 279 | 7.7 |
| JULY | | | | | | | | | | | |
| 07... | -- | -- | -- | 133 | .18 | 930 | 90 | 24 | .3 | 213 | 7.5 |
| AUG. | | | | | | | | | | | |
| 05... | 2.7 | .31 | 30 | 190 | .26 | 882 | 140 | 32 | .5 | 327 | 6.9 |
| SEPT. | | | | | | | | | | | |
| 03... | .2 | .03 | 70 | 383 | .52 | 505 | 242 | 99 | .7 | 567 | 7.4 |

07099400 ARKANSAS RIVER ABOVE PUEBLO, COLO.

LOCATION.--Lat 38°16'17", long 104°43'06", in NE¼NE¼ sec.36, T.20 S., R.66 W., Pueblo County, at gaging station, 450 ft downstream from headgate of West Pueblo ditch, 0.4 mile downstream from Rock Canyon Barrier Dam, and 7 miles west of Pueblo.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 24... | 193 | 12 | 10 | 82 | 32 | 37 | 3.0 | 212 | 230 | 11 | .8 |
| NOV. | | | | | | | | | | | |
| 22... | 308 | 7 | 14 | 64 | 28 | 29 | 2.8 | 188 | 150 | 11 | 1.3 |
| DEC. | | | | | | | | | | | |
| 17... | 260[a/] | 2 | 13 | 68 | 25 | 32 | 2.8 | 177 | 179 | 10 | .9 |
| JAN. | | | | | | | | | | | |
| 24... | 276 | 4 | 14 | 72 | 23 | 31 | 2.7 | 183 | 173 | 11 | .9 |
| FEB. | | | | | | | | | | | |
| 20... | 148 | 4 | 12 | 78 | 28 | 41 | 2.6 | 189 | 223 | 13 | .9 |
| APR. | | | | | | | | | | | |
| 08... | 74 | 10 | 11 | 87 | 31 | 47 | 3.2 | 196 | 266 | 14 | 1.0 |
| MAY | | | | | | | | | | | |
| 21... | 856 | 19 | 9.8 | 49 | 13 | 17 | 2.0 | 110 | 80 | 5.2 | .7 |
| JUNE | | | | | | | | | | | |
| 17... | 1940 | 14 | 7.6 | 32 | 8.9 | 12 | 1.5 | 86 | 62 | 3.5 | .1 |
| JULY | | | | | | | | | | | |
| 07... | 2250 | 20 | -- | 27 | 7.7 | 8.2 | 1.3 | 88 | 45 | 3.1 | -- |
| AUG. | | | | | | | | | | | |
| 04... | 1450 | 15 | 8.8 | 30 | 13 | 12 | 1.7 | 108 | 55 | 4.1 | .5 |
| SEPT. | | | | | | | | | | | |
| 03... | 378 | 24 | 12 | 69 | 21 | 27 | 2.7 | 178 | 150 | 6.8 | .7 |

a Daily mean discharge.

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

| DATE | TIME | WATER TEMP-ERA-TURE (°C) | DISCHARGE (CFS) | CONCEN-TRATION (MG/L) | SUSPENDED SEDIMENT DISCHARGE (TONS/DAY) | PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002 | .004 | .008 | .016 | .031 | .062 | .125 | .250 | .500 | 1.00 | 2.00 | METHOD OF ANALY-SIS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 14, 1968 | 1345 | 7.0 | 200 | 24 | 13 | | | | | | | | | | | | |
| OCT 24..... | 1310 | 11.5 | 193 | 30 | 16 | | | | | | | | | | | | |
| NOV 7..... | 1600 | 9.0 | 210 | 34 | 19 | | | | | | | | | | | | |
| NOV 22..... | 1330 | 7.0 | 308 | 105 | 87 | | | | | | | | | | | | |
| DEC 4..... | 1440 | 5.0 | 298 | 62 | 50 | | | | | | | | | | | | |
| DEC 17..... | 1100 | 1.5 | 260 | 69 | 48 | | | | | | | | | | | | |
| JAN 7, 1969 | 1440 | 5.5 | 270 | 169 | 123 | | | | | | | | | | | | |
| JAN 27..... | 1000 | 4.0 | 276 | 239 | 178 | | | | | | | | | | | | |
| FEB 6..... | 1100 | 2.5 | 250 | 80 | 54 | | | | | | | | | | | | |
| FEB 20..... | 1045 | 4.5 | 148 | 62 | 25 | | | | | | | | | | | | |
| MAR 12..... | 1100 | 9.0 | 253 | 130 | 89 | | | | | | | | | | | | |
| APR 8..... | 0930 | 9.5 | 74 | 40 | 8 | | | | | | | | | | | | |
| MAY 6..... | 1415 | 13.5 | 872 | 595 | 1400 | | | | | | | | | | | | |
| MAY 21..... | 1100 | 18.0 | 856 | 536 | 1240 | 10 | 13 | -- | -- | -- | 48 | 68 | 84 | 98 | 100 | -- | VPWC |
| JUN 4..... | 1600 | 17.0 | 1400 | 797 | 3010 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| JUN 17..... | 0730 | 14.0 | 1940 | 1210 | 6340 | 16 | 20 | -- | 26 | -- | 35 | 43 | 54 | 77 | 100 | -- | VPWC |
| JUL 7..... | 1530 | 20.0 | 2250 | 868 | 5270 | 5 | 7 | -- | 12 | -- | 25 | 39 | 58 | 76 | 84 | 100 | VPWC |
| JUL 24..... | 1015 | 19.0 | 1630 | 448 | 1650 | 14 | 18 | -- | 29 | -- | 50 | 63 | 84 | 95 | 100 | -- | VPWC |
| AUG 4..... | 1745 | 15.0 | 1450 | 417 | 1630 | 10 | 14 | -- | 21 | -- | 39 | 49 | 63 | 83 | 91 | 100 | VPWC |
| AUG 18..... | 1145 | 20.0 | 880 | 99 | 235 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| SEP 3..... | 1315 | 20.0 | 378 | 108 | 110 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| SEP 15..... | 1145 | 18.0 | 360 | 94 | 91 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |

07099400 ARKANSAS RIVER ABOVE PUEBLO, COLO.--Continued

DRAINAGE AREA.--4,670 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | NITRATE (ND3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 24... | 1.4 | .11 | 60 | 514 | .70 | 268 | 336 | 162 | .9 | 748 | 7.9 |
| NOV. | | | | | | | | | | | |
| 22... | 3.1 | .20 | 90 | 418 | .57 | 348 | 226 | 72 | .8 | 616 | 7.6 |
| DEC. | | | | | | | | | | | |
| 17... | 4.1 | .28 | 80 | 435 | .59 | 305 | 272 | 127 | .8 | 647 | 7.7 |
| JAN. | | | | | | | | | | | |
| 24... | 3.5 | .22 | 80 | 436 | .59 | 325 | 276 | 126 | .8 | 644 | 7.4 |
| FEB. | | | | | | | | | | | |
| 20... | 3.4 | .23 | 190 | 482 | .66 | 193 | 310 | 155 | 1.0 | 738 | 7.8 |
| APR. | | | | | | | | | | | |
| 08... | 2.2 | .15 | 200 | 577 | .78 | 115 | 345 | 184 | 1.1 | 822 | 8.0 |
| MAY | | | | | | | | | | | |
| 21... | 2.5 | .18 | 70 | 246 | .33 | 569 | 152 | 62 | .6 | 373 | 7.8 |
| JUNE | | | | | | | | | | | |
| 17... | 1.6 | .13 | 60 | 186 | .25 | 974 | 117 | 46 | .5 | 282 | 7.8 |
| JULY | | | | | | | | | | | |
| 07... | -- | -- | -- | 146 | .20 | 887 | 100 | 28 | .4 | 230 | 7.6 |
| AUG. | | | | | | | | | | | |
| 04... | 1.2 | .01 | 0 | 181 | .25 | 709 | 130 | 41 | .5 | 291 | 7.0 |
| SEPT. | | | | | | | | | | | |
| 03... | 1.0 | .02 | 0 | 397 | .54 | 405 | 260 | 114 | .7 | 593 | 7.2 |

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.
(Irrigation network station)

LOCATION.--Lat 38°05'02", long 102°55'10", in NW¼NW¼ sec.4, T.23 S., R.49 W., Bent County, at gaging station, 1.1 miles upstream from Caddoa Creek, 1.7 miles downstream from John Martin Dam, and 2.9 miles southeast of Hasty.

DRAIAGE AREA.--18,917 sq mi, of which 785 sq mi is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1942 to August 1943, October 1945 to July 1949, January 1951 to September 1969.

Water temperatures: January 1951 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum 4,100 mg/l May 7-9, Sept. 16-30; minimum, 957 mg/l Aug. 23-28.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 01-21 | 64 | 9.1 | 313 | 148 | 408 | -- | 284 | 1800 | 120 | -- | 4.3 |
| 22-31 | 110 | 15 | 269 | 126 | 311 | -- | 298 | 1410 | 98 | -- | 7.5 |
| NOV. | | | | | | | | | | | |
| 01-04 | 56 | 13 | 259 | 134 | 304 | -- | 237 | 1440 | 91 | -- | 8.4 |
| 05-30 | 31 | 12 | 343 | 179 | 405 | -- | 301 | 1900 | 120 | -- | 5.8 |
| DEC. | | | | | | | | | | | |
| 01-08 | 21 | 11 | 351 | 171 | 430 | -- | 353 | 1940 | 122 | -- | 4.9 |
| 09-31 | 1.9 | 16 | 357 | 199 | 509 | -- | 276 | 2270 | 160 | -- | 2.4 |
| JAN. | | | | | | | | | | | |
| 01-31 | 1.8 | 16 | 339 | 198 | 500 | -- | 304 | 2290 | 152 | -- | 3.4 |
| FEB. | | | | | | | | | | | |
| 01-15 | 2.2 | 15 | 343 | 206 | 508 | -- | 367 | 2200 | 148 | -- | 3.6 |
| 16-28 | 24 | 9.9 | 321 | 170 | 393 | -- | 278 | 1900 | 110 | -- | 5.6 |
| MAR. | | | | | | | | | | | |
| 01-31 | 3.3 | 15 | 321 | 180 | 495 | -- | 284 | 2200 | 142 | -- | 1.8 |
| APR. | | | | | | | | | | | |
| 01... | 17 | 14 | 341 | 185 | 500 | -- | 343 | 2350 | 148 | -- | 1.0 |
| 02-30 | 61 | 8.1 | 321 | 161 | 397 | -- | 235 | 2020 | 110 | -- | 2.1 |
| MAY | | | | | | | | | | | |
| 01-06 | 602 | 7.5 | 281 | 171 | 282 | -- | 199 | 1810 | 110 | -- | .9 |
| 07-09 | 73 | 16 | 369 | 202 | 535 | -- | 303 | 2290 | 160 | -- | 2.7 |
| 10-28 | 486 | 6.4 | 281 | 146 | 354 | -- | 192 | 1700 | 100 | -- | .8 |
| 29-31 | 445 | 6.5 | 212 | 119 | 269 | -- | 174 | 1280 | 69 | -- | 1.8 |
| JUNE | | | | | | | | | | | |
| 01-15 | 577 | 8.4 | 228 | 97 | 260 | -- | 198 | 1220 | 66 | -- | 14 |
| 16-30 | 201 | 12 | 152 | 54 | 114 | -- | 181 | 600 | 27 | -- | 3.4 |
| JULY | | | | | | | | | | | |
| 01-13 | 910 | 11 | 157 | 70 | 134 | -- | 159 | 795 | 32 | -- | 1.1 |
| 14... | 330 | 15 | 289 | 119 | 300 | -- | 312 | 1440 | 92 | -- | .3 |
| 15-31 | 623 | 13 | 132 | 44 | 98 | -- | 180 | 510 | 28 | -- | 4.7 |
| AUG. | | | | | | | | | | | |
| 01-11 | 479 | 14 | 151 | 58 | 121 | -- | 206 | 635 | 34 | -- | 7.5 |
| 12-22 | 215 | 20 | 222 | 98 | 229 | -- | 232 | 1120 | 68 | -- | 1.3 |
| 23-28 | 537 | 11 | 118 | 44 | 90 | -- | 157 | 485 | 24 | -- | 4.2 |
| 29-31 | 582 | 11 | 154 | 62 | 140 | -- | 169 | 735 | 38 | -- | 2.7 |
| SEPT. | | | | | | | | | | | |
| 01-08 | 342 | 12 | 214 | 101 | 214 | -- | 252 | 1050 | 60 | -- | 8.4 |
| 09-10 | 116 | 14 | 182 | 67 | 134 | -- | 300 | 710 | 31 | -- | .5 |
| 11-15 | 60 | 13 | 244 | 101 | 225 | -- | 274 | 1160 | 62 | -- | 1.9 |
| 16-30 | 4.2 | 20 | 401 | 185 | 520 | -- | 326 | 2300 | 160 | -- | 8.3 |
| WTD. AVG. TIME | -- | 11 | 200 | 91 | 206 | -- | 195 | 1050 | 58 | -- | 4.5 |
| WTD. AVG. TONS PER DAY | 207 | 13 | 283 | 144 | 356 | -- | 257 | 1670 | 104 | -- | 4.2 |
| | -- | 5.6 | 104 | 47 | 107 | -- | 101 | 544 | 30 | -- | 2.3 |

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.--Continued

EXTREMES, 1968-69.--Continued.

Hardness: Maximum, 1,760 mg/l Sept. 16-30; minimum, 474 mg/l Aug. 23-28.

Specific conductance: Maximum daily, 4,760 micromhos Sept. 23, 24; minimum daily, 1,010 micromhos July 23.

Water temperatures: Maximum, 25°C July 23, 27-31, Aug. 1, 2; minimum, 1°C on several days during November and December.

EXTREMES, 1951-69.--Dissolved solids: Maximum, 4,530 mg/l Feb. 1-3, 1965; minimum, 296 mg/l June 18, 1965.

Hardness: Maximum, 1,910 mg/l Aug. 8, 1955; minimum, 224 mg/l July 6, 1960, June 18, 1965.

Specific conductance: Maximum daily, 5,180 micromhos Apr. 21, 1955; minimum daily, 476 micromhos June 18, 1965.

Water temperatures: Maximum, 29°C Aug. 6, 1951; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 01-21 | .00 | -- | -- | 3100 | 4.22 | 536 | 1390 | 1160 | 4.8 | 3480 | 8.0 |
| 22-31 | .00 | -- | -- | 2550 | 3.47 | 757 | 1190 | 946 | 3.9 | 2900 | 8.0 |
| NOV. | | | | | | | | | | | |
| 01-04 | .00 | -- | -- | 2640 | 3.59 | 399 | 1200 | 1000 | 3.8 | 2890 | 7.8 |
| 05-30 | .00 | -- | -- | 3440 | 4.68 | 288 | 1590 | 1340 | 4.4 | 3650 | 8.0 |
| DEC. | | | | | | | | | | | |
| 01-08 | .00 | -- | -- | 3580 | 4.87 | 203 | 1500 | 1290 | 4.7 | 3760 | 8.1 |
| 09-31 | .00 | -- | -- | 3970 | 5.40 | 20.4 | 1710 | 1480 | 5.4 | 4190 | 8.2 |
| JAN. | | | | | | | | | | | |
| 01-31 | .00 | -- | -- | 3850 | 5.24 | 18.7 | 1660 | 1410 | 5.3 | 4090 | 7.9 |
| FEB. | | | | | | | | | | | |
| 01-15 | .00 | -- | -- | 3890 | 5.29 | 23.1 | 1700 | 1400 | 5.4 | 4150 | 7.9 |
| 16-28 | .00 | -- | -- | 3300 | 4.49 | 214 | 1500 | 1270 | 4.4 | 3500 | 7.9 |
| MAR. | | | | | | | | | | | |
| 01-31 | .00 | -- | -- | 3790 | 5.15 | 33.8 | 1540 | 1310 | 5.5 | 4010 | 7.9 |
| APR. | | | | | | | | | | | |
| 01... | .01 | -- | -- | 3860 | 5.25 | 177 | 1610 | 1330 | 5.4 | 4170 | 7.7 |
| 02-30 | .01 | -- | -- | 3370 | 4.58 | 555 | 1460 | 1270 | 4.5 | 3540 | 7.8 |
| MAY | | | | | | | | | | | |
| 01-06 | .00 | -- | -- | 3270 | 4.45 | 5320 | 1400 | 1240 | 4.4 | 3410 | 8.0 |
| 07-09 | .00 | -- | -- | 4100 | 5.58 | 808 | 1750 | 1500 | 5.6 | 4290 | 8.2 |
| 10-28 | .00 | -- | -- | 2960 | 4.03 | 3880 | 1300 | 1140 | 4.3 | 3180 | 8.1 |
| 29-31 | .00 | -- | -- | 2300 | 3.13 | 2760 | 1020 | 877 | 3.7 | 2580 | 8.1 |
| JUNE | | | | | | | | | | | |
| 01-15 | .01 | -- | -- | 2160 | 2.94 | 3370 | 970 | 808 | 3.6 | 2460 | 7.4 |
| 16-30 | .02 | -- | -- | 1140 | 1.55 | 619 | 600 | 452 | 2.0 | 1440 | 7.7 |
| JULY | | | | | | | | | | | |
| 01-13 | .00 | -- | -- | 1330 | 1.81 | 3270 | 680 | 550 | 2.2 | 1620 | 7.7 |
| 14... | .05 | -- | -- | 2630 | 3.58 | 2340 | 1210 | 954 | 3.8 | 2890 | 7.6 |
| 15-31 | .03 | -- | -- | 1010 | 1.37 | 1700 | 512 | 364 | 1.9 | 1290 | 7.8 |
| AUG. | | | | | | | | | | | |
| 01-11 | .03 | -- | -- | 1200 | 1.63 | 1550 | 616 | 447 | 2.1 | 1500 | 7.8 |
| 12-22 | .05 | -- | -- | 2060 | 2.80 | 1200 | 960 | 770 | 3.2 | 2350 | 8.0 |
| 23-28 | .05 | -- | -- | 937 | 1.27 | 1360 | 474 | 345 | 1.8 | 1210 | 8.0 |
| 29-31 | .01 | -- | -- | 1300 | 1.77 | 2040 | 640 | 501 | 2.4 | 1590 | 7.9 |
| SEPT. | | | | | | | | | | | |
| 01-08 | .04 | -- | -- | 1950 | 2.65 | 1800 | 950 | 743 | 3.0 | 2250 | 7.9 |
| 09-10 | .02 | -- | -- | 1330 | 1.80 | 417 | 730 | 484 | 2.2 | 1640 | 7.9 |
| 11-15 | .03 | -- | -- | 2120 | 2.88 | 343 | 1020 | 800 | 3.1 | 2400 | 7.9 |
| 16-30 | .00 | -- | -- | 4100 | 5.58 | 46.5 | 1760 | 1490 | 5.4 | 4310 | 7.9 |
| WTD. AVG. TIME | .02 | -- | -- | 1880 | 2.60 | -- | -- | 715 | -- | 2150 | 7.8 |
| WTD. AVG. TONS PER DAY | .01 | -- | -- | 2920 | 4.02 | -- | -- | 1090 | 4.2 | 3170 | 7.9 |
| | .01 | -- | -- | -- | -- | 1050 | -- | -- | -- | -- | -- |

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | FLUO-RIDE (F) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ANALYSES OF ADDITIONAL SAMPLES | | | | | | |
| OCT. | | | | | | | | | | | |
| 24... | 106 | 12 | 301 | 124 | 321 | 6.2 | 328 | 1530 | 90 | 1.2 | 11 |
| NOV. | | | | | | | | | | | |
| 20... | 26 | 11 | 337 | 161 | 414 | 7.0 | 288 | 1920 | 115 | 1.6 | 9.5 |
| JAN. | | | | | | | | | | | |
| 08... | 1.7 | 14 | 329 | 195 | 461 | 6.8 | 384 | 2000 | 135 | 1.5 | 3.8 |
| FEB. | | | | | | | | | | | |
| 04... | 2.3 | 12 | 305 | 209 | 453 | 6.7 | 384 | 2000 | 130 | 1.1 | 1.8 |
| MAR. | | | | | | | | | | | |
| 04... | 2.8 | 13 | 337 | 192 | 481 | 7.5 | 405 | 2160 | 153 | .9 | 2.1 |
| APR. | | | | | | | | | | | |
| 01... | 1.8 | 14 | 357 | 197 | 500 | 6.9 | 433 | 2210 | 144 | 1.1 | 1.6 |
| MAY | | | | | | | | | | | |
| 09... | 455 | 6.2 | 294 | 163 | 375 | 7.0 | 192 | 1830 | 98 | 1.0 | 1.4 |
| JUNE | | | | | | | | | | | |
| 03... | 485 | 6.3 | 232 | 94 | 248 | 6.9 | 176 | 1210 | 63 | 1.7 | 4.7 |
| JULY | | | | | | | | | | | |
| 07... | 994 | 8.3 | 160 | 61 | 130 | 6.4 | 155 | 754 | 29 | .7 | 2.0 |
| AUG. | | | | | | | | | | | |
| 05... | 567 | 12 | 138 | 48 | 107 | 5.5 | 193 | 579 | 31 | .9 | 7.6 |
| SEPT. | | | | | | | | | | | |
| 09... | 61 | 12 | 172 | 63 | 138 | 6.6 | 268 | 803 | 36 | .6 | .1 |
| 15... | 63 | 7.1 | 196 | 75 | 181 | 7.1 | 185 | 1030 | 47 | .7 | 4.6 |

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 3410 | 2590 | -- | -- | -- | -- | 4170 | 3390 | 2550 | 1430 | 1410 | 1950 |
| 2..... | 3430 | 2610 | 3770 | 4160 | -- | -- | 3560 | 3450 | 2420 | 1410 | 1350 | 3160 |
| 3..... | 3550 | 3160 | 3770 | 4040 | 4370 | 4010 | 3530 | 3430 | 2430 | 1440 | 1400 | 2040 |
| 4..... | 3480 | 3180 | 3770 | -- | 4230 | 4000 | 3530 | 3440 | 2440 | 1470 | 1310 | 1690 |
| 5..... | 3630 | 3380 | 3700 | -- | 4120 | 3940 | -- | 3440 | 2420 | 1500 | 1330 | 1940 |
| 6..... | 3670 | 3430 | 3720 | 4030 | 4240 | 4040 | 3520 | 3420 | 2360 | 1530 | 1310 | 2220 |
| 7..... | 3620 | 3520 | -- | 4100 | 4150 | 3900 | 3560 | 4140 | 2340 | 1550 | 1360 | 2370 |
| 8..... | 3630 | 3590 | -- | 4140 | -- | -- | 3570 | 4300 | 2450 | 1780 | 1740 | 2530 |
| 9..... | 3450 | 3600 | 4080 | 4170 | -- | -- | 3560 | 4430 | 2430 | 1690 | 1650 | 1530 |
| 10..... | 3590 | -- | 4220 | 4080 | 4190 | 4140 | 3570 | 3390 | 2470 | 1750 | 1810 | 1760 |
| 11..... | 3610 | -- | 4110 | -- | 4020 | -- | 3560 | 3350 | 2470 | 1780 | 1870 | 3020 |
| 12..... | 3660 | 3720 | 4030 | -- | 4060 | 4080 | 3570 | 3290 | 2470 | 1810 | 2050 | 2200 |
| 13..... | 3650 | 3620 | 4260 | 4050 | 4020 | 3990 | 3570 | 3310 | 2540 | 1850 | 2260 | 2280 |
| 14..... | 3620 | 3660 | -- | 4020 | 4020 | 3830 | 3560 | 3260 | 2650 | 2890 | 2390 | 2200 |
| 15..... | 3590 | 3670 | -- | 4030 | -- | -- | 3570 | 3280 | 2340 | 1290 | 2460 | 2250 |
| 16..... | 3320 | -- | 4130 | 4010 | -- | -- | 3560 | 3230 | 1400 | 1180 | 2500 | 4160 |
| 17..... | 3430 | -- | 4130 | 4020 | 3510 | 4260 | 3540 | 3110 | 1250 | 1180 | 2570 | 3780 |
| 18..... | 3330 | 3690 | 4080 | -- | 3520 | 4140 | 3540 | 3150 | 1690 | 1220 | 2420 | 4600 |
| 19..... | 3220 | 3680 | 4360 | -- | 3500 | 3970 | 3570 | 3140 | 1570 | 1160 | 2150 | 4680 |
| 20..... | 3140 | 3670 | 4230 | 4110 | 3510 | 3980 | 3570 | 3120 | 1420 | 1320 | 2250 | 4030 |
| 21..... | 3240 | 3670 | -- | 4030 | -- | 3910 | 3580 | 3140 | 1280 | 1120 | 2740 | 3880 |
| 22..... | 3070 | 3710 | -- | 4050 | -- | -- | 3580 | 3180 | 1290 | 1020 | 2030 | 4020 |
| 23..... | 3030 | -- | 4290 | 4120 | -- | -- | 3590 | 3180 | 1240 | 1010 | 1110 | 4760 |
| 24..... | 2970 | -- | 4200 | 4310 | 3480 | 3970 | 3580 | 3210 | 1400 | 1180 | 1080 | 4760 |
| 25..... | 2880 | 3710 | 4070 | -- | 3460 | 3970 | 3580 | 3130 | 1410 | 1320 | 1320 | 4210 |
| 26..... | 2880 | 3740 | -- | -- | 3480 | 4100 | 3560 | 3150 | 1390 | 1430 | 1120 | 4410 |
| 27..... | 2790 | 3750 | 4010 | 4180 | 3460 | 4290 | 3570 | 3110 | 1430 | 1480 | 1220 | 4510 |
| 28..... | 2740 | -- | -- | 3960 | 3490 | 4350 | 3570 | 2900 | 1730 | 1730 | 1320 | 4340 |
| 29..... | 2920 | 3750 | -- | 4000 | -- | -- | 3450 | 2580 | 1500 | 1550 | 1470 | 4290 |
| 30..... | -- | -- | 4170 | 4200 | -- | -- | 3450 | 2580 | 1530 | 1400 | 1510 | 4220 |
| 31..... | 2660 | -- | 4400 | 4070 | -- | -- | -- | 2570 | -- | 1400 | 1800 | -- |
| AVERAGE | 3310 | -- | -- | -- | -- | -- | 3580 | 3280 | 1940 | 1480 | 1750 | 3260 |

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | PHOS-PHATE (PO4) (MG/L) | BORON (B) (UG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYSES OF ADDITIONAL SAMPLES | | | | | | | | | | | |
| OCT. | | | | | | | | | | | |
| 24... | -- | .04 | 370 | 2630 | 3.48 | 753 | 1260 | 991 | 3.9 | 3010 | 7.9 |
| NOV. | | | | | | | | | | | |
| 20... | -- | .00 | 400 | 3380 | 4.60 | 237 | 1500 | 1260 | 4.6 | 3640 | 7.9 |
| JAN. | | | | | | | | | | | |
| 08... | -- | .00 | 470 | 3640 | 4.95 | 16.7 | 1620 | 1310 | 5.0 | 3910 | 8.0 |
| FEB. | | | | | | | | | | | |
| 04... | -- | .00 | 410 | 3430 | 4.66 | 21.3 | 1620 | 1310 | 4.9 | 3830 | 8.0 |
| MAR. | | | | | | | | | | | |
| 04... | -- | .78 | 470 | 3750 | 5.10 | 28.4 | 1630 | 1300 | 5.2 | 3990 | 7.7 |
| APR. | | | | | | | | | | | |
| 01... | -- | .00 | 480 | 3800 | 4.98 | 1B.8 | 1700 | 1350 | 5.3 | 4130 | 7.8 |
| MAY | | | | | | | | | | | |
| 09... | -- | .01 | 360 | 3370 | 3.92 | 4140 | 1400 | 1250 | 4.4 | 3360 | 7.9 |
| JUNE | | | | | | | | | | | |
| 03... | -- | .00 | 290 | 2170 | 2.95 | 2840 | 968 | B24 | 3.5 | 2470 | 8.0 |
| JULY | | | | | | | | | | | |
| 07... | -- | .04 | 0 | 1260 | 1.67 | 3380 | 649 | 522 | 2.2 | 1570 | 7.6 |
| AUG. | | | | | | | | | | | |
| 05... | -- | .09 | 0 | 1040 | 1.39 | 1590 | 547 | 3B9 | 2.0 | 1330 | 7.6 |
| SEPT. | | | | | | | | | | | |
| 09... | -- | .04 | 80 | 1390 | 1.85 | 229 | 690 | 470 | 2.3 | 1670 | 7.5 |
| 15... | -- | .01 | 200 | 1760 | 2.23 | 299 | 800 | 648 | 2.8 | 2010 | 7.6 |

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14.0 | 08.0 | -- | -- | -- | -- | 11.0 | 16.0 | 20.0 | 21.0 | 25.0 | 22.0 |
| 2 | 14.0 | 08.0 | 02.0 | 05.0 | -- | -- | 11.0 | 16.0 | 20.0 | 21.0 | 25.0 | 21.0 |
| 3 | 12.0 | 08.0 | 02.0 | 05.0 | 04.0 | 05.0 | 11.0 | 16.0 | 20.0 | 21.0 | 24.0 | 20.0 |
| 4 | 11.0 | 10.0 | 02.0 | -- | 03.0 | 04.0 | 10.0 | 16.0 | 21.0 | 21.0 | 24.0 | 21.0 |
| 5 | 11.0 | 08.0 | 01.0 | -- | 04.0 | 04.0 | -- | 17.0 | 21.0 | 21.0 | 24.0 | 21.0 |
| 6 | 11.0 | 08.0 | 01.0 | 05.0 | 07.0 | 04.0 | 11.0 | 16.0 | 22.0 | 21.0 | 24.0 | 21.0 |
| 7 | 13.0 | 07.0 | -- | 04.0 | 08.0 | 04.0 | 13.0 | 16.0 | 22.0 | 21.0 | 24.0 | 21.0 |
| 8 | 13.0 | 08.0 | -- | 04.0 | -- | -- | 13.0 | 11.0 | 22.0 | 21.0 | 24.0 | 20.0 |
| 9 | 10.0 | 08.0 | 01.0 | 04.0 | -- | -- | 13.0 | 12.0 | 21.0 | 21.0 | 24.0 | 18.0 |
| 10 | 10.0 | -- | 01.0 | 04.0 | 05.0 | 02.0 | 13.0 | 13.0 | 24.0 | 21.0 | 24.0 | 18.0 |
| 11 | 11.0 | -- | 01.0 | -- | 08.0 | -- | 13.0 | 16.0 | 24.0 | 22.0 | 22.0 | 19.0 |
| 12 | 11.0 | 05.0 | 01.0 | -- | 05.0 | 05.0 | 14.0 | 16.0 | 19.0 | 22.0 | 22.0 | 19.0 |
| 13 | 11.0 | 07.0 | 01.0 | 04.0 | 06.0 | 05.0 | 14.0 | 18.0 | 20.0 | 22.0 | 22.0 | 19.0 |
| 14 | 11.0 | 07.0 | -- | 06.0 | 06.0 | 03.0 | 14.0 | 18.0 | 16.0 | 22.0 | 21.0 | 18.0 |
| 15 | 14.0 | 07.0 | -- | 06.0 | -- | -- | 13.0 | 18.0 | 17.0 | 22.0 | 21.0 | 18.0 |
| 16 | 14.0 | -- | 08.0 | 06.0 | -- | -- | 13.0 | 18.0 | 18.0 | 22.0 | 21.0 | 17.0 |
| 17 | 09.0 | -- | 07.0 | 07.0 | 04.0 | 05.0 | 13.0 | 16.0 | 18.0 | 22.0 | 21.0 | 16.0 |
| 18 | 08.0 | 04.0 | 05.0 | -- | 04.0 | 09.0 | 13.0 | 16.0 | 17.0 | 22.0 | 21.0 | 16.0 |
| 19 | 08.0 | 06.0 | 05.0 | -- | 04.0 | 09.0 | 13.0 | 17.0 | 17.0 | 22.0 | 24.0 | 18.0 |
| 20 | 08.0 | 05.0 | 06.0 | 07.0 | 04.0 | 09.0 | 13.0 | 17.0 | 17.0 | 22.0 | 24.0 | 18.0 |
| 21 | 08.0 | 05.0 | -- | 07.0 | -- | 05.0 | 13.0 | 18.0 | 19.0 | 22.0 | 21.0 | 16.0 |
| 22 | 08.0 | 04.0 | -- | 08.0 | -- | -- | 13.0 | 16.0 | 20.0 | 22.0 | 21.0 | 16.0 |
| 23 | 08.0 | -- | 04.0 | 04.0 | -- | -- | 13.0 | 16.0 | 20.0 | 25.0 | 22.0 | 16.0 |
| 24 | 08.0 | -- | 04.0 | 04.0 | 06.0 | 05.0 | 15.0 | 16.0 | 20.0 | 22.0 | 24.0 | 16.0 |
| 25 | 08.0 | 05.0 | 04.0 | -- | 07.0 | 05.0 | 15.0 | -- | 20.0 | 22.0 | 24.0 | 14.0 |
| 26 | 08.0 | 04.0 | -- | -- | 07.0 | 07.0 | 15.0 | 17.0 | 20.0 | 22.0 | 24.0 | 14.0 |
| 27 | 08.0 | 01.0 | 04.0 | 08.0 | 07.0 | 08.0 | 15.0 | 16.0 | 19.0 | 25.0 | 24.0 | 16.0 |
| 28 | 08.0 | -- | * -- | 05.0 | 07.0 | 10.0 | 15.0 | 16.0 | 20.0 | 25.0 | 22.0 | 14.0 |
| 29 | 08.0 | 01.0 | -- | 04.0 | -- | -- | 15.0 | 20.0 | 20.0 | 25.0 | 22.0 | 14.0 |
| 30 | 09.0 | -- | 02.0 | 04.0 | -- | -- | 11.0 | 20.0 | 20.0 | 25.0 | 22.0 | 14.0 |
| 31 | 09.0 | -- | 02.0 | 03.0 | -- | -- | -- | 21.0 | -- | 25.0 | 22.0 | -- |
| AVG | 10.1 | 6.0 | -- | -- | -- | -- | 13.0 | 16.5 | 19.8 | 22.2 | 22.8 | 17.7 |

RIO GRANDE BASIN

08249200 RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.

LOCATION.--Lat 37°16'00", long 105°44'00", Conejos County, 0.5 mile southeast of Lasauses, 7 miles upstream from Culebra Creek, and 14 miles upstream from gaging station, which is 10 miles east of Lobatos.

DRAINAGE AREA.--7,700 sq mi, approximately, upstream from gaging station (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | DIS-SOLVED IRON (FE) (UG/L) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM PLUS PO-TAS-SIUM (NA+K) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. 29... | 112 | 15 | -- | 23 | 48 | 10 | 47 | -- | -- | 174 | 98 | 12 |
| NOV. 24... | 270 | 3 | -- | 24 | 46 | 7.1 | 31 | -- | -- | 136 | 85 | 7.5 |
| DEC. 29... | 290 | 0 | -- | 25 | 29 | 4.7 | 18 | -- | -- | 102 | 39 | 2.5 |
| JAN. 30... | 260 | 0 | -- | 31 | 32 | 5.8 | 18 | -- | -- | 108 | 46 | 3.0 |
| FEB. 27... | 410 | 5 | -- | 30 | 28 | 8.3 | 13 | -- | -- | 103 | 38 | 4.1 |
| MAR. 09... | 415 | 0 | -- | 32 | 33 | 6.4 | 17 | -- | -- | 113 | 42 | 4.3 |
| APR. 25... | 872 | 10 | 30 | 27 | 46 | 6.1 | -- | 29 | 4.7 | 125 | 87 | 8.6 |
| MAY 24... | 1270 | -- | -- | 21 | 30 | 4.1 | 27 | -- | -- | 82 | 70 | 6.4 |
| JUNE 28... | 792 | 20 | -- | 22 | 51 | 10 | 76 | -- | -- | 144 | 182 | 18 |
| JULY 26... | 466 | 25 | 30 | 9.3 | 41 | 6.7 | -- | 40 | 5.4 | 120 | 113 | 6.6 |

08249200 RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.--Continued

RECORDS AVAILABLE.--Chemical analysis: October 1946 to July 1969 (discontinued).

Water temperatures: July 1964 to January 1966.

REMARKS.--The daily discharge listed is that reported for the gaging station near Lobatos, Colo.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | FLUORIDE (F) (MG/L) | NITRATE (NO3) (MG/L) | BORON (B) (UG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | SODIUM ADSORPTION RATIO | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | | | |
| 29... | .6 | .1 | -- | 325 | .44 | 98.3 | 161 | 18 | 1.6 | 506 | 7.8 |
| NOV. | | | | | | | | | | | |
| 24... | .4 | .9 | -- | 269 | .37 | 196 | 144 | 32 | 1.1 | 416 | 7.4 |
| DEC. | | | | | | | | | | | |
| 29... | .4 | 3.6 | -- | 720 | .98 | 564 | 92 | 8 | .8 | 259 | 7.2 |
| JAN. | | | | | | | | | | | |
| 30... | .1 | 3.1 | -- | 192 | .26 | 135 | 104 | 16 | .8 | 288 | 8.0 |
| FEB. | | | | | | | | | | | |
| 27... | .3 | 1.7 | -- | 174 | .24 | 193 | 104 | 20 | .6 | 262 | 7.2 |
| MAR. | | | | | | | | | | | |
| 09... | .3 | 2.8 | -- | 194 | .26 | 217 | 109 | 16 | .7 | 293 | 7.3 |
| APR. | | | | | | | | | | | |
| 25... | .4 | 1.2 | 70 | 271 | .37 | 638 | 140 | 38 | 1.1 | 411 | 7.5 |
| MAY | | | | | | | | | | | |
| 24... | .3 | 1.4 | -- | 200 | .27 | 686 | 92 | 25 | 1.2 | 298 | 6.9 |
| JUNE | | | | | | | | | | | |
| 28... | .3 | .8 | -- | 431 | .59 | 922 | 169 | 51 | 2.5 | 642 | 7.1 |
| JULY | | | | | | | | | | | |
| 26... | .0 | .5 | 50 | 282 | .38 | 355 | 130 | 32 | 1.5 | 446 | 7.3 |

COLORADO RIVER MAIN STEM

09034500 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.--Lat 40°04'27", long 106°06'24", Grand County, at bridge at Hot Sulphur Springs, 1 mile downstream from gaging station and 3.5 miles upstream from Beaver Creek.

DRAINAGE AREA.--825 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: April 1947 to September 1969.

Water temperatures: April 1949 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 137 mg/l Feb. 24-28, Mar. 1-5; minimum, 50 mg/l Apr. 19-20.

Hardness: Maximum, 95 mg/l Feb. 24-28, Mar. 1-5; minimum, 31 mg/l May 24-31.

Specific conductance: Maximum daily, 263 micromhos Mar. 5; minimum daily, 59 micromhos May 29.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | MEAN DISCHARGE (CFS) | SILICA (SIO2) (MG/L) | CALCIUM (CA) (MG/L) | MAGNESIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICARBONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLORIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 77 | 11 | 18 | 2.9 | 6.3 | 79 | 5.8 | 3.0 | .2 |
| NOV. | | | | | | | | | |
| 01-19 | 60 | 12 | 21 | 3.4 | 7.1 | 84 | 12 | 1.8 | .1 |
| 20-30 | 62 | 12 | 23 | 4.4 | 8.1 | 92 | 13 | 5.1 | .4 |
| DEC. | | | | | | | | | |
| 01-22 | 57 | 12 | 20 | 3.4 | 11 | 87 | 8.5 | 4.6 | .5 |
| 23-25 | 60 | 14 | 21 | 6.1 | 16 | 104 | 13 | 6.6 | 1.0 |
| 26-31 | 57 | 12 | 19 | 6.6 | 7.0 | 82 | 13 | 3.8 | .8 |
| JAN. | | | | | | | | | |
| 01-31 | 61 | 12 | 18 | 5.8 | 7.5 | 80 | 13 | 4.4 | .4 |
| FEB. | | | | | | | | | |
| 01-17 | 64 | 13 | 22 | 6.3 | 8.4 | 90 | 15 | 4.7 | 1.6 |
| 18-23 | 65 | 12 | 18 | 4.9 | 5.8 | 74 | 8.5 | 3.6 | 1.1 |
| 24-28 | 59 | 12 | 26 | 7.5 | 9.4 | 99 | 20 | 7.4 | .9 |
| MAR. | | | | | | | | | |
| 01-05 | 53 | 13 | 27 | 6.6 | 9.5 | 102 | 20 | 6.0 | 1.1 |
| 06-31 | 60 | 12 | 21 | 5.8 | 7.8 | 86 | 14 | 3.4 | 1.1 |
| APR. | | | | | | | | | |
| 01-18 | 189 | 6.8 | 20 | 4.9 | 7.4 | 81 | 6.2 | 5.0 | 1.5 |
| 19-20 | 244 | 5.7 | 8.0 | 2.9 | 2.4 | 39 | 1.8 | 1.8 | .9 |
| 21-30 | 304 | 9.4 | 15 | 5.8 | 5.3 | 72 | 5.8 | 3.7 | .8 |
| MAY | | | | | | | | | |
| 01-23 | 485 | 12 | 14 | 1.2 | 4.1 | 48 | 4.0 | 2.1 | .5 |
| 24-31 | 1032 | 8.9 | 9.6 | 1.7 | 2.8 | 38 | 4.0 | 1.6 | .7 |
| JUNE | | | | | | | | | |
| 01-15 | 884 | 10 | 14 | 1.0 | 3.5 | 49 | 4.2 | 1.9 | .4 |
| 16-30 | 1032 | 9.8 | 12 | 1.7 | 3.4 | 51 | 3.2 | 1.7 | .4 |
| JULY | | | | | | | | | |
| 01-07 | 733 | 12 | 14 | 1.9 | 3.9 | 54 | 2.5 | 2.3 | 1.0 |
| 08-31 | 317 | 14 | 19 | 3.9 | 6.7 | 87 | 5.0 | 2.6 | .4 |
| AUG. | | | | | | | | | |
| 01-31 | 117 | 12 | 20 | 3.6 | 7.5 | 89 | 5.5 | 2.4 | .3 |
| SEPT. | | | | | | | | | |
| 01-30 | 87 | 14 | 22 | 2.2 | 6.2 | 87 | 1.2 | 2.0 | .2 |
| WTD. AVG. TIME | -- | 11 | 15 | 2.5 | 4.9 | 62 | 5.0 | 2.4 | .6 |
| WTD. AVG. TONS PER DAY | 234 | 12 | 19 | 3.8 | 6.8 | 78 | 7.9 | 3.2 | .6 |
| | -- | 6.9 | 9.6 | 1.6 | 3.1 | 39 | 3.2 | 1.5 | .4 |

09034500 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

EXTREMES, 1968-69.--Continued

Water temperatures: Maximum, 23°C Aug. 4, 6, 9-10; minimum, freezing point on many days during November to April.

EXTREMES, 1947-69.--Dissolved solids (1947-50, 1952-69): Maximum, 167 mg/l Jan. 25-28, 1967; minimum, 38 mg/l June 21-30, 1947.

Hardness (1947-50, 1952-69): Maximum, 98 mg/l Feb. 12-16, 1967; minimum, 20 mg/l June 21-30, 1947.

Specific conductance: Maximum daily, 263 micromhos Mar. 5, 1967; minimum daily, 48 micromhos June 27, 1947.

Water temperatures (1949-69): Maximum, 24°C Aug. 8, 1957, July 6, 11, 14, 21, 1966; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | .06 | 91 | .12 | 18.9 | 58 | 0 | .4 | 139 | 7.8 |
| NOV. | | | | | | | | | |
| 01-19 | .07 | 100 | .14 | 16.2 | 66 | 0 | .4 | 155 | 7.9 |
| 20-30 | .05 | 113 | .15 | 18.9 | 76 | 1 | .4 | 179 | 7.4 |
| DEC. | | | | | | | | | |
| 01-22 | .05 | 113 | .15 | 17.4 | 64 | 0 | .6 | 168 | 7.5 |
| 23-25 | .08 | 136 | .18 | 22.0 | 77 | 0 | .8 | 202 | 7.7 |
| 26-31 | .07 | 110 | .15 | 16.9 | 75 | 8 | .4 | 163 | 7.5 |
| JAN. | | | | | | | | | |
| 01-31 | .03 | 101 | .14 | 16.6 | 68 | 2 | .4 | 150 | 7.4 |
| FEB. | | | | | | | | | |
| 01-17 | .08 | 119 | .16 | 20.6 | 82 | 8 | .4 | 186 | 7.7 |
| 18-23 | .07 | 80 | .11 | 14.0 | 64 | 3 | .3 | 138 | 7.6 |
| 24-28 | .07 | 137 | .19 | 21.8 | 95 | 14 | .4 | 213 | 7.8 |
| MAR. | | | | | | | | | |
| 01-05 | .40 | 137 | .19 | 19.6 | 95 | 11 | .4 | 216 | 7.8 |
| 06-31 | .09 | 109 | .15 | 17.7 | 76 | 5 | .4 | 171 | 7.6 |
| APR. | | | | | | | | | |
| 01-18 | .10 | 99 | .13 | 50.5 | 70 | 4 | .4 | 158 | 7.4 |
| 19-20 | .03 | 50 | .07 | 32.9 | 32 | 0 | .2 | 62 | 7.3 |
| 21-30 | .07 | 87 | .12 | 71.4 | 62 | 3 | .3 | 126 | 7.4 |
| MAY | | | | | | | | | |
| 01-23 | .04 | 76 | .10 | 99.5 | 39 | 0 | .3 | 89 | 6.4 |
| 24-31 | .04 | 57 | .08 | 159 | 31 | 0 | .2 | 67 | 6.3 |
| JUNE | | | | | | | | | |
| 01-15 | .03 | 70 | .10 | 167 | 38 | 0 | .2 | 86 | 6.5 |
| 16-30 | .04 | 73 | .10 | 203 | 38 | 0 | .2 | 89 | 6.6 |
| JULY | | | | | | | | | |
| 01-07 | .03 | 79 | .11 | 156 | 42 | 0 | .3 | 101 | 6.8 |
| 08-31 | .06 | 101 | .14 | 86.4 | 64 | 0 | .3 | 149 | 7.1 |
| AUG. | | | | | | | | | |
| 01-31 | .12 | 96 | .13 | 30.3 | 64 | 0 | .4 | 146 | 6.9 |
| SEPT. | | | | | | | | | |
| 01-30 | .11 | 100 | .14 | 23.5 | 64 | 0 | .3 | 144 | 6.9 |
| WTD. AVG. TIME | .05 | 82 | .10 | -- | 48 | 1 | -- | 110 | 6.8 |
| WTD. AVG. TONS PER DAY | .03 | -- | -- | 117 | -- | -- | -- | -- | -- |

09034500 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 140 | 142 | 186 | 161 | 138 | 259 | 143 | 109 | 70 | 86 | 140 | 140 |
| 2..... | 137 | 140 | 183 | 170 | 142 | 259 | 144 | 79 | 103 | 86 | 146 | 140 |
| 3..... | 130 | 139 | 143 | 151 | 144 | 162 | 160 | -- | 76 | 98 | 143 | 152 |
| 4..... | 130 | 140 | 165 | 153 | 180 | 147 | 165 | 90 | 75 | 119 | 143 | 154 |
| 5..... | 140 | 141 | 167 | 163 | 154 | 263 | 162 | 89 | 79 | 105 | 157 | 156 |
| 6..... | 130 | 140 | 166 | 153 | 201 | -- | 172 | 88 | 77 | 103 | 159 | 158 |
| 7..... | 130 | 169 | 151 | 153 | 197 | 165 | 154 | 93 | 102 | 104 | 131 | 140 |
| 8..... | 124 | 141 | 166 | 163 | 213 | 163 | 155 | 92 | 80 | 140 | 131 | -- |
| 9..... | 126 | 172 | 172 | 154 | 213 | 163 | 158 | 92 | 76 | 121 | 145 | 150 |
| 10..... | 137 | 142 | 172 | 154 | 210 | 152 | 157 | 91 | 76 | 144 | 148 | 123 |
| 11..... | 142 | 148 | 173 | 142 | 167 | 159 | 155 | 121 | 86 | 141 | 152 | 118 |
| 12..... | -- | 139 | 172 | 142 | 168 | 159 | 155 | 88 | 92 | 146 | 150 | 125 |
| 13..... | 131 | 137 | 172 | -- | 167 | 195 | -- | 87 | 91 | 147 | 151 | 140 |
| 14..... | 143 | 139 | 165 | -- | 178 | 196 | 156 | 84 | 94 | 148 | 152 | 142 |
| 15..... | 132 | 151 | 172 | 144 | 208 | 184 | 160 | 84 | 94 | 152 | 145 | 142 |
| 16..... | 134 | 154 | 170 | 153 | 208 | 198 | 104 | 93 | 78 | 154 | 153 | 139 |
| 17..... | -- | 154 | 166 | 185 | 211 | 167 | 216 | 93 | 78 | 153 | 144 | 153 |
| 18..... | -- | 142 | 165 | 173 | 166 | 166 | 169 | 80 | 68 | 150 | 144 | 150 |
| 19..... | 139 | 169 | 166 | 154 | -- | 163 | 63 | 79 | 67 | 152 | 161 | 142 |
| 20..... | 142 | 186 | 172 | 155 | 150 | 161 | 60 | 79 | 100 | 150 | 145 | 144 |
| 21..... | 142 | 187 | 163 | 185 | 92 | 160 | 128 | 80 | 74 | 155 | 144 | 152 |
| 22..... | 143 | 188 | 136 | 163 | 132 | 160 | 129 | 60 | 93 | 147 | 144 | 139 |
| 23..... | 143 | 187 | 205 | 165 | 140 | 165 | 129 | 106 | 94 | -- | 141 | 145 |
| 24..... | 146 | -- | 162 | 138 | 223 | 178 | 149 | 75 | 96 | 130 | 148 | 154 |
| 25..... | 129 | 148 | 238 | 138 | 218 | 178 | 114 | 67 | 100 | 140 | -- | 156 |
| 26..... | 129 | 147 | 163 | 138 | 223 | 177 | 113 | 67 | 87 | 144 | 146 | 146 |
| 27..... | 139 | 145 | -- | 137 | 150 | 173 | -- | 60 | 85 | 145 | 148 | 142 |
| 28..... | 138 | 145 | 160 | 137 | 233 | 167 | 129 | 60 | 86 | 144 | -- | 143 |
| 29..... | 139 | 188 | -- | 137 | -- | 166 | 123 | 59 | 85 | 150 | 136 | 143 |
| 30..... | 139 | 188 | -- | 138 | -- | 166 | 123 | 65 | 120 | 150 | 136 | 143 |
| 31..... | 141 | -- | 165 | 148 | -- | -- | -- | 64 | -- | 150 | 141 | -- |
| AVERAGE | 136 | 155 | 169 | 153 | 178 | 178 | 140 | 82 | 86 | 135 | 145 | 143 |

09034500 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10.0 | 03.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 13.0 | 14.0 | 16.0 | 21.0 | 20.0 |
| 2 | 09.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 12.0 | 14.0 | 16.0 | 22.0 | 18.0 |
| 3 | 09.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | -- | 13.0 | 16.0 | 21.0 | 20.0 |
| 4 | 10.0 | 02.0 | 01.0 | 01.0 | 00.0 | 00.0 | 01.0 | -- | 14.0 | 16.0 | 23.0 | 19.0 |
| 5 | 09.0 | 02.0 | 01.0 | 00.0 | 00.0 | 01.0 | 01.0 | 06.0 | 11.0 | 17.0 | 22.0 | 19.0 |
| 6 | 09.0 | 02.0 | 00.0 | 00.0 | 00.0 | -- | 01.0 | 07.0 | 09.0 | 16.0 | 23.0 | 19.0 |
| 7 | 09.0 | 02.0 | 00.0 | 00.0 | 00.0 | 01.0 | 00.0 | 09.0 | 09.0 | 17.0 | 22.0 | 17.0 |
| 8 | 09.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 06.0 | 13.0 | 17.0 | 23.0 | -- |
| 9 | 09.0 | 02.0 | 01.0 | 00.0 | 00.0 | 00.0 | 01.0 | 09.0 | 11.0 | 17.0 | 23.0 | 17.0 |
| 10 | 09.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 09.0 | 07.0 | 12.0 | 18.0 | 23.0 | 17.0 |
| 11 | 09.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 08.0 | 10.0 | 08.0 | 17.0 | 21.0 | 17.0 |
| 12 | -- | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 07.0 | 12.0 | 04.0 | 18.0 | 21.0 | 17.0 |
| 13 | 10.0 | 01.0 | 00.0 | -- | 00.0 | 00.0 | -- | 12.0 | 05.0 | 17.0 | 22.0 | 19.0 |
| 14 | 12.0 | 00.0 | 00.0 | -- | 00.0 | 00.0 | 08.0 | 13.0 | 11.0 | 19.0 | 22.0 | 19.0 |
| 15 | 08.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 07.0 | 13.0 | 12.0 | 20.0 | 20.0 | 18.0 |
| 16 | 07.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 08.0 | 13.0 | 11.0 | 19.0 | 20.0 | 17.0 |
| 17 | -- | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 11.0 | 19.0 | 20.0 | 18.0 |
| 18 | -- | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 11.0 | 17.0 | 22.0 | 18.0 |
| 19 | 09.0 | 01.0 | 01.0 | 00.0 | -- | 00.0 | 09.0 | 14.0 | 09.0 | 16.0 | 22.0 | 18.0 |
| 20 | 07.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 09.0 | 18.0 | 22.0 | 17.0 |
| 21 | 07.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 11.0 | 18.0 | 21.0 | 16.0 |
| 22 | 06.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 12.0 | 14.0 | 12.0 | 18.0 | 20.0 | 12.0 |
| 23 | 08.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 13.0 | 14.0 | 13.0 | -- | 20.0 | 13.0 |
| 24 | 07.0 | -- | 01.0 | 00.0 | 00.0 | 01.0 | 13.0 | 13.0 | 11.0 | 17.0 | 20.0 | 13.0 |
| 25 | 07.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 14.0 | 22.0 | -- | 14.0 |
| 26 | 07.0 | 00.0 | 01.0 | 00.0 | 00.0 | 00.0 | 06.0 | 14.0 | 12.0 | 20.0 | 22.0 | 14.0 |
| 27 | 08.0 | 00.0 | -- | 00.0 | 01.0 | 00.0 | -- | 14.0 | 13.0 | 21.0 | 20.0 | 14.0 |
| 28 | 07.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 10.0 | 13.0 | 14.0 | 22.0 | -- | 14.0 |
| 29 | 06.0 | 00.0 | -- | 00.0 | -- | 00.0 | 06.0 | 14.0 | 14.0 | 20.0 | 20.0 | 17.0 |
| 30 | 07.0 | 00.0 | -- | 00.0 | -- | 01.0 | 12.0 | 14.0 | 16.0 | 19.0 | 20.0 | 16.0 |
| 31 | 03.0 | -- | 01.0 | 00.0 | -- | -- | -- | 14.0 | -- | 22.0 | 20.0 | -- |
| AVG | 8.1 | 0.9 | 0.5 | 0.0 | 0.0 | 0.1 | 6.3 | 12.0 | 11.3 | 18.1 | 21.3 | 16.7 |

09069000 EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--Lat 39°39'00", long 106°57'06", Eagle County, at bridge at Gypsum, about 400 ft upstream from Gypsum Creek, about 520 ft upstream from bridge on U.S. Highways 6 and 24, and about 550 ft upstream from gaging station.

DRAINAGE AREA.--844 sq mi.

PERIOD OF RECORD.--Chemical analyses: April 1947 to September 1969.

Water temperatures: April 1949 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 812 mg/l Aug. 27; minimum, 130 mg/l May 20-31.

Hardness: Maximum, 562 mg/l Aug. 27; minimum, 96 mg/l May 20-31.

Specific conductance: Maximum daily, 1,160 micromhos Aug. 27; minimum daily, 181 micromhos May 31.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 255 | 8.4 | 111 | 25 | 63 | 178 | 228 | 90 | 1.1 |
| NOV. | | | | | | | | | |
| 01-30 | 258 | 8.6 | 104 | 30 | 55 | 172 | 241 | 88 | .8 |
| DEC. | | | | | | | | | |
| 01-31 | 193 | 9.2 | 106 | 32 | 55 | 168 | 234 | 87 | .8 |
| JAN. | | | | | | | | | |
| 01-12 | 182 | 8.7 | 107 | 25 | 55 | 167 | 239 | 77 | .4 |
| 13-31 | 179 | 8.7 | 105 | 26 | 46 | 163 | 237 | 63 | .7 |
| FEB. | | | | | | | | | |
| 01-28 | 167 | 8.4 | 100 | 28 | 44 | 153 | 230 | 58 | 1.9 |
| MAR. | | | | | | | | | |
| 01-31 | 171 | 8.1 | 104 | 26 | 44 | 154 | 250 | 60 | 1.8 |
| APR. | | | | | | | | | |
| 01-05 | 260 | 6.2 | 92 | 24 | 30 | 150 | 195 | 42 | 2.3 |
| 06-21 | 369 | 5.9 | 68 | 18 | 22 | 130 | 128 | 29 | 1.4 |
| 22-30 | 806 | 5.4 | 42 | 11 | 9.6 | 110 | 62 | 13 | 2.1 |
| MAY | | | | | | | | | |
| 01-19 | 1069 | 7.0 | 36 | 7.8 | 8.2 | 94 | 47 | 10 | 1.1 |
| 20-31 | 2184 | 6.0 | 29 | 5.6 | 4.7 | 81 | 29 | 5.6 | 1.0 |
| JUNE | | | | | | | | | |
| 01-09 | 1546 | 5.8 | 32 | 5.4 | 6.7 | 79 | 40 | 9.7 | .5 |
| 10-24 | 1213 | 6.2 | 40 | 9.7 | 10 | 95 | 64 | 13 | .6 |
| 25... | 1840 | 10 | 105 | 27 | 14 | 175 | 203 | 25 | 7.0 |
| 26-30 | 1464 | 6.2 | 43 | 9.5 | 11 | 99 | 69 | 16 | .6 |
| JULY | | | | | | | | | |
| 01-06 | 1450 | 5.3 | 39 | 7.3 | 9.5 | 94 | 54 | 16 | .2 |
| 07-22 | 839 | 5.9 | 55 | 9.5 | 16 | 118 | 86 | 24 | .6 |
| 23-31 | 522 | 6.4 | 70 | 14 | 27 | 139 | 118 | 40 | .4 |
| AUG. | | | | | | | | | |
| 01-07 | 365 | 6.8 | 83 | 15 | 38 | 153 | 147 | 54 | .6 |
| 08-26 | 281 | 7.1 | 94 | 17 | 40 | 161 | 179 | 62 | 1.0 |
| 27... | 242 | 15 | 168 | 35 | 8.9 | 152 | 437 | 5.8 | 4.0 |
| 28-31 | 249 | 8.6 | 109 | 26 | 38 | 184 | 228 | 58 | 1.1 |
| SEPT. | | | | | | | | | |
| 01-30 | 228 | 9.2 | 105 | 20 | 33 | 166 | 203 | 54 | .6 |
| WTD. AVG. TIME | -- | 6.8 | 60 | 14 | 21 | 118 | 109 | 31 | 1.0 |
| WTD. AVG. TONS PER DAY | 499 | 7.7 | 86 | 21 | 36 | 146 | 177 | 53 | 1.0 |
| | -- | 9.2 | 81 | 18 | 29 | 159 | 146 | 42 | 1.3 |

09069000 EAGLE RIVER AT GYPSUM, COLO.--Continued

EXTREMES, 1968-69.--Continued

Water temperatures: Maximum, 21°C Sept. 5; minimum, freezing point on many days during November to March.

EXTREMES, 1947-69).--Dissolved solids: Maximum, 1,370 mg/l Aug. 11, 12, 1952; minimum, 100 mg/l Jure 13-25, 1968.

Hardness (1947-50, 1957-69): Maximum, 600 mg/l Dec. 7-9, 1964; minimum, 70 mg/l June 23, 1957.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.

Water temperatures (1949-69): Maximum, 24°C Aug. 24, 1949; minimum, freezing point on many days during winter months.

REMARKS.--Records of discharge are given for Eagle River below Gypsum, Colo.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRD-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | .07 | 628 | .85 | 432 | 380 | 234 | 1.4 | 958 | 7.9 |
| NOV. | | | | | | | | | |
| 01-30 | .00 | 651 | .89 | 453 | 384 | 243 | 1.2 | 968 | 7.9 |
| DEC. | | | | | | | | | |
| 01-31 | .01 | 649 | .88 | 338 | 396 | 258 | 1.2 | 965 | 7.9 |
| JAN. | | | | | | | | | |
| 01-12 | .00 | 629 | .86 | 309 | 370 | 233 | 1.2 | 921 | 7.9 |
| 13-31 | .00 | 598 | .81 | 289 | 368 | 234 | 1.0 | 874 | 7.7 |
| FEB. | | | | | | | | | |
| 01-28 | .03 | 582 | .79 | 262 | 364 | 239 | 1.0 | 862 | 7.9 |
| MAR. | | | | | | | | | |
| 01-31 | .05 | 592 | .81 | 273 | 368 | 242 | 1.0 | 879 | 8.1 |
| APR. | | | | | | | | | |
| 01-05 | .04 | 515 | .70 | 362 | 327 | 204 | .7 | 756 | 7.6 |
| 06-21 | .03 | 366 | .50 | 365 | 242 | 135 | .6 | 564 | 7.7 |
| 22-30 | .04 | 214 | .29 | 466 | 152 | 62 | .3 | 340 | 7.7 |
| MAY | | | | | | | | | |
| 01-19 | .03 | 181 | .25 | 522 | 121 | 44 | .3 | 281 | 6.9 |
| 20-31 | .03 | 130 | .18 | 767 | 96 | 30 | .2 | 209 | 7.0 |
| JUNE | | | | | | | | | |
| 01-09 | .03 | 134 | .18 | 559 | 103 | 38 | .3 | 242 | 7.1 |
| 10-24 | .02 | 207 | .28 | 678 | 141 | 63 | .4 | 322 | 7.2 |
| 25... | -- | 534 | .73 | 2650 | 374 | 230 | .3 | 707 | 7.5 |
| 26-30 | .01 | 213 | .29 | 842 | 146 | 65 | .4 | 334 | 7.4 |
| JULY | | | | | | | | | |
| 01-06 | .00 | 180 | .24 | 705 | 128 | 51 | .4 | 303 | 7.9 |
| 07-22 | .01 | 264 | .36 | 598 | 175 | 78 | .5 | 424 | 7.9 |
| 23-31 | .01 | 357 | .49 | 503 | 232 | 118 | .8 | 572 | 7.9 |
| AUG. | | | | | | | | | |
| 01-07 | .01 | 434 | .59 | 428 | 268 | 143 | 1.0 | 682 | 7.9 |
| 08-26 | .02 | 510 | .69 | 387 | 303 | 171 | 1.0 | 777 | 8.1 |
| 27... | -- | 812 | 1.10 | 531 | 562 | 437 | .2 | 1160 | 7.9 |
| 28-31 | .00 | 567 | .77 | 381 | 380 | 229 | .8 | 847 | 8.2 |
| SEPT. | | | | | | | | | |
| 01-30 | .03 | 563 | .77 | 347 | 344 | 208 | .8 | 815 | 8.0 |
| WTD. AVG. TIME | .02 | 319 | .43 | -- | 206 | 109 | -- | 490 | 7.5 |
| WTD. AVG. TONS PER DAY | .03 | 480 | .65 | -- | 298 | 179 | .9 | 721 | 7.8 |
| | .03 | -- | -- | 429 | -- | -- | -- | -- | -- |

09069000 EAGLE RIVER AT GYPSUM, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 912 | 986 | 1020 | 926 | 881 | 889 | 753 | 360 | 231 | 314 | 607 | 733 |
| 2..... | 856 | 1020 | 894 | 902 | 887 | 861 | 753 | 323 | 230 | 310 | 647 | 769 |
| 3..... | 875 | 997 | 935 | 962 | 879 | 859 | 810 | 271 | 246 | 310 | 665 | 851 |
| 4..... | 925 | 973 | 923 | 870 | 812 | 871 | 753 | 256 | 244 | 291 | 688 | 876 |
| 5..... | 928 | 980 | 941 | 954 | 867 | 864 | 696 | 252 | 232 | 314 | 711 | 858 |
| 6..... | 915 | 980 | 953 | 918 | 964 | 869 | 653 | 271 | 213 | 292 | 728 | 816 |
| 7..... | 909 | 980 | 958 | 879 | 814 | 741 | 629 | 274 | 242 | 351 | 745 | 879 |
| 8..... | 912 | 1060 | 1030 | 874 | 791 | 789 | 584 | 295 | 250 | 377 | 780 | 861 |
| 9..... | 904 | 983 | 975 | 905 | 855 | 878 | 631 | 304 | 257 | 403 | 802 | 860 |
| 10..... | 902 | 1060 | 1000 | 994 | 886 | 882 | 639 | 299 | 314 | 421 | 840 | 782 |
| 11..... | 885 | 990 | 937 | 1030 | 845 | 934 | 487 | 285 | 251 | 433 | 852 | 790 |
| 12..... | 877 | 964 | 939 | 923 | 862 | 868 | 524 | 276 | 311 | 443 | 793 | 747 |
| 13..... | 909 | 890 | 1000 | 853 | 855 | 892 | 529 | 271 | 325 | 427 | 755 | 808 |
| 14..... | 909 | 896 | 1020 | 837 | 828 | 928 | 548 | 264 | 337 | 444 | 793 | 797 |
| 15..... | 887 | 925 | 991 | 842 | 817 | 902 | 513 | 279 | 322 | 433 | 782 | 818 |
| 16..... | 928 | 997 | 991 | 856 | 840 | 939 | 503 | 266 | 344 | 430 | 793 | 841 |
| 17..... | 920 | 913 | 939 | 900 | 836 | 897 | 519 | 271 | 291 | 467 | 816 | 757 |
| 18..... | 933 | 961 | 946 | 869 | 858 | 872 | 547 | 245 | 279 | 495 | 838 | 834 |
| 19..... | 950 | 916 | 1030 | 934 | 908 | 835 | 552 | 253 | 314 | 421 | 808 | 759 |
| 20..... | 936 | 908 | 1020 | 864 | 875 | 858 | 518 | 236 | 330 | 418 | 764 | 786 |
| 21..... | 936 | 921 | 964 | 844 | 826 | 879 | 450 | 204 | 310 | 381 | 767 | 790 |
| 22..... | 950 | 927 | 931 | 861 | 843 | 882 | 376 | 211 | 314 | 453 | 699 | 818 |
| 23..... | 950 | 885 | 994 | 854 | 893 | 854 | 330 | 207 | 428 | 534 | 739 | 816 |
| 24..... | 985 | 908 | 903 | 945 | 896 | 875 | 317 | 212 | 348 | 559 | 778 | 856 |
| 25..... | 988 | 950 | 969 | 957 | 859 | 900 | 274 | 199 | 707 | 541 | 823 | 834 |
| 26..... | 967 | 920 | 898 | 862 | 841 | 927 | 294 | 201 | 381 | 560 | 815 | 875 |
| 27..... | 950 | 1030 | 884 | 794 | 854 | 913 | 331 | 207 | 375 | 576 | 1160 | 891 |
| 28..... | 779 | 960 | 940 | 825 | 873 | 885 | 356 | 184 | 329 | 589 | 876 | 932 |
| 29..... | 1020 | 957 | 913 | 864 | -- | 811 | 374 | 191 | 292 | 604 | 859 | 839 |
| 30..... | 994 | 1060 | 935 | 901 | -- | 853 | 382 | 188 | 298 | 595 | 854 | 818 |
| 31..... | 1000 | -- | 937 | 936 | -- | 791 | -- | 182 | -- | 591 | 828 | -- |
| AVERAGE | 925 | 963 | 958 | 894 | 858 | 870 | 520 | 249 | 311 | 444 | 787 | 823 |

09069000 EAGLE RIVER AT GYPSUM, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07.0 | 06.0 | 00.0 | 00.0 | 00.0 | 04.0 | 07.0 | 08.0 | 13.0 | 12.0 | 14.0 | 13.0 |
| 2 | 07.0 | 04.0 | 00.0 | 00.0 | 00.0 | 03.0 | 04.0 | 07.0 | 07.0 | 13.0 | 15.0 | 14.0 |
| 3 | 06.0 | 03.0 | 00.0 | 00.0 | 00.0 | 04.0 | 06.0 | 12.0 | 09.0 | 12.0 | 14.0 | 19.0 |
| 4 | 07.0 | 05.0 | 00.0 | 00.0 | 00.0 | 03.0 | 05.0 | 10.0 | 09.0 | 16.0 | 14.0 | 20.0 |
| 5 | 07.0 | 06.0 | 00.0 | 00.0 | 00.0 | 03.0 | 12.0 | 10.0 | 11.0 | 16.0 | 16.0 | 21.0 |
| 6 | 08.0 | 05.0 | 00.0 | 00.0 | 00.0 | 03.0 | 13.0 | 09.0 | 11.0 | 17.0 | 16.0 | 19.0 |
| 7 | 06.0 | 03.0 | 00.0 | 00.0 | 00.0 | 03.0 | 04.0 | 09.0 | 14.0 | 11.0 | 14.0 | 17.0 |
| 8 | 07.0 | 03.0 | 00.0 | 00.0 | 00.0 | 02.0 | 04.0 | 11.0 | 16.0 | 11.0 | 14.0 | 17.0 |
| 9 | 07.0 | 04.0 | 00.0 | 00.0 | 00.0 | 03.0 | 06.0 | 12.0 | 12.0 | 12.0 | 14.0 | 17.0 |
| 10 | 08.0 | 04.0 | 00.0 | 00.0 | 00.0 | 02.0 | 07.0 | 08.0 | 12.0 | 12.0 | 17.0 | 17.0 |
| 11 | 10.0 | 03.0 | 00.0 | 00.0 | 01.0 | 01.0 | 07.0 | 08.0 | 13.0 | 13.0 | 14.0 | 18.0 |
| 12 | 11.0 | 04.0 | 00.0 | 00.0 | 00.0 | 00.0 | 10.0 | 08.0 | 14.0 | 12.0 | 14.0 | 18.0 |
| 13 | 10.0 | 03.0 | 00.0 | 00.0 | 01.0 | 02.0 | 11.0 | 08.0 | 09.0 | 13.0 | 14.0 | 14.0 |
| 14 | 09.0 | 03.0 | 00.0 | 00.0 | 01.0 | 02.0 | 07.0 | 08.0 | 10.0 | 16.0 | 16.0 | 16.0 |
| 15 | 09.0 | 02.0 | 00.0 | 01.0 | 02.0 | 03.0 | 08.0 | 08.0 | 13.0 | 14.0 | 14.0 | 16.0 |
| 16 | 06.0 | 02.0 | 00.0 | 02.0 | 02.0 | 06.0 | 08.0 | 08.0 | 11.0 | 14.0 | 13.0 | 14.0 |
| 17 | 05.0 | 03.0 | 00.0 | 02.0 | 02.0 | 07.0 | 04.0 | 07.0 | 12.0 | 14.0 | 16.0 | 14.0 |
| 18 | 06.0 | 01.0 | 00.0 | 02.0 | 00.0 | 08.0 | 05.0 | 09.0 | 08.0 | 16.0 | 16.0 | 12.0 |
| 19 | 07.0 | 03.0 | 00.0 | 02.0 | 01.0 | 06.0 | 07.0 | 07.0 | 10.0 | 15.0 | 14.0 | 12.0 |
| 20 | 06.0 | 02.0 | 00.0 | 03.0 | 02.0 | 05.0 | 08.0 | 09.0 | 14.0 | 14.0 | 19.0 | 14.0 |
| 21 | 06.0 | 01.0 | 00.0 | 03.0 | 03.0 | 07.0 | 09.0 | 08.0 | 14.0 | 14.0 | 17.0 | 16.0 |
| 22 | 07.0 | 01.0 | 00.0 | 02.0 | 02.0 | 08.0 | 08.0 | 08.0 | 11.0 | 14.0 | 20.0 | 13.0 |
| 23 | 04.0 | 08.0 | 00.0 | 00.0 | 01.0 | 08.0 | 08.0 | 07.0 | 10.0 | 14.0 | 15.0 | 14.0 |
| 24 | 05.0 | 02.0 | 00.0 | 00.0 | 01.0 | 04.0 | 09.0 | 07.0 | 11.0 | 14.0 | 17.0 | 11.0 |
| 25 | 04.0 | 00.0 | 00.0 | 00.0 | 06.0 | 06.0 | 07.0 | 08.0 | 10.0 | 14.0 | 17.0 | 13.0 |
| 26 | 06.0 | 01.0 | 00.0 | 00.0 | 04.0 | 07.0 | 06.0 | 08.0 | 14.0 | 11.0 | 14.0 | 09.0 |
| 27 | 05.0 | 00.0 | 00.0 | 00.0 | 04.0 | 08.0 | 08.0 | 09.0 | 07.0 | 16.0 | 12.0 | 14.0 |
| 28 | 04.0 | 00.0 | 00.0 | 00.0 | 04.0 | 08.0 | 06.0 | 08.0 | 13.0 | 14.0 | 16.0 | 13.0 |
| 29 | 04.0 | 00.0 | 00.0 | 00.0 | -- | 08.0 | 06.0 | 09.0 | 14.0 | 16.0 | 16.0 | 13.0 |
| 30 | 03.0 | 00.0 | 00.0 | 00.0 | -- | 11.0 | 06.0 | 11.0 | 12.0 | 16.0 | 15.0 | 13.0 |
| 31 | 05.0 | -- | 00.0 | 00.0 | -- | 08.0 | -- | 08.0 | -- | 14.0 | 21.0 | -- |
| AVG | 6.5 | 2.7 | 0.0 | 0.5 | 1.3 | 4.9 | 7.2 | 8.6 | 11.4 | 13.8 | 15.0 | 15.0 |

09071100 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.
(Irrigation network station)

LOCATION.--Lat 39°34'12", long 107°13'34", Garfield County, at Shoshone powerplant, 6 miles upstream from Glenwood Springs and 6.5 miles upstream from Roaring Fork River.

DRAINAGE AREA.--4,560 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1941 to September 1969.

Water temperatures: May 1949 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 433 mg/l Dec. 1-31; minimum, 182 mg/l May 19-31.

Hardness: Maximum, 212 mg/l Dec. 1-31; minimum, 106 mg/l May 19-31.

Specific conductance: Maximum daily, 798 micromhos Nov. 29; minimum daily, 246 micromhos May 28.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 1257 | 9.4 | 57 | 14 | 59 | 132 | 98 | 83 | .7 |
| NOV. | | | | | | | | | |
| 01-30 | 1134 | 12 | 59 | 12 | 61 | 130 | 102 | 84 | .2 |
| DEC. | | | | | | | | | |
| 01-31 | 1060 | 9.9 | 51 | 20 | 61 | 132 | 96 | 100 | .2 |
| JAN. | | | | | | | | | |
| 01-31 | 1070 | 9.3 | 54 | 15 | 67 | 125 | 90 | 92 | 1.1 |
| FEB. | | | | | | | | | |
| 01-28 | 1001 | 10 | 54 | 13 | 70 | 129 | 90 | 101 | .0 |
| MAR. | | | | | | | | | |
| 01-31 | 1028 | 9.5 | 53 | 14 | 68 | 128 | 86 | 95 | .2 |
| APR. | | | | | | | | | |
| 01-20 | 1768 | 8.8 | 51 | 14 | 43 | 131 | 83 | 56 | .4 |
| 21-30 | 3060 | 10 | 40 | 10 | 25 | 118 | 50 | 35 | .8 |
| MAY | | | | | | | | | |
| 01-18 | 3695 | 8.9 | 37 | 9.2 | 20 | 115 | 40 | 28 | .3 |
| 19-31 | 5B59 | 7.3 | 33 | 5.8 | 13 | 99 | 31 | 18 | .3 |
| JUNE | | | | | | | | | |
| 01-10 | 3999 | 9.1 | 36 | 7.3 | 21 | 100 | 42 | 28 | .3 |
| 11-18 | 3379 | 9.4 | 42 | 8.8 | 25 | 114 | 65 | 32 | .3 |
| 19-30 | 5338 | 9.5 | 38 | 10 | 1B | 109 | 60 | 22 | .4 |
| JULY | | | | | | | | | |
| 01-11 | 3975 | 9.1 | 42 | 8.3 | 22 | 113 | 57 | 32 | .2 |
| 12-31 | 2192 | 9.2 | 51 | 12 | 38 | 135 | 74 | 54 | .2 |
| AUG. | | | | | | | | | |
| 01-31 | 1511 | 11 | 54 | 13 | 52 | 133 | 92 | 71 | 1.0 |
| SEPT. | | | | | | | | | |
| 01-30 | 1318 | 8.7 | 59 | 12 | 54 | 143 | 94 | 79 | .0 |
| WTD. AVG. TIME | -- | 9.3 | 46 | 11 | 36 | 120 | 68 | 51 | .3 |
| WTD. AVG. TONS PER DAY | 1952 | 9.6 | 51 | 13 | 50 | 127 | B2 | 71 | .4 |
| | -- | 49 | 241 | 57 | 191 | 635 | 357 | 269 | 1.B |

09071100 COLORADO RIVER NEAR GLENWOOD SPRINGS--Continued

EXTREMES, 1968-69.--Continued

Water temperatures: Maximum, 20°C July 13, Aug. 5-8; minimum, freezing point on many days during November to March.

EXTREMES, 1941-69.--Dissolved solids: Maximum, 2,030 mg/l Aug. 10, 1947; minimum, 105 mg/l June 1-10, 1942.

Hardness: Maximum, 1,480 mg/l Aug. 10, 1947; minimum, 72 mg/l June 1-20, 1942.

Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.

Water temperatures (1949-69): Maximum, 22°C July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.

REMARKS.--Discharges obtained by subtracting the daily mean flow in Roaring Fork River at Glenwood Springs from the daily mean flow in Colorado River below Glenwood Springs.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PD4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | .04 | 404 | .55 | 1370 | 200 | 92 | 1.8 | 659 | 7.8 |
| NOV. | | | | | | | | | |
| 01-30 | .02 | 400 | .54 | 1230 | 194 | 87 | 1.9 | 669 | 7.6 |
| DEC. | | | | | | | | | |
| 01-31 | .00 | 433 | .59 | 1240 | 212 | 104 | 1.8 | 721 | 7.8 |
| JAN. | | | | | | | | | |
| 01-31 | .02 | 404 | .55 | 1170 | 198 | 96 | 2.1 | 669 | 8.2 |
| FEB. | | | | | | | | | |
| 01-28 | .00 | 424 | .58 | 1150 | 190 | 84 | 2.2 | 698 | 7.6 |
| MAR. | | | | | | | | | |
| 01-31 | .01 | 410 | .56 | 1140 | 190 | 85 | 2.1 | 690 | 7.9 |
| APR. | | | | | | | | | |
| 01-20 | .00 | 347 | .47 | 1660 | 185 | 78 | 1.4 | 554 | 7.6 |
| 21-30 | .00 | 245 | .33 | 2020 | 143 | 46 | .9 | 389 | 7.7 |
| MAY | | | | | | | | | |
| 01-18 | .00 | 228 | .31 | 2280 | 130 | 32 | .8 | 348 | 7.7 |
| 19-31 | .04 | 182 | .25 | 2880 | 106 | 25 | .5 | 279 | 7.6 |
| JUNE | | | | | | | | | |
| 01-10 | .00 | 212 | .29 | 2290 | 120 | 38 | .8 | 330 | 6.7 |
| 11-18 | .00 | 254 | .35 | 2320 | 142 | 49 | .9 | 398 | 7.0 |
| 19-30 | .00 | 219 | .30 | 3160 | 135 | 46 | .7 | 348 | 7.0 |
| JULY | | | | | | | | | |
| 01-11 | .01 | 234 | .32 | 2510 | 140 | 47 | .8 | 371 | 7.1 |
| 12-31 | .01 | 321 | .44 | 1900 | 178 | 67 | 1.2 | 524 | 7.0 |
| AUG. | | | | | | | | | |
| 01-31 | .00 | 369 | .50 | 1510 | -- | 79 | 1.6 | 610 | 7.5 |
| SEPT. | | | | | | | | | |
| 01-30 | .01 | 393 | .53 | 1400 | 196 | 79 | 1.7 | 650 | 7.8 |
| WTD. AVG. TIME | .01 | 297 | .40 | -- | 156 | 59 | -- | 479 | 7.4 |
| WTD. AVG. TONS PER DAY | .05 | -- | -- | 1710 | -- | -- | -- | -- | -- |

09071100 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 609 | 671 | 777 | 781 | 798 | 673 | 577 | 453 | 275 | 337 | 607 | 649 |
| 2..... | 613 | 657 | 706 | 680 | 738 | 688 | 596 | 411 | 307 | 344 | 641 | 633 |
| 3..... | 606 | -- | 761 | 644 | 759 | 677 | 641 | 352 | 324 | 339 | 643 | 646 |
| 4..... | 633 | 669 | 738 | 656 | 768 | 673 | 638 | 345 | 355 | 342 | 642 | 648 |
| 5..... | 637 | 669 | 723 | 686 | 759 | 662 | -- | 350 | 343 | 342 | 642 | 645 |
| 6..... | -- | 685 | 696 | 637 | 695 | 708 | 607 | 321 | 326 | 358 | 642 | 627 |
| 7..... | 640 | 690 | 667 | 637 | 624 | 688 | 591 | 332 | 334 | 372 | 626 | 654 |
| 8..... | 632 | 671 | 727 | 628 | 655 | 709 | 557 | 340 | 337 | 387 | 629 | 632 |
| 9..... | 629 | 649 | 733 | 707 | 678 | 754 | 571 | 329 | 337 | 400 | 599 | 628 |
| 10..... | 634 | 693 | 711 | 750 | 743 | -- | 567 | 336 | 338 | 417 | 622 | 665 |
| 11..... | 645 | -- | 721 | 728 | 748 | 729 | 541 | 331 | 362 | 428 | 618 | 637 |
| 12..... | 623 | 668 | 681 | 679 | 719 | 700 | 496 | 332 | 404 | 473 | 577 | 632 |
| 13..... | -- | 649 | 725 | 629 | 675 | 635 | 498 | 326 | 397 | 478 | 576 | 663 |
| 14..... | 630 | 635 | 788 | 626 | 641 | 706 | 510 | 315 | 423 | 477 | 570 | 672 |
| 15..... | 618 | 638 | 763 | 618 | 645 | 700 | 506 | 319 | 427 | 491 | 596 | 652 |
| 16..... | 673 | 641 | 745 | 635 | 626 | 719 | 498 | 323 | 415 | 521 | -- | 650 |
| 17..... | 680 | 656 | 688 | 632 | 628 | 716 | 510 | 334 | 374 | 538 | 605 | 665 |
| 18..... | 673 | 665 | 707 | 684 | 690 | 631 | 520 | 332 | 367 | 546 | 598 | 675 |
| 19..... | 661 | 664 | 703 | 691 | 725 | 670 | 484 | 304 | 337 | 549 | 601 | 662 |
| 20..... | 699 | 654 | 709 | 645 | 683 | 683 | 498 | 296 | 336 | 487 | 595 | 669 |
| 21..... | 673 | 639 | 719 | 629 | 660 | 695 | 455 | 281 | 351 | -- | 604 | 675 |
| 22..... | 673 | 656 | 725 | 629 | 674 | 682 | 402 | 267 | 346 | 505 | 607 | 679 |
| 23..... | 676 | 641 | 635 | 636 | 691 | 658 | 356 | 269 | 354 | 540 | 593 | 668 |
| 24..... | 691 | 643 | 722 | 723 | 706 | 673 | 339 | 274 | 360 | 477 | 591 | 661 |
| 25..... | 671 | 642 | 643 | -- | 660 | 692 | 313 | 277 | 338 | 485 | 613 | 639 |
| 26..... | 670 | 680 | 637 | 661 | 668 | 695 | 326 | 274 | 343 | -- | 615 | 632 |
| 27..... | 724 | 640 | -- | 615 | 677 | 686 | 366 | 257 | 349 | 518 | 618 | 674 |
| 28..... | 679 | 654 | 660 | 613 | 699 | 675 | 385 | 246 | -- | 569 | 626 | -- |
| 29..... | 668 | 798 | 685 | 664 | -- | 681 | 415 | 247 | 325 | 573 | 612 | 660 |
| 30..... | 671 | 718 | 659 | 705 | -- | 647 | 453 | 251 | 325 | 594 | 615 | 648 |
| 31..... | 670 | -- | 705 | -- | -- | 627 | -- | 250 | -- | 594 | 666 | -- |
| AVERAGE | 655 | 665 | 708 | 663 | 693 | 686 | 490 | 312 | 352 | 464 | 612 | 653 |

09071100 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.0 | 06.0 | 00.0 | 01.0 | 00.0 | 02.0 | 08.0 | 10.0 | 12.0 | 14.0 | 19.0 | 19.0 |
| 2 | 10.0 | 06.0 | 00.0 | 00.0 | 01.0 | 03.0 | 07.0 | 11.0 | 12.0 | 15.0 | 19.0 | 18.0 |
| 3 | 09.0 | -- | 00.0 | 00.0 | 00.0 | 02.0 | 07.0 | 13.0 | 12.0 | 16.0 | 19.0 | 18.0 |
| 4 | 09.0 | 06.0 | 00.0 | 00.0 | 00.0 | 02.0 | 08.0 | 11.0 | 13.0 | 17.0 | 19.0 | 19.0 |
| 5 | 10.0 | 06.0 | 00.0 | 00.0 | 00.0 | 01.0 | -- | 10.0 | 14.0 | 16.0 | 20.0 | 18.0 |
| 6 | -- | 04.0 | 00.0 | 00.0 | 00.0 | 01.0 | 09.0 | 10.0 | 14.0 | 16.0 | 20.0 | 17.0 |
| 7 | 10.0 | 03.0 | 00.0 | 00.0 | 00.0 | 01.0 | 07.0 | 09.0 | 14.0 | 16.0 | 20.0 | 17.0 |
| 8 | 09.0 | 01.0 | 01.0 | 00.0 | 00.0 | 01.0 | 06.0 | 09.0 | 16.0 | 16.0 | 20.0 | 17.0 |
| 9 | 08.0 | 01.0 | 00.0 | 00.0 | 00.0 | 01.0 | 08.0 | 11.0 | 14.0 | 16.0 | 19.0 | 17.0 |
| 10 | 08.0 | 02.0 | 00.0 | 00.0 | 00.0 | -- | 08.0 | 13.0 | 14.0 | 17.0 | 19.0 | 17.0 |
| 11 | 09.0 | -- | 00.0 | 00.0 | 00.0 | 01.0 | 09.0 | 11.0 | 12.0 | 17.0 | 19.0 | 17.0 |
| 12 | 09.0 | 01.0 | 00.0 | 00.0 | 01.0 | 00.0 | 09.0 | 12.0 | 13.0 | 19.0 | 19.0 | 17.0 |
| 13 | -- | 02.0 | 00.0 | 01.0 | 01.0 | 01.0 | 09.0 | 12.0 | 13.0 | 20.0 | 18.0 | 14.0 |
| 14 | 09.0 | 02.0 | 00.0 | 01.0 | 01.0 | 01.0 | 09.0 | 11.0 | 13.0 | 18.0 | 19.0 | 12.0 |
| 15 | 09.0 | 02.0 | 01.0 | 01.0 | 01.0 | 00.0 | 09.0 | 10.0 | 13.0 | 18.0 | 19.0 | 14.0 |
| 16 | 08.0 | 01.0 | 00.0 | 01.0 | 02.0 | 02.0 | 08.0 | 11.0 | 13.0 | 19.0 | -- | 14.0 |
| 17 | 06.0 | 01.0 | 00.0 | 01.0 | 01.0 | 01.0 | 08.0 | 11.0 | 13.0 | 19.0 | 18.0 | 14.0 |
| 18 | 06.0 | 01.0 | 00.0 | 00.0 | 01.0 | 02.0 | 08.0 | 12.0 | 12.0 | 19.0 | 18.0 | 14.0 |
| 19 | 06.0 | 01.0 | 00.0 | 01.0 | 02.0 | 03.0 | 09.0 | 12.0 | 13.0 | 19.0 | 18.0 | 14.0 |
| 20 | 06.0 | 01.0 | 00.0 | 01.0 | 03.0 | 04.0 | 12.0 | 13.0 | 13.0 | 17.0 | 18.0 | 12.0 |
| 21 | 06.0 | 01.0 | 00.0 | 01.0 | 03.0 | 04.0 | 09.0 | 13.0 | 13.0 | -- | 18.0 | 14.0 |
| 22 | 06.0 | 01.0 | 00.0 | 01.0 | 03.0 | 06.0 | 12.0 | 12.0 | 13.0 | 19.0 | 18.0 | 19.0 |
| 23 | 06.0 | 01.0 | 00.0 | 00.0 | 02.0 | 05.0 | 11.0 | 11.0 | 13.0 | 19.0 | 18.0 | 13.0 |
| 24 | 06.0 | 01.0 | 00.0 | 00.0 | 02.0 | 03.0 | 09.0 | 11.0 | 12.0 | 19.0 | 18.0 | 14.0 |
| 25 | 06.0 | 01.0 | 00.0 | -- | 03.0 | 03.0 | 09.0 | 12.0 | 09.0 | 18.0 | 18.0 | 13.0 |
| 26 | 07.0 | 00.0 | 00.0 | 00.0 | 03.0 | 03.0 | 06.0 | 12.0 | 09.0 | -- | 18.0 | 12.0 |
| 27 | 07.0 | 00.0 | -- | 01.0 | 03.0 | 04.0 | 07.0 | 12.0 | 10.0 | 19.0 | 19.0 | 12.0 |
| 28 | 05.0 | 01.0 | 00.0 | 01.0 | 03.0 | 06.0 | 08.0 | 12.0 | -- | 19.0 | 18.0 | -- |
| 29 | 05.0 | 00.0 | 00.0 | 01.0 | -- | 07.0 | 09.0 | 12.0 | 12.0 | 19.0 | 18.0 | 13.0 |
| 30 | 05.0 | 00.0 | 00.0 | 00.0 | -- | 08.0 | 09.0 | 13.0 | 13.0 | 18.0 | 18.0 | 12.0 |
| 31 | 06.0 | -- | 00.0 | -- | -- | 07.0 | -- | 12.0 | -- | 19.0 | 20.0 | -- |
| AVG | 7.4 | 1.8 | 0.0 | 0.4 | 1.2 | 2.8 | 8.5 | 11.4 | 12.6 | 17.6 | 18.7 | 15.2 |

09095500 COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--Lat 39°11'20", long 108°16'56", Mesa County, at Grand Valley project diversion dam, 3.7 miles upstream from Cameo, 0.4 mile upstream from Plateau Creek, and 5.9 miles downstream from gaging station.

DRAINAGE AREA.--8,050 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1933 to September 1969.

Water temperatures: April 1949 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 728 mg/l Mar. 1-25; minimum, 214 mg/l May 20-31.

Hardness: Maximum, 284 mg/l Nov. 1-30; minimum, 126 mg/l May 20-31.

Specific conductance: Maximum daily, 1,290 micromhos Dec. 13; minimum daily, 327 micromhos May 28.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 2082 | 9.4 | 72 | 21 | 124 | 180 | 155 | 175 | 2.1 |
| NOV. | | | | | | | | | |
| 01-30 | 1901 | 8.1 | 73 | 25 | 131 | 180 | 160 | 178 | 2.1 |
| DEC. | | | | | | | | | |
| 01-31 | 1691 | 9.2 | 78 | 21 | 145 | 180 | 160 | 205 | 6.6 |
| JAN. | | | | | | | | | |
| 01-31 | 1727 | 8.9 | 68 | 23 | 136 | 175 | 163 | 180 | 4.9 |
| FEB. | | | | | | | | | |
| 01-28 | 1547 | 9.0 | 72 | 22 | 150 | 173 | 162 | 198 | 5.9 |
| MAR. | | | | | | | | | |
| 01-25 | 1532 | 8.1 | 70 | 23 | 148 | 173 | 16 | 192 | 5.9 |
| 26-31 | 1708 | 9.4 | 64 | 21 | 103 | 165 | 150 | 128 | 5.0 |
| APR. | | | | | | | | | |
| 01-12 | 2604 | 9.6 | 64 | 19 | 99 | 173 | 137 | 125 | 3.5 |
| 13-21 | 3640 | 9.5 | 57 | 17 | 69 | 174 | 94 | 82 | 2.4 |
| 22-30 | 6414 | 9.5 | 48 | 14 | 45 | 162 | 68 | 52 | 2.7 |
| MAY | | | | | | | | | |
| 01-19 | 7519 | 8.4 | 43 | 12 | 35 | 149 | 52 | 44 | .9 |
| 20-31 | 11660 | 6.6 | 37 | 8.4 | 24 | 111 | 43 | 29 | .6 |
| JUNE | | | | | | | | | |
| 01-11 | 8531 | 7.2 | 41 | 11 | 33 | 124 | 54 | 43 | .6 |
| 12-30 | 8382 | 8.9 | 42 | 14 | 40 | 138 | 75 | 47 | 1.3 |
| JULY | | | | | | | | | |
| 01-17 | 7022 | 9.1 | 46 | 11 | 42 | 127 | 66 | 56 | .8 |
| 18-31 | 4246 | 8.9 | 59 | 15 | 68 | 164 | 96 | 88 | 3.8 |
| AUG. | | | | | | | | | |
| 01-07 | 2921 | 10 | 64 | 18 | 90 | 161 | 116 | 128 | 1.4 |
| 08-31 | 2345 | 11 | 71 | 16 | 110 | 167 | 119 | 155 | 1.9 |
| SEPT. | | | | | | | | | |
| 01-30 | 2199 | 8.9 | 73 | 20 | 122 | 178 | 155 | 162 | 2.8 |
| WTD. AVG. TIME | -- | 8.6 | 54 | 15 | 73 | 152 | 92 | 96 | 2.2 |
| WTD. AVG. TONS PER DAY | 3560 | 8.9 | 64 | 19 | 104 | 165 | 118 | 139 | 3.2 |
| | -- | 83 | 521 | 148 | 697 | 1450 | 886 | 918 | 21 |

09095500 COLORADO RIVER NEAR CAMEO, COLO.--Continued

EXTREMES, 1968-69.--Continued

Water temperatures: Maximum, 23°C Aug. 4-6; minimum, freezing point on many days during November to January.

EXTREMES, 1933-69.--Dissolved solids (1933-43, 1950-69): Maximum, 1,080 mg/l Sept. 22, 1962; minimum, 143 mg/l June 11-20, 1935.

Hardness (1933-35, 1957-69): Maximum, 474 mg/l Sept. 22, 1962; minimum, 98 mg/l June 21-30, 1935.

Specific conductance (1941-69): Maximum daily, 1,860 micromhos June 16, 1964; minimum daily, 244 micromhos July 2, 1947, July 3, 1957.

Water temperatures (1949-69): Maximum, 24°C Aug. 16, 1962; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | .01 | 671 | .91 | 3770 | 266 | 118 | 3.3 | 1080 | 8.0 |
| NOV. | | | | | | | | | |
| 01-30 | .00 | 696 | .95 | 3570 | 284 | 136 | 3.4 | 1120 | 8.0 |
| DEC. | | | | | | | | | |
| 01-31 | .02 | 727 | .99 | 3320 | 282 | 134 | 3.8 | 1200 | 8.0 |
| JAN. | | | | | | | | | |
| 01-31 | .00 | 693 | .94 | 3230 | 266 | 122 | 3.6 | 1130 | 8.0 |
| FEB. | | | | | | | | | |
| 01-28 | .01 | 726 | .99 | 3030 | 272 | 130 | 4.0 | 1190 | 7.6 |
| MAR. | | | | | | | | | |
| 01-25 | .02 | 728 | .99 | 3010 | 270 | 128 | 3.9 | 1210 | 7.7 |
| 26-31 | .05 | 582 | .79 | 2680 | 246 | 111 | 2.9 | 94 | 7.9 |
| APR. | | | | | | | | | |
| 01-12 | .00 | 566 | .77 | 3980 | 240 | 98 | 2.8 | 908 | 7.8 |
| 13-21 | .00 | 445 | .61 | 4370 | 210 | 67 | 2.1 | 714 | 7.8 |
| 22-30 | .00 | 337 | .46 | 5840 | 178 | 45 | 1.5 | 542 | 7.8 |
| MAY | | | | | | | | | |
| 01-19 | .01 | 289 | .39 | 5870 | 158 | 35 | 1.2 | 473 | 7.8 |
| 20-31 | .02 | 214 | .29 | 6740 | 126 | 35 | .9 | 353 | 7.7 |
| JUNE | | | | | | | | | |
| 01-11 | .00 | 267 | .36 | 6150 | 147 | 45 | 1.2 | 431 | 7.1 |
| 12-30 | .00 | 309 | .42 | 6990 | 164 | 51 | 1.4 | 503 | 7.2 |
| JULY | | | | | | | | | |
| 01-17 | .02 | 363 | .49 | 6880 | 161 | 57 | 1.4 | 509 | 7.3 |
| 18-31 | .04 | 428 | .58 | 4910 | 208 | 74 | 2.0 | 700 | 7.0 |
| AUG. | | | | | | | | | |
| 01-07 | .00 | 526 | .72 | 4150 | 232 | 100 | 2.6 | 872 | 7.7 |
| 08-31 | .00 | 592 | .81 | 3750 | 241 | 104 | 3.1 | 984 | 7.7 |
| SEPT. | | | | | | | | | |
| 01-30 | .04 | 640 | .88 | 3800 | 264 | 118 | 3.3 | 1050 | 7.8 |
| WTD. AVG. TIME | .01 | 443 | .60 | -- | 197 | 75 | -- | 692 | 7.6 |
| WTD. AVG. TONS PER DAY | .01 | 569 | .77 | -- | 236 | 100 | 2.9 | 892 | 7.7 |
| | .11 | -- | -- | 4260 | -- | -- | -- | -- | -- |

COLORADO RIVER MAIN STEM

09095500 COLORADO RIVER NEAR CAMEO, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 1070 | 1100 | 1180 | 1220 | 1270 | 1160 | 944 | 531 | 363 | 437 | 801 | 1030 |
| 2..... | 1070 | 1080 | 1190 | 1220 | 1270 | 1160 | 944 | 514 | 382 | 437 | 834 | 1030 |
| 3..... | 1070 | 1100 | -- | 1110 | 1270 | 1250 | 953 | 525 | 379 | 451 | 850 | 1030 |
| 4..... | 1060 | -- | -- | 1090 | 1280 | 1250 | 956 | 479 | 460 | 446 | 875 | 1050 |
| 5..... | 1070 | -- | -- | 1100 | 1270 | 1250 | 933 | 474 | 460 | 431 | 901 | 1040 |
| 6..... | 1050 | -- | 1170 | 1090 | 1270 | 1240 | 934 | 484 | 451 | 475 | 915 | 1060 |
| 7..... | 1050 | -- | 1170 | 1100 | 1280 | 1260 | 937 | 473 | 430 | 442 | 925 | 1070 |
| 8..... | 1080 | -- | 1180 | 1100 | 1140 | 1260 | 872 | 496 | 450 | 459 | 940 | 1020 |
| 9..... | 1070 | -- | 1180 | 1110 | 1140 | -- | 874 | 503 | 450 | 492 | 954 | 1040 |
| 10..... | 1070 | -- | 1270 | 1100 | 1130 | 1200 | 854 | 463 | 448 | 507 | 951 | 1010 |
| 11..... | 1080 | -- | 1270 | 1080 | 1120 | 1230 | 859 | 475 | 447 | 558 | 966 | 1010 |
| 12..... | 1080 | 1160 | 1280 | 1160 | 1130 | 1230 | 860 | 469 | 480 | 564 | 963 | 1010 |
| 13..... | 1080 | 1150 | 1290 | 1170 | 1130 | 1220 | 718 | 449 | 552 | 562 | 960 | 1010 |
| 14..... | 1090 | 1090 | 1170 | 1160 | 1140 | 1220 | 717 | 448 | 559 | 607 | 966 | 1110 |
| 15..... | 1080 | 1090 | 1190 | 1150 | 1140 | 1220 | 733 | 454 | 572 | 607 | 931 | 1050 |
| 16..... | 1080 | 1090 | 1190 | 1170 | 1200 | 1170 | 717 | 427 | 572 | 607 | 975 | 1090 |
| 17..... | 1130 | 1090 | 1250 | 1150 | 1210 | 1170 | 713 | 420 | 542 | 605 | 978 | 1090 |
| 18..... | 1060 | 1090 | 1190 | 1160 | 1200 | 1170 | 717 | 426 | 521 | 649 | 990 | 1090 |
| 19..... | 1060 | 1090 | 1190 | 1160 | 1210 | 1170 | 704 | 437 | 500 | 656 | 990 | 1090 |
| 20..... | 1030 | 1090 | 1200 | 1170 | 1210 | 1180 | 713 | 356 | 465 | 658 | 966 | 1090 |
| 21..... | 1070 | 1070 | 1200 | 1150 | 1200 | 1180 | 706 | 339 | 460 | 660 | 966 | 1080 |
| 22..... | 1030 | 1070 | 1190 | 1150 | 1210 | 1180 | 611 | 342 | 460 | 602 | 969 | 1080 |
| 23..... | 1050 | 1060 | 1180 | 1080 | 1200 | 1190 | 549 | 356 | 459 | 673 | 994 | 1070 |
| 24..... | 1040 | 1060 | 1200 | 1070 | 1210 | 1180 | 548 | 339 | 595 | 679 | 994 | 1070 |
| 25..... | 1040 | 1070 | 1180 | 1040 | 1220 | 1190 | 474 | 350 | 555 | 704 | 994 | 1060 |
| 26..... | 1050 | 1180 | 1180 | 1080 | 1160 | 949 | 457 | 352 | 464 | 705 | 994 | 1040 |
| 27..... | 1050 | 1170 | 1230 | 1090 | 1170 | 940 | 475 | 350 | 454 | 705 | 1020 | 1050 |
| 28..... | 1090 | 1190 | 1220 | 1070 | 1170 | 938 | 543 | 327 | 445 | 707 | 1020 | 1050 |
| 29..... | 1090 | 1160 | 1210 | 1070 | -- | 940 | 596 | 350 | 437 | 825 | 1030 | 1040 |
| 30..... | 1100 | 1190 | 1230 | 1060 | -- | 944 | 586 | 345 | 439 | 807 | 1060 | 1050 |
| 31..... | 1100 | -- | 1220 | 1260 | -- | 941 | -- | 351 | -- | 803 | 1060 | -- |
| AVERAGE | 1070 | -- | 1210 | 1130 | 1200 | 1150 | 739 | 422 | 475 | 597 | 959 | 1050 |

09095500 COLORADO RIVER NEAR CAMEO, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13.0 | 08.0 | 00.0 | 00.0 | 01.0 | 03.0 | 08.0 | 10.0 | 13.0 | 16.0 | 21.0 | 19.0 |
| 2 | 12.0 | 08.0 | 00.0 | 00.0 | 01.0 | 03.0 | 08.0 | 10.0 | 12.0 | 16.0 | 21.0 | 19.0 |
| 3 | 12.0 | 08.0 | -- | 00.0 | 01.0 | 03.0 | 08.0 | 11.0 | 12.0 | 17.0 | 22.0 | 19.0 |
| 4 | 12.0 | -- | -- | 00.0 | 01.0 | 03.0 | 09.0 | 11.0 | 14.0 | 17.0 | 23.0 | 19.0 |
| 5 | 12.0 | -- | -- | 00.0 | 01.0 | 03.0 | 09.0 | 11.0 | 16.0 | 16.0 | 23.0 | 19.0 |
| 6 | 12.0 | -- | 00.0 | 00.0 | 01.0 | 03.0 | 09.0 | 11.0 | 17.0 | 16.0 | 23.0 | 19.0 |
| 7 | 11.0 | -- | 00.0 | 00.0 | 01.0 | 03.0 | 09.0 | 11.0 | 15.0 | 16.0 | 22.0 | 19.0 |
| 8 | 10.0 | -- | 00.0 | 00.0 | 01.0 | 03.0 | 07.0 | 11.0 | 14.0 | 16.0 | 22.0 | 19.0 |
| 9 | 10.0 | -- | 00.0 | 00.0 | 01.0 | -- | 08.0 | 12.0 | 16.0 | 17.0 | 21.0 | 18.0 |
| 10 | 10.0 | -- | 00.0 | 00.0 | 01.0 | 04.0 | -- | 12.0 | 16.0 | 17.0 | 22.0 | 18.0 |
| 11 | 10.0 | -- | 00.0 | 00.0 | 01.0 | 03.0 | 09.0 | 12.0 | 14.0 | 18.0 | 22.0 | 18.0 |
| 12 | 10.0 | 04.0 | 00.0 | 00.0 | 01.0 | 03.0 | 08.0 | 12.0 | 12.0 | 19.0 | 22.0 | 18.0 |
| 13 | 10.0 | 04.0 | 00.0 | 00.0 | 01.0 | 03.0 | 11.0 | 12.0 | 14.0 | 19.0 | 20.0 | 18.0 |
| 14 | 09.0 | 03.0 | 00.0 | 00.0 | 01.0 | 03.0 | 11.0 | 12.0 | 14.0 | 19.0 | 21.0 | 19.0 |
| 15 | 09.0 | 03.0 | 00.0 | 00.0 | 01.0 | 04.0 | 11.0 | 12.0 | 14.0 | 19.0 | 20.0 | 19.0 |
| 16 | 09.0 | 03.0 | 00.0 | 01.0 | 01.0 | 03.0 | 11.0 | 12.0 | 15.0 | 19.0 | 21.0 | 16.0 |
| 17 | 09.0 | 03.0 | 00.0 | 01.0 | 02.0 | 04.0 | 08.0 | 13.0 | 14.0 | 20.0 | 21.0 | 16.0 |
| 18 | 08.0 | 02.0 | 00.0 | 01.0 | 02.0 | 05.0 | 08.0 | 13.0 | 13.0 | 20.0 | 20.0 | 16.0 |
| 19 | 08.0 | 02.0 | 00.0 | 01.0 | 02.0 | 05.0 | 11.0 | 13.0 | 14.0 | 20.0 | 20.0 | 16.0 |
| 20 | 08.0 | 02.0 | 00.0 | 01.0 | 02.0 | 06.0 | 11.0 | 13.0 | 14.0 | 20.0 | 20.0 | 14.0 |
| 21 | 08.0 | 01.0 | 00.0 | 01.0 | 02.0 | 06.0 | 12.0 | 13.0 | 14.0 | 18.0 | 20.0 | 14.0 |
| 22 | 08.0 | 01.0 | 00.0 | 01.0 | 02.0 | 06.0 | 13.0 | 13.0 | 15.0 | 19.0 | 20.0 | 13.0 |
| 23 | 08.0 | 01.0 | 00.0 | 01.0 | 02.0 | 06.0 | 12.0 | 13.0 | 16.0 | 21.0 | 20.0 | 13.0 |
| 24 | 08.0 | 01.0 | 00.0 | 01.0 | 02.0 | 06.0 | 13.0 | 13.0 | 14.0 | 21.0 | 21.0 | 13.0 |
| 25 | 08.0 | 01.0 | 00.0 | 01.0 | 04.0 | 06.0 | 09.0 | 13.0 | 12.0 | 21.0 | 20.0 | 14.0 |
| 26 | 08.0 | 01.0 | 00.0 | 01.0 | 03.0 | 06.0 | 06.0 | 13.0 | 12.0 | -- | 20.0 | 14.0 |
| 27 | 08.0 | 00.0 | 00.0 | 01.0 | 03.0 | 06.0 | 04.0 | 13.0 | 12.0 | 21.0 | 21.0 | 14.0 |
| 28 | 08.0 | 00.0 | 00.0 | 01.0 | 03.0 | 06.0 | 11.0 | 13.0 | 13.0 | 21.0 | 21.0 | 14.0 |
| 29 | 08.0 | 00.0 | 00.0 | 01.0 | -- | 07.0 | 09.0 | 13.0 | 14.0 | 21.0 | 21.0 | 14.0 |
| 30 | 08.0 | 00.0 | 00.0 | 01.0 | -- | 06.0 | 11.0 | 13.0 | 14.0 | 21.0 | 20.0 | 14.0 |
| 31 | 08.0 | -- | 00.0 | 01.0 | -- | 08.0 | -- | 13.0 | -- | 21.0 | 19.0 | -- |
| AVG | 9.4 | 2.5 | 0.0 | 0.5 | 1.6 | 4.5 | 9.4 | 12.1 | 13.9 | 18.7 | 20.9 | 16.5 |

09152500 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.
(Irrigation network station)

LOCATION.--Lat 38°59', long 108°27', near center of sec.14, T.2 S., R.1 E., Mesa County, at gaging station at bridge on State Highway 141, 0.4 mile downstream from Whitewater Creek, 0.5 mile south of Whitewater, and 8 miles southeast of Grand Junction.

DRAINAGE AREA.--7,928 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1931 to September 1969.

Water temperatures: April 1949 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 1,470 mg/l Nov. 1; minimum, 261 mg/l Apr. 21-30.

Hardness: Maximum, 794 mg/l Nov. 1; minimum, 105 mg/l May 1-6.

Specific conductance: Maximum daily, 1,930 micromhos Oct. 26; minimum daily, 323 micromhos Apr. 26.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-24 | 1483 | 16 | 164 | 63 | 106 | 236 | 700 | 22 | 6.8 |
| 25-31 | 1156 | 18 | 176 | 77 | 138 | 258 | 829 | 18 | 7.8 |
| NOV. | | | | | | | | | |
| 01... | 2150 | 16 | 182 | 82 | 146 | 268 | 877 | 22 | 6.9 |
| 02-22 | 2161 | 15 | 106 | 46 | 80 | 188 | 442 | 12 | 5.5 |
| 23-30 | 2464 | 16 | 84 | 32 | 57 | 164 | 310 | 9.9 | 3.7 |
| DEC. | | | | | | | | | |
| 01-31 | 2421 | 13 | 76 | 31 | 49 | 164 | 272 | 11 | 4.1 |
| JAN. | | | | | | | | | |
| 01-31 | 2375 | 12 | 75 | 33 | 45 | 159 | 266 | 11 | 3.5 |
| FEB. | | | | | | | | | |
| 01-04 | 1716 | 11 | 70 | 29 | 44 | 159 | 222 | 9.5 | 1.8 |
| 05-14 | 703 | 15 | 152 | 74 | 130 | 266 | 705 | 22 | 9.1 |
| 15-25 | 1969 | 12 | 72 | 36 | 60 | 168 | 300 | 12 | 3.8 |
| 26-28 | 763 | 11 | 133 | 69 | 123 | 234 | 630 | 22 | 6.9 |
| MAR. | | | | | | | | | |
| 01... | 1510 | 12 | 128 | 68 | 129 | 229 | 600 | 20 | 5.3 |
| 02-31 | 2383 | 11 | 68 | 28 | 48 | 154 | 240 | 7.4 | 2.5 |
| APR. | | | | | | | | | |
| 01-06 | 3093 | 11 | 66 | 24 | 42 | 168 | 189 | 9.2 | 1.4 |
| 07-20 | 4376 | 11 | 51 | 18 | 28 | 140 | 133 | 5.7 | 1.3 |
| 21-30 | 7356 | 9.5 | 43 | 13 | 17 | 121 | 82 | 4.9 | 1.9 |
| MAY | | | | | | | | | |
| 01-06 | 6770 | 7.8 | 48 | 16 | 71 | 127 | 107 | 5.6 | 1.0 |
| 07-31 | 5065 | 8.6 | 59 | 25 | 30 | 124 | 172 | 6.2 | 2.1 |
| JUNE | | | | | | | | | |
| 01-03 | 3237 | 12 | 80 | 27 | 47 | 136 | 295 | 7.0 | 2.6 |
| 04-23 | 2724 | 13 | 106 | 40 | 65 | 171 | 424 | 10 | 3.9 |
| 24-25 | 5100 | 13 | 129 | 49 | 103 | 183 | 545 | 15 | 6.6 |
| 26-30 | 4694 | 14 | 93 | 38 | 56 | 159 | 363 | 7.7 | 3.8 |
| JULY | | | | | | | | | |
| 01-08 | 2399 | 17 | 111 | 38 | 70 | 177 | 400 | 9.4 | 4.9 |
| 09-31 | 1351 | 17 | 160 | 61 | 102 | 221 | 612 | 16 | 7.3 |
| AUG. | | | | | | | | | |
| 01-08 | 1132 | 19 | 176 | 63 | 116 | 230 | 700 | 18 | .2 |
| 09-16 | 1492 | 16 | 132 | 54 | 83 | 195 | 528 | 12 | 7.4 |
| 17-19 | 3127 | 17 | 75 | 21 | 36 | 144 | 207 | 6.3 | 5.5 |
| 20-27 | 1232 | 16 | 144 | 57 | 92 | 207 | 570 | 16 | 6.3 |
| 28-31 | 1448 | 16 | 184 | 55 | 112 | 215 | 670 | 22 | 8.6 |
| SEPT. | | | | | | | | | |
| 01-05 | 1416 | 18 | 180 | 65 | 111 | 223 | 680 | 20 | 7.4 |
| 06-17 | 1949 | 17 | 152 | 50 | 92 | 228 | 542 | 12 | 7.2 |
| 18-30 | 2275 | 15 | 131 | 43 | 77 | 214 | 455 | 12 | 4.6 |
| WTD. AVG. TIME | -- | 12 | 88 | 34 | 57 | 165 | 315 | 10 | 3.6 |
| WTD. AVG. TONS PER DAY | 2590 | 14 | 104 | 41 | 69 | 181 | 396 | 12 | 4.4 |
| | -- | 87 | 614 | 239 | 398 | 1150 | 2200 | 69 | 26 |

09152500 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

EXTREMES, 1968-69.--Continued

Water temperatures: Maximum, 25°C July 11; minimum, freezing point on many days during December to February.

EXTREMES, 1931-69.--Dissolved solids: Maximum, 2,820 mg/l Sept. 11-20, 1934; minimum, 203 mg/l May 11-20, 1944, May 22-26, 1964.

Hardness (1931-35, 1943-69): Maximum, 1,370 mg/l Sept. 1-20, 1934; minimum, 105 mg/l May 1-6, 1969.

Specific conductance (1941-69): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.

Water temperatures (1949-69): Maximum, 30°C Aug. 13, 1958; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-24 | .05 | 1230 | 1.67 | 4930 | 668 | 474 | 1.8 | 1520 | 8.0 |
| 25-31 | .05 | 1410 | 1.92 | 4400 | 756 | 544 | 2.2 | 1710 | 8.0 |
| NOV. | | | | | | | | | |
| 01... | .06 | 1470 | 2.00 | 8530 | 794 | 574 | 2.3 | 1770 | 7.8 |
| 02-22 | .07 | 839 | 1.14 | 4900 | 452 | 298 | 1.6 | 1090 | 7.9 |
| 23-30 | .05 | 612 | .83 | 4070 | 340 | 206 | 1.3 | 842 | 8.0 |
| DEC. | | | | | | | | | |
| 01-31 | .03 | 563 | .77 | 3680 | 318 | 184 | 1.2 | 776 | 7.8 |
| JAN. | | | | | | | | | |
| 01-31 | .03 | 585 | .80 | 3750 | 324 | 194 | 1.1 | 798 | 8.0 |
| FEB. | | | | | | | | | |
| 01-04 | .00 | 501 | .68 | 2320 | 292 | 162 | 1.1 | 709 | 7.4 |
| 05-14 | .00 | 1390 | 1.89 | 2640 | 684 | 466 | 2.2 | 1660 | 7.7 |
| 15-25 | .00 | 589 | .80 | 3130 | 330 | 192 | 1.4 | 823 | 7.7 |
| 26-28 | .00 | 1230 | 1.67 | 2530 | 614 | 422 | 2.2 | 1500 | 7.9 |
| MAR. | | | | | | | | | |
| 01... | .01 | 122 | 1.66 | 497 | 600 | 412 | 2.3 | 152 | 7.7 |
| 02-31 | .01 | 502 | .68 | 3230 | 284 | 158 | 1.2 | 715 | 7.8 |
| APR. | | | | | | | | | |
| 01-06 | .00 | 465 | .63 | 3880 | 262 | 124 | 1.1 | 658 | 7.5 |
| 07-20 | .00 | 343 | .47 | 4050 | 201 | 86 | .9 | 497 | 7.6 |
| 21-30 | .00 | 261 | .35 | 5180 | 159 | 60 | .6 | 375 | 7.6 |
| MAY | | | | | | | | | |
| 01-06 | .03 | 279 | .38 | 5100 | 105 | 85 | .7 | 419 | 7.6 |
| 07-31 | .02 | 384 | .52 | 5250 | 248 | 146 | .8 | 566 | 7.7 |
| JUNE | | | | | | | | | |
| 01-03 | .00 | 566 | .77 | 4950 | 312 | 201 | 1.2 | 755 | 7.9 |
| 04-23 | .04 | 786 | 1.07 | 5780 | 428 | 288 | 1.4 | 1010 | 8.0 |
| 24-25 | .01 | 1040 | 1.41 | 14300 | 524 | 374 | 2.0 | 1300 | 8.1 |
| 26-30 | .03 | 678 | .92 | 8590 | 388 | 258 | 1.2 | 904 | 8.0 |
| JULY | | | | | | | | | |
| 01-08 | .01 | 805 | 1.09 | 5210 | 432 | 237 | 1.5 | 1040 | 6.7 |
| 09-31 | .05 | 1150 | 1.56 | 4200 | 650 | 410 | 1.7 | 1430 | 7.2 |
| AUG. | | | | | | | | | |
| 01-08 | .01 | 1340 | 1.82 | 4100 | 700 | 511 | 1.9 | 1590 | 8.0 |
| 09-16 | .00 | 1020 | 1.39 | 4110 | 550 | 390 | 1.5 | 1260 | 8.0 |
| 17-19 | .02 | 459 | .62 | 3880 | 274 | 156 | .9 | 654 | 7.8 |
| 20-27 | .00 | 1100 | 1.50 | 3660 | 594 | 424 | 1.6 | 1350 | 8.1 |
| 28-31 | .01 | 1240 | 1.69 | 4850 | 685 | 509 | 1.9 | 1520 | 8.0 |
| SEPT. | | | | | | | | | |
| 01-05 | .00 | 1310 | 1.78 | 5010 | 716 | 533 | 1.8 | 1550 | 7.7 |
| 06-17 | .01 | 1100 | 1.50 | 5790 | 584 | 397 | 1.7 | 1370 | 7.7 |
| 18-30 | .00 | 936 | 1.27 | 5750 | 504 | 329 | 1.5 | 1180 | 7.7 |
| WTD. AVG. TIME | .02 | 638 | .87 | -- | 355 | 221 | -- | 846 | 7.8 |
| WTD. AVG. TONS PER DAY | .15 | 777 | 1.10 | -- | 427 | 275 | 1.4 | 1000 | 7.8 |
| | | -- | -- | 4460 | -- | -- | -- | -- | -- |

09152500 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 1500 | 1770 | 812 | 752 | 667 | 1520 | 683 | 386 | 692 | 889 | 1500 | 1560 |
| 2..... | 1480 | 1120 | 847 | 743 | 681 | 726 | 666 | 421 | 738 | 948 | 1470 | 1560 |
| 3..... | 1450 | 1010 | 817 | 736 | 703 | 721 | 669 | 406 | 835 | 987 | 1450 | 1530 |
| 4..... | 1490 | 1030 | 795 | 738 | 739 | 787 | 663 | 386 | 923 | 1000 | 1570 | 1580 |
| 5..... | 1660 | 994 | 797 | 740 | 1210 | 742 | 642 | 421 | 943 | 1050 | 1650 | 1610 |
| 6..... | 1600 | 970 | 765 | 737 | 1670 | 720 | 593 | 454 | 925 | 1120 | 1710 | 1480 |
| 7..... | 1580 | 1070 | 785 | 754 | 1660 | 740 | 559 | 521 | 917 | 1140 | 1750 | 1400 |
| 8..... | 1590 | 1260 | 789 | 751 | 1610 | 694 | 540 | 585 | 903 | 1150 | 1610 | 1380 |
| 9..... | 1570 | 1320 | 788 | 749 | 1600 | 698 | 542 | 587 | 931 | 1230 | 1300 | 1380 |
| 10..... | 1540 | 1330 | 790 | 718 | 1610 | 705 | 541 | 586 | 937 | 1340 | 1290 | 1460 |
| 11..... | 1480 | 1360 | 813 | 693 | 1740 | 721 | 539 | 540 | 961 | 1540 | 1230 | 1440 |
| 12..... | 1410 | 1340 | 815 | 697 | 1810 | 715 | 464 | 490 | 1010 | 1470 | 1260 | 1370 |
| 13..... | 1440 | 1310 | 693 | 727 | 1800 | 694 | 452 | 479 | 1120 | 1450 | 1250 | 1330 |
| 14..... | 1540 | 1010 | 746 | 741 | 1760 | 661 | 436 | 474 | 1160 | 1400 | 1290 | 1290 |
| 15..... | 1550 | 971 | 750 | 870 | 1190 | 654 | 418 | 532 | 1180 | 1390 | 1260 | 1350 |
| 16..... | 1590 | 962 | 796 | 976 | 815 | 687 | 441 | 490 | 1130 | 1430 | 1250 | 1320 |
| 17..... | 1560 | 953 | 783 | 912 | 768 | 695 | 471 | 520 | 900 | 1340 | 614 | 1260 |
| 18..... | 1520 | 939 | 792 | 816 | 766 | 683 | 462 | 525 | 1080 | 1430 | 532 | 1220 |
| 19..... | 1480 | 939 | 758 | 796 | 767 | 696 | 475 | 519 | 993 | 1440 | 817 | 1220 |
| 20..... | 1450 | 959 | 713 | 775 | 757 | 695 | 447 | 525 | 1010 | 1430 | 1220 | 1220 |
| 21..... | 1430 | 851 | 778 | 791 | 762 | 700 | 407 | 524 | 1070 | 1280 | 1350 | 1200 |
| 22..... | 1430 | 1090 | 738 | 820 | 756 | 683 | 370 | 522 | 1020 | 1240 | 1360 | 1150 |
| 23..... | 1420 | 866 | 715 | 909 | 759 | 740 | 368 | 528 | 1030 | 1330 | 1310 | 1260 |
| 24..... | 1440 | 856 | 728 | 878 | 765 | 730 | 328 | 583 | 1280 | 1400 | 1340 | 1170 |
| 25..... | 1730 | 856 | 746 | 736 | 890 | 710 | 325 | 630 | 1320 | 1430 | 1380 | 1150 |
| 26..... | 1930 | 857 | 755 | 789 | 1470 | 733 | 323 | 648 | 977 | 1490 | 1390 | 1150 |
| 27..... | 1500 | 822 | 768 | 853 | 1500 | 716 | 328 | 633 | 900 | 1430 | 1430 | 1150 |
| 28..... | 1470 | 808 | 761 | 955 | 1540 | 658 | 345 | 602 | 909 | 1450 | 1450 | 1140 |
| 29..... | 1670 | 824 | 758 | 853 | -- | 646 | 421 | 625 | 887 | 1510 | 1500 | 1140 |
| 30..... | 1800 | 825 | 751 | 761 | -- | 864 | 413 | 659 | 844 | 1560 | 1600 | 1140 |
| 31..... | 1830 | -- | 774 | 671 | -- | 716 | -- | 680 | -- | 1530 | 1540 | -- |
| AVERAGE | 1550 | 1040 | 771 | 788 | 1170 | 737 | 477 | 531 | 984 | 1320 | 1340 | 1320 |

09152500 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.0 | 08.0 | 02.0 | 03.0 | 00.0 | 05.0 | 08.0 | 10.0 | 14.0 | 18.0 | 23.0 | 19.0 |
| 2 | 13.0 | 09.0 | 02.0 | 00.0 | 00.0 | 03.0 | 08.0 | 11.0 | 14.0 | 19.0 | 23.0 | 18.0 |
| 3 | 11.0 | 08.0 | 01.0 | 00.0 | 00.0 | 03.0 | 07.0 | 11.0 | 16.0 | 19.0 | 23.0 | 19.0 |
| 4 | 13.0 | 09.0 | 01.0 | 00.0 | 00.0 | 04.0 | 08.0 | 12.0 | 17.0 | 21.0 | 24.0 | 19.0 |
| 5 | 12.0 | 07.0 | 01.0 | 00.0 | 00.0 | 03.0 | 08.0 | 11.0 | 18.0 | 18.0 | 24.0 | 19.0 |
| 6 | 12.0 | 07.0 | 01.0 | 00.0 | 00.0 | 04.0 | 07.0 | 11.0 | 19.0 | 18.0 | 23.0 | 18.0 |
| 7 | 12.0 | 06.0 | 01.0 | 01.0 | 01.0 | 03.0 | 07.0 | 10.0 | 20.0 | 19.0 | 23.0 | 19.0 |
| 8 | 14.0 | 04.0 | 02.0 | 02.0 | 00.0 | 02.0 | 06.0 | 10.0 | 19.0 | 18.0 | 24.0 | 19.0 |
| 9 | 09.0 | 04.0 | 01.0 | 00.0 | 00.0 | 03.0 | 07.0 | 11.0 | 18.0 | 19.0 | 23.0 | 18.0 |
| 10 | 10.0 | 05.0 | 02.0 | 00.0 | 00.0 | 03.0 | 08.0 | 13.0 | 17.0 | 21.0 | 23.0 | 18.0 |
| 11 | 10.0 | 04.0 | 04.0 | 00.0 | 00.0 | 03.0 | 08.0 | 14.0 | 16.0 | 25.0 | 22.0 | 18.0 |
| 12 | 12.0 | 04.0 | 02.0 | 01.0 | 01.0 | 03.0 | 09.0 | 13.0 | 14.0 | 22.0 | 22.0 | 18.0 |
| 13 | 12.0 | 06.0 | 01.0 | 02.0 | 02.0 | 03.0 | 09.0 | 13.0 | 15.0 | 22.0 | 20.0 | 18.0 |
| 14 | 12.0 | 06.0 | 01.0 | 03.0 | 03.0 | 02.0 | 09.0 | 12.0 | 17.0 | 23.0 | 21.0 | 19.0 |
| 15 | 12.0 | 06.0 | 01.0 | 04.0 | 03.0 | 02.0 | 09.0 | 13.0 | 17.0 | 23.0 | 21.0 | 19.0 |
| 16 | 09.0 | 04.0 | 01.0 | 03.0 | 03.0 | 04.0 | 08.0 | 13.0 | 17.0 | 23.0 | 21.0 | 19.0 |
| 17 | 07.0 | 05.0 | 02.0 | 03.0 | 04.0 | 05.0 | 07.0 | 13.0 | 16.0 | 22.0 | 18.0 | 16.0 |
| 18 | 07.0 | 05.0 | 01.0 | 03.0 | 03.0 | 06.0 | 08.0 | 13.0 | 16.0 | 22.0 | 18.0 | 16.0 |
| 19 | 06.0 | 06.0 | 00.0 | 02.0 | 03.0 | 06.0 | 08.0 | 14.0 | 17.0 | 22.0 | 19.0 | 16.0 |
| 20 | 07.0 | 05.0 | 03.0 | 03.0 | 02.0 | 08.0 | 10.0 | 14.0 | 18.0 | 22.0 | 19.0 | 16.0 |
| 21 | 07.0 | 05.0 | 01.0 | 04.0 | 03.0 | 05.0 | 10.0 | 14.0 | 16.0 | 21.0 | 20.0 | 16.0 |
| 22 | 07.0 | 04.0 | 00.0 | 04.0 | 03.0 | 08.0 | 11.0 | 15.0 | 18.0 | 21.0 | 20.0 | 14.0 |
| 23 | 07.0 | 06.0 | 00.0 | 03.0 | 03.0 | 06.0 | 11.0 | 14.0 | 18.0 | 22.0 | 20.0 | 14.0 |
| 24 | 07.0 | 05.0 | 00.0 | 01.0 | 04.0 | 05.0 | 10.0 | 14.0 | 16.0 | 22.0 | 21.0 | 12.0 |
| 25 | 08.0 | 04.0 | 00.0 | 01.0 | 04.0 | 05.0 | 08.0 | 16.0 | 13.0 | 22.0 | 19.0 | 12.0 |
| 26 | 08.0 | 06.0 | 02.0 | 02.0 | 05.0 | 04.0 | 07.0 | 16.0 | 13.0 | 23.0 | 21.0 | 14.0 |
| 27 | 08.0 | 02.0 | 02.0 | 04.0 | 04.0 | 06.0 | 07.0 | 16.0 | 14.0 | 22.0 | 21.0 | 12.0 |
| 28 | 07.0 | 03.0 | 01.0 | 03.0 | 06.0 | 07.0 | 08.0 | 17.0 | 16.0 | 22.0 | 22.0 | 15.0 |
| 29 | 07.0 | 02.0 | 02.0 | 02.0 | -- | 07.0 | 10.0 | 16.0 | 18.0 | 22.0 | 21.0 | 15.0 |
| 30 | 07.0 | 02.0 | 01.0 | 00.0 | -- | 08.0 | 10.0 | 17.0 | 17.0 | 22.0 | 19.0 | 15.0 |
| 31 | 08.0 | -- | 01.0 | 00.0 | -- | 08.0 | -- | 16.0 | -- | 22.0 | 18.0 | -- |
| AVG | 9.4 | 5.2 | 1.2 | 1.7 | 2.0 | 4.6 | 8.3 | 13.3 | 16.4 | 21.1 | 21.1 | 16.6 |

## 09163530 COLORADO RIVER BELOW COLORADO-UTAH STATE LINE

LOCATION.--Lat 39°04'45", long 109°06'15", in NW¼SW¼ sec.12, T.20 S., R.25 E., Grand County, at Westwater, 9.5 miles downstream from gaging station (09163500), and about 4 miles downstream from Colorado-Utah State line.

DRAINAGE AREA.--17,900 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: May 1962 to June 1969 (discontinued).

Water temperatures: May 1961 to June 1969 (discontinued).

EXTREMES, 1968-69.--Dissolved solids: Maximum, 3,980 mg/l Mar. 16-17; minimum, 335 mg/l Apr. 22-30.

Hardness: Maximum, 765 mg/l Jan. 1-18, 26-31; minimum, 190 mg/l Apr. 22-30.

Specific conductance: Maximum daily, 5,140 micromhos Mar. 17; minimum daily, 461 micromhos Apr. 22.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 3532 | -- | -- | -- | -- | 228 | 550 | 120 | -- |
| NOV. | | | | | | | | | |
| 01-30 | 4373 | -- | -- | -- | -- | 210 | 440 | 130 | -- |
| DEC. | | | | | | | | | |
| 01-31 | 4188 | -- | -- | -- | -- | 188 | 295 | 85 | -- |
| JAN. | | | | | | | | | |
| 01-18 | 4166 | -- | -- | -- | -- | 384 | 652 | 150 | -- |
| 19-25 | 4529 | -- | -- | -- | -- | 178 | 322 | 92 | -- |
| 26-31 | 4791 | -- | -- | -- | -- | 403 | 653 | 150 | -- |
| FEB. | | | | | | | | | |
| 01-09 | 2961 | -- | -- | -- | -- | 183 | 267 | 98 | -- |
| 10-11 | 2490 | -- | -- | -- | -- | 216 | 375 | 148 | -- |
| 12-13 | 2625 | -- | -- | -- | -- | 165 | 252 | 90 | -- |
| 14... | 3340 | -- | -- | -- | -- | 206 | 430 | 158 | -- |
| 15-28 | 3779 | -- | -- | -- | -- | 182 | 316 | 112 | -- |
| MAR. | | | | | | | | | |
| 01-11 | 3976 | -- | -- | -- | -- | 166 | 253 | 92 | -- |
| 12... | 3970 | -- | -- | -- | -- | 480 | 1440 | 838 | -- |
| 13-15 | 3903 | -- | -- | -- | -- | 165 | 261 | 94 | -- |
| 16-17 | 3920 | -- | -- | -- | -- | 539 | 1460 | 825 | -- |
| 18-31 | 4246 | -- | -- | -- | -- | 167 | 249 | 86 | -- |
| APR. | | | | | | | | | |
| 01-17 | 6751 | -- | -- | -- | -- | 170 | 191 | 60 | -- |
| 18-21 | 7480 | -- | -- | -- | -- | 151 | 162 | 49 | -- |
| 22-30 | 13240 | -- | -- | -- | -- | 135 | 112 | 28 | -- |
| MAY | | | | | | | | | |
| 01-31 | 13490 | -- | -- | -- | -- | 127 | 122 | 34 | -- |
| JUNE | | | | | | | | | |
| 01-07 | 11380 | -- | -- | -- | -- | 133 | 180 | 45 | -- |
| 08-10 | 10500 | -- | -- | -- | -- | 118 | 134 | 37 | -- |
| 11-30 | 11600 | -- | -- | -- | -- | 156 | 212 | 47 | -- |
| ANALYSES OF ADDITIONAL SAMPLES | | | | | | | | | |
| NOV. | | | | | | | | | |
| 12... | 3810 | 11 | 110 | 51 | 132 | 206 | 425 | 125 | 8.1 |
| JAN. | | | | | | | | | |
| 21... | 4280 | 11 | 79 | 34 | 100 | 170 | 278 | 85 | 6.2 |
| APR. | | | | | | | | | |
| 25... | 17600 | 8.8 | 46 | 15 | 33 | 134 | 97 | 24 | 3.3 |

09163530 COLORADO RIVER BELOW COLORADO-UTAH STATE LINE--Continued

EXTREMES, 1962-69.--Dissolved solids: Maximum, 3,980 mg/l Mar. 16-17, 1969; minimum, 243 mg/l June 14-30, 1965.

Hardness: Maximum, 1,080 mg/l Jan. 3-5, 1965; minimum, 150 mg/l June 14-30, 1965.

Specific conductance: Maximum daily, 5,140 micromhos Mar. 17, 1969; minimum daily, 357 micromhos June 22, 1965.

Water temperatures: Maximum, 28°C July 30, 1966, July 13, 1968; minimum, freezing point on many days during winter months.

REMARKS.--Additional samples were collected for more comprehensive definition of water quality at this station. Records of discharge are given for station 09163500. Colorado River near Colorado-Utah State line. Minimum observed during water year: Dissolved solids, 310 mg/l, and hardness, 176 mg/l Apr. 25.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SDLIDS (TONS PER AC-FT) | DIS-SDLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | -- | 1170 | 1.59 | 11160 | 580 | 393 | 2.9 | 1590 | 7.7 |
| NOV. | | | | | | | | | |
| 01-30 | -- | 1010 | 1.37 | 11900 | 478 | 306 | 3.1 | 1440 | 7.7 |
| DEC. | | | | | | | | | |
| 01-31 | -- | 788 | 1.07 | 8900 | 398 | 244 | 1.8 | 1110 | 7.7 |
| JAN. | | | | | | | | | |
| 01-18 | -- | 1550 | 2.11 | 17400 | 765 | 450 | 3.2 | 2010 | 7.7 |
| 19-25 | -- | 776 | 1.06 | 9490 | 340 | 194 | 2.9 | 1120 | 7.9 |
| 26-31 | -- | 1520 | 2.07 | 19700 | 765 | 435 | 3.3 | 1980 | 7.9 |
| FEB. | | | | | | | | | |
| 01-09 | -- | 762 | 1.04 | 6090 | 360 | 210 | 2.2 | 1140 | 7.9 |
| 10-11 | -- | 1060 | 1.44 | 7130 | 505 | 328 | 2.4 | 1520 | 8.1 |
| 12-13 | -- | 692 | .94 | 4910 | 320 | 185 | 2.3 | 1050 | 8.1 |
| 14... | -- | 1070 | 1.46 | 9650 | 470 | 301 | 3.4 | 1530 | 8.2 |
| 15-28 | -- | 827 | 1.12 | 8440 | 364 | 215 | 2.8 | 1220 | 8.0 |
| MAR. | | | | | | | | | |
| 01-11 | -- | 694 | .94 | 7450 | 317 | 181 | 2.4 | 1040 | 7.8 |
| 12... | -- | 3960 | 5.39 | 42400 | 512 | 118 | 23 | 5040 | 7.9 |
| 13-15 | -- | 696 | .95 | 7340 | 328 | 193 | 2.3 | 1090 | 7.9 |
| 16-17 | -- | 3980 | 5.41 | 42100 | 546 | 104 | 22 | 5040 | 8.1 |
| 18-31 | -- | 673 | .92 | 7720 | 310 | 173 | 2.4 | 1010 | 7.9 |
| APR. | | | | | | | | | |
| 01-17 | -- | 550 | .75 | 10000 | 270 | 131 | 1.9 | 810 | 7.4 |
| 18-21 | -- | 464 | .63 | 9370 | 230 | 106 | 1.7 | 689 | 7.8 |
| 22-30 | -- | 335 | .46 | 12000 | 190 | 79 | 1.1 | 514 | 7.9 |
| MAY | | | | | | | | | |
| 01-31 | -- | 359 | .49 | 13100 | 198 | 94 | 1.2 | 546 | 7.7 |
| JUNE | | | | | | | | | |
| 01-07 | -- | 475 | .65 | 14600 | 262 | 153 | 1.2 | 711 | 7.2 |
| 08-10 | -- | 363 | .49 | 10300 | 204 | 107 | 1.2 | 560 | 7.5 |
| 11-30 | -- | 536 | .73 | 16800 | 294 | 166 | 1.4 | 786 | 7.7 |
| ANALYSES OF ADDITIONAL SAMPLES | | | | | | | | | |
| NOV. | | | | | | | | | |
| 12... | .02 | 1010 | 1.32 | 10400 | 485 | 316 | 2.6 | 1420 | 7.9 |
| JAN. | | | | | | | | | |
| 21... | .10 | 705 | .96 | 8150 | 334 | 195 | 2.4 | 1060 | 7.5 |
| APR. | | | | | | | | | |
| 25... | .08 | 310 | .42 | 14700 | 176 | 66 | 1.1 | 470 | 7.6 |

09163530 COLORADO RIVER BELOW COLORADO-UTAH STATE LINE--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 1570 | 1410 | -- | -- | 1200 | -- | -- | 554 | -- | -- | -- | -- |
| 2..... | 1570 | 1410 | -- | 1950 | -- | -- | 771 | 501 | 723 | -- | -- | -- |
| 3..... | 1570 | -- | -- | -- | 1070 | -- | 934 | 600 | 688 | -- | -- | -- |
| 4..... | 1570 | 1570 | -- | 2080 | -- | 1050 | 946 | -- | 671 | -- | -- | -- |
| 5..... | 1610 | 1510 | -- | -- | -- | 1050 | 922 | 630 | 799 | -- | -- | -- |
| 6..... | -- | 1500 | -- | 1920 | -- | 1040 | -- | 542 | 692 | -- | -- | -- |
| 7..... | 1570 | 1420 | -- | -- | -- | 1010 | 866 | 566 | 690 | -- | -- | -- |
| 8..... | 1600 | 1410 | -- | 2270 | -- | 1030 | 816 | 617 | -- | -- | -- | -- |
| 9..... | 1570 | 1410 | -- | -- | -- | -- | 818 | 635 | 510 | -- | -- | -- |
| 10..... | 1570 | -- | -- | 2010 | 1520 | 1020 | 777 | 631 | 610 | -- | -- | -- |
| 11..... | 1570 | 1580 | 1090 | -- | -- | 1040 | 793 | -- | 865 | -- | -- | -- |
| 12..... | 1560 | -- | 1130 | -- | 1050 | 5040 | 677 | 552 | 896 | -- | -- | -- |
| 13..... | -- | 1420 | 1130 | 1900 | -- | 1160 | -- | 547 | 753 | -- | -- | -- |
| 14..... | 1560 | 1410 | 1130 | -- | 1530 | 1050 | 723 | 494 | 712 | -- | -- | -- |
| 15..... | 1670 | 1410 | -- | 1900 | -- | 1060 | 772 | 565 | -- | -- | -- | -- |
| 16..... | 1670 | 1410 | 1130 | -- | 1130 | 4950 | 779 | 647 | 907 | -- | -- | -- |
| 17..... | 1610 | -- | 1140 | 1960 | -- | 5140 | 772 | 488 | 693 | -- | -- | -- |
| 18..... | 1670 | 1410 | 1130 | -- | 1050 | 1150 | 608 | 572 | 667 | -- | -- | -- |
| 19..... | 1670 | 1400 | 1130 | 1120 | -- | 1040 | 689 | -- | 729 | -- | -- | -- |
| 20..... | -- | 1410 | 1130 | -- | 1230 | 1010 | -- | 524 | 832 | -- | -- | -- |
| 21..... | 1670 | 1430 | 1140 | -- | -- | 987 | 770 | 497 | -- | -- | -- | -- |
| 22..... | 1580 | 1410 | -- | -- | 1120 | 990 | 461 | 492 | -- | -- | -- | -- |
| 23..... | 1570 | 1410 | -- | 1080 | -- | -- | 525 | 497 | -- | -- | -- | -- |
| 24..... | 1570 | 1410 | -- | -- | 1410 | 977 | 527 | 502 | -- | -- | -- | -- |
| 25..... | 1540 | -- | -- | 1150 | -- | 1010 | 526 | -- | -- | -- | -- | -- |
| 26..... | 1730 | -- | -- | -- | 1370 | 1010 | 500 | 495 | -- | -- | -- | -- |
| 27..... | -- | -- | 1130 | 2110 | -- | 1020 | -- | 506 | -- | -- | -- | -- |
| 28..... | 1580 | -- | 1130 | -- | -- | 1020 | 527 | 502 | -- | -- | -- | -- |
| 29..... | 1610 | -- | -- | 1860 | -- | -- | 526 | 485 | -- | -- | -- | -- |
| 30..... | 1580 | -- | 1130 | -- | -- | -- | -- | 504 | -- | -- | -- | -- |
| 31..... | -- | -- | -- | -- | -- | 1030 | -- | -- | -- | -- | -- | -- |
| AVERAGE | 1600 | -- | -- | -- | -- | 1540 | 709 | 544 | -- | -- | -- | -- |

09163530 COLORADO RIVER BELOW COLORADO-UTAH STATE LINE--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15.0 | 07.0 | -- | -- | 03.0 | -- | -- | 15.0 | -- | -- | -- | -- |
| 2 | 14.0 | 06.0 | -- | 01.0 | -- | -- | 14.0 | 15.0 | 16.0 | -- | -- | -- |
| 3 | 15.0 | -- | -- | -- | 03.0 | -- | 14.0 | 15.0 | 16.0 | -- | -- | -- |
| 4 | 15.0 | 08.0 | -- | 02.0 | -- | 06.0 | 15.0 | -- | 16.0 | -- | -- | -- |
| 5 | 15.0 | 06.0 | -- | -- | -- | 06.0 | 15.0 | 14.0 | 16.0 | -- | -- | -- |
| 6 | -- | 06.0 | -- | 01.0 | -- | 06.0 | -- | 14.0 | 16.0 | -- | -- | -- |
| 7 | 15.0 | 07.0 | -- | -- | -- | 05.0 | 14.0 | 15.0 | 16.0 | -- | -- | -- |
| 8 | 14.0 | 06.0 | -- | 01.0 | -- | 06.0 | 15.0 | 15.0 | -- | -- | -- | -- |
| 9 | 14.0 | 06.0 | -- | -- | -- | -- | 14.0 | 15.0 | 16.0 | -- | -- | -- |
| 10 | 14.0 | -- | -- | 01.0 | 02.0 | 07.0 | 15.0 | 15.0 | 16.0 | -- | -- | -- |
| 11 | 14.0 | 06.0 | 03.0 | -- | -- | 08.0 | 15.0 | -- | 16.0 | -- | -- | -- |
| 12 | 14.0 | -- | 03.0 | -- | 03.0 | 08.0 | 15.0 | 15.0 | 16.0 | -- | -- | -- |
| 13 | -- | 06.0 | 02.0 | 01.0 | -- | 09.0 | -- | 15.0 | 16.0 | -- | -- | -- |
| 14 | 15.0 | 07.0 | 02.0 | -- | 02.0 | 09.0 | 14.0 | 16.0 | 15.0 | -- | -- | -- |
| 15 | 15.0 | 06.0 | -- | 02.0 | -- | -- | 15.0 | 16.0 | -- | -- | -- | -- |
| 16 | 14.0 | 05.0 | 03.0 | -- | 03.0 | 09.0 | 14.0 | 15.0 | 15.0 | -- | -- | -- |
| 17 | 14.0 | -- | 03.0 | 03.0 | -- | 10.0 | 15.0 | 16.0 | 12.0 | -- | -- | -- |
| 18 | 15.0 | 05.0 | 02.0 | -- | 03.0 | 10.0 | 15.0 | 16.0 | 16.0 | -- | -- | -- |
| 19 | 14.0 | 06.0 | 01.0 | 03.0 | -- | 10.0 | 15.0 | -- | 16.0 | -- | -- | -- |
| 20 | -- | 06.0 | 01.0 | -- | 04.0 | 10.0 | -- | 16.0 | 16.0 | -- | -- | -- |
| 21 | 14.0 | 06.0 | 02.0 | -- | -- | 10.0 | 14.0 | 16.0 | -- | -- | -- | -- |
| 22 | 14.0 | 06.0 | -- | -- | 04.0 | 10.0 | 14.0 | 16.0 | -- | -- | -- | -- |
| 23 | 15.0 | 05.0 | -- | 02.0 | -- | -- | 15.0 | 16.0 | -- | -- | -- | -- |
| 24 | 14.0 | 05.0 | -- | -- | 05.0 | 10.0 | 14.0 | 15.0 | -- | -- | -- | -- |
| 25 | 14.0 | -- | -- | 03.0 | -- | 10.0 | 14.0 | -- | -- | -- | -- | -- |
| 26 | 14.0 | -- | -- | -- | 05.0 | 10.0 | 13.0 | 15.0 | -- | -- | -- | -- |
| 27 | -- | -- | 01.0 | 03.0 | -- | 10.0 | -- | 16.0 | -- | -- | -- | -- |
| 28 | 14.0 | -- | 01.0 | -- | -- | 11.0 | 14.0 | 16.0 | -- | -- | -- | -- |
| 29 | 15.0 | -- | -- | 02.0 | -- | -- | 14.0 | 16.0 | -- | -- | -- | -- |
| 30 | 14.0 | -- | 01.0 | -- | -- | -- | -- | 16.0 | -- | -- | -- | -- |
| 31 | -- | -- | -- | -- | -- | 12.0 | -- | -- | -- | -- | -- | -- |
| AVG. | 14.0 | -- | -- | -- | -- | -- | 14.0 | 15.0 | -- | -- | -- | -- |

## 09251000 YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--Lat 40°32'20", long 108°05'18", Moffat County, at county bridge, 1 mile north of Maybell and about 3.5 miles downstream from gaging station.

DRAINAGE AREA.--3,410 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: November 1950 to September 1969.

Water temperatures: November 1950 to September 1969.

Sediment records: December 1950 to May 1958.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 438 mg/l May 4; minimum, 92 mg/l Mar. 1-15.

Hardness: Maximum, 232 mg/l Dec. 20-31; minimum, 60 mg/l Apr. 1-14.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | 354 | 9.5 | 43 | 20 | 43 | 190 | 98 | 20 | .1 |
| NOV. | | | | | | | | | |
| 01-30 | 325 | 12 | 45 | 29 | 49 | 220 | 121 | 22 | .2 |
| DEC. | | | | | | | | | |
| 01-19 | 276 | 12 | 44 | 23 | 45 | 199 | 101 | 22 | .2 |
| 20-31 | 282 | 11 | 44 | 30 | 52 | 188 | 139 | 24 | 1.5 |
| JAN. | | | | | | | | | |
| 01-31 | 283 | 12 | 46 | 25 | 47 | 205 | 127 | 22 | 1.1 |
| FEB. | | | | | | | | | |
| 01-28 | 284 | 10 | 43 | 25 | 51 | 186 | 129 | 20 | .9 |
| MAR. | | | | | | | | | |
| 01-15 | 338 | 6.5 | 16 | 6.8 | 4.7 | 70 | 12 | 3.7 | .5 |
| 16-31 | 496 | 9.8 | 46 | 24 | 49 | 192 | 125 | 21 | 1.1 |
| APR. | | | | | | | | | |
| 01-14 | 3233 | 6.8 | 16 | 4.9 | 5.7 | 61 | 13 | 3.2 | .6 |
| 15-30 | 4996 | 8.4 | 21 | 6.3 | 7.9 | 86 | 18 | 4.1 | .7 |
| MAY | | | | | | | | | |
| 01-02 | 5060 | 14 | 49 | 25 | 53 | 192 | 135 | 20 | 2.4 |
| 03... | 6450 | 8.6 | -- | -- | 5.5 | 69 | 16 | 4.4 | .5 |
| 04... | 7140 | 19 | -- | -- | 50 | 195 | 143 | 17 | .5 |
| 05-31 | 6597 | 8.4 | 17 | 6.6 | 5.0 | 73 | 14 | 3.1 | 4.5 |
| JUNE | | | | | | | | | |
| 01-14 | 3631 | 8.8 | 21 | 7.8 | 7.8 | 87 | 19 | 3.6 | .6 |
| 15-28 | 3862 | 9.1 | 23 | 7.1 | 11 | 100 | 27 | 4.2 | .4 |
| 29-30 | 3530 | 8.7 | 18 | 7.1 | 8.5 | 80 | 23 | 4.9 | .4 |
| JULY | | | | | | | | | |
| 01-10 | 2091 | 8.5 | 31 | 11 | 22 | 135 | 48 | 11 | .3 |
| 11-24 | 906 | 4.9 | 35 | 15 | 33 | 165 | 65 | 17 | .2 |
| 25-31 | 585 | 5.8 | 33 | 15 | 30 | 157 | 58 | 17 | 3.9 |
| AUG. | | | | | | | | | |
| 01-31 | 340 | 7.1 | 35 | 16 | 35 | 167 | 67 | 20 | .1 |
| SEPT. | | | | | | | | | |
| 01-30 | 337 | 4.2 | 35 | 14 | 31 | 156 | 66 | 15 | .1 |
| WTD. AVG. TIME | -- | 8.6 | 24 | 9.5 | 14 | 102 | 35 | 7.0 | 1.9 |
| WTD. AVG. TONS PER DAY | 1520 | 8.9 | 35 | 17 | 32 | 155 | 76 | 15 | .9 |
| | -- | 36 | 95 | 38 | 59 | 420 | 144 | 29 | 7.7 |

ANALYSES OF ADDITIONAL SAMPLES

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SEPT. | | | | | | | | | |
| 08... | 260 | 2.5 | 34 | 14 | 34 | 160 | 62 | 16 | .4 |
| 30... | 261 | .2 | 32 | 15 | 32 | 150 | 61 | 16 | .4 |

09251000 YAMPA RIVER NEAR MAYBELL, COLO.--Continued

EXTREMES, 1968-69--Continued

Specific conductance: Maximum daily, 645 micromhos May 1; minimum daily, 129 micromhos Apr. 2.

Water temperatures: Maximum, 28°C on several days during July and August; minimum, freezing point Nov. 21.

EXTREMES, 1950-69.--Dissolved solids: Maximum, 656 mg/l Aug. 11, 1968; minimum, 64 mg/l June 13, 1964.

Hardness: Maximum, 384 mg/l Aug. 11, 1968; minimum, 43 mg/l June 1-21, 1959.

Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94 micromhos June 14, 1959.

Water temperatures: Maximum, 29°C Aug. 5, 1963; minimum, freezing point on many days during winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-31 | .03 | 337 | .46 | 322 | 190 | 34 | 1.4 | 536 | 7.8 |
| NOV. | | | | | | | | | |
| 01-30 | .03 | 391 | .53 | 343 | 231 | 51 | 1.4 | 610 | 8.0 |
| DEC. | | | | | | | | | |
| 01-19 | .03 | 360 | .49 | 268 | 204 | 41 | 1.4 | 557 | 7.9 |
| 20-31 | .02 | 410 | .56 | 312 | 232 | 78 | 1.5 | 626 | 7.9 |
| JAN. | | | | | | | | | |
| 01-31 | .04 | 385 | .52 | 294 | 217 | 49 | 1.4 | 596 | 7.8 |
| FEB. | | | | | | | | | |
| 01-28 | .09 | 396 | .54 | 304 | 210 | 57 | 1.5 | 606 | 7.9 |
| MAR. | | | | | | | | | |
| 01-15 | .06 | 92 | .13 | 84.0 | 68 | 11 | .2 | 140 | 7.4 |
| 16-31 | .07 | 385 | .52 | 516 | 212 | 55 | 1.5 | 601 | 7.6 |
| APR. | | | | | | | | | |
| 01-14 | .17 | 104 | .14 | 908 | 60 | 10 | .3 | 139 | 7.4 |
| 15-30 | .13 | 129 | .18 | 1740 | 78 | 7 | .4 | 185 | 7.4 |
| MAY | | | | | | | | | |
| 01-02 | .26 | 428 | .58 | 5850 | 216 | 59 | 1.5 | 612 | 7.7 |
| 03... | -- | 144 | .20 | 2510 | 72 | 15 | .3 | 161 | 7.6 |
| 04... | -- | 438 | .60 | 8440 | 230 | 70 | 1.4 | 607 | 7.7 |
| 05-31 | .11 | 106 | .14 | 1890 | 70 | 10 | .3 | 143 | 7.6 |
| JUNE | | | | | | | | | |
| 01-14 | .02 | 127 | .17 | 1250 | 84 | 13 | .4 | 175 | 6.6 |
| 15-28 | .00 | 140 | .19 | 1460 | 87 | 5 | .5 | 214 | 6.6 |
| 29-30 | .23 | 122 | .17 | 1160 | 75 | 9 | .4 | 174 | 6.6 |
| JULY | | | | | | | | | |
| 01-10 | .00 | 211 | .39 | 1190 | 125 | 14 | .9 | 341 | 7.6 |
| 11-24 | .00 | 269 | .37 | 658 | 150 | 16 | 1.2 | 435 | 7.8 |
| 25-31 | .00 | 249 | .34 | 393 | 144 | 15 | 1.1 | 405 | 7.8 |
| AUG. | | | | | | | | | |
| 01-31 | .01 | 266 | .36 | 244 | 152 | 15 | 1.2 | 437 | 7.7 |
| SEPT. | | | | | | | | | |
| 01-30 | .03 | 250 | .34 | 227 | 144 | 16 | 1.1 | 410 | 8.0 |
| WTD. AVG. TIME | .09 | 166 | .23 | -- | 99 | 15 | -- | 243 | 7.4 |
| WTD. AVG. TONS PER DAY | .34 | -- | -- | 682 | -- | -- | -- | -- | -- |

ANALYSES OF ADDITIONAL SAMPLES

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SEPT. | | | | | | | | | |
| 08... | .00 | 244 | .33 | 171 | 142 | 11 | 1.2 | 412 | 8.0 |
| 30... | .00 | 238 | .32 | 168 | 140 | 17 | 1.2 | 401 | 7.9 |

09251000 YAMPA RIVER NEAR MAYBELL, COLO.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 436 | 575 | 564 | 622 | 608 | 137 | 131 | 645 | 192 | 294 | 445 | 419 |
| 2..... | 455 | 570 | 564 | 620 | 588 | 137 | 129 | 580 | 148 | 339 | 442 | 409 |
| 3..... | 455 | 575 | 565 | 589 | 586 | 139 | 133 | 161 | 195 | 292 | 444 | 385 |
| 4..... | 454 | 596 | 564 | 590 | 586 | 138 | 132 | 607 | 197 | 311 | 444 | 378 |
| 5..... | 455 | 607 | 563 | 587 | 587 | 137 | 141 | 155 | 197 | 379 | 443 | 424 |
| 6..... | 520 | 612 | 563 | 589 | 586 | 137 | 132 | 145 | 197 | 379 | 443 | 426 |
| 7..... | 522 | 614 | 564 | 591 | 587 | 137 | 133 | 145 | 198 | 340 | 447 | 411 |
| 8..... | 522 | 616 | 566 | 591 | 587 | 137 | 138 | 144 | 197 | 339 | 444 | 454 |
| 9..... | 524 | 611 | 566 | 594 | 587 | 138 | 133 | 140 | 183 | 342 | 444 | 432 |
| 10..... | 523 | 612 | 566 | 598 | 581 | 142 | 130 | 144 | 132 | 363 | 445 | 470 |
| 11..... | 528 | 610 | 563 | 592 | 584 | 142 | 132 | 144 | 137 | 403 | 443 | 477 |
| 12..... | 523 | 612 | 566 | 590 | 612 | 142 | 133 | 143 | 207 | 427 | 445 | 486 |
| 13..... | 521 | 609 | 561 | 591 | 622 | 143 | 133 | 141 | 140 | 396 | 444 | 453 |
| 14..... | 522 | 607 | 567 | 590 | 624 | 143 | 134 | 144 | 138 | 348 | 443 | 424 |
| 15..... | 521 | 613 | 553 | 590 | 621 | 142 | 165 | 145 | 215 | 441 | 442 | 402 |
| 16..... | 523 | 616 | 550 | 587 | 619 | 592 | 160 | 140 | 219 | 456 | 442 | 407 |
| 17..... | 526 | 616 | 549 | 587 | 617 | 607 | 157 | 140 | 226 | 444 | 442 | 401 |
| 18..... | 523 | 610 | 547 | 589 | 623 | 606 | 160 | -- | 210 | 457 | 444 | 422 |
| 19..... | 523 | 610 | 547 | 590 | 618 | 588 | 158 | -- | 200 | 453 | 411 | 402 |
| 20..... | 522 | 602 | 623 | 598 | 619 | 606 | 158 | -- | 201 | 376 | 439 | 402 |
| 21..... | 575 | 611 | 625 | 592 | 618 | 606 | 161 | -- | 201 | 458 | 443 | 398 |
| 22..... | 567 | 611 | 628 | 591 | 622 | 607 | 158 | -- | 199 | 461 | 442 | 383 |
| 23..... | 579 | 611 | 629 | 592 | 602 | 630 | 174 | -- | 200 | 472 | 442 | 374 |
| 24..... | 575 | 609 | 624 | 589 | 610 | 632 | 179 | -- | 252 | 472 | 444 | 360 |
| 25..... | 575 | 610 | 627 | 593 | 609 | 631 | 178 | -- | 222 | 431 | 444 | 384 |
| 26..... | 577 | 612 | 629 | 594 | 609 | 472 | 163 | -- | 231 | 420 | 443 | 360 |
| 27..... | 577 | 610 | 629 | 594 | 605 | 606 | 183 | -- | 204 | 422 | 443 | 387 |
| 28..... | 580 | 609 | 626 | 591 | 608 | 592 | 180 | -- | 200 | 365 | 446 | 404 |
| 29..... | 577 | 610 | 626 | 590 | -- | 589 | 158 | -- | 186 | 298 | 427 | 417 |
| 30..... | 577 | 610 | 626 | 591 | -- | 591 | 158 | -- | 161 | 440 | 433 | 443 |
| 31..... | 576 | -- | 627 | 592 | -- | 600 | -- | -- | -- | 445 | 424 | -- |
| AVERAGE | 530 | 606 | 586 | 593 | 604 | 375 | 150 | -- | 192 | 395 | 440 | 413 |

09251000 YAMPA RIVER NEAR MAYBELL, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14.0 | 03.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 10.0 | 20.0 | 14.0 | 24.0 | 21.0 |
| 2 | 21.0 | 09.0 | 01.0 | 01.0 | 01.0 | 02.0 | 06.0 | 11.0 | 19.0 | 20.0 | 27.0 | 24.0 |
| 3 | 20.0 | 09.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 10.0 | 18.0 | 14.0 | 24.0 | 26.0 |
| 4 | 14.0 | 02.0 | 01.0 | 01.0 | 01.0 | 02.0 | 07.0 | 14.0 | 15.0 | 24.0 | 28.0 | 21.0 |
| 5 | 15.0 | 02.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 10.0 | 15.0 | 21.0 | 27.0 | 24.0 |
| 6 | 18.0 | 08.0 | 01.0 | 01.0 | 01.0 | 01.0 | 06.0 | 14.0 | 16.0 | 14.0 | 27.0 | 24.0 |
| 7 | 12.0 | 07.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 11.0 | 15.0 | 14.0 | 24.0 | 24.0 |
| 8 | 18.0 | 01.0 | 01.0 | 01.0 | 01.0 | 02.0 | 07.0 | 11.0 | 17.0 | 24.0 | 24.0 | 21.0 |
| 9 | 18.0 | 01.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 11.0 | 17.0 | 22.0 | 28.0 | 20.0 |
| 10 | 11.0 | 04.0 | 01.0 | 01.0 | 01.0 | 01.0 | 08.0 | 14.0 | 17.0 | 26.0 | 24.0 | 22.0 |
| 11 | 16.0 | 04.0 | 01.0 | 01.0 | 01.0 | 02.0 | 04.0 | 14.0 | 16.0 | 22.0 | 24.0 | 20.0 |
| 12 | 14.0 | 04.0 | 01.0 | 01.0 | 01.0 | 02.0 | 08.0 | 11.0 | 16.0 | 21.0 | 28.0 | 19.0 |
| 13 | 09.0 | 04.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 14.0 | 17.0 | 27.0 | 26.0 | 19.0 |
| 14 | 09.0 | 04.0 | 01.0 | 01.0 | 01.0 | 02.0 | 05.0 | 14.0 | 14.0 | 26.0 | 22.0 | 19.0 |
| 15 | 13.0 | 01.0 | 01.0 | 01.0 | 01.0 | 01.0 | 09.0 | 11.0 | 17.0 | 26.0 | 22.0 | 18.0 |
| 16 | 07.0 | 04.0 | 01.0 | 01.0 | 01.0 | 02.0 | 05.0 | -- | 14.0 | 21.0 | 28.0 | 18.0 |
| 17 | 12.0 | 01.0 | 01.0 | 01.0 | 01.0 | 01.0 | 09.0 | 14.0 | 14.0 | 26.0 | 21.0 | 19.0 |
| 18 | 12.0 | 03.0 | 01.0 | 01.0 | 01.0 | 03.0 | 06.0 | -- | 14.0 | 22.0 | 23.0 | 19.0 |
| 19 | 07.0 | 03.0 | 01.0 | 01.0 | 01.0 | 02.0 | 09.0 | -- | 17.0 | 27.0 | 24.0 | 18.0 |
| 20 | 11.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 06.0 | -- | 17.0 | 27.0 | 24.0 | 18.0 |
| 21 | 11.0 | 00.0 | 01.0 | 01.0 | 01.0 | 02.0 | 10.0 | -- | 14.0 | 27.0 | 28.0 | 18.0 |
| 22 | 06.0 | 02.0 | 01.0 | 01.0 | 01.0 | 03.0 | 05.0 | -- | 17.0 | 22.0 | 21.0 | 18.0 |
| 23 | 07.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 11.0 | -- | 14.0 | 26.0 | 24.0 | 18.0 |
| 24 | 11.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 11.0 | -- | 15.0 | 22.0 | 27.0 | 17.0 |
| 25 | 06.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 06.0 | -- | 13.0 | 24.0 | 23.0 | 18.0 |
| 26 | 11.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 12.0 | -- | 13.0 | 28.0 | 24.0 | 18.0 |
| 27 | 04.0 | 01.0 | 01.0 | 01.0 | 01.0 | 04.0 | 08.0 | -- | 13.0 | 24.0 | 24.0 | 18.0 |
| 28 | 04.0 | 01.0 | 01.0 | 01.0 | 01.0 | 03.0 | 09.0 | -- | 14.0 | 24.0 | 23.0 | 17.0 |
| 29 | 10.0 | 01.0 | 01.0 | 01.0 | -- | 02.0 | 09.0 | -- | 16.0 | 21.0 | 26.0 | 18.0 |
| 30 | 03.0 | 01.0 | 01.0 | 01.0 | -- | 04.0 | 13.0 | -- | 16.0 | 27.0 | 21.0 | 17.0 |
| 31 | 10.0 | -- | 01.0 | 01.0 | -- | 02.0 | -- | -- | -- | 24.0 | 24.0 | -- |
| AVG | 11.4 | 2.8 | 1.0 | 1.0 | 1.0 | 2.1 | 7.0 | -- | 15.6 | 22.8 | 24.9 | 19.7 |

09259950 LITTLE SNAKE RIVER ABOVE LILY, COLO.

LOCATION.--Lat 40°36'27", long 108°20'11", Moffat County, at bridge on State Highway 318, about 6 miles upstream from gaging station, about 10 miles northeast of Lily, and 16 miles upstream from mouth.

DRAINAGE AREA.--3,730 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: December 1950 to September 1969 (discontinued).

Water temperatures: December 1950 to September 1960, October 1961 to September 1969 (discontinued).

Sediment records: May 1958 to September 1964.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 1,600 mg/l Aug. 9; minimum, 131 mg/l May 5-31.

Hardness: Maximum, 930 mg/l Aug. 9; minimum, 66 mg/l June 26.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 9; minimum daily, 142 micromhos May 28.

Water temperatures: Maximum, 30°C July 27; minimum, freezing point on many days during November to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 12-31 | 116 | 14 | 47 | 16 | 50 | 222 | 103 | 20 | .1 |
| NOV. | | | | | | | | | |
| 01-27 | 107 | 14 | 50 | 15 | 57 | 222 | 100 | 20 | .2 |
| 28-30 | 88 | 18 | 65 | 20 | 85 | 280 | 154 | 27 | .3 |
| DEC. | | | | | | | | | |
| 01-31 | 91 | 18 | 53 | 18 | 54 | 246 | 98 | 19 | .2 |
| JAN. | | | | | | | | | |
| 01-31 | 90 | 16 | 48 | 14 | 52 | 212 | 94 | 20 | .3 |
| FEB. | | | | | | | | | |
| 01-28 | 87 | 18 | 50 | 16 | 51 | 221 | 92 | 18 | .1 |
| MAR. | | | | | | | | | |
| 01-19 | 123 | 15 | 48 | 19 | 59 | 221 | 93 | 22 | 3.3 |
| 20-23 | 305 | 11 | 36 | 54 | 45 | 159 | 53 | 13 | .4 |
| 24-31 | 1217 | 10 | 31 | 7.8 | 80 | 171 | 88 | 26 | 2.6 |
| APR. | | | | | | | | | |
| 01-21 | 1183 | 13 | 38 | 12 | 47 | 160 | 86 | 13 | 1.7 |
| 22-30 | 2179 | 12 | 29 | 8.0 | 15 | 119 | 34 | 4.0 | 1.7 |
| MAY | | | | | | | | | |
| 01-04 | 2378 | 13 | 29 | 6.3 | 11 | 108 | 25 | 2.0 | 1.1 |
| 05-31 | 2706 | 11 | 20 | 4.4 | 6.9 | 81 | 14 | 1.0 | .7 |
| JUNE | | | | | | | | | |
| 01-12 | 1346 | 11 | 22 | 5.4 | 13 | 83 | 21 | 3.9 | .7 |
| 13-25 | 1049 | 12 | 27 | 7.3 | 20 | 120 | 37 | 5.8 | .9 |
| 26... | 2590 | 16 | 17 | 5.7 | 90 | 167 | 70 | 30 | 2.6 |
| 27-30 | 1435 | 12 | 25 | 6.3 | 23 | 117 | 36 | 5.5 | 1.0 |
| JULY | | | | | | | | | |
| 01-12 | 553 | 13 | 27 | 8.5 | 95 | 132 | 42 | 8.9 | .7 |
| 13-24 | 164 | 13 | 42 | 13 | 56 | 192 | 100 | 19 | .9 |
| 25-31 | 83 | 13 | 65 | 20 | 92 | 228 | 211 | 30 | 1.1 |
| AUG. | | | | | | | | | |
| 01-08 | 74 | 18 | 38 | 4.9 | 186 | 279 | 191 | 64 | 8.4 |
| 09... | 37 | 16 | 301 | 44 | 139 | 334 | 885 | 30 | .3 |
| 10... | 23 | 11 | 52 | 22 | 123 | 275 | 203 | 41 | .5 |
| SEPT. | | | | | | | | | |
| 08... | 2.6 | 12 | 73 | 20 | 141 | 225 | 290 | 55 | .3 |
| 12-30 | 23 | 12 | 55 | -- | 162 | 194 | 234 | 61 | 1.9 |
| 30... | 29 | 9.3 | 63 | 16 | 145 | 271 | 229 | 48 | .8 |

09259950 LITTLE SNAKE RIVER ABOVE LILY, COLO.--Continued

EXTREMES, 1950-69.--Dissolved solids (1950-51, 1952-69): Maximum, 2,330 mg/l July 24, 1955; minimum, 108 mg/l June 1-21, 1964.

Hardness (1950-51, 1952-69): Maximum, 1,340 mg/l July 24, 1955; minimum, 64 mg/l July 1-8, 10, 1957, June 1-14, 1958, Mar. 11, 1960.

Specific conductance (1950-51, 1952-69): Maximum daily, 3,150 micromhos Aug. 16, 1961; minimum daily, 135 micromhos June 10, 1958.

Water temperatures (1950-60, 1961-69): Maximum, 31°C July 17, 1955; minimum, freezing point on many days during winter months.

REMARKS.--Records of discharge are given for Little Snake River near Lily, Colo.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRD-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 12-31 | .03 | 371 | .50 | 116 | 184 | 2 | 1.6 | 561 | 7.8 |
| NOV. | | | | | | | | | |
| 01-27 | .05 | 380 | .52 | 110 | 186 | 4 | 1.8 | 578 | 8.0 |
| 28-30 | .05 | 517 | .70 | 123 | 246 | 16 | 2.4 | 761 | 8.0 |
| DEC. | | | | | | | | | |
| 01-31 | .00 | 391 | .53 | 96.1 | 207 | 5 | 1.6 | 595 | 8.0 |
| JAN. | | | | | | | | | |
| 01-31 | .03 | 359 | .49 | 87.2 | 180 | 6 | 1.7 | 544 | 8.1 |
| FEB. | | | | | | | | | |
| 01-28 | .00 | 364 | .50 | 85.5 | 189 | 8 | 1.6 | 554 | 8.0 |
| MAR. | | | | | | | | | |
| 01-19 | .05 | 383 | .52 | 127 | 198 | 17 | 1.8 | 602 | 7.9 |
| 20-23 | .32 | 262 | .36 | 216 | 112 | 0 | 1.9 | 396 | 7.9 |
| 24-31 | .27 | 349 | .47 | 1150 | 110 | 0 | 3.3 | 536 | 7.8 |
| APR. | | | | | | | | | |
| 01-21 | .12 | 310 | .42 | 990 | 146 | 15 | 1.7 | 464 | 7.6 |
| 22-30 | .11 | 186 | .25 | 1090 | 106 | 8 | .6 | 268 | 7.6 |
| MAY | | | | | | | | | |
| 01-04 | .16 | 171 | .23 | 1100 | 98 | 9 | .5 | 230 | 7.7 |
| 05-31 | .14 | 131 | .18 | 957 | 68 | 2 | .4 | 160 | 7.7 |
| JUNE | | | | | | | | | |
| 01-12 | .13 | 137 | .19 | 498 | 76 | 8 | .7 | 200 | 7.8 |
| 13-25 | .13 | 184 | .25 | 521 | 98 | 0 | .9 | 277 | 7.8 |
| 26... | .13 | 322 | .44 | 2250 | 66 | 0 | 4.8 | 462 | 8.2 |
| 27-30 | .13 | 181 | .25 | 701 | 88 | 0 | 1.0 | 272 | 8.0 |
| JULY | | | | | | | | | |
| 01-12 | .14 | 195 | .27 | 291 | 102 | 0 | 1.1 | 302 | 7.4 |
| 13-24 | .13 | 354 | .48 | 157 | 160 | 3 | 1.9 | 546 | 7.6 |
| 25-31 | .12 | 570 | .78 | 128 | 246 | 39 | 2.6 | 838 | 7.7 |
| AUG. | | | | | | | | | |
| 01-08 | .40 | 678 | .92 | 135 | 114 | 0 | 7.6 | 1030 | 8.2 |
| 09... | .02 | 1600 | 2.18 | 160 | 930 | 656 | 2.0 | 1850 | 7.4 |
| 10... | .03 | 596 | .81 | 37.0 | 222 | 0 | 3.6 | 963 | 8.2 |
| SEPT. | | | | | | | | | |
| 08... | .00 | 742 | 1.01 | 5.39 | 264 | 80 | 3.8 | 1090 | 8.2 |
| 12-30 | .20 | 722 | 98.0 | 44.8 | 206 | 0 | 4.9 | 1080 | 8.4 |
| 30... | .02 | 682 | .93 | 54.9 | 222 | 0 | 4.3 | 1020 | 8.2 |

09259950 LITTLE SNAKE RIVER ABOVE LILY, COLO.--Continued

SPECIFIC CONDUCTANCE (MICRDMHDS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | -- | -- | 703 | -- | -- | -- | 596 | 272 | 153 | 234 | 906 | -- |
| 2..... | -- | -- | 712 | -- | 576 | 525 | 540 | 237 | 164 | -- | 1200 | -- |
| 3..... | -- | -- | -- | -- | 586 | -- | 527 | 215 | 178 | 247 | 1030 | -- |
| 4..... | -- | 555 | 700 | 549 | 612 | -- | 494 | 203 | -- | 255 | 969 | -- |
| 5..... | -- | 560 | -- | 543 | 611 | -- | 460 | 186 | 204 | 269 | -- | -- |
| 6..... | -- | 571 | -- | 539 | -- | -- | 455 | 182 | 217 | 278 | -- | -- |
| 7..... | -- | 572 | 619 | 540 | 582 | -- | 444 | -- | 223 | 289 | -- | -- |
| 8..... | -- | -- | 589 | 535 | -- | 574 | 428 | 180 | 212 | 293 | -- | -- |
| 9..... | -- | 556 | -- | 557 | 576 | 605 | 479 | 166 | -- | 307 | 1850 | -- |
| 10..... | -- | 574 | -- | 567 | 564 | 630 | 399 | 174 | 213 | 341 | 963 | -- |
| 11..... | -- | 597 | 555 | 561 | 557 | 629 | 498 | 174 | 214 | 372 | -- | -- |
| 12..... | -- | 588 | 551 | 549 | 545 | 617 | 505 | 171 | 220 | 388 | -- | -- |
| 13..... | -- | 602 | 581 | -- | 528 | 627 | 436 | 156 | 240 | 414 | -- | -- |
| 14..... | 680 | -- | -- | 539 | 517 | 627 | 412 | 156 | 240 | 416 | -- | -- |
| 15..... | -- | -- | 593 | 504 | 508 | 639 | -- | 156 | -- | 474 | -- | -- |
| 16..... | 625 | -- | -- | -- | -- | 626 | 401 | 152 | 256 | 515 | -- | -- |
| 17..... | -- | 569 | 555 | 487 | -- | 604 | 452 | -- | 275 | 536 | -- | -- |
| 18..... | 571 | 609 | -- | -- | 488 | 572 | 429 | 159 | 280 | -- | -- | -- |
| 19..... | -- | -- | 551 | 617 | 494 | 504 | -- | 160 | 308 | 565 | -- | -- |
| 20..... | 504 | -- | -- | -- | 495 | -- | 420 | 153 | 249 | 605 | -- | -- |
| 21..... | -- | -- | 549 | 480 | -- | -- | 369 | 151 | 337 | 665 | -- | -- |
| 22..... | 514 | -- | 542 | -- | 626 | 377 | 337 | 145 | 249 | 565 | -- | -- |
| 23..... | -- | 569 | 557 | -- | -- | 414 | 302 | 145 | -- | -- | -- | -- |
| 24..... | 526 | 559 | 548 | -- | 556 | 584 | 264 | 143 | 250 | 672 | -- | -- |
| 25..... | 537 | 560 | -- | 603 | 553 | 466 | 261 | 145 | 335 | 719 | -- | -- |
| 26..... | -- | 576 | -- | 544 | -- | 451 | 213 | 148 | 462 | 738 | -- | -- |
| 27..... | -- | -- | -- | 525 | -- | -- | 205 | 145 | 317 | 752 | -- | 1140 |
| 28..... | 563 | 698 | -- | -- | -- | 565 | 225 | 142 | 266 | 788 | -- | 1160 |
| 29..... | 570 | 772 | -- | 533 | -- | 585 | 256 | 143 | 266 | 775 | -- | 1110 |
| 30..... | 576 | 812 | -- | 538 | -- | 501 | -- | -- | 240 | 1170 | -- | 931 |
| 31..... | -- | -- | -- | 552 | -- | 555 | -- | 146 | -- | 873 | -- | -- |
| AVERAGE | -- | -- | -- | -- | -- | -- | 400 | 168 | 252 | 518 | -- | -- |

09259950 LITTLE SNAKE RIVER ABOVE LILY, COLO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -- | -- | 00.0 | -- | -- | -- | 07.0 | 12.0 | 14.0 | 22.0 | -- | 24.0 |
| 2 | -- | -- | 00.0 | -- | 00.0 | 00.0 | 08.0 | 13.0 | 17.0 | -- | -- | 29.0 |
| 3 | -- | -- | -- | -- | 00.0 | -- | 06.0 | 13.0 | 18.0 | 21.0 | -- | 24.0 |
| 4 | -- | 07.0 | 00.0 | 00.0 | 00.0 | -- | 10.0 | 13.0 | -- | 23.0 | -- | 25.0 |
| 5 | -- | 08.0 | -- | 00.0 | 00.0 | -- | 08.0 | 11.0 | 20.0 | 22.0 | -- | -- |
| 6 | -- | 04.0 | -- | 00.0 | -- | -- | 10.0 | 13.0 | 18.0 | 20.0 | -- | -- |
| 7 | -- | 04.0 | 00.0 | 00.0 | 00.0 | -- | 08.0 | -- | 22.0 | 21.0 | -- | -- |
| 8 | -- | -- | 00.0 | 00.0 | -- | -- | 10.0 | 09.0 | 21.0 | 22.0 | -- | -- |
| 9 | -- | 05.0 | -- | 00.0 | 00.0 | -- | 11.0 | 13.0 | -- | 23.0 | -- | 14.0 |
| 10 | -- | 05.0 | -- | 00.0 | 00.0 | 00.0 | 09.0 | 14.0 | 18.0 | 25.0 | -- | 24.0 |
| 11 | -- | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 12.0 | 14.0 | 14.0 | 26.0 | -- | -- |
| 12 | -- | 05.0 | 00.0 | 00.0 | 00.0 | 00.0 | 11.0 | 15.0 | 14.0 | 26.0 | -- | -- |
| 13 | -- | 02.0 | 00.0 | -- | 00.0 | 00.0 | 12.0 | 14.0 | 17.0 | 26.0 | -- | -- |
| 14 | 13.0 | -- | -- | -- | 00.0 | 00.0 | 12.0 | 14.0 | 19.0 | 22.0 | -- | -- |
| 15 | -- | -- | 00.0 | 00.0 | 00.0 | 00.0 | -- | 16.0 | -- | 28.0 | -- | -- |
| 16 | 08.0 | -- | -- | -- | -- | 00.0 | 09.0 | 15.0 | 18.0 | 18.0 | -- | -- |
| 17 | -- | 01.0 | 00.0 | 00.0 | -- | 00.0 | 08.0 | -- | 17.0 | -- | -- | -- |
| 18 | 10.0 | 02.0 | -- | -- | 00.0 | 00.0 | 11.0 | 16.0 | 20.0 | -- | -- | -- |
| 19 | -- | -- | 00.0 | 00.0 | 00.0 | 00.0 | -- | 17.0 | 18.0 | 27.0 | -- | -- |
| 20 | 09.0 | -- | -- | -- | 00.0 | -- | 14.0 | 15.0 | 20.0 | -- | -- | -- |
| 21 | -- | -- | 00.0 | 00.0 | -- | -- | 15.0 | 15.0 | 19.0 | -- | -- | -- |
| 22 | 05.0 | -- | 00.0 | -- | 00.0 | 00.0 | 13.0 | 17.0 | 20.0 | -- | -- | -- |
| 23 | -- | 03.0 | 00.0 | -- | -- | 00.0 | 13.0 | 17.0 | -- | -- | -- | -- |
| 24 | 11.0 | 02.0 | 00.0 | -- | 00.0 | 00.0 | 11.0 | 17.0 | 16.0 | 22.0 | -- | -- |
| 25 | 10.0 | 01.0 | -- | 00.0 | 00.0 | 01.0 | 08.0 | 18.0 | 13.0 | 28.0 | -- | -- |
| 26 | -- | 01.0 | -- | 00.0 | -- | 00.0 | 07.0 | 18.0 | 11.0 | 29.0 | -- | -- |
| 27 | -- | -- | -- | 00.0 | -- | -- | 07.0 | 18.0 | 15.0 | 30.0 | -- | 18.0 |
| 28 | 09.0 | 00.0 | -- | -- | -- | 02.0 | 09.0 | 18.0 | 17.0 | 24.0 | -- | 18.0 |
| 29 | 09.0 | 00.0 | -- | 00.0 | -- | 06.0 | 12.0 | 18.0 | 19.0 | 23.0 | -- | 08.0 |
| 30 | 09.0 | 00.0 | -- | 00.0 | -- | 04.0 | -- | -- | 21.0 | 26.0 | -- | 01.0 |
| 31 | -- | -- | -- | 00.0 | -- | 06.0 | -- | 15.0 | -- | 25.0 | -- | -- |
| AVG | -- | -- | -- | -- | -- | -- | 10.0 | 14.9 | 17.5 | 24.1 | -- | -- |

09306500 WHITE RIVER NEAR WATSON, UTAH

LOCATION.--Lat 39°59', long 109°11', in sec.2, T.10 S., R.24 E., Uintah County, at bridge on State Highway 45, 350 ft upstream from gaging station, about 1 mile downstream from Evacuation Creek, and 7 miles north of Watson.

DRAINAGE AREA.--4,020 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: December 1950 to September 1969.

Water temperatures: December 1950 to September 1969.

EXTREMES, 1968-69.--Dissolved solids: Maximum, 1,020 mg/l Sept. 11-12; minimum, 242 mg/l June 1-5.

Hardness: Maximum, 496 mg/l Sept. 11-12; minimum, 125 mg/l Mar. 4.

Specific conductance: Maximum daily, 1,480 micromhos Sept. 11; minimum daily, 327 micromhos May 29.

Water temperatures: Maximum, 26.0°C Aug. 3; minimum, freezing point on many days during November and December.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-09 | 373 | -- | -- | -- | -- | 228 | 158 | 30 | -- |
| 10-31 | 440 | -- | -- | -- | -- | 220 | 162 | 30 | -- |
| NOV. | | | | | | | | | |
| 01-30 | 399 | -- | -- | -- | -- | 232 | 175 | 31 | -- |
| DEC. | | | | | | | | | |
| 01-02 | 385 | -- | -- | -- | -- | 202 | 188 | 35 | -- |
| 03-06 | 408 | -- | -- | -- | -- | 261 | 211 | 46 | -- |
| 07-20 | 427 | -- | -- | -- | -- | 222 | 177 | 34 | -- |
| 21-31 | 426 | -- | -- | -- | -- | 240 | 167 | 41 | -- |
| JAN. | | | | | | | | | |
| 01-31 | 382 | -- | -- | -- | -- | 225 | 158 | 38 | -- |
| FEB. | | | | | | | | | |
| 01-11 | 345 | -- | -- | -- | -- | 224 | 134 | 40 | -- |
| 12-20 | 352 | -- | -- | -- | -- | 208 | 233 | 120 | -- |
| 21-28 | 350 | -- | -- | -- | -- | 212 | 172 | 50 | -- |
| MAR. | | | | | | | | | |
| 01-03 | 350 | -- | -- | -- | -- | 234 | 193 | 39 | -- |
| 04... | 350 | -- | -- | -- | -- | 137 | 60 | 18 | -- |
| 05-22 | 441 | -- | -- | -- | -- | 241 | 206 | 47 | -- |
| 23... | 1000 | -- | -- | -- | -- | 186 | 363 | 92 | -- |
| 24-31 | 773 | -- | -- | -- | -- | 196 | 251 | 36 | -- |
| APR. | | | | | | | | | |
| 01-13 | 651 | -- | -- | -- | -- | 224 | 200 | 40 | -- |
| 14-15 | 722 | -- | -- | -- | -- | 204 | 143 | 24 | -- |
| 16... | 790 | -- | -- | -- | -- | 215 | 192 | 45 | -- |
| 17-21 | 788 | -- | -- | -- | -- | 208 | 151 | 33 | -- |
| 22-27 | 1342 | -- | -- | -- | -- | 178 | 97 | 16 | -- |
| 28-30 | 1247 | -- | -- | -- | -- | 177 | 93 | 16 | -- |
| MAY | | | | | | | | | |
| 01-04 | 1250 | -- | -- | -- | -- | 188 | 80 | 17 | -- |
| 05-31 | 1988 | -- | -- | -- | -- | 156 | 57 | 14 | -- |
| JUNE | | | | | | | | | |
| 01-05 | 1660 | -- | -- | -- | -- | 167 | 56 | 14 | -- |
| 06-11 | 1116 | -- | -- | -- | -- | 182 | 73 | 16 | -- |
| 12-18 | 1139 | -- | -- | -- | -- | 223 | 110 | 26 | -- |
| 19-24 | 1042 | -- | -- | -- | -- | 220 | 100 | 18 | -- |
| 25-26 | 1570 | -- | -- | -- | -- | 214 | 142 | 48 | -- |
| 27-30 | 1372 | -- | -- | -- | -- | 196 | 98 | 16 | -- |

09306500 WHITE RIVER NEAR WATSON, UTAH--Continued

EXTREMES, 1950-69.--Dissolved solids (1950-54, 1955-69): Maximum, 2,380 mg/l July 21, 1966; minimum, 209 mg/l May 23-31, 1964.

Hardness (1954-69): Maximum, 1,410 mg/l Aug. 4, 1955; minimum, 144 mg/l Feb. 3, 1965.

Specific conductance: Maximum daily, 4,450 micromhos Aug. 4, 1955; minimum daily, 316 micromhos June 27, 1968.

Water temperatures: Maximum, 31°C Aug. 8, 1954; minimum, freezing point on many days during winter months.

REMARKS.--Additional samples were collected for more comprehensive definition of water quality at this station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIOS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| OCT. | | | | | | | | | |
| 01-09 | -- | 471 | .64 | 474 | 276 | 89 | 1.4 | 707 | 8.1 |
| 10-31 | -- | 467 | .64 | 555 | 264 | 84 | 1.6 | 7170 | 7.9 |
| NOV. | | | | | | | | | |
| 01-30 | -- | 482 | .66 | 519 | 276 | 86 | 1.7 | 737 | 8.1 |
| DEC. | | | | | | | | | |
| 01-02 | -- | 543 | .74 | 564 | 272 | 125 | 1.7 | 794 | 8.1 |
| 03-06 | -- | 623 | .85 | 686 | 324 | 110 | 1.9 | 928 | 8.1 |
| 07-20 | -- | 517 | .70 | 596 | 274 | 92 | 1.7 | 771 | 8.2 |
| 21-31 | -- | 583 | .79 | 671 | 302 | 105 | 1.5 | 856 | 8.2 |
| JAN. | | | | | | | | | |
| 01-31 | -- | 253 | .34 | 261 | 262 | 78 | 1.7 | 772 | 7.8 |
| FEB. | | | | | | | | | |
| 01-11 | -- | 502 | .68 | 468 | 275 | 91 | 1.3 | 765 | 8.0 |
| 12-20 | -- | 786 | 1.07 | 747 | 360 | 147 | 2.8 | 1190 | 8.3 |
| 21-28 | -- | 519 | .71 | 490 | 252 | 78 | 2.2 | 801 | 8.0 |
| MAR. | | | | | | | | | |
| 01-03 | -- | 561 | .76 | 530 | 284 | 92 | 1.9 | 826 | 8.2 |
| 04... | -- | 250 | .34 | 236 | 125 | 23 | 1.4 | 389 | 7.9 |
| 05-22 | -- | 591 | .80 | 704 | 298 | 100 | 2.1 | 887 | 8.2 |
| 23... | -- | 984 | 1.34 | 2660 | 480 | 314 | 1.8 | 1350 | 8.5 |
| 24-31 | -- | 616 | .84 | 1290 | 308 | 147 | 1.9 | 892 | 8.1 |
| APR. | | | | | | | | | |
| 01-13 | -- | 582 | .79 | 1020 | 296 | 112 | 1.8 | 843 | 7.7 |
| 14-15 | -- | 450 | .61 | 877 | 252 | 85 | 1.2 | 662 | 7.9 |
| 16... | -- | 648 | .88 | 1380 | 324 | 148 | 2.1 | 953 | 7.7 |
| 17-21 | -- | 454 | .63 | 966 | 254 | 83 | 1.5 | 694 | 8.1 |
| 22-27 | -- | 333 | .45 | 1210 | 200 | 54 | 1.0 | 498 | 7.7 |
| 28-30 | -- | 328 | .45 | 1100 | 196 | 51 | 7.0 | 492 | 8.0 |
| MAY | | | | | | | | | |
| 01-04 | -- | 317 | .43 | 1070 | 192 | 38 | 1.0 | 485 | 7.9 |
| 05-31 | -- | 249 | .34 | 1340 | 156 | 28 | .8 | 382 | 7.9 |
| JUNE | | | | | | | | | |
| 01-05 | -- | 242 | .33 | 1090 | 153 | 16 | 1.0 | 378 | 7.7 |
| 06-11 | -- | 282 | .38 | 850 | 178 | 29 | 1.0 | 443 | 7.9 |
| 12-18 | -- | 392 | .53 | 1210 | 221 | 39 | 1.5 | 603 | 8.0 |
| 19-24 | -- | 365 | .50 | 1030 | 219 | 39 | 1.2 | 560 | 8.0 |
| 25-26 | -- | 488 | .66 | 2070 | 225 | 50 | 2.2 | 741 | 7.8 |
| 27-30 | -- | 336 | .46 | 1250 | 207 | 46 | 1.1 | 509 | 8.0 |

09306500 WHITE RIVER NEAR WATSON, UTAH--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| JULY | | | | | | | | | |
| 01-04 | 1042 | -- | -- | -- | -- | 171 | 77 | 19 | -- |
| 05-09 | 768 | -- | -- | -- | -- | 189 | 90 | 22 | -- |
| 10-18 | 422 | -- | -- | -- | -- | 218 | 131 | 37 | -- |
| 19-21 | 438 | -- | -- | -- | -- | 298 | 303 | 40 | -- |
| 22-23 | 556 | -- | -- | -- | -- | 255 | 171 | 35 | -- |
| 24-29 | 356 | -- | -- | -- | -- | 242 | 157 | 32 | -- |
| 30-31 | 490 | -- | -- | -- | -- | 250 | 193 | 35 | -- |
| AUG. | | | | | | | | | |
| 01-04 | 435 | -- | -- | -- | -- | 257 | 167 | 30 | -- |
| 05... | 419 | -- | -- | -- | -- | 238 | 450 | 32 | -- |
| 06-13 | 361 | -- | -- | -- | -- | 249 | 162 | 29 | -- |
| 14-15 | 465 | -- | -- | -- | -- | 279 | 218 | 83 | -- |
| 16-31 | 403 | -- | -- | -- | -- | 248 | 168 | 27 | -- |
| SEPT. | | | | | | | | | |
| 01-06 | 414 | -- | -- | -- | -- | 235 | 155 | 30 | -- |
| 07-08 | 446 | -- | -- | -- | -- | 232 | 190 | 41 | -- |
| 09-10 | 591 | -- | -- | -- | -- | 226 | 153 | 154 | -- |
| 11-12 | 909 | -- | -- | -- | -- | 260 | 385 | 128 | -- |
| 13-21 | 471 | -- | -- | -- | -- | 240 | 160 | 39 | -- |
| 22... | 630 | -- | -- | -- | -- | 212 | 299 | 152 | -- |
| 23-24 | 548 | -- | -- | -- | -- | 232 | 159 | 44 | -- |
| 25-30 | 434 | -- | -- | -- | -- | 204 | 137 | 27 | -- |
| WTD. AVG. TIME | -- | -- | -- | -- | -- | 203 | 128 | 30 | -- |
| WTO. AVG. TONS | 666 | -- | -- | -- | -- | 219 | 156 | 36 | -- |
| PER DAY | -- | -- | -- | -- | -- | 355 | 223 | 52 | -- |
| ANALYSES OF ADDITIONAL SAMPLES | | | | | | | | | |
| DEC. | | | | | | | | | |
| 17... | 450 | 13 | 66 | 31 | 62 | 220 | 183 | 35 | .7 |
| JAN. | | | | | | | | | |
| 01... | 400 a/ | -- | -- | -- | -- | 225 | 158 | 38 | -- |
| MAR. | | | | | | | | | |
| 24... | 908 | 8.3 | 71 | 22 | 80 | 163 | 256 | 31 | 4.3 |
| APR. | | | | | | | | | |
| 04... | 350 | -- | -- | -- | -- | 137 | 60 | 18 | -- |
| JUNE | | | | | | | | | |
| 10... | 1140 | 11 | 54 | 18 | 36 | 196 | 96 | 18 | 1.1 |
| JULY | | | | | | | | | |
| 23... | 468 | 14 | 68 | 25 | 72 | 250 | 186 | 34 | -- |
| SEPT. | | | | | | | | | |
| 25... | 458 | 13 | 56 | 29 | 46 | 217 | 139 | 24 | .1 |

a Daily mean discharge.

09306500 WHITE RIVER NEAR WATSON, UTAH--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | ORTHO PHDS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SDLVED SOLIDS (TDNS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| JULY | | | | | | | | | |
| 01-04 | -- | 329 | .45 | 926 | 186 | 46 | .9 | 455 | 7.3 |
| 05-09 | -- | 357 | .49 | 740 | 206 | 51 | 1.0 | 511 | 7.4 |
| 10-18 | -- | 439 | .60 | 500 | 244 | 65 | 1.6 | 678 | 7.6 |
| 19-21 | -- | 776 | 1.06 | 918 | 384 | 140 | 2.4 | 1080 | 7.6 |
| 22-23 | -- | 530 | .72 | 796 | 252 | 43 | 2.3 | 808 | 7.7 |
| 24-29 | -- | 486 | .66 | 467 | 276 | 78 | 1.6 | 740 | 7.8 |
| 30-31 | -- | 556 | .76 | 736 | 290 | 85 | 1.9 | 828 | 7.6 |
| AUG. | | | | | | | | | |
| 01-04 | -- | 510 | .69 | 599 | 280 | 69 | 1.8 | 782 | 7.9 |
| 05... | -- | 952 | 1.29 | 1080 | 518 | 323 | 1.7 | 1210 | 7.7 |
| 06-13 | -- | 508 | .69 | 495 | 272 | 68 | 1.7 | 765 | 8.0 |
| 14-15 | -- | 717 | .98 | 900 | 326 | 97 | 2.7 | 1070 | 8.0 |
| 16-31 | -- | 509 | .69 | 554 | 279 | 76 | 1.6 | 757 | 8.0 |
| SEPT. | | | | | | | | | |
| 01-06 | -- | 489 | .67 | 547 | 277 | 84 | 1.4 | 733 | 8.2 |
| 07-08 | -- | 572 | .78 | 689 | 316 | 118 | 1.6 | 838 | 8.3 |
| 09-10 | -- | 696 | .95 | 1110 | 308 | 123 | 2.9 | 1090 | 8.2 |
| 11-12 | -- | 1020 | 1.39 | 2500 | 496 | 283 | 2.7 | 1420 | 8.2 |
| 13-21 | -- | 512 | .70 | 651 | 273 | 76 | 1.7 | 781 | 8.1 |
| 22... | -- | 924 | 1.26 | 1570 | 458 | 284 | 2.3 | 1330 | 8.1 |
| 23-24 | -- | 512 | .70 | 758 | 272 | 82 | 1.8 | 794 | 8.1 |
| 25-30 | -- | 437 | .59 | 512 | 248 | 74 | 1.3 | 667 | 8.3 |
| WTD. AVG. TIME | -- | 408 | .55 | -- | 233 | 66 | -- | 896 | 7.9 |
| WTD. AVG. TONS PER DAY | -- | 466 | .63 | -- | 262 | 82 | 1.6 | 1120 | 8.0 |
| | -- | -- | -- | 733 | -- | -- | -- | -- | -- |
| ANALYSES OF ADDITIONAL SAMPLES | | | | | | | | | |
| DEC. | | | | | | | | | |
| 17... | .04 | 516 | .70 | 627 | 291 | 111 | 1.6 | 784 | 8.1 |
| JAN. | | | | | | | | | |
| 01... | -- | 253 | .34 | 273 | 262 | 78 | 1.7 | 772 | 7.8 |
| MAR. | | | | | | | | | |
| 24... | .07 | 585 | .80 | 1430 | 268 | 134 | 2.1 | 853 | 7.6 |
| APR. | | | | | | | | | |
| 04... | -- | 250 | .34 | 236 | 125 | 23 | 1.4 | 389 | 7.9 |
| JUNE | | | | | | | | | |
| 10... | .13 | 355 | .48 | 1090 | 206 | 45 | 1.1 | 536 | 8.0 |
| JULY | | | | | | | | | |
| 23... | -- | 522 | .71 | 660 | 271 | 66 | 1.9 | 780 | 7.2 |
| SEPT. | | | | | | | | | |
| 25... | .01 | 445 | .61 | 495 | 260 | 82 | 1.2 | 700 | 8.1 |

09306500 WHITE RIVER NEAR WATSON, UTAH--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 689 | 729 | 705 | -- | -- | 828 | 967 | 508 | 361 | 417 | 828 | 752 |
| 2..... | 721 | 739 | 883 | -- | -- | 827 | 983 | 517 | 372 | 426 | 782 | 715 |
| 3..... | 697 | 725 | 1080 | -- | -- | 823 | 870 | 480 | 371 | 452 | 751 | 709 |
| 4..... | 713 | 743 | 875 | -- | -- | 389 | 906 | 435 | 384 | 499 | 743 | 722 |
| 5..... | 715 | 786 | 880 | -- | -- | 815 | 853 | 384 | 406 | 508 | 1210 | 719 |
| 6..... | 701 | 731 | 835 | -- | -- | 832 | 853 | 424 | 422 | 479 | 810 | 776 |
| 7..... | 714 | 813 | -- | -- | -- | 959 | 831 | 395 | 426 | 517 | 761 | 944 |
| 8..... | 715 | 715 | -- | -- | -- | 858 | 807 | 385 | 412 | 496 | 736 | 731 |
| 9..... | 732 | 721 | 778 | -- | 765 | 965 | 785 | 402 | 436 | 523 | 744 | 1290 |
| 10..... | 732 | 705 | 832 | -- | -- | 893 | 758 | 407 | 490 | 556 | 756 | 883 |
| 11..... | 756 | 784 | 754 | -- | -- | 873 | 795 | 404 | 464 | 630 | -- | 1480 |
| 12..... | 735 | 752 | 724 | -- | -- | 1010 | 793 | 373 | 611 | -- | 760 | 1370 |
| 13..... | -- | 731 | 732 | -- | -- | 944 | 746 | 379 | 544 | 615 | 779 | 904 |
| 14..... | 796 | 721 | -- | -- | 1190 | 871 | 664 | 395 | 536 | 685 | 1270 | 886 |
| 15..... | -- | 682 | -- | -- | -- | -- | 660 | 365 | 523 | 723 | 866 | 791 |
| 16..... | 664 | 728 | -- | -- | -- | -- | 953 | 377 | 629 | 741 | 803 | 810 |
| 17..... | 683 | 732 | -- | -- | -- | 878 | 683 | 372 | 716 | 716 | 798 | 876 |
| 18..... | 688 | 752 | 747 | -- | -- | 793 | 709 | 377 | 644 | 726 | 820 | 710 |
| 19..... | 730 | 743 | 801 | -- | -- | 758 | 761 | 399 | 593 | 890 | 801 | 691 |
| 20..... | 702 | 714 | 621 | -- | -- | 854 | 667 | 357 | 550 | 1100 | 750 | 679 |
| 21..... | 811 | 719 | 927 | -- | 850 | 832 | 649 | 361 | 552 | 1260 | 742 | 673 |
| 22..... | 684 | 722 | -- | -- | -- | 997 | 519 | 428 | 544 | 787 | 773 | 1330 |
| 23..... | 701 | 736 | 785 | -- | -- | 1350 | 526 | 376 | 539 | 829 | 738 | 881 |
| 24..... | 701 | 722 | 855 | -- | -- | 878 | 479 | 408 | 577 | 716 | 734 | 708 |
| 25..... | 688 | 735 | -- | -- | -- | 780 | 456 | 371 | 877 | 725 | 674 | 663 |
| 26..... | 689 | 712 | -- | -- | 801 | 805 | 435 | 378 | 605 | 759 | 768 | 656 |
| 27..... | 695 | 797 | -- | -- | -- | 830 | -- | 370 | 561 | 746 | 703 | 657 |
| 28..... | 715 | -- | -- | -- | 753 | 871 | 471 | 353 | 540 | 725 | 699 | 670 |
| 29..... | 778 | 859 | -- | -- | -- | 941 | 497 | 327 | 509 | 750 | 695 | 691 |
| 30..... | 697 | 694 | -- | -- | -- | 1020 | 507 | -- | 437 | 780 | 765 | 660 |
| 31..... | 751 | -- | -- | -- | -- | 1010 | -- | 336 | -- | 875 | 779 | -- |
| AVERAGE | 717 | 739 | -- | -- | -- | 878 | 709 | 394 | 521 | 688 | 794 | 834 |

09306500 WHITE RIVER NEAR WATSON, UTAH--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.0 | 09.0 | 01.0 | -- | -- | 01.0 | 09.0 | 12.0 | 12.0 | 18.0 | 21.0 | 18.0 |
| 2 | 11.0 | 07.0 | 03.0 | -- | -- | 00.0 | 09.0 | 13.0 | 14.0 | 18.0 | 22.0 | 19.0 |
| 3 | 11.0 | 07.0 | 01.0 | -- | -- | 00.0 | 09.0 | 12.0 | 15.0 | 20.0 | 26.0 | -- |
| 4 | 12.0 | 07.0 | 02.0 | -- | -- | 01.0 | 09.0 | 11.0 | 15.0 | 18.0 | 23.0 | 17.0 |
| 5 | 11.0 | 04.0 | 03.0 | -- | -- | 00.0 | 10.0 | 12.0 | 16.0 | 19.0 | 23.0 | 16.0 |
| 6 | 12.0 | 05.0 | 02.0 | -- | -- | 01.0 | 10.0 | 11.0 | 15.0 | 20.0 | 23.0 | 16.0 |
| 7 | 14.0 | 03.0 | -- | -- | -- | 01.0 | 09.0 | 12.0 | 16.0 | 18.0 | 22.0 | 15.0 |
| 8 | 14.0 | 02.0 | -- | -- | -- | 00.0 | 07.0 | 11.0 | 16.0 | 18.0 | 23.0 | 17.0 |
| 9 | 13.0 | 04.0 | 03.0 | -- | 00.0 | 00.0 | 09.0 | 12.0 | 17.0 | 19.0 | 20.0 | 16.0 |
| 10 | 13.0 | 04.0 | 03.0 | -- | -- | 01.0 | 10.0 | 13.0 | 16.0 | 19.0 | 21.0 | 17.0 |
| 11 | 10.0 | 06.0 | 03.0 | -- | -- | 00.0 | 10.0 | 13.0 | 16.0 | 19.0 | -- | 16.0 |
| 12 | 12.0 | 05.0 | 03.0 | -- | -- | 00.0 | 09.0 | 13.0 | 16.0 | -- | 22.0 | 14.0 |
| 13 | -- | 04.0 | 03.0 | -- | -- | 00.0 | 09.0 | 13.0 | 16.0 | 21.0 | 21.0 | 14.0 |
| 14 | 14.0 | 04.0 | -- | -- | 00.0 | 00.0 | 11.0 | 13.0 | 16.0 | 22.0 | 22.0 | 16.0 |
| 15 | -- | 04.0 | -- | -- | -- | -- | 11.0 | 12.0 | 16.0 | 21.0 | 22.0 | 15.0 |
| 16 | 09.0 | 06.0 | -- | -- | -- | -- | 10.0 | 12.0 | 16.0 | 22.0 | 21.0 | 14.0 |
| 17 | 05.0 | 04.0 | -- | -- | -- | 01.0 | 11.0 | 12.0 | 16.0 | 21.0 | 20.0 | 13.0 |
| 18 | 04.0 | 03.0 | 00.0 | -- | -- | 01.0 | 10.0 | 12.0 | 16.0 | 22.0 | 20.0 | 13.0 |
| 19 | 06.0 | 04.0 | 00.0 | -- | -- | 01.0 | 09.0 | 13.0 | 16.0 | 21.0 | 19.0 | 14.0 |
| 20 | 06.0 | 04.0 | 00.0 | -- | -- | 01.0 | 10.0 | 13.0 | 17.0 | 20.0 | 21.0 | 14.0 |
| 21 | 07.0 | 04.0 | 00.0 | -- | 00.0 | 01.0 | 12.0 | 13.0 | 18.0 | 21.0 | 20.0 | 16.0 |
| 22 | 06.0 | 03.0 | -- | -- | -- | 01.0 | 11.0 | 13.0 | 17.0 | 21.0 | 21.0 | 12.0 |
| 23 | 07.0 | 06.0 | 00.0 | -- | -- | 01.0 | 13.0 | 14.0 | 18.0 | 22.0 | 20.0 | 11.0 |
| 24 | 07.0 | 03.0 | 01.0 | -- | -- | 01.0 | 13.0 | 16.0 | 17.0 | 23.0 | 20.0 | 12.0 |
| 25 | 06.0 | 01.0 | -- | -- | -- | 01.0 | 11.0 | 16.0 | 14.0 | 21.0 | 21.0 | 11.0 |
| 26 | 07.0 | 02.0 | -- | -- | 01.0 | 01.0 | 09.0 | 16.0 | 11.0 | 20.0 | 21.0 | 11.0 |
| 27 | 06.0 | 04.0 | -- | -- | -- | 01.0 | -- | 15.0 | 12.0 | 21.0 | 21.0 | 14.0 |
| 28 | 07.0 | -- | -- | -- | 00.0 | 01.0 | 08.0 | 16.0 | 15.0 | 22.0 | 22.0 | 14.0 |
| 29 | 06.0 | 00.0 | -- | -- | -- | 03.0 | 11.0 | 16.0 | 16.0 | 22.0 | 22.0 | 12.0 |
| 30 | 07.0 | 00.0 | -- | -- | -- | 08.0 | 12.0 | -- | 16.0 | 21.0 | 21.0 | 15.0 |
| 31 | 09.0 | -- | -- | -- | -- | 08.0 | -- | 13.0 | -- | 23.0 | 19.0 | -- |
| AVG | 09.0 | 04.0 | -- | -- | -- | 01.0 | 10.0 | 13.0 | 15.0 | 20.0 | 21.0 | 14.0 |

09352900 VALLECITO CREEK NEAR BAYFIELD, COLO.
(Hydrologic bench-mark station)

LOCATION (revised).--Lat 37°28'39", long 107°32'35", in NW¼ sec.16, T.37 N., R.6 W., (projected), La Plata County, temperature recorder at gaging station, 60 ft upstream from Fall Creek, 0.8 mile downstream from Bear Creek, 6.7 miles north of Vallecito Dam, and 18 miles north of Bayfield.

DRAINAGE AREA.--72.1 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1963 to September 1968 (discontinued).

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | OCT | | NOV | | DEC | | JAN | | FEB | | MAR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 08.0 | 07.0 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 2 | 08.0 | 06.0 | 03.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 3 | 07.0 | 06.0 | 02.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 4 | 07.0 | 07.0 | 02.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 5 | 07.0 | 05.0 | 02.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| 6 | 07.0 | 06.0 | 02.0 | 02.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 7 | 07.0 | 06.0 | 02.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 8 | 06.0 | 06.0 | 01.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 9 | 06.0 | 04.0 | 01.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 10 | 06.0 | 04.0 | 01.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 11 | 06.0 | 06.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 12 | 06.0 | 06.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 13 | 06.0 | 05.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 14 | 06.0 | 05.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 15 | 06.0 | 06.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 16 | 06.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 17 | 04.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 18 | 02.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 19 | 03.0 | 02.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 02.0 | 01.0 |
| 20 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 02.0 | 01.0 |
| 21 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 22 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 23 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 24 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 25 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 26 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |
| 27 | 04.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 02.0 | 01.0 |
| 28 | 03.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 02.0 | 01.0 |
| 29 | 03.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 02.0 | 02.0 |
| 30 | 03.0 | 03.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 02.0 | 01.0 |
| 31 | 04.0 | 03.0 | -- | -- | 00.0 | 00.0 | 00.0 | 00.0 | -- | -- | 01.0 | 01.0 |
| AVG | 05.0 | 04.0 | 01.0 | 01.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 01.0 | 01.0 |

09352900 VALLECITO CREEK NEAR BAYFIELD, COLO.--Continued

PERIOD OF RECORD.--Continued

Water temperatures: November 1962 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 16°C Aug. 8-11; minimum, freezing point on many days during November to March.

EXTREMES, 1962-69.--Water temperatures: Maximum, 17°C July 21, 1963; minimum, freezing point on many days during winter months.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DAY | APR | | MAY | | JUN | | JUL | | AUG | | SEPT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 02.0 | 01.0 | 07.0 | 03.0 | 08.0 | 03.0 | 11.0 | 07.0 | 13.0 | 11.0 | 11.0 | 11.0 |
| 2 | 02.0 | 01.0 | 07.0 | 03.0 | 07.0 | 04.0 | 12.0 | 08.0 | 13.0 | 11.0 | 11.0 | 09.0 |
| 3 | 02.0 | 02.0 | 05.0 | 03.0 | 08.0 | 04.0 | 12.0 | 08.0 | 13.0 | 11.0 | 11.0 | 09.0 |
| 4 | 03.0 | 02.0 | 04.0 | 04.0 | 08.0 | 04.0 | 10.0 | 08.0 | 13.0 | 11.0 | 11.0 | 10.0 |
| 5 | 02.0 | 02.0 | 05.0 | 03.0 | 08.0 | 06.0 | 11.0 | 08.0 | 13.0 | 11.0 | 11.0 | 09.0 |
| 6 | 02.0 | 01.0 | 04.0 | 04.0 | 08.0 | 07.0 | 11.0 | 08.0 | 13.0 | 11.0 | 12.0 | 09.0 |
| 7 | 02.0 | 01.0 | 05.0 | 03.0 | 07.0 | 06.0 | 11.0 | 07.0 | 14.0 | 10.0 | 12.0 | 10.0 |
| 8 | 03.0 | 01.0 | 07.0 | 03.0 | 10.0 | 07.0 | 11.0 | 07.0 | 16.0 | 12.0 | 11.0 | 10.0 |
| 9 | 03.0 | 02.0 | 08.0 | 04.0 | 10.0 | 07.0 | 09.0 | 08.0 | 16.0 | 12.0 | 10.0 | 09.0 |
| 10 | 03.0 | 02.0 | 08.0 | 04.0 | 08.0 | 07.0 | 11.0 | 07.0 | 16.0 | 12.0 | 11.0 | 08.0 |
| 11 | 03.0 | 02.0 | 06.0 | 04.0 | 07.0 | 06.0 | 11.0 | 08.0 | 16.0 | 12.0 | 10.0 | 09.0 |
| 12 | 03.0 | 02.0 | 06.0 | 04.0 | 08.0 | 06.0 | 10.0 | 08.0 | 15.0 | 12.0 | 10.0 | 09.0 |
| 13 | 04.0 | 02.0 | 06.0 | 04.0 | 09.0 | 07.0 | 11.0 | 08.0 | 13.0 | 12.0 | 10.0 | 09.0 |
| 14 | 03.0 | 02.0 | 06.0 | 04.0 | 08.0 | 06.0 | 12.0 | 08.0 | 13.0 | 12.0 | 09.0 | 08.0 |
| 15 | 03.0 | 03.0 | 07.0 | 04.0 | 09.0 | 07.0 | 11.0 | 08.0 | 14.0 | 11.0 | 09.0 | 08.0 |
| 16 | 03.0 | 02.0 | 08.0 | 03.0 | 09.0 | 08.0 | 11.0 | 09.0 | 14.0 | 11.0 | 09.0 | 08.0 |
| 17 | 04.0 | 02.0 | 08.0 | 03.0 | 08.0 | 07.0 | 10.0 | 09.0 | 13.0 | 11.0 | 09.0 | 08.0 |
| 18 | 03.0 | 02.0 | 07.0 | 03.0 | 08.0 | 06.0 | 11.0 | 09.0 | 14.0 | 11.0 | 09.0 | 07.0 |
| 19 | 04.0 | 02.0 | 07.0 | 03.0 | 09.0 | 07.0 | 10.0 | 09.0 | 12.0 | 11.0 | 09.0 | 08.0 |
| 20 | 05.0 | 02.0 | 07.0 | 04.0 | 11.0 | 07.0 | 10.0 | 09.0 | 13.0 | 11.0 | 08.0 | 08.0 |
| 21 | 05.0 | 02.0 | 07.0 | 04.0 | 11.0 | 07.0 | 11.0 | 09.0 | 13.0 | 10.0 | 08.0 | 08.0 |
| 22 | 04.0 | 02.0 | 07.0 | 04.0 | 10.0 | 07.0 | 12.0 | 08.0 | 13.0 | 11.0 | 08.0 | 07.0 |
| 23 | 05.0 | 02.0 | 06.0 | 04.0 | 09.0 | 07.0 | 11.0 | 09.0 | 12.0 | 11.0 | 08.0 | 06.0 |
| 24 | 06.0 | 03.0 | 06.0 | 04.0 | 09.0 | 07.0 | 11.0 | 09.0 | 12.0 | 10.0 | 08.0 | 06.0 |
| 25 | 06.0 | 03.0 | 08.0 | 04.0 | 07.0 | 06.0 | 12.0 | 09.0 | 13.0 | 11.0 | 08.0 | 07.0 |
| 26 | 04.0 | 03.0 | 08.0 | 04.0 | 09.0 | 07.0 | 12.0 | 09.0 | 13.0 | 11.0 | 08.0 | 07.0 |
| 27 | 06.0 | 03.0 | 08.0 | 04.0 | 11.0 | 06.0 | 13.0 | 09.0 | 13.0 | 11.0 | 08.0 | 07.0 |
| 28 | 06.0 | 03.0 | 07.0 | 04.0 | 12.0 | 07.0 | 13.0 | 11.0 | 14.0 | 11.0 | 08.0 | 08.0 |
| 29 | 07.0 | 03.0 | 07.0 | 04.0 | 11.0 | 07.0 | 14.0 | 10.0 | 14.0 | 12.0 | 09.0 | 07.0 |
| 30 | 06.0 | 03.0 | 08.0 | 04.0 | 11.0 | 07.0 | 12.0 | 11.0 | 12.0 | 11.0 | 09.0 | 08.0 |
| 31 | -- | -- | 08.0 | 04.0 | -- | -- | 13.0 | 10.0 | 12.0 | 10.0 | -- | -- |
| AVG | 04.0 | 02.0 | 07.0 | 04.0 | 09.0 | 06.0 | 11.0 | 09.0 | 13.0 | 11.0 | 10.0 | 08.0 |

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) | NITRATE (NO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| PART 7. LOWER MISSISSIPPI RIVER BASIN | | | | | | | | | | |
| ARKANSAS RIVER BASIN | | | | | | | | | | |
| 07119500 - APISHAPA RIVER NEAR FOWLER (LAT 38 05 28 LONG 103 58 52) | | | | | | | | | | |
| JAN. | | | | | | | | | | |
| 22... | 21 | -- | 13 | 154 | 57 | 72 | 210 | 522 | 34 | 17 |
| APR. | | | | | | | | | | |
| 22... | 2.0 | 20 | -- | -- | -- | 150 | 280 | 1740 | 46 | 11 |
| JULY | | | | | | | | | | |
| 23... | 42 | 27 | -- | -- | -- | 40 | 138 | 263 | 12 | 9.6 |
| 07122000 - ARKANSAS RIVER NEAR LAJUNTA (LAT 38 00 40 LONG 103 35 18) | | | | | | | | | | |
| JAN. | | | | | | | | | | |
| 14... | 203 | -- | -- | -- | -- | 143 | 288 | 810 | 44 | .3 |
| APR. | | | | | | | | | | |
| 22... | 146 | 21 | -- | -- | -- | 184 | 275 | 1110 | 54 | 14 |
| JULY | | | | | | | | | | |
| 07... | 1200 | 22 | -- | -- | -- | 55 | 164 | 325 | 16 | 2.9 |
| 07128500 - PURGATOIRE RIVER NEAR LAS ANIMAS (LAT 38 02 02 LONG 103 12 00) | | | | | | | | | | |
| JAN. | | | | | | | | | | |
| 14... | 85 | -- | -- | 265 | 169 | 267 | 246 | 1650 | 50 | 2.9 |
| APR. | | | | | | | | | | |
| 08... | 32 | 10 | 18 | 160 | 91 | 173 | 172 | 950 | 33 | 3.2 |
| JULY | | | | | | | | | | |
| 07... | 74 | 27 | -- | -- | -- | 102 | 162 | 512 | 21 | 2.6 |
| 07137500 - ARKANSAS RIVER NEAR COOLIDGE (LAT 38 01 34 LONG 102 00 41) | | | | | | | | | | |
| JAN. | | | | | | | | | | |
| 13... | 113 | 3 | -- | 361 | 187 | 562 | 280 | 2300 | 162 | 14 |
| APR. | | | | | | | | | | |
| 02... | 95 | 18 | 15 | 361 | 201 | 567 | 256 | 2360 | 170 | 8.9 |
| JULY | | | | | | | | | | |
| 08... | 360 | 23 | -- | -- | -- | 190 | 178 | 980 | 49 | 5.9 |
| 28... | 285 | 24 | -- | 220 | 86 | -- | 220 | 1110 | 67 | -- |
| AUG. | | | | | | | | | | |
| 04... | 128 | 25 | -- | -- | -- | 439 | 244 | 1750 | 135 | 8.6 |
| SEPT. | | | | | | | | | | |
| 15... | 220 | -- | -- | 320 | 153 | 506 | 270 | 2070 | 124 | -- |
| 15... | 220 | -- | -- | 421 | 203 | 506 | 680 | 2070 | 124 | -- |

07094500 - ARKANSAS RIVER AT PARKDALE (LAT 38 29 14 LONG 105 22 23)

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

| DATE | TIME | WATER TEMP-ERA-TURE (°C) | DISCHARGE (CFS) | CONCEN-TRATION (MG/L) | SUSPENDED SEDIMENT DISCHARGE (TONS/DAY) | PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002 | .004 | .008 | .016 | .031 | .062 | .125 | .250 | .500 | 1.00 | 2.00 | METHOD OF ANALY-SIS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 14, 1968 | 1840 | 13.5 | 376 | 3 | 3 | | | | | | | | | | | | |
| OCT 24..... | 0940 | 6.5 | 358 | 4 | 4 | | | | | | | | | | | | |
| NOV 7..... | 1115 | 5.0 | 362 | 19 | 19 | | | | | | | | | | | | |
| NOV 22..... | 1000 | 4.0 | 496 | 36 | 48 | | | | | | | | | | | | |
| DEC 4..... | 1845 | 5.0 | 460 | 22 | 27 | | | | | | | | | | | | |
| DEC 17..... | 1320 | 3.0 | 415 | 51 | 57 | | | | | | | | | | | | |
| JAN 27, 1969 | 1250 | 5.0 | 341 | 20 | 18 | | | | | | | | | | | | |
| FEB 6..... | 1315 | 1.5 | 341 | 41 | 38 | | | | | | | | | | | | |
| FEB 20..... | 1430 | 3.0 | 290 | 11 | 9 | | | | | | | | | | | | |
| APR 8..... | 1645 | 11.0 | 279 | 7 | 5 | | | | | | | | | | | | |
| MAY 9..... | 1130 | 13.0 | 1230 | 108 | 359 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| MAY 21..... | 1700 | 16.5 | 1640 | 356 | 1580 | 11 | 14 | -- | -- | -- | 46 | 69 | 86 | 97 | 100 | -- | VPWC |
| JUN 5..... | 1800 | 17.0 | 1970 | 185 | 984 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| JUN 17..... | 1600 | 13.5 | 2010 | 148 | 803 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

| DATE | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|
| PART 7. LOWER MISSISSIPPI RIVER BASIN--Continued | | | | | | | | | |
| ARKANSAS RIVER BASIN--Continued | | | | | | | | | |
| 07119500 - APISHAPA RIVER NEAR FOWLER (LAT 38 05 28 LONG 103 58 52) | | | | | | | | | |
| JAN. 22... | .48 | 1020 | 1.39 | 57.8 | 620 | 448 | 1.3 | 1290 | 7.7 |
| APR. 22... | .01 | 2820 | 3.84 | 15.2 | 1710 | 1480 | 1.6 | 2860 | 7.8 |
| JULY 23... | .20 | 569 | .77 | 64.5 | 328 | 215 | 1.6 | 775 | 6.4 |
| 07122000 - ARKANSAS RIVER NEAR LAJUNTA (LAT 38 00 40 LONG 103 35 18) | | | | | | | | | |
| JAN. 14... | .00 | 1500 | 2.04 | 822 | 804 | 568 | 2.2 | 1800 | 7.4 |
| APR. 22... | .26 | 1970 | 2.68 | 777 | 1020 | 800 | 2.5 | 2250 | 7.8 |
| JULY 07... | .14 | 660 | .90 | 2140 | 376 | 242 | 1.2 | 875 | 7.5 |
| 07128500 - PURGATOIRE RIVER NEAR LAS ANIMAS (LAT 38 02 02 LONG 103 12 00) | | | | | | | | | |
| JAN. 14... | .01 | 2760 | 3.75 | 633 | 1360 | 1150 | 3.3 | 2900 | 8.0 |
| APR. 08... | .01 | 1620 | 2.20 | 140 | 776 | 635 | 2.7 | 1890 | 7.6 |
| JULY 07... | .09 | 1000 | 1.36 | 200 | 488 | 355 | 2.0 | 1250 | 7.5 |
| 07137500 - ARKANSAS RIVER NEAR COOLIDGE (LAT 38 01 34 LONG 102 00 41) | | | | | | | | | |
| JAN. 13... | .00 | 4050 | 5.51 | 1240 | 1670 | 1430 | 6.0 | 4270 | 7.9 |
| APR. 02... | .01 | 4180 | 5.68 | 1070 | 1720 | 1520 | 5.9 | 4440 | 7.7 |
| JULY 08... | .04 | 1700 | 2.31 | 1650 | 800 | 654 | 2.9 | 1990 | 7.9 |
| 28... | -- | -- | -- | -- | 915 | 735 | -- | -- | 8.3 |
| AUG. 04... | .00 | 3090 | 4.20 | 1070 | 1280 | 1080 | 5.3 | 3440 | 7.9 |
| SEPT. 15... | -- | -- | -- | -- | -- | 1210 | 5.8 | 3710 | 7.6 |
| 15... | -- | -- | -- | -- | -- | 1330 | 5.1 | 3710 | 7.8 |

MISCELLANEOUS ANALYSES OF STREAMS IN COLORADO--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

| DATE | DIS-CHARGE (CFS) | TEMP-ERATURE (DEG C) | SILICA (SIO2) (MG/L) | CAL-CIUM (CA) (MG/L) | MAG-NE-SIUM (MG) (MG/L) | SODIUM (NA) (MG/L) | PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | SULFATE (SO4) (MG/L) | CHLO-RIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| **PART 9. COLORADO RIVER BASIN** | | | | | | | | | | |
| 09070500 - COLORADO RIVER NEAR DOTSERO (LAT 39 38 40 LONG 107 04 40) | | | | | | | | | | |
| NOV. 07... | 929 | 13 | 7.5 | 63 | 12 | 30 | -- | 140 | 116 | 40 |
| MAR. 03... | 964 | 4 | 9.3 | 51 | 13 | 22 | -- | 123 | 83 | 29 |
| JUNE 02... | 4100 | 6 | -- | -- | -- | 8.8 | -- | 91 | 33 | 9.0 |
| AUG. 26... | 1290 | 14 | 8.4 | 49 | 12 | 22 | -- | 125 | 77 | 23 |
| 09105000 - PLATEAU CREEK NEAR CAMEO (LAT 39 11 00 LONG 108 16 10) | | | | | | | | | | |
| NOV. 19... | 102 | 1 | 28 | 55 | 38 | 68 | -- | 408 | 90 | 10 |
| MAR. 03... | 55 | 5 | 24 | 50 | 40 | 73 | -- | 386 | 115 | 11 |
| JUNE 05... | 168 | 22 | -- | -- | -- | 36 | -- | 255 | 55 | 4.0 |
| AUG. 27... | 95 | 18 | 29 | 44 | 48 | 80 | -- | 426 | 102 | 8.8 |
| 09149900 - UNCOMPAHGRE RIVER AT DELTA (LAT 38 44 30 LONG 108 04 50) | | | | | | | | | | |
| NOV. 15... | 198 | 4 | 13 | 250 | 106 | 212 | -- | 276 | 1250 | 23 |
| MAR. 05... | 103 | 7 | 12 | 228 | 112 | 227 | -- | 275 | 1270 | 26 |
| JUNE 06... | 479 | 15 | -- | -- | -- | 105 | -- | 226 | 635 | 14 |
| AUG. 29... | 265 | 17 | 19 | 253 | 79 | 178 | -- | 291 | 1080 | 20 |
| 09346400 - SAN JUAN RIVER NEAR CARRACAS (LAT 37 00 47 LONG 107 18 30) | | | | | | | | | | |
| JULY 08... | 852 | 15 | 17 | 17 | 3.1 | 6.7 | 1.3 | 60 | 18 | .8 |
| AUG. 04... | 800 | 19 | 18 | 22 | 4.6 | 9.7 | 2.2 | 82 | 30 | 1.2 |
| SEPT. 09... | 460 | 19 | 18 | 27 | 9.2 | 16 | 3.0 | 112 | 54 | 1.5 |
| 09349800 - PIEDRA RIVER NEAR ARBOLES (LAT 37 05 17 LONG 107 23 52) | | | | | | | | | | |
| JULY 08... | 322 | 15 | 14 | 25 | 3.3 | 7.9 | 1.6 | 76 | 29 | 1.2 |
| AUG. 04... | 300 | 20 | 15 | 28 | 4.0 | 8.4 | 2.1 | 87 | 30 | 1.2 |
| SEPT. 09... | 320 | 17 | 14 | 29 | 3.8 | 7.2 | 1.6 | 87 | 30 | 1.6 |
| 09354500 - LOS PINOS RIVER AT LA BOCA (LAT 37 00 40 LONG 107 35 55) | | | | | | | | | | |
| JULY 08... | 155 | 18 | 8.3 | 30 | 4.9 | 13 | 1.9 | 130 | 15 | 2.0 |
| AUG. 04... | 415 | 21 | 8.0 | 21 | 3.5 | 9.6 | 1.9 | 92 | 12 | 2.9 |
| SEPT. 11... | 278 | 16 | 7.6 | 24 | 3.9 | 9.3 | 1.8 | 100 | 12 | 6.8 |
| 09363500 - ANIMAS RIVER NEAR CEDAR HILL (LAT 37 02 15 LONG 107 52 25) | | | | | | | | | | |
| JULY 09... | 1580 | 16 | 5.7 | 36 | 4.9 | 7.2 | 1.2 | 79 | 50 | 5.2 |
| AUG. 04... | 720 | 23 | 8.4 | 53 | 9.2 | 15 | 3.0 | 134 | 78 | 10 |
| SEPT. 11... | 696 | 14 | 9.1 | 55 | 8.0 | 14 | 2.5 | 134 | 79 | 8.1 |

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

| DATE | FLUO-RIDE (F) (MG/L) | NITRATE (NO3) (MG/L) | ORTHO PHOS-PHATE (PO4) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | SODIUM AD-SORP-TION RATIO | SPECI-FIC COND-UCTANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PART 9. COLORADO RIVER BASIN--Continued | | | | | | | | | | | |
| 09070500 - COLORADO RIVER NEAR DOTSERO (LAT 39 38 40 LONG 107 04 40) | | | | | | | | | | | |
| NOV. | | | | | | | | | | | |
| 07... | -- | .3 | .02 | 345 | .47 | 865 | 208 | 93 | .9 | 555 | 7.6 |
| MAR. | | | | | | | | | | | |
| 03... | -- | .4 | .00 | 283 | .38 | 737 | 180 | 79 | .7 | 443 | 7.2 |
| JUNE | | | | | | | | | | | |
| 02... | -- | .3 | .00 | 168 | .23 | 1860 | 102 | 27 | .4 | 248 | 7.4 |
| AUG. | | | | | | | | | | | |
| 26... | -- | .4 | .01 | 266 | .36 | 926 | 171 | 68 | .7 | 428 | 7.2 |
| 09105000 - PLATEAU CREEK NEAR CAMEO (LAT 39 11 00 LONG 108 16 10) | | | | | | | | | | | |
| NOV. | | | | | | | | | | | |
| 19... | -- | 2.3 | .02 | 506 | .69 | 139 | 294 | 0 | 1.7 | 768 | 7.8 |
| MAR. | | | | | | | | | | | |
| 03... | -- | 4.0 | .15 | 508 | .69 | 75.4 | 290 | 0 | 1.9 | 783 | 8.1 |
| JUNE | | | | | | | | | | | |
| 05... | -- | .3 | .02 | 322 | .44 | 146 | 184 | 0 | 1.2 | 481 | 8.2 |
| AUG. | | | | | | | | | | | |
| 27... | -- | .4 | .02 | 517 | .70 | 133 | 308 | 0 | 2.0 | 797 | 7.3 |
| 09149900 - UNCOMPAHGRE RIVER AT DELTA (LAT 38 44 30 LONG 108 04 50) | | | | | | | | | | | |
| NOV. | | | | | | | | | | | |
| 15... | -- | 19 | .02 | 2110 | 2.87 | 1130 | 1060 | 834 | 2.8 | 2350 | 8.0 |
| MAR. | | | | | | | | | | | |
| 05... | -- | 17 | .00 | 2120 | 2.88 | 590 | 1030 | 804 | 3.1 | 2400 | 7.6 |
| JUNE | | | | | | | | | | | |
| 06... | -- | .4 | .16 | 1250 | 1.70 | 1620 | 680 | 495 | 1.8 | 1500 | 7.7 |
| AUG. | | | | | | | | | | | |
| 29... | -- | 18 | .04 | 1860 | 2.45 | 1330 | 955 | 716 | 2.5 | 2110 | 7.5 |
| 09346400 - SAN JUAN RIVER NEAR CARRACAS (LAT 37 00 47 LONG 107 18 30) | | | | | | | | | | | |
| JULY | | | | | | | | | | | |
| 08... | -- | .1 | -- | 75 | .10 | 173 | 50 | 1 | .4 | 140 | 7.3 |
| AUG. | | | | | | | | | | | |
| 04... | -- | .6 | -- | 122 | .17 | 264 | 73 | 6 | .5 | 180 | 8.1 |
| SEPT. | | | | | | | | | | | |
| 09... | .3 | .1 | -- | 180 | .24 | 224 | 101 | 9 | .7 | 314 | 7.8 |
| 09349800 - PIEDRA RIVER NEAR ARBDLES (LAT 37 05 17 LONG 107 23 52) | | | | | | | | | | | |
| JULY | | | | | | | | | | | |
| 08... | -- | .0 | -- | 106 | .14 | 92.2 | 73 | 11 | .4 | 187 | 7.5 |
| AUG. | | | | | | | | | | | |
| 04... | -- | .1 | -- | 122 | .17 | 98.8 | 86 | 15 | .4 | 201 | 8.0 |
| SEPT. | | | | | | | | | | | |
| 09... | .3 | .1 | -- | 140 | .19 | 121 | 85 | 14 | .3 | 214 | 7.4 |
| 09354500 - LDS PINDS RIVER AT LA BOCA (LAT 37 00 40 LONG 107 35 55) | | | | | | | | | | | |
| JULY | | | | | | | | | | | |
| 08... | -- | 1.3 | -- | 131 | .18 | 54.8 | 91 | 0 | .6 | 234 | 7.6 |
| AUG. | | | | | | | | | | | |
| 04... | -- | .9 | -- | 96 | .13 | 108 | 66 | 0 | .5 | 169 | 7.9 |
| SEPT. | | | | | | | | | | | |
| 11... | .3 | .1 | -- | 120 | .16 | 90.1 | 78 | 0 | .5 | 187 | 7.6 |
| 09363500 - ANIMAS RIVER NEAR CEDAR HILL (LAT 37 02 15 LONG 107 52 25) | | | | | | | | | | | |
| JULY | | | | | | | | | | | |
| 09... | -- | .5 | -- | 154 | .21 | 657 | 106 | 41 | .3 | 252 | 7.9 |
| AUG. | | | | | | | | | | | |
| 04... | -- | .9 | -- | 252 | .34 | 490 | 170 | 60 | .5 | 402 | 8.2 |
| SEPT. | | | | | | | | | | | |
| 11... | .5 | .6 | -- | 258 | .35 | 485 | 170 | 60 | .5 | 403 | 7.5 |

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