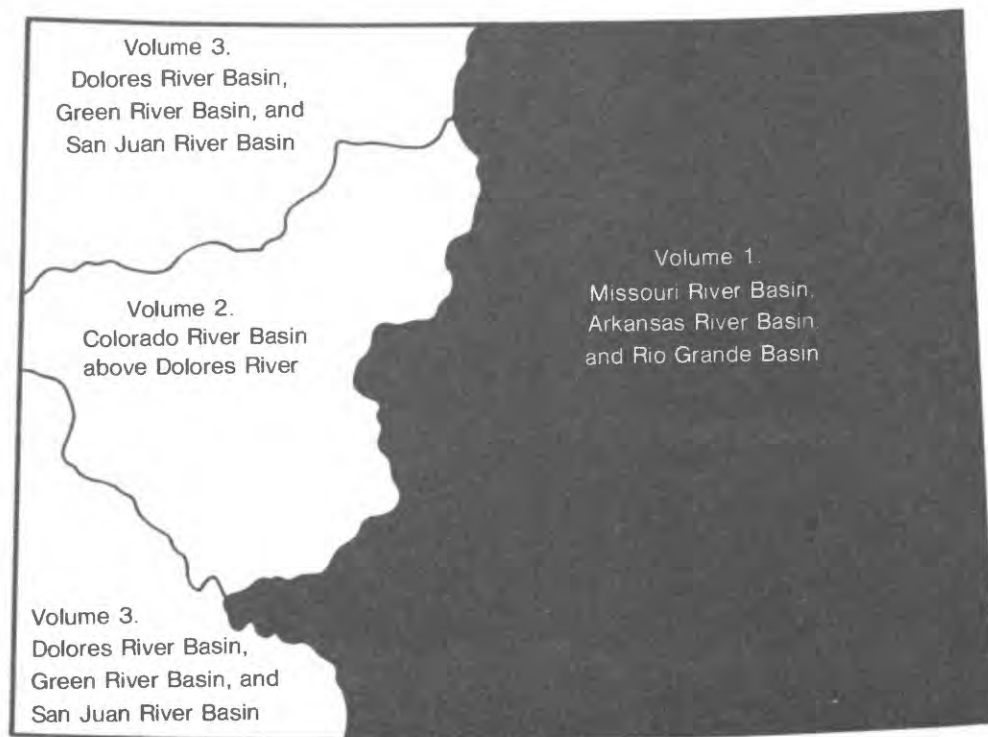


# Water Resources Data Colorado Water Year 1983

Volume 1. Missouri River Basin, Arkansas River Basin,  
and Rio Grande Basin



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CO-83-1  
Prepared in cooperation with the State of Colorado  
and with other agencies

# CALENDAR FOR WATER YEAR 1983

1982

## OCTOBER

S	M	T	W	T	F	S
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## NOVEMBER

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1983

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## AUGUST

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## SEPTEMBER

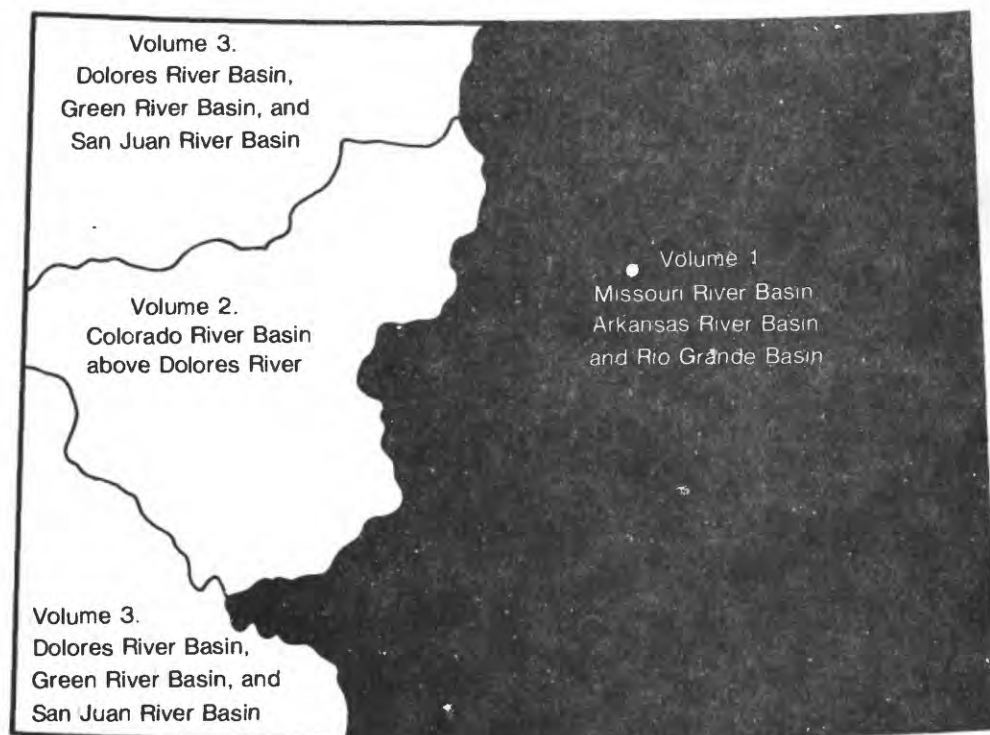
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30						



# Water Resources Data Colorado Water Year 1983

## Volume 1. Missouri River Basin, Arkansas River Basin, and Rio Grande Basin

by R.C. Ugland, J.T. Steinheimer, J.L. Blattner, and R.D. Steger



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CO-83-1  
Prepared in cooperation with the State of Colorado  
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

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Lakewood, CO 80225

1984

## PREFACE

This volume of the annual hydrologic data report of Colorado is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Colorado are contained in three volumes:

- Volume 1. Missouri River, Arkansas River, and Rio Grande  
          basins in Colorado,
- Volume 2. Colorado River Basin in Colorado, above the  
          Dolores River, and
- Volume 3. Dolores River, Green River, and San Juan River  
          basins in Colorado.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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## WATER RESOURCES DATA FOR COLORADO, 1983

### VOLUME 1: MISSOURI RIVER, ARKANSAS RIVER, AND RIO GRANDE BASINS

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By R.C. Ugland, J. T. Steinheimer, R. D. Steger, and J. L. Blattner

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#### INTRODUCTION

Water-resources data for the 1983 water year for Colorado consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of wells and springs. This report (volumes 1, 2, and 3) contains discharge records for 400 streamflow-gaging stations, stage and contents of 23 lakes and reservoirs, low-flow data for 6 partial-record stations, peak flow information for 19 crest-stage partial-record stations and 20 miscellaneous sites; water-quality data for 132 streamflow-gaging stations and 291 miscellaneous sites; and water levels for 55 observation wells. Locations of lake- and streamflow-gaging stations and water-quality stations are shown in figure 1, locations of crest-stage partial-record stations are shown in figure 2, and locations of observation wells are shown in figure 3. Six pertinent stations in bordering States also are included in this report. The records were collected and computed by the Colorado District. These data were collected by the U.S. Geological Survey and cooperating State and Federal agencies in Colorado and represent that part of the National Water Data System.

Records of discharge and stage of streams, and contents and stage of lakes and reservoirs are published in a series of U.S. Geological Survey Water-Supply Papers entitled, "Surface-water Supply of the United States." These water-supply papers were published in an annual series through September 30, 1960, and then in 5-year compilations for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1955 in an annual series of water-supply papers entitled "Water Levels and Artesian Pressures in Wells in the United States," and from 1955 to the present time, in a 5-year series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be purchased from Eastern Distribution Branch Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

For water years 1961 through 1970, streamflow data were released by the Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1971 water year, water data on streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report CO-83-1." These water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (303) 236-4882.



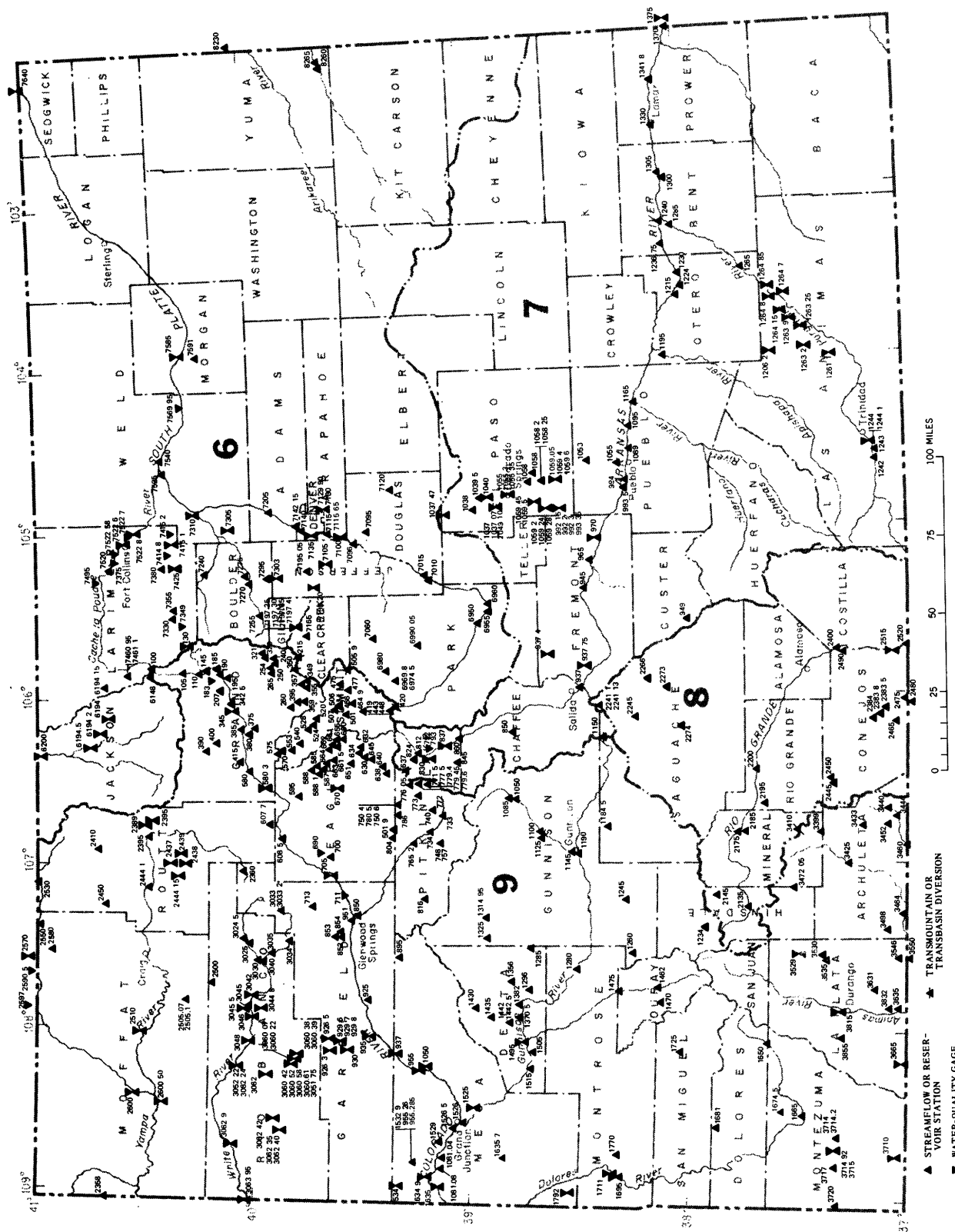


Figure 1.—Map showing locations of lakes and stream-gaging stations and water-quality stations in Colorado.

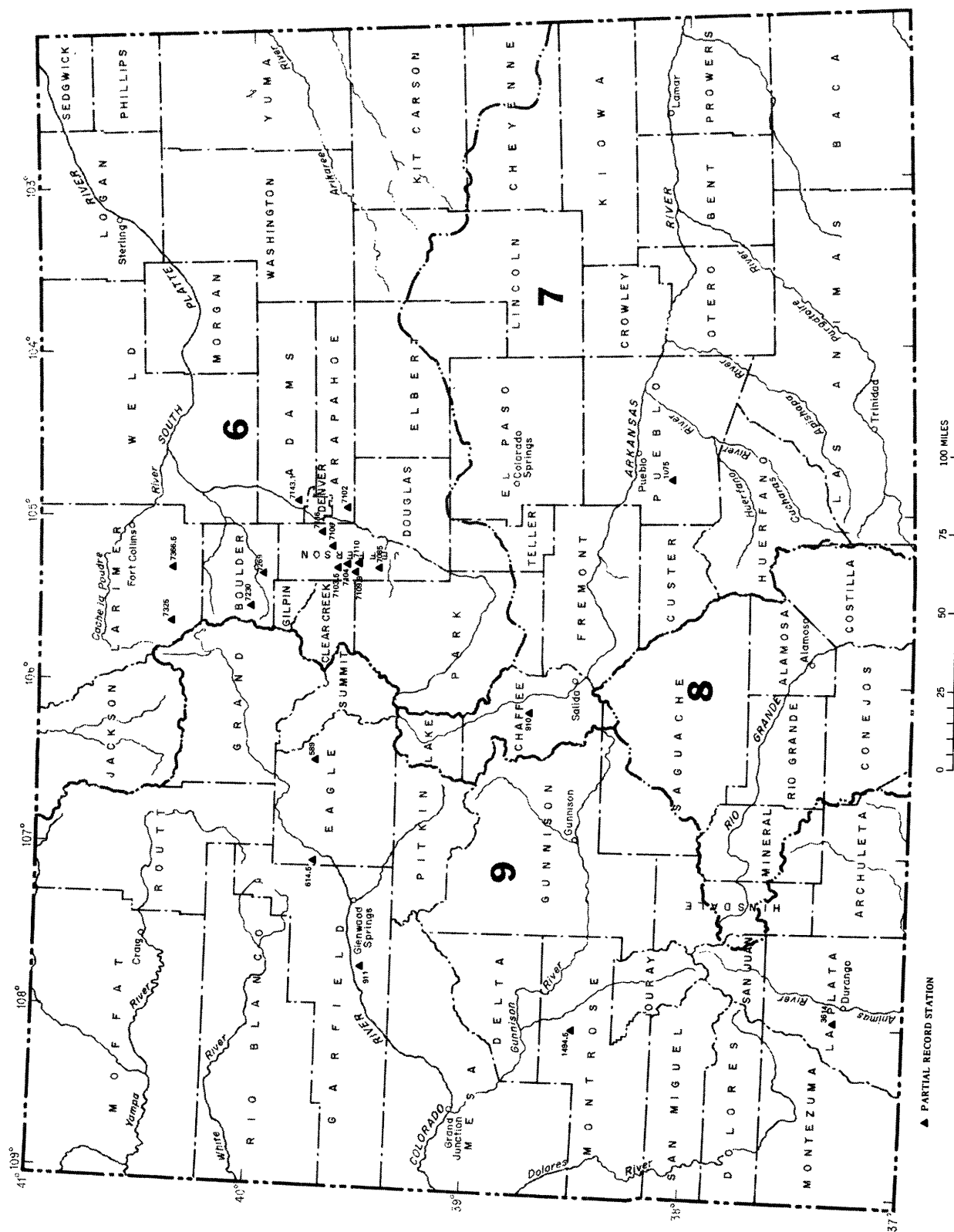


Figure 2.--Map showing locations of crest-stage partial-record stations in Colorado.

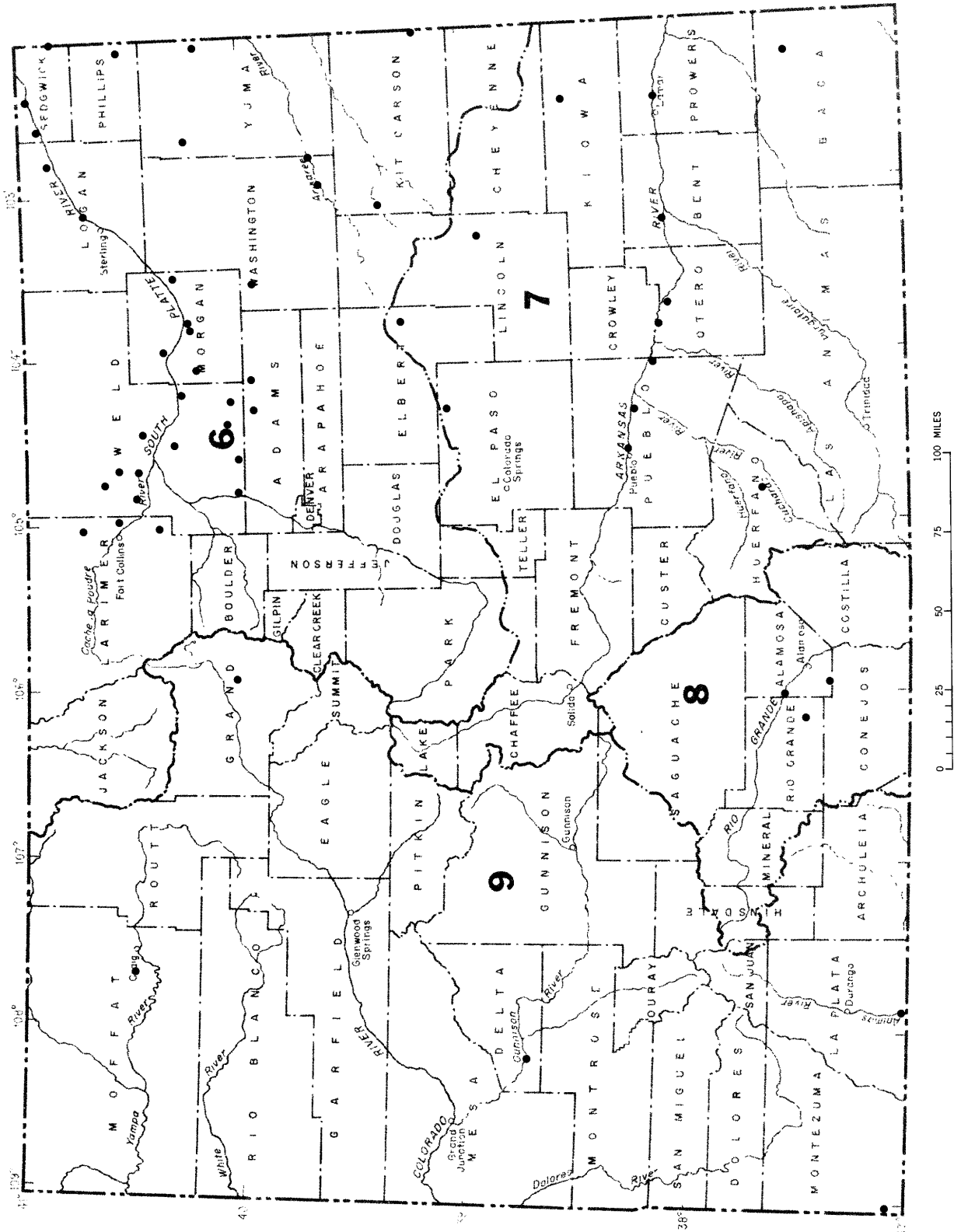


Figure 3.--Location of observation wells in Colorado.

## COOPERATION

The U.S. Geological Survey and organizations of the State of Colorado have had cooperative agreements for the systematic collection of surface-water records since 1895 and for water-quality records since 1941. Organizations that assisted in collecting data for this report through cooperative agreement with the Survey are:

Arkansas River Compact Administration, Frank G. Cooley, Chairman and Federal Representative.  
City and County of Denver, Board of Water Commissioners, M. A. Pugsley, President.  
City of Aspen, Wayne Chapman, City Manager.  
City of Aurora, Thomas Griswald, Manager of Planning and Resources.  
City of Colorado Springs, Department of Public Utilities, James D. Phillips, Director.  
City of Glenwood Springs, M. Flinn, Manager.  
City of Longmont, James Cinea, Water Superintendent.  
City of Northglenn, Thomas Ambalam, Director of Natural Resources.  
Colorado Department of Highways, Jack Kinstlinger, Executive Director.  
Colorado Division of Water Resources, J. A. Danielson, State Engineer.  
Colorado River Water Conservation District, Roland C. Fischer, Secretary-Engineer.  
Colorado Water Conservation Board, J. W. McDonald, Director.  
Copper Mountain Water and Sanitation District, William Caffery, District Manager.  
Denver Regional Council of Governments, Robert D. Farley, Executive Director.  
Eagle County Board of Commissioners, Eric Edeem, Environmental Health Officer.  
Grand County, R. Howard Moody, County Commissioner.  
Larimer-Weld Regional Council of Governments, T. L. Trembly, Project Manager.  
Metropolitan Denver Sewage Disposal District No. 1, Jack B. Enger, Manager.  
Mineral County, Nellie M. Wyley, Chairperson, Board of County Commissioners.  
Northern Colorado Water Conservation District, Larry Simpson, Manager.  
Pitkin County Board of County Commissioners, C. Stewart, County Manager.  
Pleasant View Water and Sanitation District, Jeff Isum, District Liaison Officer.  
Pueblo Civil Defense, Betty Jo Hopper, Director.  
Purgatoire River Water Conservancy District, C. Latuda, President.  
Southeastern Colorado Water Conservancy District, C. L. Thomson, General Manager.  
Southwestern Water Conservation District, Edward Searle, Manager.  
Uncompahgre Valley Water Users Association, James Herbit, Manager.  
Upper Yampa Water Conservancy District, J. Fetcher.  
Urban Drainage and Flood Control District, L. Scott Tucker, Executive Director.  
Yellow Jacket Water Conservancy District, F. G. Cooley, Secretary-Council.

Financial assistance was also provided by the U.S. Army, Corps of Engineers, U.S. Army; U.S. Air Force; Bureau of Indian Affairs, Bureau of Land Management, Bureau of Mines, Bureau of Reclamation, the National Park Service, and the U.S. Environmental Protection Agency. Organizations that supplied data are acknowledged in station descriptions.

## HYDROLOGIC CONDITIONS

Weather Overview of the State for the 1983 Water Year

Weather information and data for the five major drainage basins in Colorado were obtained from published reports of the National Weather Service. Average precipitation and departures from normal for the reference period of 1951-80 water years are shown on a cumulative basis for each one-half of the water year and for the entire water year are shown in table 1. During the first one-half of the water year, all basins received more than normal precipitation. During the last one-half of the water year, the Colorado River, the South Platte River, and the Rio Grande basins received greater-than-normal precipitation, whereas the Arkansas River and the Kansas River basins received less-than-normal precipitation. For the entire water year, all river basins except the Arkansas received greater-than-normal precipitation.

The 1983 water year continued the greater-than-normal precipitation pattern from the preceding year, which was 125 percent greater than normal. During October and November, 1982, precipitation ranged from 63 percent of normal in the Arkansas River basin to 134 percent of normal in the Yampa and White River basins. Above altitudes of 10,000 feet the snowpack was about 147 percent of normal. From December 1982 through February 1983, precipitation ranged from less than normal to near normal, causing a decrease in the snowpack. Forecasts for the spring runoff were for less than normal runoff.

March was the beginning of several months of unseasonably cold temperatures and greater-than-average precipitation. Precipitation for the State was about twice normal and totals in much of the South Platte River basin were more than four times normal.

April was wetter than normal, the wettest areas being along the Front Range and the Upper Colorado River Basin. Most areas received more than twice normal precipitation, and the mountain snowpack continued to increase throughout the State. Many low-altitude snow courses (near 8,000 feet) had near record maximums for April. Water content ranged from 200 to 900 percent of normal. Usually by April most of the snow below an altitude of 8,000 feet has melted, but air temperatures were 5°F to 7°F colder than normal, delaying the melting of the snowpack.

The first 3 weeks of May continued greater-than-normal precipitation and less-than-normal air-temperature patterns. Many precipitation stations received two to three times the normal precipitation. Berthoud Pass (on the Continental Divide between the Colorado River and Platte River basins) had 6.88 inches of precipitation, including 70 inches of new snow. Many high-altitude snowpacks increased where significant melting normally would have occurred. During May 23-28, air temperatures throughout much of the State were in the 80° to 90°F range and temperatures in the mountains were in the 60° to 70°F range. This caused a rapid snowmelt and many rivers were near flood stage in the Colorado River and Cache la Poudre River basins. Air temperatures cooled during May 29 to May 31, easing the threat of flooding.

Table 1.--Precipitation during 1983 water year and departures from normal, in inches

Drainage basin	October-March			April-September			1983 water year		
	Pre- cipi- ta- tion	Normal pre- cipi- ta- tion	Depar- ture from normal	Pre- cipi- ta- tion	Normal pre- cipi- ta- tion	Depar- ture from normal	Pre- cipi- ta- tion	Normal pre- cipi- ta- tion	Depar- ture from normal
Arkansas River-----	4.27	4.05	+0.22	9.27	10.27	-1.00	13.54	14.32	-0.78
Colorado River-----	8.23	7.61	+0.62	10.79	7.75	+3.04	19.02	15.36	+3.66
Kansas River-----	4.91	3.55	+1.36	12.67	12.79	-.12	17.58	16.34	+1.24
South Platte River--	5.77	4.26	+1.51	13.30	10.83	+2.47	19.07	15.09	+3.98
Rio Grande-----	4.77	4.53	+0.24	8.18	7.00	+1.18	12.95	11.53	+1.42

The first 2 weeks of June continued to be cooler than normal, with greater-than-normal precipitation lowering the snowline to 8,000 feet. From June 18 to June 23 a summer heat wave moved into the State and air temperatures in the mountains were in the 60° to 70°F range. Grand Junction, Fort Collins, and Greeley recorded 95°F temperatures. These high temperatures caused a rapid snowmelt, producing flooding in the Colorado River and Cache la Poudre River basins. Widespread thunderstorm activity during the period from June 24 to June 28 added to flooding conditions. During July, with the majority of the snowpack melted and fairly normal air temperatures, floodwaters receded and conditions returned to normal.

Precipitation during August was limited to widespread thunderstorms. Precipitation during September was sparse.

### Streamflow

The water year began with greater-than-normal streamflow in the Platte River, Arkansas River, and Rio Grande basins. Cold temperatures and a lack of precipitation caused a gradual decrease in runoff during the winter.

In June, rapid snowmelt in the mountains caused extensive flooding along the Cache la Poudre River in Fort Collins, and some minor flooding between Fort Collins and its confluence with the South Platte River near Greeley. Gaging station 06752000 Cache la Poudre at mouth of Canyon, near Fort Collins, during the period of record 1882 to 1983, this year recorded the fifth highest peak. The station 06752500 Cache la Poudre near Greeley (period of record 1915-19, 1925-83) established a new maximum peak discharge of 6,360 ft<sup>3</sup>/s compared with the old peak of 4,220 ft<sup>3</sup>/s in 1917. All gaging stations in the North Platte River basin in Colorado set new peaks of record. See table 2 for a summary of new peak discharges at selected gaging stations in the Platte River and Arkansas River basins.

The monthly and annual mean discharges for the 1983 water year are compared with the median discharge for the reference period of 1951-80 water years for three index streamflow-gaging stations in figure 4. Streamflow at gaging station 06710500 Bear Creek at Morrison remained above normal throughout the year. During October streamflow was 210 percent of normal; by February it decreased to 117 percent of normal. Streamflow increased during March and April, and by May was 434 percent of normal. By September, streamflow decreased to 267 percent of normal. The water year mean was 296 percent of normal, as compared to 105 percent during the 1982 water year.

Streamflow at gaging station 07094500 Arkansas River at Parkdale had a pattern similar to that at the Bear Creek station. During October, streamflow was 210 percent of normal decreasing to 53 percent of normal by May. Streamflow increased during June, and by July was 252 percent of normal; by September streamflow decreased to 121 percent of normal. The water year mean was 160 percent of normal as compared to 110 percent of normal during the 1982 water year.

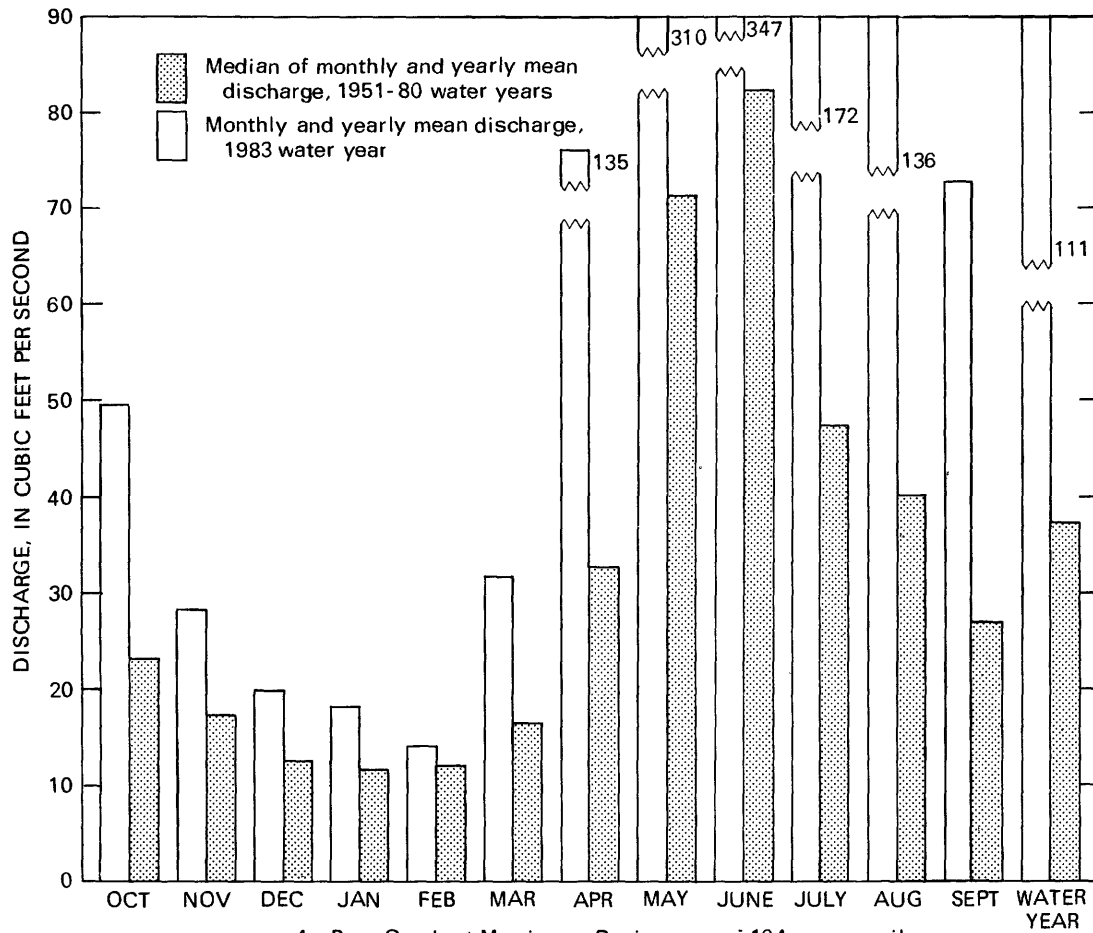
Table 2.--Summary of flood stage and discharge at gaging stations where new peak discharges for the period of record occurred during the 1983 water year

[mi<sup>2</sup>, square mile; ft, feet; ft<sup>3</sup>/s, cubic foot per second]

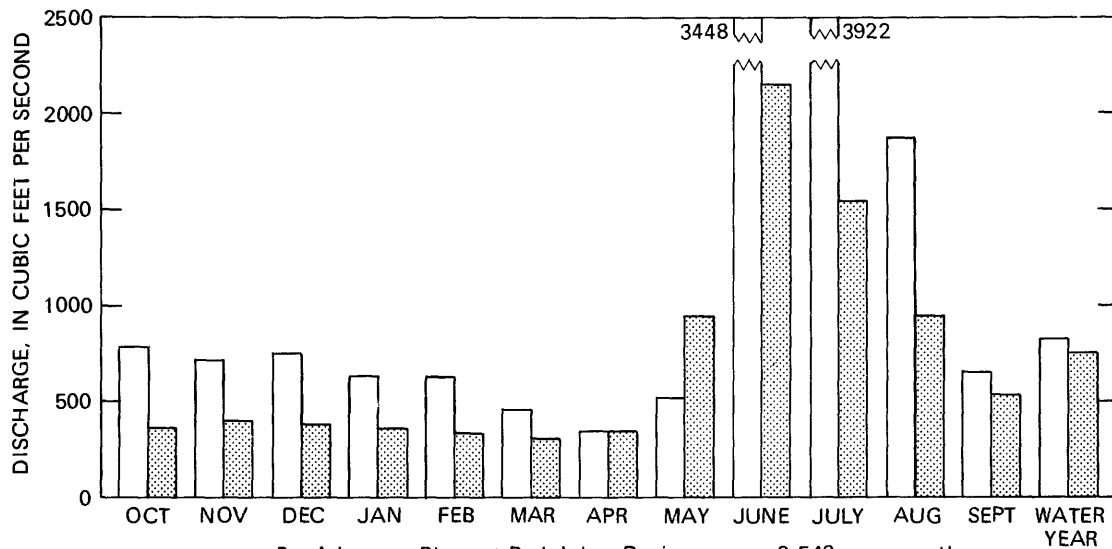
Station number	Station name	Drainage area (mi <sup>2</sup> )	Period of record	Maximum previously known			Maximum during 1983 water year		
				Date	Gage height (feet)	Discharge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)
06614800	Michigan River near Cameron Pass-----	1.53	1973-83	6-18-74	3.53	44	7-07	3.30	53
06619400	Canadian River near Lindland-----	44.0	1978-83	6-11-78	4.18	177	7-21	5.38	527
06619450	Canadian River near Brownlee-----	158	1978-83	4-23-80	4.29	352	6-28	5.13	644
06746095	Joe Wright Creek above Joe Wright Reservoir-----	3.01	1978-83	6-18-82	1.66	107	7-07	2.20	238
06752260	Cache la Poudre River at Fort Collins-----	1,127	1975-83	8-01-76	8.84	5,700	6-21	8.31	6,660
06752500	Cache la Poudre River near Greeley--	1,877	1903, 1904 1914-19, 1924-83	6-24, 26, 1917	-----	*4,220	6-14	8.92	6,360
07094500	Arkansas River at Parkdale-----	2,548	1945-55, 1964-83	6-22-47	9.02	5,880	6-26	7.76	6,310

\*Maximum daily discharge.





A. Bear Creek at Morrison. Drainage area 164 square miles (425 square kilometers)



B. Arkansas River at Parkdale. Drainage area 2,548 square miles (6,599 square kilometers)

Figure 4.--Discharge for 1983 water year compared with median discharge for 1951-80 water years at two representative streamflow-gaging stations.

Streamflow for gaging station 08220000 Rio Grande near Del Norte was 277 percent of normal during October decreasing to 65 percent of normal by April. By August, streamflow gradually increased to 190 percent of normal and decreased to 117 percent of normal by September. The water year mean was 129 percent of normal as compared to 123 percent of normal during the 1982 water year.

Yearly reservoir storage increased to 184,300 acre-ft in the Colorado-Big Thompson project and to 71,240 acre-ft in John Martin Reservoir. In general, storage in most other reservoirs increased during the water year.

#### Chemical Quality of Streamflow

The biggest factor affecting the chemical quality of the streamflow during the 1983 water year was the greater-than-normal streamflow in most streams. Because of these high flows, large concentrations of suspended sediment (as measured at station 06758500 South Platte River near Weldona (fig. 5A), and larger-than-normal total recoverable trace-metal concentrations were observed at many gaging stations. Dissolved trace-metal concentrations remained near normal.

A thick snowpack during the winter, followed by greater-than-normal precipitation during the spring, resulted in greater-than-normal runoff throughout the Arkansas River basin. These high flows generally resulted in smaller concentrations of most dissolved constituents in streamflow as a result of increased dilution of base flows. At the same time, larger concentrations of suspended sediment and constituents associated with suspended sediment were observed at most sites (fig. 5C, station 07106500 Fountain Creek at Pueblo).

As in the past, streamflow at all Cache la Poudre River and Big Thompson River stations contained large total-aluminum concentrations as well as trace amounts of mercury and small concentrations of silver. Pesticide sampling on the Cache la Poudre River indicated small amounts of diazinon and 2, 4-D were present; these pesticides also were detected during previous years.

Beginning in this water year four water-quality stations (06719725 Ralston Creek near Plainview, 06719730 Schwartzwalder Mine effluent near Plainview, 06719735 Ralston Creek below Schwartzwalder Mine near Plainview, and 06719740 Ralston Creek above Ralston Reservoir, near Golden) were established on Ralston Creek, northwest of Denver. Continuous monitoring of specific conductance, pH, water temperature, and dissolved oxygen is being done along with the collection of numerous samples for chemical analyses. Several samples containing more than 80 micrograms per liter of total uranium were collected at one of these stations during the 1983 water year. This situation will be closely monitored in the future.

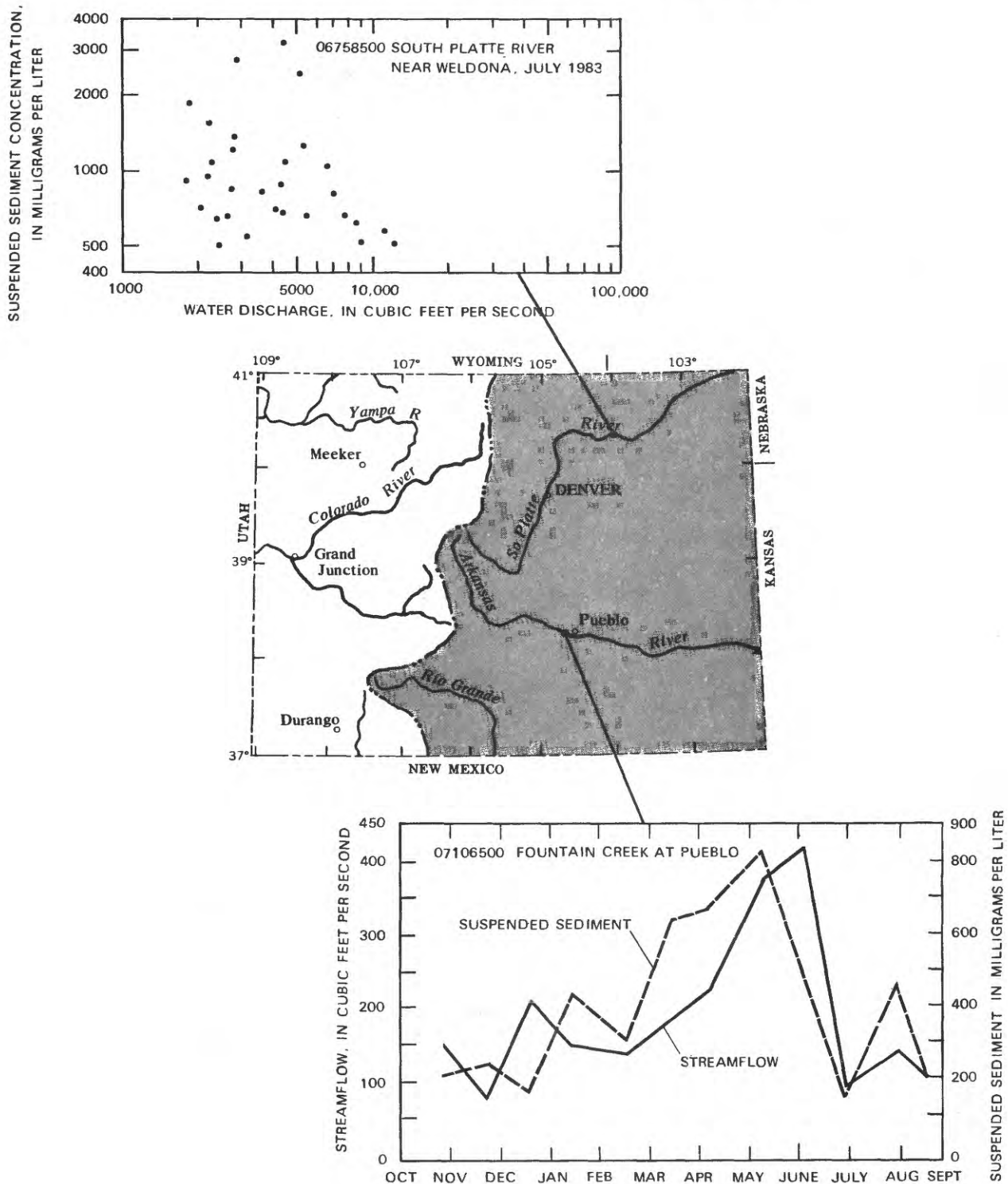


Figure 5A.--Suspended-sediment concentration versus water discharge at streamflow-gaging station 06758500 South Platte River near Weldona.  
 Figure 5B.--Location of streamflow-gaging stations 06758500 South Platte River near Weldona and 07106500 Fountain Creek at Pueblo.  
 Figure 5C.--Histogram of streamflow and suspended sediment at streamflow-gaging station 07106500 Fountain Creek at Pueblo.

### Ground Water

Water levels indicate the response of an aquifer to recharge and discharge. Recharge and discharge can be either natural or manmade. Water levels will rise when recharge is plentiful and discharge is small and will decline when recharge is small and discharge is large. Water levels also are used to help define hydrologic units and their water-supply potential.

The aquifer systems within the State can be grouped into two categories: unconsolidated aquifers and consolidated aquifers. The unconsolidated aquifers receive recharge from precipitation, return flow from irrigation, and leakage from canals and streams. Discharge of ground water may be by seepage to streams, seeps, or springs, by loss to evapotranspiration, or by withdrawal by wells. The consolidated aquifers receive recharge from precipitation and streams crossing outcrop areas. These aquifers primarily discharge water to springs and streams, although locally some discharge is by wells.

East of the Continental Divide, because of man's intensive use of ground water, the major fluctuations in water levels are declines caused by pumping wells. West of the Continental Divide, where withdrawals are small, water-level fluctuations reflect mostly changes in natural conditions.

Ground water is being mined from unconsolidated aquifers in the Northern High Plains and from consolidated aquifers in the Denver Basin. The aquifers in the alluvial valleys in eastern Colorado have been affected by both surface-water irrigation and ground-water pumpage. Most of the aquifers in western Colorado are still under natural conditions except where ground water is being pumped for the production and development of oil, gas, coal, and shale oil.

## DEFINITION OF TERMS

Terms related to streamflow, water quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting inch-pound units to International System of units (SI) on the inside of the back cover.

*Acre-foot* (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

*Algae* are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

*Algal-growth potential* (AGP) refers to the results of an algal assay test which determines the nutrients that are limiting to growth, as well as to quantify the biological response to changes in concentrations of algal growth-limiting nutrients. These measurements are made by inoculating a water samples with an algal test organism and evaluating its growth response to various additions of nutrients overtime. The water samples are spiked with .005 mg/L phosphorus and .075 mg/L nitrogen, and the algal growth potential results are reported in milligrams per liter.

*Aquifer* is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

*Bacteria* are microscopic unicellular organisms, typically spherical, rod like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

*Total coliform bacteria* are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C  $\pm$  1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

*Fecal coliform bacteria* are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C  $\pm$  0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

*Fecal streptococcal bacteria* are bacteria found also in the intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at  $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$  on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

*Bed material* is the unconsolidated material of which the bottom of a streambed, lake, pond, reservoir, or estuary is composed.

*Biochemical oxygen demand* (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter (mg/L), necessary for the decomposition of organic matter by microorganisms, such as bacteria.

*Biomass* is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

*Ash mass* is the mass of amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of  $500^{\circ}\text{C}$  for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ( $\text{g}/\text{m}^3$ ), and those for periphyton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ).

*Dry mass* refers to the mass of residue present after drying in an oven at  $60^{\circ}\text{C}$  for zooplankton and  $105^{\circ}\text{C}$  for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

*Organic mass* or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

*Wet mass* is the mass of living matter plus contained water.

*Bottom material:* See Bed material.

*Cells/volume* refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

*Cfs-day* is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters. It represents a runoff of approximately 0.0372 inch from 1 square mile, or 0.3468 millimeter from 1 square kilometer.

*Chemical oxygen demand* (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

*Chlorophyll* refers to the green pigments of plants. Chlorophyll *a* and *b* are the two most common pigments in plants.

*Contents* is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

*Control* designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

*Cubic foot per second* (cfs,  $\text{ft}^3/\text{s}$ ) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second, or 448.8 gallons per minute, or 0.02832 cubic meters per second.

*Discharge* is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

*Mean discharge* (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

*Instantaneous discharge* is the discharge at a particular instant of time.

*Dissolved* refers to that material in a representative water sample which passes through a 0.45  $\mu\text{m}$  membrane filter. This may include some very small (colloidal) suspended particles as well as the amount of substance present in true chemical solution. It is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

*Dissolved oxygen* (DO) is the dissolved-oxygen content of water in equilibrium with air and is a function of atmospheric pressure and temperature and dissolved-solids concentration of the water. The capacity of water for dissolved-oxygen decreases as dissolved solids or temperature increase or as atmospheric pressure decreases. Dissolved-solids concentration has the least effect on dissolved-oxygen concentration. Photosynthesis and respiration may cause diel variations in dissolved-oxygen concentration in water from some streams.

*Drainage area* of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

*Gage height* (G.H.) 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 hydrologic data 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 computed.

*Hardness* of water is the physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

*Micrograms per liter* (UG/L,  $\mu\text{g/L}$ ) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

*Milligrams per liter* (MG/L,  $\text{mg/L}$ ) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in  $\text{mg/L}$ , and is based on the mass of sediment per liter of water-sediment mixture.

*National Geodetic Vertical Datum of 1929* (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

*Partial-record station* is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

*Particle size* is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).



Table 3.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

Ion	Multi- ply by	Ion	Multi- ply by
Aluminum ( $\text{Al}^{+3}$ )*.....	0.11119	Iodide ( $\text{I}^{-1}$ ).....	0.00788
Ammonia as N.....	.07139	Iron ( $\text{Fe}^{+3}$ )*.....	.05372
Barium ( $\text{Ba}^{+2}$ ).....	.01456	Lead ( $\text{Pb}^{+2}$ )*.....	.00965
Bicarbonate ( $\text{HCO}_3^{-1}$ )...	.01639	Lithium ( $\text{Li}^{+1}$ )*.....	.14411
Bromide ( $\text{Br}^{-1}$ ).....	.01251	Magnesium ( $\text{Mg}^{+2}$ ).....	.08226
Calcium ( $\text{Ca}^{+2}$ ).....	.04990	Manganese ( $\text{Mn}^{+2}$ )*.....	.03640
Carbonate ( $\text{CO}_3^{-2}$ ).....	.03333	Nickel ( $\text{Ni}^{+2}$ )*.....	.03406
Chloride ( $\text{Cl}^{-1}$ ).....	.02821	Nitrate as N.....	.07139
Chromium ( $\text{Cr}^{+6}$ )*.....	.11539	Nitrite as N.....	.07139
Cobalt ( $\text{Co}^{+2}$ )*.....	.03394	Phosphate,ortho as P.....	.09686
Copper ( $\text{Cu}^{+2}$ )*.....	.03148	Potassium ( $\text{K}^{+1}$ ).....	.02557
Cyanide ( $\text{CN}^{-1}$ ).....	.03844	Sodium ( $\text{Na}^{+1}$ ).....	.04350
Fluoride ( $\text{F}^{-1}$ ).....	.05264	Strontium ( $\text{Sr}^{+2}$ )*.....	.02283
Hydrogen ( $\text{H}^{+1}$ ).....	.99209	Sulfate ( $\text{SO}_4^{-2}$ ).....	.02082
Hydroxide ( $\text{OH}^{-1}$ ).....	.05880	Zinc ( $\text{Zn}^{+2}$ )*.....	.03060

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

Table 4.--Factors for conversion of sediment concentration  
in milligrams per liter to parts per million\*

[All values calculated to three significant figures]

Range of concentration in 1000 mg/L	Di- vide by	Range of concentration in 1000 mg/L	Di- vide by	Range of concentration in 1000 mg/L	Di- vide by	Range of concentration in 1000 mg/L	Di- vide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

\*Based on water density of 1.000 g/mL and a specific gravity of sediment of 2.65.

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

*Periphyton* is the assemblage of microorganisms attached to, and growing upon, solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

*Pesticide network* is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

*Pesticides* are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

*Phytoplankton* is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

*Blue-green algae* are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

*Diatoms* are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per mL of sample.

*Green algae* have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per mL of sample.

*Picocurie* (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 disintegrations per minute (dpm).

*Polychlorinated biphenyls* (PCB's) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

*Radiochemical network* is a network of regularly sampled water-quality stations where samples are collected monthly or twice a year (at high and low flow) to be

analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

*Radioisotopes* are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus. For example: Ordinary chlorine is a mixture of isotopes having atomic weights 35 and 37, with the natural mixture having atomic weight about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron (Rose and Rose, 1966). There are 275 isotopes of the 81 stable elements in addition to over 800 radioactive isotopes.

Radioisotopes that are determined in this program are natural uranium in  $\mu\text{g/L}$  (micrograms per liter), radium as radium-226 in PC/L (pCi/L, picocuries per liter), gross beta radiation as equivalent strontium/yttrium-90 or cesium-137 in PC/L, and gross alpha radiation as micrograms of uranium equivalent per liter ( $\mu\text{g/L}$ ). Gross alpha and beta radioactivity associated with the fine-grained (silt and clay-sized) sediments in the samples are also determined.

*Recoverable from bottom material* the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

*Sediment* is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

*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.

*Suspended-sediment concentration* is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft (0.09 m) above the bed) expressed as milligrams of dry sediments per liter of water-sediment mixture ( $\text{mg/L}$ ).

*Suspended-sediment discharge* (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge in cfs times concentration in  $\text{mg/L}$  times 0.0027.

*Suspended-sediment load* is that quantity of suspended sediment passing a section in a specified period.

*Total sediment discharge* or *total sediment load* is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

*Mean concentration* is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

*Sodium adsorption ratio* (SAR) is the expression of relative activity of sodium ions in exchange reactions 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.

*Solute* is any substance derived from the atmosphere, vegetation, soil, or rocks and is dissolved in water.

*Specific conductance* is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the number and specific chemical types of ions in solution and can be used for approximating the dissolved-solids content in the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream or from well to well, and it may vary in the same source with changes in the composition of the water.

*Stage-discharge relation* is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

*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" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

*Suspended, recoverable* the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45  $\mu\text{m}$  membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) *dissolved* and (2) *total recoverable* concentrations of the constituent.

*Suspended, total* the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45  $\mu$ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) *dissolved* and (2) *total* concentrations of the constituent.

*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 mass 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.

*Total* the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

*Total in bottom material* the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

*Total, recoverable* the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and

suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

*Water year* in the U.S. Geological Survey 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, 1981, is called the "1981 water year."

*Weighted average* is used in this report to indicate the 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.

*WRD* is an abbreviation for "Water-Data Report" in the summary REVISIONS paragraph to refer to State annual basic-data reports published prior to 1975.

*WDR* is used as an abbreviation for "Water-Resources Data" in the summary REVISIONS paragraph to refer to State annual basic-data reports published after 1975.

*WSP* is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

*Zooplankton* is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

#### DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of gaging stations in the front of this report the rank of tributaries is indicated by indentation, each indentation representing one rank.

As an added means of identification, each gaging station and each partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging

stations or partial-record stations have the same number as the gaging or partial-record station.

Gaps are left in the sequential allocation of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 07083000, which appears just to the left of the station name, includes the 2-digit part number "07" plus the 6-digit downstream order number "083000." In this report the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are for Part 6 (Missouri River basin), Part 7 (Lower Mississippi River basin), and Part 8 (Western Gulf of Mexico basins). Records for Part 9 (Colorado River Basin) are in Volumes 2 and 3. All records for a drainage basin encompassing more than one State can be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

### SPECIAL NETWORKS AND PROGRAMS

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."

*National stream-quality accounting network (NASQAN)* is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are: (1) To depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis, and (2) to detect and assess long-term changes in streamflow and stream quality.



## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and Computation of Data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at 5-, 15-, 30- or 60-minute intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the U.S. Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6. Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods. The configuration of the reservoir bottom is determined by sounding at many points.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by hydrologists and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated on the basis of operator's log, adjoining good record, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Records are published for the water year, which begins on October 1 and ends on September 30. A calendar for the current water year is shown on the inside of the front cover to facilitate finding the day of the week for any date.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are affected by the revisions, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given.

The type of gage currently in use, the datum of the present gage above mean sea level, referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified. National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS."

Information pertaining to the accuracy of the discharge records, to conditions which affect the natural flow of the gaging station, availability of water-quality records, and reservoir stations information on the dam forming the reservoir, the

capacity, outlet works and spillway, and purpose and use of the reservoir, is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE;" it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance.

The maximum discharge (or contents) and the maximum gage height, the minimum discharge if there is little or no regulation (or minimum contents), and the minimum gage height, if it is significant, are given under "EXTREMES." The minimum daily discharge is given if there is extensive regulation (also the minimum discharge and gage height if they are abnormally low). Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second ( $\text{ft}^3/\text{s}$ ) during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in acre-feet (line headed "AC-FT"). In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations and at miscellaneous sites follow the information for continuous record sites. Data for partial-record discharge stations are presented in three tables. The first is a table of discharge measurements at low-flow partial-record stations, the second is a table of annual maximum stage and discharge at crest-stage stations, and the third is a table of discharge measurements at miscellaneous sites.

#### Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good" means within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second ( $\text{ft}^3/\text{s}$ ) for discharges of less than  $1 \text{ ft}^3/\text{s}$ ; to tenths between  $1.0$  and  $10 \text{ ft}^3/\text{s}$ ; to whole numbers between  $10$  and  $1,000 \text{ ft}^3/\text{s}$ ; and to 3 significant figures above  $1,000 \text{ ft}^3/\text{s}$ . The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. However, because all the effects cannot be measured or evaluated, satisfactory adjustments generally cannot be made. For some stations, available figures of diversions or change in contents of reservoirs are included as supplemental data. Even at those stations where adjustments can be made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

#### Other Data Available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of Discharge Collected by Agencies  
other than the Geological Survey

Records of discharge not published by the Geological Survey were collected at many sites in Colorado during the water year by the following agencies: City of Colorado Springs; Colorado Division of Water Resources; Forest Service, U.S. Department of Agriculture; City and County of Denver, Board of Water Commissioners; National Weather Service, Department of Commerce; and the Bureau of Reclamation.

Access to WATSTORE DATA

The National Water Data STorage and Retrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist  
U.S. Geological Survey  
437 National Center  
Reston, VA 22092

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Water samples for analyses usually are collected at or near streamflow-gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data, the period of daily record for parameters that are measured on a daily basis (such as, specific conductance, pH, dissolved oxygen, water temperature, sediment discharge), extremes for the period of daily record, extremes for current year, and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling, or other pertinent data are given in the table containing the chemical analyses of the ground water.

### Water Analysis

Most methods for collecting and analyzing water samples are described in "U.S. Geological Survey Techniques of Water-Resources Investigations," which are listed on page 39.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling, as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field determination of carbonate and bicarbonate in the laboratory.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the Geological Survey began reporting data for chemical constituents and concentrations of suspended sediment in milligrams per liter (mg/L) and water temperatures in degrees Celsius (°C). In waters with a density of 1.000 grams per milliliter (g/mL), parts per million and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/mL, values in parts per million should be multiplied by the density to convert to milligrams per liter. Temperature reported in degrees Celsius may be converted to degrees Fahrenheit by using table 3.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

REVISIONS--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to ensure the most recent updates.

Water Temperatures

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for surface-water stations. For stations where water temperatures are taken manually the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges. At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Table 5.--Degrees Celsius (°C) to degrees Fahrenheit (°F)\*  
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

\*°C=5/9(°F-32°) or °F=9/5(°C)+32°.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. See "Definition of Terms," and table 5 for converting English units to SI units.

The biological information includes qualitative and quantitative analyses of plankton, periphyton, Chlorophyll a and b, biomass and bottom organisms. Microbiological information includes quantitative identification of selected bacteriological indicator organisms.

### Solutes

Most methods for collecting and analyzing water samples to determine the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). Analysis of pesticides and organic substances in water are described by Goerlitz and Lamar (1967), Lamar, Goerlitz, and Law (1965), and Goerlitz and Brown (1972). The collection and analysis of aquatic, biological, and microbiological samples are described by Slack and others (1973).

### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. A blank in the daily mean concentration column of the suspended-sediment discharge table indicates the value in the sediment discharge column was estimated. A zero value in the sediment-discharge column when there are nonzero values in the mean discharge and mean concentration columns indicates the load is less than 0.005 ton per day.

At other stations, suspended-sediment samples were collected periodically 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 in predicting long-term sediment-discharge characteristics of the streams.

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



## WATER-SUPPLY PAPERS

The annual series of Water-Supply Papers that give information on quality of surface waters in Colorado are shown in the following table:

Table 6.--Water-Supply Paper numbers and parts,  
water years 1941-71

Year	Part 6	Part 7	Part 8	Part 9	Irrigation (1951-65) <sup>1</sup>
1941	942	942	942	942	----
1942	950	950	950	950	----
1943	970	970	970	970	----
1944	1022	1022	1022	1022	----
1945	1030	1030	1030	1030	----
1946	1050	1050	1050	1050	----
1947	1102	1102	1102	1102	----
1948	1132	1133	1133	1133	----
1949	1162	1163	1163	1163	----
1950	1187	1188	1188	1189	----
1951	1198	1199	1199	1200	1264
1952	1251	1252	1252	1253	1362
1953	1291	1292	1292	1293	1380
1954	1351	1352	1352	1353	1430
1955	1401	1402	1402	1403	1465
1956	1451	1452	1452	1453	1485
1957	1521	1522	1522	1523	1524
1958	1572	1573	1573	1574	1575
1959	1643	1644	1644	1645	1699
1960	1743	1744	1744	1745	1746
1961	1883	1884	1884	1885	1886
1962	1943	1944	1944	1945	1946
1963	1949	1950	1950	1951	1952
1964	1956	1957	1957	1958	1960
1965	1963	1964	1964	1965	1967
1966	1993	1994	1994	1995	----
1967	2013	2014	2014	2015	----
1968	2095	2096	2097	2098	----
1969	2145	2146	2147	2148	----
1970	2155	2156	2157	2158	----
1971	2165	<sup>2</sup> 2166	<sup>2</sup> 2167	<sup>2</sup> 2168	----

<sup>1</sup>Annual series, "Quality of Surface Waters for Irrigation, Western States."

<sup>2</sup>In preparation.

Information about reports and other data on quality of water in Colorado may be obtained from the district office at the address given on the back of the title page of this report.

## EXPLANATION OF GROUND-WATER-LEVEL RECORDS

### Collection of Data

Only ground-water level data from a basic national network of observation wells are published herein. These water-level measurements are intended to provide a record of water-level changes in important aquifers.

The locations of wells are referenced by two systems. One system is based on latitude and longitude, and the second is based on the U.S. Bureau of Land Management system of land subdivision. The latitude and longitude grid system facilitates machine processing of data and plotting of data points.

The latitude and longitude grid system is used to provide the geographic location of each well. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude; N designates north; the next seven digits denote degrees, minutes, and seconds of longitude; and the last two digits are sequential numbers for wells within a 1-second grid, as shown below in figure 6.

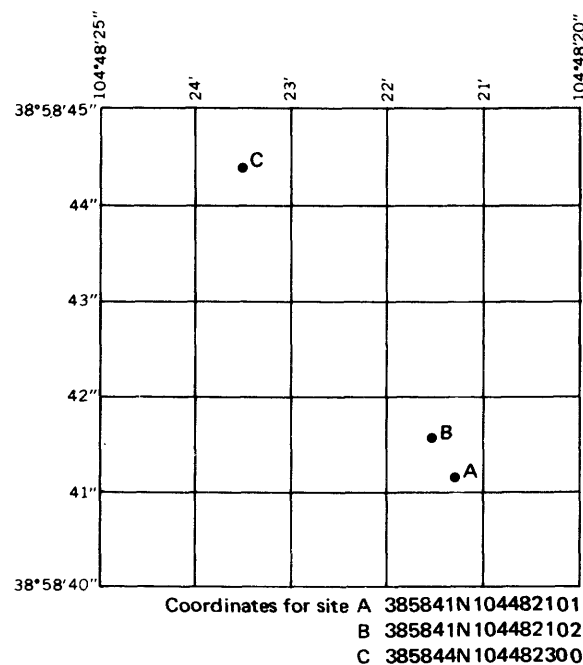


Figure 6.--System for numbering wells and miscellaneous sites (latitude and longitude).

The local well number locates a well within a 10-acre (4.0-ha) tract using the U.S. Bureau of Land Management system of land subdivision. The components of the local well number proceed from the largest to the smallest land subdivisions. This is in contrast to the legal description, which proceeds from the smallest to the largest land subdivision. The largest subdivision is the survey. Colorado is governed by three surveys: The Sixth Principal Meridian Survey (S), the New Mexico Survey (N), and the Ute Survey (U). Costilla County was not included in any of the above official surveys. This report follows the convention of the Costilla County Assessor in which the northern part of the county is governed by the Sixth Principal Meridian Survey and the southern part of the county is governed by a local system called the Costilla Survey (C). The first letter of the well location designates the survey.

A survey is subdivided into four quadrants formed by the intersection of the baseline and the principal meridian. The second letter of the well location designates the quadrant: A indicates the northeast quadrant, B the northwest, C the southwest, and D the southeast. A quadrant is subdivided in the north-south direction every 6 mi (10 km) by townships and is subdivided in the east-west direction every 6 mi (10 km) by ranges. The first number of the well location designates the township and the second number designates the range.

The 36-mi<sup>2</sup> (93-km<sup>2</sup>) area described by the township and range designation is subdivided into 1-mi<sup>2</sup> (2.59-km<sup>2</sup>) areas called sections. The sections are numbered sequentially. The third number of the well location designates the section. The section, which contains 640 acres (259 ha), is subdivided into quarter sections. The 160-acre (64.8-ha) area is designated by the first letter following the section: A indicates the northeast quarter, B the northwest, C the southwest, and D the southeast. The quarter section is subdivided into quarter-quarter sections. The 40-acre (16.2-ha) area is designated in the same manner by the second letter following the section. The quarter-quarter section is subdivided into quarter-quarter-quarter sections. The 10-acre (4.0-ha) area is designated in the same manner by the third letter following the section. If more than one well is located within the 10-acre (4.0-ha) tract, the wells are numbered sequentially in the order in which they were originally inventoried. If this number is necessary, it will follow the three-letter designation.

The local number is provided for continuity with older reports.

Measurements are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well insure that measurements at each well are of consistent accuracy and reliability.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several

hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

### Publications

Publication of ground-water level data for the United States in water-supply papers was begun by the Geological Survey in 1935. From 1935 through 1939, a single water-supply paper covering the entire nation was issued each year (Water-Supply Papers 777, 817, 840, 845, and 886). From 1940 through 1974, separate water-supply papers were issued for six sections of the United States. Water-level data for Colorado are included in the water-supply papers listed below, each report containing one or more calendar years (January through December) of data. Data in this report are for the 12-month water year ending September 30.

Calendar year	WSP no.	Calendar year	WSP no.	Calendar year	WSP no.	Calendar year	WSP no.
1940	910	1945	1027	1950	1169	1955	1408
1941	940	1946	1075	1951	1195	1956-60	1760
1942	948	1947	1100	1952	1225	1961-65	1845
1943	990	1948	1130	1953	1269	1966-70	1980
1944	1020	1949	1160	1954	1325		

Information about reports and other data on ground water in Colorado may be obtained from the district office at the address given on the back of the title page of this report.

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NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

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- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.



## HYDROLOGIC-DATA STATION RECORDS

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## PLATTE RIVER BASIN

06614800 MICHIGAN RIVER NEAR CAMERON PASS, CO

LOCATION.--Lat 40 29'46", long 105 51'52", in S $\frac{1}{2}$  sec.12, T.6 N., R.76 W. (unsurveyed), Jackson County, Hydrologic Unit 10180001, on right bank 500 ft upstream from Michigan ditch, 2.2 mi southeast of Cameron Pass, 8 mi east of Gould, and 27 mi southeast of Walden.

DRAINAGE AREA.--1.53 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 10,390 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. No diversion above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 2.99 ft<sup>3</sup>/s; 2,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53 ft<sup>3</sup>/s July 7, 1983, gage height, 3.30 ft; maximum gage height, 3.53 ft, June 18, 1974; minimum daily discharge, 0.12 ft<sup>3</sup>/s Jan. 12, 13, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53 ft<sup>3</sup>/s at 1630 July 7, gage height, 3.30 ft; maximum gage height, 3.36 ft, at 1730 June 21 (shifting control); minimum daily discharge, 0.29 ft<sup>3</sup>/s Apr. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	1.1	.65	.53	.41	.36	.37	.37	2.9	31	12	2.1
2	3.4	1.1	.65	.51	.41	.36	.37	.37	3.0	32	11	1.9
3	3.2	1.1	.55	.49	.41	.36	.37	.37	3.7	33	10	2.1
4	3.0	1.0	.47	.49	.41	.36	.37	.38	4.6	31	11	3.8
5	2.8	1.0	.61	.44	.41	.36	.37	.41	4.4	32	13	2.7
6	2.7	.95	.65	.41	.39	.36	.37	.41	4.0	33	13	2.3
7	2.5	.91	.61	.41	.37	.36	.37	.41	4.2	38	10	2.0
8	2.3	.86	.57	.41	.36	.36	.37	.41	5.0	31	9.2	2.0
9	2.0	.86	.57	.41	.36	.36	.41	.57	6.0	37	8.5	1.9
10	2.6	.86	.57	.41	.36	.36	.41	.89	7.3	38	7.8	1.7
11	2.6	.86	.57	.41	.36	.36	.37	1.0	10	33	7.5	1.6
12	2.3	.86	.57	.43	.36	.36	.37	.94	11	28	7.4	1.5
13	2.2	.86	.57	.45	.36	.36	.37	.76	9.2	27	6.7	1.4
14	1.9	.86	.57	.45	.36	.36	.37	.65	8.2	26	6.8	1.5
15	1.9	.86	.57	.45	.36	.36	.33	.61	8.8	24	7.5	1.4
16	1.9	.86	.57	.45	.36	.36	.33	.61	10	23	7.8	1.3
17	1.8	.86	.57	.45	.36	.36	.33	.61	13	21	6.6	1.2
18	1.8	.90	.57	.45	.36	.36	.33	.61	17	20	6.1	1.1
19	1.7	.96	.57	.45	.36	.36	.33	.61	22	20	6.3	1.3
20	1.6	.97	.57	.45	.36	.36	.31	.61	30	17	5.8	1.2
21	1.5	1.0	.57	.41	.36	.36	.29	.61	34	22	4.9	1.1
22	1.3	.86	.57	.41	.36	.36	.29	.68	31	22	4.2	1.1
23	1.3	.86	.55	.41	.36	.36	.29	.87	26	23	3.7	1.1
24	1.3	.86	.49	.41	.36	.36	.32	1.6	28	19	3.8	1.0
25	1.3	.86	.49	.41	.36	.37	.37	1.9	30	16	3.9	1.0
26	1.3	.84	.51	.41	.36	.37	.37	2.2	27	17	3.4	.97
27	1.3	.79	.53	.41	.36	.37	.37	2.8	27	17	3.2	.93
28	.85	.79	.53	.41	.36	.37	.37	3.3	30	16	2.9	.91
29	.44	.79	.53	.41	---	.37	.37	3.4	28	13	2.7	.86
30	.66	.72	.53	.41	---	.37	.37	3.3	30	12	2.6	.86
31	1.1	---	.53	.41	---	.37	---	2.8	---	12	2.3	---
TOTAL	60.05	26.96	17.43	13.46	10.37	11.23	10.63	35.06	475.3	764	211.6	45.83
MEAN	1.94	.90	.56	.43	.37	.36	.35	1.13	15.8	24.6	6.83	1.53
MAX	3.5	1.1	.65	.53	.41	.37	.41	3.4	34	38	13	3.8
MIN	.44	.72	.47	.41	.36	.36	.29	.37	2.9	12	2.3	.86
AC-FT	119	53	35	27	21	22	21	70	943	1520	420	91

CAL YR 1982 TOTAL 1246.45 MEAN 3.41 MAX 27 MIN .18 AC-FT 2470  
WTR YR 1983 TOTAL 1681.92 MEAN 4.61 MAX 38 MIN .29 AC-FT 3340

NOTE.--NO GAGE-HEIGHT RECORD FEB. 6 TO MAR. 24.

## PLATTE RIVER BASIN

06619400 CANADIAN RIVER NEAR LINDLAND, CO

LOCATION.--Lat 40°41'43", long°106 03'56", in NE¼NE¼ sec.6, T.8 N., R.77 W., Jackson County, Hydrologic Unit 10180001, on right bank 1.1 mi below mouth of Muddy Creek, 8.3 mi north of Lindland, and 12 mi east of Walden.

DRAINAGE AREA.--44.0 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1978 to September 1983, (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 8,150 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by numerous diversions for irrigation of hay meadows and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 527 ft<sup>3</sup>/s July 21, 1983, gage height, 5.38 ft; minimum daily, 2.7 ft<sup>3</sup>/s Feb. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 527 ft<sup>3</sup>/s at 2100 July 21, gage height, 5.38 ft; minimum daily, 5.0 ft<sup>3</sup>/s Feb. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	9.0	7.0	6.0	6.0	7.6	27	165	212	120	24
2	18	14	9.0	7.0	6.0	6.8	7.6	28	187	196	124	22
3	17	12	9.0	7.0	6.0	7.2	7.6	34	127	236	125	22
4	15	12	9.0	7.0	5.0	7.6	7.6	41	130	192	102	26
5	14	12	9.0	7.0	5.4	7.6	7.0	74	143	168	95	24
6	14	12	9.0	7.0	6.0	7.6	8.0	82	127	160	103	21
7	14	12	9.0	7.0	6.0	7.6	8.2	105	144	163	87	19
8	14	12	9.0	6.8	6.0	7.6	8.8	142	131	212	79	19
9	16	12	9.0	6.6	6.0	7.6	9.4	191	140	203	76	19
10	20	12	9.0	6.0	6.0	7.6	10	184	155	246	89	19
11	22	12	9.0	6.0	6.0	7.6	11	177	175	191	68	19
12	20	12	9.0	6.0	6.0	7.6	11	127	219	160	70	19
13	20	12	9.0	6.0	6.0	7.6	12	83	195	139	62	17
14	20	12	9.0	6.0	6.0	7.6	11	58	144	140	59	17
15	21	12	9.0	6.0	6.0	7.6	12	52	127	144	55	17
16	24	12	9.0	6.0	6.0	7.6	12	41	126	143	55	17
17	22	12	9.0	6.0	6.0	7.6	13	27	127	127	50	17
18	19	12	9.0	6.0	6.0	7.6	15	48	155	123	47	16
19	19	12	9.0	6.0	6.0	7.6	17	57	250	112	53	15
20	16	12	9.0	6.0	6.0	7.6	20	56	296	107	62	17
21	16	12	9.0	6.0	6.0	7.6	25	62	286	201	45	17
22	15	12	9.0	6.0	6.0	7.6	30	72	292	197	40	16
23	15	12	9.0	6.0	6.0	7.6	35	86	291	157	37	16
24	16	12	9.0	6.0	6.0	7.6	40	110	275	151	34	16
25	16	12	7.0	6.0	6.0	7.6	45	133	272	131	34	16
26	16	12	7.0	6.0	6.0	7.6	50	128	243	174	32	16
27	20	11	7.0	6.0	6.0	7.6	52	148	260	186	32	15
28	19	10	7.0	6.0	6.0	7.6	45	145	335	181	28	15
29	18	9.4	7.0	6.0	---	7.6	35	146	242	135	27	15
30	17	9.0	7.0	6.0	---	7.6	28	152	214	125	29	14
31	18	---	7.0	6.0	---	7.6	---	119	---	119	27	---
TOTAL	550	358.4	265.0	194.4	166.4	232.8	600.8	2935	5973	5131	1946	542
MEAN	17.7	11.9	8.55	6.27	5.94	7.51	20.0	94.7	199	166	62.8	18.1
MAX	24	17	9.0	7.0	6.0	7.6	52	191	335	246	125	26
MIN	14	9.0	7.0	6.0	5.0	6.0	7.0	27	126	107	27	14
AC-FT	1090	711	526	386	330	462	1190	5820	11850	10180	3860	1080
CAL YR 1982	TOTAL	8296.6	MEAN	22.7	MAX	88	MIN	5.0	AC-FT	16460		
WTR YR 1983	TOTAL	18894.8	MEAN	51.8	MAX	335	MIN	5.0	AC-FT	37480		

NOTE.--NO GAGE-HEIGHT RECORD NOV. 4 TO APR. 23

## PLATTE RIVER BASIN

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06619400 CANADIAN RIVER NEAR LINDLAND, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1977 to September 1983 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1978 to September 1983 (discontinued).

WATER TEMPERATURE: April 1978 to September 1983 (discontinued).

SUSPENDED-SEDIMENT DISCHARGE: May 1978 to September 1983 (discontinued).

INSTRUMENTATION.--Automatic pumping sediment sampler since May 1978. Water-quality monitor since April 1978.

REMARKS.--Daily maximum and minimum specific conductance data available in district office. Water-quality monitor shut down Nov. 3, 1982 to Apr. 18, 1983. Suspended sediment sampler shut down Oct. 1 to April 27.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 301 micromhos April 8, 1982; minimum, 61 micromhos June 21, 22, 1983.

WATER TEMPERATURES: Maximum, 24.0°C June 12, 1979; minimum, 0.0°C many days during winter period.

SEDIMENT CONCENTRATIONS: Maximum daily, 162 mg/L July 21, 1983; minimum daily, 1 mg/L Sept. 3-6, 1982.

SEDIMENT LOADS: Maximum daily, 84 tons May 9, 1983; minimum daily, 0.02 tons, many days during winter months in 1979 and 1981.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 276 micromhos May 20; minimum 61 micromhos June 21, 22.

WATER TEMPERATURES: Maximum, 21.0°C June 19; minimum 0.0°C many days during October, November, and April.

SEDIMENT CONCENTRATIONS: Maximum daily, 162 mg/L July 2; minimum daily, 10 mg/L Sept. 21-30.

SEDIMENT LOADS: Maximum daily, 84 tons May 9; minimum daily, 0.38 ton Sept. 30.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
NOV 04...	1040	12	--	194	7.4	.0	10.8	87	25	5.9
MAY 06...	1000	69	205	216	7.7	.5	10.2	85	24	6.2
JUN 23...	1800	270	70	77	7.4	13.0	7.3	34	9.8	2.4
AUG 10...	1430	90	110	110	7.4	16.5	7.2	48	14	3.1

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 04...	4.8	.2	1.1	65	34	.70	.10	9.6	120
MAY 06...	12	.6	2.7	66	40	1.4	<.10	9.5	140
JUN 23...	3.6	.3	1.0	33	11	.30	.90	6.8	56
AUG 10...	2.8	.2	.90	47	14	.70	.10	8.0	72

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 04...	.16	3.9	<.100	<.010	10	1000	95	60	42
MAY 06...	.18	25	.190	.050	30	2700	420	220	130
JUN 23...	.08	41	<.100	<.010	20	1500	210	60	25
AUG 10...	.10	18	<.100	.020	20	1600	210	80	73

DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY 06...	1000	1200	200	--	--	--	--	--	4	7
JUN 23...	1800	800	70	<1	1	<1	3	3	6	10

## PLATTE RIVER BASIN

06619400 CANADIAN RIVER NEAR LINDLAND, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL SOLVED (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 06...	--	--	--	--	--	--	--	30	30
JUN 23...	<.1	<1	<1	15	39	1	<1	20	20

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 05...	1300	14	7	.26	--	JUN 23...	1800	270	39	28	85
APR 27...	1200	52	59	8.3	63	JUL 15...	1300	147	30	12	--
MAY 06...	1000	69	59	11	59	AUG 10...	1430	90	40	9.7	--
MAY 16...	1545	39	12	1.3	74	SEP 13...	1715	15	12	.49	--
JUN 07...	1800	123	34	11	61						

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	179					---	223	138	72	93	128
2	148	174					---	220	131	68	97	130
3	147	181					---	219	122	86	103	132
4	147	---					---	224	120	72	103	137
5	146	---					---	205	114	75	107	134
6	150	---					---	209	114	81	119	135
7	157	---					---	223	119	82	109	141
8	155	---					---	201	113	88	111	145
9	159	---					---	169	109	84	107	148
10	163	---					---	---	105	92	104	147
11	171	---					---	139	101	78	106	147
12	173	---					---	154	105	81	125	143
13	187	---					---	153	99	84	117	138
14	191	---					---	173	97	89	118	142
15	193	---					---	162	93	96	122	147
16	183	---					---	---	86	89	125	147
17	169	---					---	157	81	86	125	150
18	167	---					---	201	73	85	127	151
19	163	---					231	226	75	89	147	153
20	164	---					226	237	75	96	152	155
21	167	---					216	213	70	115	134	147
22	166	---					202	203	69	100	131	149
23	168	---					207	180	74	97	130	150
24	168	---					216	158	77	89	129	153
25	169	---					197	136	82	97	127	155
26	169	---					176	134	80	105	128	155
27	179	---					179	126	94	109	125	157
28	176	---					188	120	88	101	124	159
29	182	---					211	---	77	96	126	162
30	178	---					215	129	75	93	128	165
31	184	---					---	---	---	93	126	---
MEAN	167	178					205	181	95	89	120	147
WTR YR 1983	MEAN	138		MAX	237	MIN	68					

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

MONTH	10.0	.0	3.0	.0
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MONTH	1.5	.0	14.0	.0	21.0	3.5	20.0	4.5	20.5	10.5	19.0	4.0
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YEAR	21.0	.0
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06619400 CANADIAN RIVER NEAR LINDLAND, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	7.6	---	---	27	72	5.2	165	---	26
2	7.6	---	---	28	68	5.1	187	---	45
3	7.6	---	---	34	54	5.0	127	38	13
4	7.6	---	---	41	70	7.7	130	36	13
5	7.0	---	---	74	---	35	143	35	14
6	8.0	---	---	82	89	20	127	22	7.5
7	8.2	---	---	105	---	19	144	25	9.7
8	8.8	---	---	142	---	70	131	30	11
9	9.4	---	---	191	---	84	140	32	12
10	10	---	---	184	---	61	155	45	19
11	11	---	---	177	---	56	175	42	20
12	11	---	---	127	65	22	219	46	27
13	12	---	---	83	54	12	195	31	16
14	11	---	---	58	---	10	144	27	10
15	12	---	---	52	---	7.0	127	24	8.2
16	12	---	---	41	---	5.0	126	27	9.2
17	13	---	---	27	28	2.0	127	22	7.5
18	15	---	---	48	---	8.1	155	33	14
19	17	---	---	57	37	5.7	250	77	52
20	20	---	---	56	---	6.1	296	58	46
21	25	---	---	62	29	4.9	286	53	41
22	30	---	---	72	33	6.4	292	52	41
23	35	---	---	86	---	11	291	45	35
24	40	---	---	110	---	33	275	44	33
25	45	---	---	133	---	46	272	42	31
26	50	---	---	128	---	28	243	31	20
27	52	---	---	148	---	34	260	---	32
28	45	55	6.7	145	73	29	335	---	73
29	35	51	4.8	146	62	24	242	32	21
30	28	45	3.4	152	60	25	214	24	14
31	---	---	---	119	37	12	---	---	---
TOTAL	600.8	---	14.9	2935	---	699.2	5973	---	721.1
JULY			AUGUST			SEPTEMBER			
1	212	25	14	120	40	13	24	24	1.6
2	196	28	15	124	42	14	22	24	1.4
3	236	34	22	125	44	15	22	24	1.4
4	192	15	7.8	102	26	7.2	26	24	1.7
5	168	---	8.0	95	30	7.7	24	24	1.6
6	160	---	8.0	103	49	14	21	24	1.4
7	163	---	8.0	87	32	7.5	19	22	1.1
8	212	42	24	79	29	6.2	19	20	1.0
9	203	25	14	76	31	6.4	19	18	.92
10	246	46	31	89	48	12	19	15	.77
11	191	27	14	68	36	6.6	19	13	.67
12	160	23	9.9	70	40	7.6	19	13	.67
13	139	21	7.9	62	30	5.0	17	13	.60
14	140	37	14	59	39	6.2	17	13	.60
15	144	27	10	55	32	4.8	17	13	.60
16	143	26	10	55	37	5.5	17	13	.60
17	127	25	8.6	50	34	4.6	17	13	.60
18	123	30	10	47	35	4.4	16	13	.56
19	112	28	8.5	53	37	5.3	15	13	.53
20	107	28	8.1	62	58	9.7	17	13	.60
21	201	---	73	45	29	3.5	17	10	.46
22	197	---	43	40	26	2.8	16	10	.43
23	157	34	14	37	26	2.6	16	10	.43
24	151	36	15	34	26	2.4	16	10	.43
25	131	34	12	34	26	2.4	16	10	.43
26	174	---	54	32	26	2.2	16	10	.43
27	186	---	48	32	26	2.2	15	10	.41
28	181	---	32	28	26	2.0	15	10	.41
29	135	36	13	27	26	1.9	15	10	.41
30	125	32	11	29	26	2.0	14	10	.38
31	119	35	11	27	26	1.9	---	---	---
TOTAL	5131	---	578.8	1946	---	188.6	542	---	23.14
YEAR	18894.8		2225.74						

## PLATTE RIVER BASIN

49

06619415 BUSH DRAW NEAR WALDEN, CO

LOCATION.--Lat 40°44'34", long°106 05'42", in SW¼SE¼ sec.13, T.9 N., R.78 W., Jackson County, Hydrologic Unit 10180001, on left bank 1,500 ft above Canadian River and 9.8 mi east of Walden.

DRAINAGE AREA.--4.10 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1981 to September 1983 (seasonal record only), discontinued.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 8,070 ft, from topographic map.

REMARKS.--Records good. No diversion above station. Slight regulation by small ponds.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42 ft<sup>3</sup>/s July 26, 1983, gage height, 12.05 ft; no flow many days most years.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 42 ft<sup>3</sup>/s at 1530 July 26, gage height, 12.05 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							.00	2.5	.00	.00	.00	.00
2							.00	3.0	.00	.00	.00	.00
3							.00	2.2	.00	.00	.00	.00
4							.00	1.6	.00	.00	.00	.00
5							.00	1.1	.00	.00	.96	.00
6							.00	.32	.00	.00	1.2	.00
7							.00	.28	.00	.00	.04	.00
8							.00	.26	.00	.00	.00	.00
9							.00	.16	.00	.29	.00	.00
10							.00	.02	.00	.81	.00	.00
11							.00	.01	.00	.00	.00	.00
12							.00	.00	.00	.00	.00	.00
13							.00	.00	.01	.00	.00	.00
14							.00	.00	.00	.00	.00	.00
15							.00	.00	.00	.00	.00	.00
16							.00	.00	.00	.00	.00	.00
17							.00	.00	.00	.00	.00	.00
18							.00	.23	.00	.00	.00	.00
19							.00	.46	.00	.00	.00	.00
20							.00	.06	.00	.00	.00	.00
21							.00	.01	.00	.00	.00	.00
22							.04	.00	.00	.07	.00	.00
23							.10	.00	.00	.00	.00	.00
24							.50	.00	.00	.00	.00	.00
25							1.0	.00	.00	.00	.00	.00
26							3.0	.00	.00	4.0	.00	.00
27							2.0	.00	.00	.90	.00	.00
28							2.0	.00	.00	.32	.00	.00
29							2.5	.00	.00	.00	.00	.00
30							2.8	.00	.00	.00	.00	.00
31							---	.00	---	.00	.00	---
TOTAL							13.94	12.21	.01	6.39	2.20	.00
MEAN							.46	.39	.000	.21	.071	.000
MAX							3.0	3.0	.01	4.0	1.2	.00
MIN							.00	.00	.00	.00	.00	.00
AC-FT							28	24	.02	13	4.4	.00

## PLATTE RIVER BASIN

06619420 WILLIAMS DRAW NEAR WALDEN, CO

LOCATION.--Lat 40°44'17", long 106°06'49", in NW¼NE¼ sec.23, T.9 N., R.78 W., Jackson County, Hydrologic Unit 10180001, on left bank 1,200 ft above small dam, 1.2 mi above Canadian River and 8.8 mi east of Walden.

DRAINAGE AREA.--3.95 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to September 1983 (seasonal record only), discontinued.

GAGE.--Water-stage recorder. Altitude of gage is 8,110 ft, from topographic map.

REMARKS.--Records good. No diversion above station. Slight regulation by small ponds.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22 ft<sup>3</sup>/s Apr. 21, 1980, gage height, 11.76 ft, result of indirect determination of peak flow; maximum gage height, 11.77 ft, Aug. 5, 1983; no flow many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft<sup>3</sup>/s at 2315 Aug. 5, gage height, 11.77 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							.00	2.5	.30	.00	.00	.00
2							.00	2.2	.67	.00	.00	.00
3							.00	2.4	.17	.03	.00	.00
4							.00	2.8	.06	.00	.00	.00
5							.00	2.8	.04	.00	1.3	.00
6							.00	.84	.04	.00	2.4	.00
7							.00	.87	.03	.00	.09	.00
8							.00	1.0	.03	.00	.02	.00
9							.00	.81	.01	.19	.00	.00
10							.00	.35	.00	.32	.00	.00
11							.00	.22	.00	.03	.00	.00
12							.00	.19	.01	.00	.14	.00
13							.00	.12	.04	.00	.02	.00
14							.00	.09	.02	.00	.00	.00
15							.00	.06	.00	.00	.00	.00
16							.00	.06	.00	.00	.00	.00
17							.00	.05	.00	.00	.00	.00
18							.00	.54	.00	.00	.00	.00
19							.00	.78	.00	.00	.19	.00
20							.00	.49	.00	.00	.32	.00
21							.01	.26	.00	.12	.04	.00
22							.06	.17	.00	.06	.00	.00
23							.16	.10	.00	.08	.00	.00
24							.60	.05	.00	.02	.00	.00
25							2.5	.03	.00	.02	.00	.00
26							8.0	.02	.00	1.8	.00	.00
27							6.0	.01	.01	.39	.00	.00
28							4.4	.00	.08	.14	.05	.00
29							3.2	.01	.02	.04	.02	.00
30							2.4	.09	.00	.01	.00	.00
31							---	.04	---	.01	.00	---
TOTAL							27.33	19.95	1.53	3.26	4.59	.00
MEAN							.91	.64	.051	.11	.15	.000
MAX							8.0	2.8	.67	1.8	2.4	.00
MIN							.00	.00	.00	.00	.00	.00
AC-FT							54	40	3.0	6.5	9.1	.00



## PLATTE RIVER BASIN

51

06619420 WILLIAMS DRAW NEAR WALDEN, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1980 to September 1983 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
APR 26...	1830	E10	95	114	7.2	.5	--	37	9.4	3.2	
MAY 05...	1545	2.2	195	204	7.9	8.5	8.4	60	14	6.1	
16...	1245	.08	1300	1190	8.3	10.0	8.8	450	92	53	
JUN 07...	1530	.03	1250	1360	8.5	22.5	--	440	71	63	
AUG 12...	1230	.09	600	613	7.9	21.5	--	220	42	27	
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	
APR 26...	4.6		.3	3.3	44	11	1.1	.20	4.3	65	
MAY 05...	15		.9	2.7	64	29	1.3	.10	6.5	110	
16...	120		3	4.8	381	310	7.9	.60	11	830	
JUN 07...	160		3	5.1	408	330	8.7	.70	7.3	890	
AUG 12...	58		2	6.2	244	98	5.4	.40	6.3	390	
DATE		SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	
APR 26...		.09	--	<.100	.290	30	1800	130	30	7	
MAY 05...		.15	.68	<.100	.180	30	3300	130	70	8	
16...		1.1	.18	<.100	.040	110	320	20	50	36	
JUN 07...		1.1	.07	<.100	.010	240	140	53	30	18	
AUG 12...		.53	.09	<.100	.060	140	1000	29	50	6	
DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)
APR 26...	1830	1700	310	1	1	<1	<1	6	3	7	<1
MAY 16...	1245	80	10	--	--	--	--	--	--	9	3
DATE		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
APR 26...		<.1	.2	<1	<1	6	20	1	<1	20	8
MAY 16...		--	--	--	--	--	--	--	--	20	26

E ESTIMATED.

## PLATTE RIVER BASIN

06619450 CANADIAN RIVER NEAR BROWNLEE, CO

LOCATION.--Lat 40°48'29", long 106°14'09", in NE¼SW¼ sec.26, T.10 N., R.79 W., Jackson County, Hydrologic Unit 10180001, on right bank 3.1 mi east of Brownlee, 3.9 mi below mouth of Coon Creek, and 4.7 mi north of Walden.

DRAINAGE AREA.--158 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1978 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 7,930 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by numerous diversions for irrigation of hay meadows and return flows from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 644 ft<sup>3</sup>/s June 28, 1983, gage height, 5.13 ft; minimum daily, 2.6 ft<sup>3</sup>/s Sept. 9, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 644 ft<sup>3</sup>/s at 2330 June 28, gage height, 5.13 ft; minimum daily, 12 ft<sup>3</sup>/s Feb. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	25	18	13	13	13	15	134	265	467	157	43
2	24	22	18	13	13	14	15	136	318	428	156	39
3	22	19	18	13	12	15	15	131	395	434	157	36
4	20	20	18	13	12	15	15	123	297	470	175	39
5	19	20	18	13	13	15	13	152	265	410	164	43
6	19	20	18	13	13	15	13	181	287	340	202	36
7	18	20	18	13	13	15	13	174	297	287	158	32
8	19	20	18	13	13	15	15	143	283	279	127	30
9	18	20	18	13	13	15	17	176	287	310	115	29
10	21	20	18	13	13	15	19	220	275	350	116	29
11	27	20	18	13	13	15	20	249	305	398	115	26
12	27	20	18	13	13	15	20	250	383	355	117	25
13	28	20	18	13	13	15	20	218	470	287	116	24
14	27	20	18	13	13	15	21	153	443	253	98	23
15	26	20	18	13	13	15	24	123	380	228	95	22
16	25	20	18	13	13	15	26	116	328	216	90	22
17	27	20	18	13	13	15	30	105	295	203	84	20
18	26	20	18	13	13	15	35	80	299	182	80	19
19	23	20	18	13	13	15	39	163	352	169	84	19
20	23	20	18	13	13	15	45	175	479	161	99	24
21	22	20	18	13	13	15	54	139	568	177	90	25
22	20	20	18	13	13	15	64	139	580	224	71	24
23	20	18	18	13	13	15	80	152	580	332	63	24
24	22	18	18	13	13	15	110	154	588	259	58	25
25	21	18	18	13	13	15	157	172	600	225	55	25
26	20	18	15	13	13	15	260	181	596	198	53	23
27	22	18	13	13	13	15	234	200	548	236	49	22
28	25	18	13	13	13	15	182	216	632	325	45	21
29	25	18	13	13	---	15	144	203	592	303	46	22
30	27	18	13	13	---	15	142	235	515	205	47	20
31	27	---	13	13	---	15	---	265	---	167	47	---
TOTAL	715	590	530	403	362	462	1857	5258	12502	8878	3129	811
MEAN	23.1	19.7	17.1	13.0	12.9	14.9	61.9	170	417	286	101	27.0
MAX	28	25	18	13	13	15	260	265	632	470	202	43
MIN	18	18	13	13	12	13	13	80	265	161	45	19
AC-FT	1420	1170	1050	799	718	916	3680	10430	24800	17610	6210	1610
CAL YR 1982	TOTAL	12372.2	MEAN	33.9	MAX	167	MIN	8.0	AC-FT	24540		
WTR YR 1983	TOTAL	35497.0	MEAN	97.3	MAX	632	MIN	12	AC-FT	70410		

NOTE.--NO GAGE-HEIGHT RECORD DEC. 24 TO APR. 12.

## PLATTE RIVER BASIN

53

06619450 CANADIAN RIVER NEAR BROWNLEE, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1977 to September 1983 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1978 to September 1983 (discontinued).

WATER TEMPERATURE: April 1978 to September 1983 (discontinued).

SUSPENDED-SEDIMENT DISCHARGE: May 1978 to September 1983 (discontinued).

INSTRUMENTATION.--Automatic pumping sediment sampler since May 1978. Water-quality monitor since April 1978.

REMARKS.--Daily maximum and minimum specific conductance data available in district office. Water-quality monitor shut down Nov. 2, 1982 to Apr. 18, 1983. No monitor record May 8-14, May 23 to June 1, June 24 to July 1, July 15-21, Aug. 1. Suspended sediment sampler shut down Oct. 1 to April 25.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 511 micromhos Apr. 24, 1983; minimum, 120 micromhos July 7, 1983.

WATER TEMPERATURES: Maximum, 29.5°C July 6, 1981; minimum, 0.0°C many days during winter period.

SEDIMENT CONCENTRATIONS: Maximum daily, 282 mg/L Apr. 26, 1980; minimum daily, 1 mg/L Dec. 21, 1980.

SEDIMENT LOADS: Maximum daily, 176 tons Apr. 24, 1980; minimum daily, 0.02 tons on many days during winter months in 1978.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 511 micromhos April 24; minimum 120 micromhos July 7.

WATER TEMPERATURES: Maximum, 26.0°C July 9; minimum 0.0°C, many days during October and April.

SEDIMENT CONCENTRATIONS: Maximum daily, 207 mg/L May 3; minimum daily, 15 mg/L Sept. 16-23

SEDIMENT LOADS: Maximum daily, 147 tons Aug. 6; minimum daily, 0.77 ton Sept 13, 19.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ALUM- TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY 06...	1330	1800	140	--	--	--	--	--	14	4
JUN 24...	1215	200	60	1	1	<1	2	1	10	6

DATE	TIME	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 06...	--	--	--	--	--	--	--	--	30	37
JUN 24...	<.1	<.1	<.1	<.1	14	36	<1	<1	10	19

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 06...	0850	18	15	.73	--	JUN 08...	1100	293	59	47	17
APR 26...	1100	285	217	167	--	24...	1215	612	51	84	15
MAY 06...	1330	182	143	70	41	AUG 10...	1900	114	84	26	--
17...	0945	111	112	34	16	SEP 14...	0915	20	20	1.1	--

## PLATTE RIVER BASIN

06619450 CANADIAN RIVER NEAR BROWNLEE, CO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	291					---	340	---	---	169	220
2	263	302					---	343	302	176	136	216
3	262	---					---	347	344	177	127	220
4	268	---					---	368	292	189	142	216
5	265	---					---	353	268	179	155	216
6	264	---					---	336	250	175	171	212
7	270	---					---	366	236	161	181	203
8	263	---					---	---	245	131	176	206
9	263	---					---	---	236	150	160	211
10	253	---					---	---	220	171	162	217
11	269	---					---	---	227	181	157	229
12	271	---					---	---	244	158	---	233
13	270	---					---	---	227	162	162	231
14	268	---					---	---	214	166	201	234
15	273	---					---	245	191	---	194	239
16	275	---					---	285	179	---	189	238
17	266	---					---	301	182	---	196	242
18	262	---					---	305	193	---	199	246
19	247	---					344	332	206	---	211	248
20	245	---					339	315	210	---	232	228
21	243	---					358	333	196	---	239	199
22	252	---					405	322	185	204	213	195
23	252	---					422	---	194	224	182	196
24	250	---					441	---	---	188	211	198
25	257	---					246	---	---	176	209	200
26	274	---					249	---	---	183	218	203
27	273	---					244	---	---	221	282	210
28	262	---					255	---	---	242	257	213
29	271	---					303	---	---	233	207	217
30	279	---					329	---	---	193	211	198
31	291	---					---	---	---	177	220	---
MEAN	264	297					328	326	229	183	192	218
WTR YR 1983	MEAN	237		MAX	441		MIN	127				

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1	12.5	6.0	4.5	1.0								
2	11.5	5.0	3.0	.0								
3	12.0	4.0	---	---								
4	13.5	4.5	---	---								
5	10.5	5.0	---	---								
6	10.5	3.5	---	---								
7	11.0	2.0	---	---								
8	6.5	2.0	---	---								
9	1.5	.0	---	---								
10	4.0	.0	---	---								
11	4.5	.0	---	---								
12	6.5	2.0	---	---								
13	8.0	2.5	---	---								
14	7.0	2.0	---	---								
15	10.0	2.0	---	---								
16	8.5	4.0	---	---								
17	8.5	2.0	---	---								
18	9.5	3.5	---	---								
19	6.5	.5	---	---								
20	6.5	.0	---	---								
21	6.5	.0	---	---								
22	5.5	.0	---	---								
23	7.5	.5	---	---								
24	8.5	2.5	---	---								
25	7.5	5.0	---	---								
26	7.5	4.0	---	---								
27	5.5	.5	---	---								
28	3.5	.0	---	---								
29	.0	.0	---	---								
30	1.5	.0	---	---								
31	4.0	2.0	---	---								
MONTH	13.5	.0	4.5	.0								

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	---	---	6.5	.0	12.0	---	---	20.0	17.0	23.5	13.5	
2	---	---	7.0	1.0	13.0	7.5	20.0	13.0	20.0	15.5	22.5	
3	---	---	5.5	1.5	20.0	9.0	18.0	13.0	20.5	15.5	22.0	
4	---	---	9.0	3.0	16.5	12.0	22.0	10.5	20.0	17.0	17.0	
5	---	---	8.0	2.0	15.5	10.5	24.0	10.0	22.0	16.5	18.0	
6	---	---	7.5	3.5	17.5	9.0	23.5	15.5	22.0	16.0	20.0	
7	---	---	8.5	.0	18.5	10.0	25.0	17.0	23.0	17.5	21.0	
8	---	---	10.0	5.0	21.0	11.0	25.5	18.0	24.5	18.5	22.0	
9	---	---	12.0	5.5	18.0	12.5	26.0	19.5	23.5	19.5	20.5	
10	---	---	12.5	6.0	20.0	11.5	24.0	19.0	23.0	17.0	21.0	
11	---	---	11.5	5.5	20.5	11.5	24.5	16.0	22.0	16.5	19.5	
12	---	---	8.5	2.0	15.5	11.0	24.5	17.0	---	17.5	20.0	
13	---	---	8.0	4.0	14.0	8.0	24.0	16.5	22.5	11.0	21.0	
14	---	---	8.0	2.5	17.5	9.0	---	11.5	23.0	17.5	14.5	
15	---	---	8.0	4.5	20.5	10.0	---	---	23.5	17.5	18.0	
16	---	---	8.0	5.5	17.0	12.0	---	---	23.5	18.0	17.5	
17	---	---	5.5	.5	21.0	11.5	---	---	23.0	18.5	17.0	
18	---	---	10.0	.0	21.5	13.0	---	---	23.0	18.0	17.5	
19	.0	.0	8.0	3.0	23.0	14.0	---	---	21.0	16.5	12.5	
20	.5	.5	10.5	4.0	22.5	14.0	---	---	20.0	15.5	11.5	
21	.5	.5	11.0	7.0	22.0	14.0	20.0	---	22.0	15.5	12.5	
22	1.0	1.0	11.5	8.0	23.0	14.0	22.0	15.5	23.0	16.0	14.0	
23	1.5	1.0	---	---	23.0	15.0	19.5	17.5	23.0	16.0	14.0	
24	4.0	1.5	---	---	---	---	20.5	14.0	22.5	15.5	15.0	
25	8.0	2.0	---	---	---	---	21.0	14.5	22.0	15.0	17.5	
26	6.5	3.0	---	---	---	---	20.0	10.0	22.0	15.5	17.0	
27	4.0	1.0	---	---	---	---	19.5	14.0	23.5	14.5	15.0	
28	3.5	.0	---	---	---	---	21.5	14.5	21.0	14.5	14.5	
29	5.5	.5	---	---	---	---	24.0	15.5	18.0	13.5	14.0	
30	4.5	1.0	---	---	---	---	22.0	17.5	20.0	12.5	14.5	
31	---	---	---	---	---	---	20.5	16.0	22.5	12.5	---	
MONTH	8.0	.0	12.5	.0	23.0	7.5	26.0	10.0	24.5	11.0	23.5	
YEAR	26.0	.0										

## PLATTE RIVER BASIN

06619450 CANADIAN RIVER NEAR BROWNLEE, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	15	---	---	134	123	45	265	65	47
2	15	---	---	136	162	59	318	---	84
3	15	---	---	131	207	73	395	112	119
4	15	---	---	123	192	64	297	85	68
5	13	---	---	152	168	69	265	75	54
6	13	---	---	181	170	83	287	57	44
7	13	---	---	174	128	60	297	---	44
8	15	---	---	143	100	39	283	---	44
9	17	---	---	176	106	50	287	57	44
10	19	---	---	220	106	63	275	54	40
11	20	---	---	249	90	61	305	81	67
12	20	---	---	250	80	54	383	90	93
13	20	---	---	218	---	45	470	102	129
14	21	---	---	153	---	40	443	75	90
15	24	---	---	123	---	35	380	57	58
16	26	---	---	116	---	30	328	81	72
17	30	---	---	105	92	26	295	45	36
18	35	---	---	80	120	26	299	51	41
19	39	---	---	163	150	66	352	60	57
20	45	---	---	175	114	54	479	81	105
21	54	---	---	139	118	44	568	57	87
22	64	---	---	139	98	37	580	---	85
23	80	---	---	152	94	39	580	---	85
24	110	---	---	154	92	38	588	51	81
25	157	---	---	172	116	54	600	39	63
26	260	---	---	181	150	73	596	33	53
27	234	142	90	200	198	107	548	39	58
28	182	110	54	216	132	77	632	48	82
29	144	110	43	203	98	54	592	42	67
30	142	111	43	235	88	56	515	30	42
31	---	---	---	265	82	59	---	---	---
TOTAL	1857	---	230	5258	---	1680	12502	---	2039
JULY			AUGUST			SEPTEMBER			
1	467	20	25	157	48	20	43	31	3.6
2	428	28	32	156	50	21	39	31	3.3
3	434	35	41	157	50	21	36	31	3.0
4	470	25	32	175	48	23	39	31	3.3
5	410	18	20	164	48	21	43	31	3.6
6	340	25	23	202	---	147	36	31	3.0
7	287	32	25	158	135	58	32	31	2.7
8	279	25	19	127	112	38	30	18	1.5
9	310	35	29	115	90	28	29	18	1.4
10	350	28	26	116	68	21	29	18	1.4
11	398	30	32	115	68	21	26	18	1.3
12	355	32	31	117	56	18	25	18	1.2
13	287	---	25	116	51	16	24	18	1.2
14	253	---	20	98	51	13	23	18	1.1
15	228	25	15	95	45	12	22	18	1.1
16	216	50	29	90	45	11	22	15	.89
17	203	48	26	84	45	10	20	15	.81
18	182	65	32	80	63	14	19	15	.77
19	169	55	25	84	42	9.5	19	15	.77
20	161	60	26	99	63	17	24	15	.97
21	177	58	28	90	75	18	25	15	1.0
22	224	58	35	71	54	10	24	15	.97
23	332	52	47	63	48	8.2	24	15	.97
24	259	38	27	58	48	7.5	25	18	1.2
25	225	32	19	55	48	7.1	25	18	1.2
26	198	38	20	53	48	6.9	23	18	1.1
27	236	72	46	49	48	6.4	22	18	1.1
28	325	68	60	45	48	5.8	21	18	1.0
29	303	54	44	46	48	6.0	22	18	1.1
30	205	56	31	47	48	6.1	20	18	.97
31	167	64	29	47	46	5.8	---	---	---
TOTAL	8878	---	919	3129	---	627.3	811	---	47.52
YEAR	35497		5542.82						

## PLATTE RIVER BASIN

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06620000 NORTH PLATTE RIVER NEAR NORTHGATE, CO

LOCATION.--Lat 40°56'10", long 106°20'21", in SW¼SE¼ sec.11, T.11 N., R.80 W., Jackson County, Hydrologic Unit 10180001, on right bank 350 ft downstream from bridge on State Highway 125, 0.8 mi upstream from Camp Creek, 4.2 mi northwest of Northgate, and 4.4 mi south of Colorado-Wyoming State line.

DRAINAGE AREA.--1,431 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to November 1904 (published as "near Pinkhampton"), May 1915 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1916-21, 1929(M), 1930-32. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7,810.39 ft, National Geodetic Vertical Datum of 1929. See WSP 1730 for history of changes prior to Apr. 8, 1918. Apr. 8, 1918, to Aug. 21, 1961, water-stage recorder, at site 0.8 mi downstream at datum 3.36 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 130,000 acres of hay meadows above station. Transbasin diversions above station to Cache la Poudre River basin.

AVERAGE DISCHARGE.--68 years, 434 ft<sup>3</sup>/s; 314,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,720 ft<sup>3</sup>/s June 11, 1923, gage height, 6.24 ft, site and datum then in use; maximum gage height recorded, 9.65 ft, Apr. 25, 1980, (ice jam); minimum daily discharge, 19 ft<sup>3</sup>/s July 17-19, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,970 ft<sup>3</sup>/s June 28, gage height, 7.12 ft; minimum daily, 86 ft<sup>3</sup>/s, Jan. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	349	294	145	96	94	103	230	1010	3120	3690	1080	349
2	387	299	141	95	90	107	250	910	3270	3040	1050	317
3	341	222	136	94	88	110	280	821	3440	2970	1120	282
4	309	188	132	93	87	114	280	771	3260	3430	1220	288
5	281	216	131	92	87	118	265	817	2800	3630	1230	342
6	268	216	132	91	88	123	255	975	2760	2750	1210	348
7	264	245	127	91	90	130	250	1030	2850	2340	1170	301
8	253	257	123	90	95	138	250	952	2680	2360	1050	268
9	252	266	123	90	100	144	260	1010	2610	2740	897	250
10	241	242	126	90	103	152	275	1260	2620	3120	825	247
11	254	234	128	89	102	164	290	1580	2750	3070	807	241
12	260	202	129	90	101	178	285	1740	2940	2990	863	219
13	282	146	124	89	100	182	282	1720	3460	2430	931	204
14	282	112	119	89	99	182	282	1440	3840	2090	839	191
15	268	110	111	90	100	202	285	1140	3360	1840	749	188
16	255	120	111	90	100	200	297	1000	2560	1730	682	184
17	241	140	120	90	98	195	300	1000	2240	1670	652	170
18	230	175	121	90	96	190	320	909	2170	1510	616	159
19	236	190	121	89	94	188	365	1080	2230	1440	658	150
20	221	190	121	88	96	186	410	1270	2600	1420	797	167
21	198	168	121	86	96	186	485	1130	3170	1660	771	181
22	203	149	120	86	99	188	600	1030	3520	2100	643	172
23	204	133	118	87	100	192	770	1050	3620	2310	540	158
24	208	120	116	88	99	196	1030	1150	3720	2370	485	156
25	208	117	114	90	99	200	1320	1370	3970	2090	440	159
26	208	118	110	92	97	203	1520	1680	4530	1910	422	160
27	226	129	106	93	97	208	1370	1990	4620	1810	410	152
28	266	140	102	95	100	210	1250	2220	4790	1810	390	144
29	219	143	100	97	---	208	1160	2460	4850	1730	379	139
30	268	144	99	100	---	206	1080	2750	4520	1580	361	141
31	277	---	97	98	---	220	---	2930	---	1240	351	---
TOTAL	7959	5425	3724	2828	2695	5323	16286	42195	98870	70870	23638	6427
MEAN	257	181	120	91.2	96.3	172	543	1361	3296	2286	763	214
MAX	387	299	145	100	103	220	1520	2930	4850	3690	1230	349
MIN	198	110	97	86	87	103	230	771	2170	1240	351	139
AC-FT	15790	10760	7390	5610	5350	10560	32300	83690	196100	140600	46890	12750
CAL YR 1982	TOTAL	181325	MEAN 497	MAX 2180	MIN 45	AC-FT 359700						
WTR YR 1983	TOTAL	286240	MEAN 784	MAX 4850	MIN 86	AC-FT 567800						

## PLATTE RIVER BASIN

06620000 NORTH PLATTE RIVER NEAR NORTHGATE, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1965 to current year.

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)
OCT 20...	1530	224	229	6.0	95	26	7.2	11	.5	.90	94
NOV 30...	1200	139	248	.0	110	30	7.6	12	.5	1.4	110
JAN 12...	1200	98	267	.0	110	32	8.0	13	.6	1.6	120
FEB 22...	1300	99	252	.0	110	31	7.8	11	.5	1.8	110
APR 25...	1230	1250	321	4.0	100	27	9.0	19	.8	4.2	100
MAY 25...	1130	1360	226	12.5	93	26	6.8	13	.6	2.2	92
JUN 21...	1430	3230	218	17.0	95	26	7.2	12	.6	1.7	110
JUL 21...	1130	1580	185	18.0	79	22	5.9	8.1	.4	1.0	92
AUG 16...	1530	671	198	21.0	80	23	5.6	9.2	.5	.90	81
SEP 13...	0835	208	211	11.0	89	25	6.5	9.8	.5	.50	92
24...	1000	163	--	10.0	--	--	--	--	--	--	--

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 20...	20	1.1	.20	10	130	.18	80	.200	.200	.000
NOV 30...	20	1.1	1.6	13	150	.21	57	.000	.000	.000
JAN 12...	22	1.8	1.6	14	170	.23	44	.000	.000	.030
FEB 22...	21	3.2	.80	12	150	.21	41	.400	.400	.030
APR 25...	38	5.4	.30	9.8	170	.23	583	.100	.100	.390
MAY 25...	26	4.4	.70	11	150	.20	533	.000	.000	.050
JUN 21...	12	2.0	.30	13	140	.19	1220	.400	.400	.060
JUL 21...	6.0	1.8	.00	11	110	.15	473	.000	.000	.000
AUG 16...	16	2.2	.50	11	120	.16	212	.000	.000	.130
SEP 13...	15	1.1	.20	3.8	120	.16	66	.000	.000	.010
24...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	DICAMBA (MED- IBEN) (BAN- VEL D) TOTAL (UG/L)	PICLO- RAM (TOR- DON) (AMDON) TOTAL (UG/L)
JUN 21...	1430	<.01	.02	<.01	<.01	<.010	<.010
AUG 16...	1530	<.01	<.01	<.01	<.01	<.010	<.010
SEP 24...	1000	<.01	<.01	<.01	<.01	<.010	<.010



06695000 SOUTH PLATTE RIVER ABOVE ELEVENMILE CANYON RESERVOIR, NEAR HARTSEL, CO

LOCATION.--Lat 38°58'03", long 105°34'51", in NE¼ sec.32, T.12 S., R.73 W., Park County, Hydrologic Unit 10190001, on left bank 200 ft downstream from highway bridge, 2.5 mi upstream from water line of Elevenmile Canyon Reservoir, at elevation 8,561 ft, and 13 mi southeast of Hartsel.

DRAINAGE AREA.--880 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1933 to current year (no winter records prior to 1940). Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1630: 1958. WSP 1730: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 8,612.83 ft, Denver Board of Water Commissioners Datum. Prior to May 27, 1939, water-stage recorder near present site at different datum. May 27, 1939, to Nov. 4, 1961, at datum 0.46 ft, lower.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Antero Reservoir, capacity, 22,300 acre-ft. Many small diversions above station for irrigation of about 24,000 acres. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--44 years (water years 1940-83), 77.5 ft<sup>3</sup>/s; 56,150 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous discharge not determined, occurred Apr. 28, 1970, gage height, 7.60 ft, from floodmarks; maximum daily discharge, 3,970 ft<sup>3</sup>/s, Apr. 27, 1970; minimum daily, 0.20 ft<sup>3</sup>/s Oct. 25, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 597 ft<sup>3</sup>/s at 1100 Aug. 7, gage height, 3.15 ft; minimum daily, 13 ft<sup>3</sup>/s May 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	49	77	40	20	57	40	214	38	50	203	155
2	47	49	144	40	20	58	40	181	66	43	208	165
3	46	49	144	40	20	57	40	114	70	43	213	176
4	47	49	150	40	20	57	40	106	61	44	267	157
5	47	49	189	25	20	57	40	105	55	44	461	157
6	47	49	189	15	20	57	77	104	59	44	490	100
7	47	50	188	15	20	48	144	104	70	44	594	39
8	48	50	148	15	20	28	144	104	73	43	468	60
9	47	50	86	15	20	28	144	105	65	43	242	73
10	48	50	86	15	20	28	146	161	52	43	188	61
11	48	49	86	15	32	28	147	198	57	43	182	57
12	48	49	86	17	58	28	144	197	72	44	176	61
13	48	49	86	20	58	28	143	197	113	84	197	59
14	48	49	86	20	58	29	113	197	160	280	374	52
15	48	49	78	20	58	29	57	195	158	239	374	52
16	48	49	22	20	58	32	57	120	120	144	256	53
17	48	49	22	20	58	39	57	14	113	161	197	47
18	48	49	22	20	59	40	50	14	130	184	167	35
19	48	49	22	20	59	40	54	14	150	150	160	34
20	48	49	22	20	59	40	109	14	186	133	250	29
21	48	49	22	20	59	40	212	13	246	144	220	29
22	49	49	30	20	57	40	226	13	316	158	149	29
23	48	49	39	20	57	40	259	16	335	128	123	28
24	49	49	39	20	57	40	267	18	352	176	110	28
25	49	49	40	20	57	40	266	17	374	251	113	28
26	49	49	40	20	57	40	255	15	386	208	128	28
27	48	49	40	20	57	40	255	14	357	235	173	40
28	49	49	40	20	57	40	260	14	288	246	225	51
29	49	49	40	20	---	40	241	14	188	201	215	82
30	49	49	40	20	---	40	214	18	79	200	147	147
31	49	---	40	20	---	40	---	25	---	203	121	---
TOTAL	1487	1474	2343	672	1215	1248	4241	2635	4789	4053	7391	2112
MEAN	48.0	49.1	75.6	21.7	43.4	40.3	141	85.0	160	131	238	70.4
MAX	49	50	189	40	59	58	267	214	386	280	594	176
MIN	46	49	22	15	20	28	40	13	38	43	110	28
AC-FT	2950	2920	4650	1330	2410	2480	8410	5230	9500	8040	14660	4190
CAL YR 1982	TOTAL	28064	MEAN 76.9	MAX 383	MIN 13	AC-FT 55660						
WTR YR 1983	TOTAL	33660	MEAN 92.2	MAX 594	MIN 13	AC-FT 66760						

## PLATTE RIVER BASIN

06696000 SOUTH PLATTE RIVER NEAR LAKE GEORGE, CO

LOCATION.--Lat 38°54'19", long 105°28'22", in SW¼ sec.20, T.13 S., R.72 W., Park County, Hydrologic Unit 10190001, on left bank 700 ft downstream from Elevenmile Canyon Reservoir and 8.2 mi southwest of town of Lake George.

DRAINAGE AREA.--963 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 8,458 ft, from topographic map. Prior to Oct. 26, 1940, at site 1 mi downstream at datum 8,423.95 ft, National Geodetic Vertical Datum, adjustment of 1912.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions through East and West Hoosier ditches at Hoosier Pass prior to 1941, storage in Elevenmile Canyon Reservoir (see elsewhere in this report) and Antero Reservoir, capacity, 22,300 acre-ft, diversions for irrigation, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--54 years, 73.1 ft<sup>3</sup>/s; 52,960 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 3,000 ft<sup>3</sup>/s Apr. 28, 1970, gage height, 8.34 ft, from floodmarks, by computation of outflow from Elevenmile Canyon Reservoir; no flow at times in January 1930, February 1931, and November 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 400 ft<sup>3</sup>/s at 1230 Aug. 8, gage height, 3.33 ft; minimum daily, 11 ft<sup>3</sup>/s Dec. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	36	29	17	14	15	15	16	15	47	207	163
2	24	36	15	17	15	15	15	16	15	45	207	160
3	24	37	14	17	15	14	15	16	15	44	212	159
4	23	38	24	17	15	14	15	16	15	42	217	156
5	22	38	56	17	15	14	15	16	15	35	251	150
6	18	38	52	17	15	14	14	16	15	37	300	142
7	16	38	49	17	16	14	14	16	15	37	352	125
8	16	37	48	17	16	15	14	16	15	37	392	103
9	14	37	48	17	16	15	14	16	16	37	374	87
10	23	37	26	17	16	14	15	16	16	38	332	80
11	28	37	11	17	22	14	15	16	16	38	294	75
12	36	37	11	17	33	14	15	16	16	40	272	66
13	47	37	12	17	32	14	14	16	16	42	262	61
14	51	37	12	17	32	14	14	16	16	49	287	59
15	56	38	12	17	32	14	14	16	16	69	323	54
16	63	38	12	17	32	14	14	16	16	78	326	49
17	56	38	12	17	32	14	15	16	16	84	299	45
18	51	38	13	15	32	14	15	16	16	96	270	40
19	45	38	13	14	32	14	15	16	16	113	243	37
20	42	38	13	14	33	14	15	16	16	119	237	31
21	42	42	13	14	33	15	14	16	16	123	234	27
22	42	44	12	15	33	15	14	16	15	136	220	21
23	36	44	12	15	30	15	14	16	14	144	202	20
24	32	44	12	16	30	14	14	16	14	140	182	18
25	32	44	13	16	30	14	14	16	14	152	166	17
26	32	44	13	16	30	14	14	16	14	164	157	30
27	32	48	15	16	30	14	15	16	16	171	152	61
28	34	50	16	16	26	14	15	16	24	182	159	46
29	35	50	16	16	---	14	15	16	37	188	169	80
30	35	51	17	17	---	15	16	15	45	189	177	137
31	35	---	17	15	---	15	---	15	---	197	170	---
TOTAL	1066	1209	638	504	707	443	437	494	521	2913	7645	2299
MEAN	34.4	40.3	20.6	16.3	25.3	14.3	14.6	15.9	17.4	94.0	247	76.6
MAX	63	51	56	17	33	15	16	16	45	197	392	163
MIN	14	36	11	14	14	14	14	15	14	35	152	17
AC-FT	2110	2400	1270	1000	1400	879	867	980	1030	5780	15160	4560
CAL YR 1982	TOTAL	37770	MEAN	103	MAX	583	MIN	11	AC-FT	74920		
WTR YR 1983	TOTAL	18876	MEAN	51.7	MAX	392	MIN	11	AC-FT	37440		

## PLATTE RIVER BASIN

61

06696980 TARRYALL CREEK AT UPPER STATION, NEAR COMO, CO

LOCATION.--Lat 39°20'23", long 105°54'42", in NE¼SW¼ sec.20, T.8 S., R.76 W., Park County, Hydrologic Unit 10190001, on left bank 150 ft upstream from culvert on county road 1.8 mi northwest of Como. Prior to July 15, 1980, at site 250 ft downstream.

DRAINAGE AREA.--23.7 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 9,935 ft, from topographic map.

REMARKS.--Records good except those for periods of no gage-height record, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, maximum daily, 170 ft<sup>3</sup>/s June 12, 1980; minimum daily, 1.5 ft<sup>3</sup>/s Apr. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 166 ft<sup>3</sup>/s at 0015 June 21, gage height, 2.58 ft; minimum daily, 3.2 ft<sup>3</sup>/s Feb. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	14	7.0	4.0	4.0	4.0	5.0	7.3	70	96	37	47
2	24	13	7.0	4.5	4.0	4.0	5.0	7.6	72	91	36	45
3	23	15	7.0	4.8	3.2	4.0	5.0	7.6	66	88	40	43
4	22	14	7.0	5.0	3.2	4.5	4.5	7.8	65	82	40	44
5	21	12	7.0	5.0	3.5	4.5	4.0	9.4	64	79	38	40
6	21	14	7.0	5.0	3.5	4.5	4.0	10	63	74	39	40
7	20	12	7.0	5.0	3.5	4.5	4.5	10	66	73	36	37
8	21	12	7.0	4.8	3.5	4.5	5.0	12	68	72	34	36
9	19	12	7.0	4.5	3.5	4.5	5.5	15	74	69	32	34
10	20	12	7.0	4.5	3.5	4.5	6.5	19	84	69	30	34
11	20	12	6.5	4.5	3.5	4.5	7.0	21	100	67	29	33
12	20	11	6.0	4.0	3.5	5.0	7.0	19	106	62	28	31
13	19	10	6.0	4.0	3.5	5.0	7.0	17	99	58	30	30
14	19	10	6.0	4.0	3.5	5.0	7.0	14	88	56	31	29
15	20	10	6.0	4.0	3.5	5.0	7.0	12	86	53	30	30
16	20	10	6.0	4.0	3.5	5.0	7.0	12	89	51	28	28
17	18	10	6.0	4.0	3.5	5.0	7.0	10	92	48	29	26
18	18	10	6.0	4.0	3.5	5.0	7.0	11	106	47	27	25
19	17	10	5.5	4.0	3.5	5.0	6.7	11	125	45	27	24
20	16	10	5.0	4.0	3.5	5.0	7.0	10	135	43	36	25
21	16	9.5	5.0	4.0	3.5	5.0	7.0	12	137	49	30	24
22	16	9.0	5.0	4.0	3.5	5.0	6.7	17	128	54	29	24
23	15	8.0	5.0	4.0	3.5	5.0	6.7	22	131	48	33	23
24	15	7.0	4.5	4.0	4.0	5.0	8.4	30	134	47	50	23
25	16	7.0	4.0	4.0	4.0	5.0	10	41	134	44	42	22
26	15	7.0	4.0	4.0	4.0	5.0	10	53	121	42	53	22
27	15	7.0	3.8	4.0	4.0	5.0	9.0	65	133	42	48	21
28	13	7.0	3.5	4.0	4.0	5.0	8.1	70	127	40	46	21
29	14	7.0	3.5	4.0	---	5.0	7.8	72	115	38	44	21
30	15	7.0	3.5	4.0	---	5.0	7.3	78	101	38	47	22
31	14	---	3.8	4.0	---	5.0	---	67	---	36	50	---
TOTAL	569	308.5	174.6	131.6	100.9	148.0	199.7	769.7	2979	1801	1129	904
MEAN	18.4	10.3	5.63	4.25	3.60	4.77	6.66	24.8	99.3	58.1	36.4	30.1
MAX	27	15	7.0	5.0	4.0	5.0	10	78	137	96	53	47
MIN	13	7.0	3.5	4.0	3.2	4.0	4.0	7.3	63	36	27	21
AC-FT	1130	612	346	261	200	294	396	1530	5910	3570	2240	1790

CAL YR 1982 TOTAL 7604.6 MEAN 20.8 MAX 88 MIN 2.0 AC-FT 15080  
WTR YR 1983 TOTAL 9215.0 MEAN 25.2 MAX 137 MIN 3.2 AC-FT 18280

NOTE.--NO GAGE-HEIGHT RECORD NOV. 9 TO APR. 18.

## PLATTE RIVER BASIN

06697450 MICHIGAN CREEK ABOVE JEFFERSON, CO

LOCATION.--Lat 39°21'17", long 105°50'22", in NE¼SW¼ sec.13, T.8 S., R.76 W., Park County, Hydrologic Unit 10190001, on left bank 0.7 mi upstream from bridge on U.S. Highway 285 and 2.6 mi southwest of Jefferson.

DRAINAGE AREA.--23.3 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 9,503 ft, from topographic map. Prior to May 6, 1982, at site 0.4 mi upstream at different datum.

REMARKS.--Records good except those for winter period which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 163 ft<sup>3</sup>/s June 27, 1983, gage height, 1.98 ft; maximum gage height, 2.11 ft, June 10, 1979, site and datum then in use; minimum daily discharge, 0.41 ft<sup>3</sup>/s Feb. 3-10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 163 ft<sup>3</sup>/s at 1630 June 27, gage height, 1.98 ft; minimum daily, 1.5 ft<sup>3</sup>/s Mar. 16 to Apr. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	7.9	4.2	2.8	2.8	2.8	1.5	17	32	83	46	38
2	13	8.0	4.2	2.8	2.8	2.8	1.5	17	24	79	42	34
3	12	8.0	4.2	2.8	2.8	2.8	1.5	17	18	79	46	31
4	12	8.0	4.2	2.8	2.8	2.8	1.5	17	18	69	53	33
5	12	8.0	4.2	2.8	2.8	2.0	1.5	12	18	66	49	28
6	11	10	4.2	2.8	2.8	2.0	1.5	12	18	64	43	26
7	11	10	4.2	2.8	2.8	2.0	1.6	9.7	21	67	36	24
8	12	10	4.2	2.8	2.8	2.0	1.8	14	16	72	33	24
9	12	10	4.2	2.8	2.8	2.0	2.2	19	17	72	28	21
10	12	10	4.2	2.8	2.8	2.0	2.7	20	21	78	26	21
11	12	8.0	4.2	2.8	2.8	2.0	3.0	18	29	116	24	20
12	12	6.0	4.2	2.8	2.8	2.0	3.5	16	46	78	24	18
13	13	6.0	4.2	2.8	2.8	2.0	3.5	12	40	63	29	16
14	13	6.0	4.2	2.8	2.8	2.0	3.5	12	32	59	55	16
15	11	6.0	3.5	2.8	2.8	2.0	3.5	12	31	55	36	16
16	11	6.0	3.5	2.8	2.8	1.5	3.5	12	33	56	28	14
17	9.7	6.0	3.5	2.8	2.8	1.5	3.5	11	33	53	26	13
18	8.8	6.0	3.5	2.8	2.8	1.5	36	13	43	47	24	13
19	8.5	6.0	3.5	2.8	2.8	1.5	36	14	59	46	26	13
20	8.5	6.0	3.5	2.8	2.8	1.5	36	13	67	45	58	13
21	7.6	5.0	3.5	2.8	2.8	1.5	36	15	66	52	46	13
22	7.6	4.2	3.5	2.8	2.8	1.5	36	23	74	76	42	12
23	7.2	4.2	3.5	2.8	2.8	1.5	36	24	71	63	50	12
24	7.2	4.2	3.5	2.8	2.8	1.5	36	23	72	53	61	12
25	7.2	4.2	3.5	2.8	2.8	1.5	36	24	79	53	52	12
26	7.2	4.2	2.8	2.8	2.8	1.5	36	24	79	61	72	12
27	7.6	4.2	2.8	2.8	2.8	1.5	36	28	124	59	55	11
28	7.2	4.2	2.8	2.8	2.8	1.5	35	30	110	56	46	11
29	7.0	4.2	2.8	2.8	---	1.5	35	29	100	49	46	11
30	6.9	4.2	2.8	2.8	---	1.5	35	31	88	46	53	11
31	7.9	---	2.8	2.8	---	1.5	---	32	---	45	50	---
TOTAL	311.1	194.7	114.1	86.8	78.4	57.2	506.3	570.7	1479	1960	1305	549
MEAN	10.0	6.49	3.68	2.80	2.80	1.85	16.9	18.4	49.3	63.2	42.1	18.3
MAX	16	10	4.2	2.8	2.8	2.8	36	32	124	116	72	38
MIN	6.9	4.2	2.8	2.8	2.8	1.5	1.5	9.7	16	45	24	11
AC-FT	617	386	226	172	156	113	1000	1130	2930	3890	2590	1090
CAL YR 1982 TOTAL	4307.68											
WTR YR 1983 TOTAL	7212.30											
MEAN 11.8												
MAX 55												
MIN .41												
AC-FT 8540												
AC-FT 14310												

NOTE.--NO GAGE-HEIGHT RECORD NOV. 2 TO MAY 4.

## PLATTE RIVER BASIN

63

06698000 JEFFERSON CREEK NEAR JEFFERSON, CO

LOCATION.--Lat 39°23'34", long 105°48'38", in SE¼SE¼ sec.31, T.7 S., R.75 W., Park County, Hydrologic Unit 10190001, on right bank 1.2 mi northwest of Jefferson and 1.3 mi upstream from bridge on U.S. Highway 285.

DRAINAGE AREA.--11.8 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 9,600 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55 ft<sup>3</sup>/s June 25, 1983, gage height, 1.61 ft; no flow Jan. 28 to Apr. 5, 1979, May 18, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55 ft<sup>3</sup>/s at 2330 June 25, gage height, 1.61 ft; minimum daily, 1.2 ft<sup>3</sup>/s Apr. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	3.8	2.5	1.5	2.0	1.7	1.5	2.4	17	35	28	20
2	7.0	4.0	2.5	1.6	2.0	1.7	1.5	2.4	15	33	27	18
3	6.7	4.6	2.5	1.8	1.8	1.7	1.5	2.5	11	32	28	18
4	6.4	5.0	2.5	2.0	1.7	1.7	1.5	2.6	11	29	28	19
5	6.2	6.4	2.5	2.0	1.7	1.5	1.5	2.9	11	28	28	18
6	6.2	5.9	2.5	2.0	1.7	1.5	1.2	3.3	11	28	27	16
7	6.2	6.2	2.5	2.0	1.7	1.5	1.3	3.2	12	29	26	16
8	6.4	6.0	2.5	2.0	1.7	1.5	1.4	4.0	11	30	24	16
9	6.4	5.6	2.5	2.0	1.7	1.5	1.6	5.8	13	31	23	15
10	6.4	5.2	2.5	2.0	1.7	1.5	1.9	8.6	17	33	22	15
11	6.4	5.0	2.0	2.0	1.7	1.5	2.0	7.8	24	36	21	15
12	6.4	4.8	2.0	2.0	1.7	1.5	2.0	7.2	29	33	22	14
13	6.4	4.5	2.0	2.0	1.7	1.5	2.0	6.7	27	32	22	14
14	5.7	4.0	2.0	2.0	1.7	1.5	2.0	5.9	22	31	21	14
15	5.7	4.0	2.0	2.0	1.7	1.5	2.0	5.9	22	28	23	14
16	5.9	4.0	2.0	2.0	1.7	1.5	2.0	5.4	22	26	20	13
17	5.4	4.0	2.0	2.0	1.7	1.5	2.0	5.4	22	26	20	12
18	5.0	4.0	2.0	2.0	1.7	1.5	2.0	6.7	28	25	19	12
19	5.0	4.0	2.0	2.0	1.7	1.5	2.0	5.2	35	22	20	12
20	5.7	4.0	2.0	2.0	1.7	1.5	2.0	5.0	40	20	26	12
21	5.0	3.8	2.0	2.0	1.7	1.5	2.0	5.7	41	22	20	12
22	4.7	3.6	2.0	2.0	1.7	1.5	2.0	6.4	40	26	20	12
23	4.5	3.2	2.0	2.0	1.7	1.5	2.0	7.2	38	26	22	12
24	4.5	3.0	1.8	2.0	1.7	1.5	2.2	7.0	38	26	23	12
25	4.2	2.7	1.7	2.0	1.7	1.5	2.7	7.2	46	26	22	11
26	4.2	2.5	1.6	2.0	1.7	1.5	3.0	9.2	47	26	28	11
27	4.2	2.5	1.5	2.0	1.7	1.5	3.2	12	47	25	25	11
28	5.9	2.5	1.5	2.0	1.7	1.5	2.9	17	45	30	22	13
29	5.4	2.5	1.5	2.0	---	1.5	2.7	19	42	31	21	28
30	5.0	2.5	1.5	2.0	---	1.5	2.5	18	38	29	23	29
31	4.0	---	1.5	2.0	---	1.5	---	17	---	28	23	---
TOTAL	175.2	123.8	63.6	60.9	48.3	47.3	60.1	224.6	822	882	724	454
MEAN	5.65	4.13	2.05	1.96	1.73	1.53	2.00	7.25	27.4	28.5	23.4	15.1
MAX	8.1	6.4	2.5	2.0	2.0	1.7	3.2	19	47	36	28	29
MIN	4.0	2.5	1.5	1.5	1.7	1.5	1.2	2.4	11	20	19	11
AC-FT	348	246	126	121	96	94	119	445	1630	1750	1440	901

CAL YR 1982 TOTAL 2808.16 MEAN 7.69 MAX 30 MIN .00 AC-FT 5570  
WTR YR 1983 TOTAL 3685.80 MEAN 10.1 MAX 47 MIN 1.2 AC-FT 7310

NOTE.--NO GAGE-HEIGHT RECORD NOV. 8 TO MAY 9.

## PLATTE RIVER BASIN

06699005 TARRYALL CREEK BELOW ROCK CREEK, NEAR JEFFERSON, CO

LOCATION.--Lat 39°27'13", long 105°41'43", in NW¼NW¼ sec.8, T.9 S., R.74 W., Park County, Hydrologic Unit 10190001, on left bank 1,800 ft downstream from Rock Creek, 1.0 mi northwest of Bordenville and 9 mi southeast of Jefferson.

DRAINAGE AREA.--236 mi<sup>2</sup>.

PERIOD OF RECORD.--April to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 9,020 ft, from topographic map.

REMARKS.--Records good. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD, APR. 25 TO SEPT. 30.--Maximum discharge, 560 ft<sup>3</sup>/s at 0115 June 28, gage height 6.47 ft, minimum daily, 29 ft<sup>3</sup>/s May 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	38	159	234	126	130
2							---	46	151	216	126	117
3							---	46	119	195	125	111
4							---	50	111	177	158	113
5							---	55	112	153	166	108
6							---	57	125	149	164	101
7							---	40	218	142	140	95
8							---	47	172	140	119	93
9							---	53	148	142	107	93
10							---	59	152	142	98	90
11							---	59	182	185	95	93
12							---	41	232	361	98	86
13							---	34	232	189	112	84
14							---	29	214	149	141	82
15							---	33	212	144	127	84
16							---	38	218	128	109	79
17							---	38	219	115	99	73
18							---	31	234	106	98	71
19							---	54	257	108	92	68
20							---	61	274	99	136	68
21							---	82	292	102	125	66
22							---	97	292	159	110	66
23							---	80	294	166	120	65
24							---	72	304	151	161	65
25							---	72	306	127	138	64
26							81	70	364	123	166	63
27							62	72	430	131	165	61
28							52	85	439	146	142	58
29							48	100	301	142	137	67
30							47	110	269	134	142	76
31							---	122	---	157	150	---
TOTAL							---	1871	7032	4812	3992	2490
MEAN							---	60.4	234	155	129	83.0
MAX							---	122	439	361	166	130
MIN							---	29	111	99	92	58
AC-FT							---	3710	13950	9540	7920	4940

## RESERVOIRS IN SOUTH PLATTE RIVER BASIN

06695500 ELEVENMILE CANYON RESERVOIR.--Lat 38°54'19", long 105°28'30", in N½SW¼ sec.20, T.13 S., R.72 W., Park County, Hydrologic Unit 10190001, at north end of dam on South Platte River, 8 mi southwest of Lake George. DRAINAGE AREA, 963 mi<sup>2</sup>. PERIOD OF RECORD, October 1932 to current year. Prior to September 1938, published in WSP 1310. REVISED RECORDS, WSP 1730: Drainage area. GAGE, nonrecording gage read twice daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Denver Board of Water Commissioners); gage readings have been reduced to elevations NGVD.

Reservoir is formed by concrete arch dam; storage began in October 1932; dam completed in November 1932. Spillway built 5.00 ft, higher, Aug. 1, 1957. Capacity, 97,780 acre-ft, between elevations 8,488.25 ft, invert of outlet pipe, and 8,597.00 ft, crest of spillway. Dead storage is negligible. Figures given represent total contents. Water is for municipal use by city of Denver. Records furnished by Denver Board of Water Commissioners.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 111,200 acre-ft, Apr.28, 1970, elevation, 8,600.82 ft; no contents at times in 1935.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 102,600 acre-ft, Aug. 7, elevation, 8,598.40 ft; minimum observed, 70,550 acre-ft, Oct. 5, elevation, 8,587.97 ft.

06701000 CHEESMAN LAKE.--Lat 39°12'26", long 105°16'18", in NW¼SW¼ sec.6, T.10 S R.70 W., Douglas County, Hydrologic Unit 10190002, at dam on South Platte River, 4.1 mi southwest of Deckers. DRAINAGE AREA, 1,752 mi<sup>2</sup>. PERIOD OF RECORD, September 1900 to December 1901, September 1902 to current year. Prior to October 1938, published in WSP 1310. Published as Lake Cheesman prior to 1947. REVISED RECORDS, WSP 1730: Drainage area. GAGE, nonrecording gage read twice daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Denver Board of Water Commissioners).

Reservoir is formed by masonry dam. Storage began September 1900. Dam completed about October 1902. Capacity, 79,060 acre-ft at gage height 212 ft, spillway crest, above sill of lowest gate. No dead storage. Figures given represent total contents. Water is for municipal use by city of Denver. Records furnished by Denver Board of Water Commissioners.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 81,360 acre-ft, Apr. 29, 1970, gage height, 214.60 ft; minimum observed since appreciable storage was attained, 3,650 acre-ft, Apr. 20, 1933, gage height, 55.02 ft.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 80,090 acre-ft, June 28, gage height, 213.17 ft; minimum observed, 77,600 acre-ft, Sept. 30, gage height, 210.32 ft.

## MONTHEND ELEVATION IN FEET AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation a(feet)	Contents (acre-feet)	Change in contents (acre-feet)	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	06695500	ELEVENMILE CANYON RESERVOIR			06701000	CHEESMAN LAKE
Sept. 30.....	8,587.96	70,530	-	211.52	78,650	-
Oct. 31.....	8,587.99	70,610	+80	212.27	79,300	+650
Nov. 30.....	8,588.03	70,710	+100	211.53	78,650	-650
Dec. 31.....	8,589.24	74,030	+3,320	210.63	77,870	-780
CAL YR 1982....			+23,210			+12,680
Jan. 31.....	8,589.52	74,810	+780	210.52	77,780	-90
Feb. 28.....	8,589.91	75,900	+1,090	210.39	77,670	-110
Mar. 31.....	8,590.67	78,060	+2,160	211.86	78,940	+1,270
Apr. 30.....	8,593.45	86,300	+8,240	212.62	79,610	+670
May 31.....	8,594.84	90,660	+4,360	212.93	79,880	+270
June 30.....	8,597.36	99,020	+8,360	213.02	79,960	+80
July 31.....	8,597.91	100,900	+1,880	212.69	79,670	-290
Aug. 31.....	8,597.82	100,600	-300	212.53	79,530	-140
Sept.30.....	8,597.22	98,530	-2,070	210.32	77,600	-1,930
WTR YR 1983....			+28,000			-1,050
a NGVD						

## PLATTE RIVER BASIN

06701500 SOUTH PLATTE RIVER BELOW CHEESMAN LAKE, CO

LOCATION.--Lat 39°12'33", long 105°16'02", in SE¼NW¼ sec.6, T.10 S., R.70 W., Jefferson County, Hydrologic Unit 10190002, on left bank 1,400 ft downstream from toe of Cheesman Dam and 3.8 mi southwest of Deckers.

DRAINAGE AREA.--1,752 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1949. WSP 1730: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 6,609.29 ft, National Geodetic Vertical Datum of 1929. Prior to May 14, 1956, at site 370 ft upstream at datum 0.50 ft, higher.

REMARKS.--Records excellent. Natural flow of stream affected by minor transmountain diversion from Colorado River basin through Boreas Pass ditch, Elevenmile Canyon Reservoir and Cheesman Lake (see elsewhere in this report), diversions for irrigation of about 40,000 acres, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--59 years, 159 ft<sup>3</sup>/s; 115,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft<sup>3</sup>/s Apr. 29, 1970, gage height, 13.4 ft, from floodmarks, by computation of outflow from Cheesman Lake; minimum daily determined, 1.6 ft<sup>3</sup>/s Apr. 8-14, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,290 ft<sup>3</sup>/s at 1600 June 29, gage height, 4.79 ft; minimum daily, 14 ft<sup>3</sup>/s, Mar.31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	115	69	50	32	71	15	426	805	828	500	435
2	24	134	69	50	34	71	48	429	783	713	496	414
3	96	151	60	50	34	71	110	405	802	625	493	388
4	130	181	48	51	34	71	122	408	772	571	538	360
5	138	130	45	51	34	71	101	414	746	535	591	346
6	132	104	45	45	34	71	108	432	746	496	692	327
7	122	104	52	34	34	71	117	420	750	465	720	303
8	124	106	73	35	34	71	115	417	768	441	713	277
9	122	108	79	35	34	71	111	438	802	408	681	252
10	117	108	96	35	32	50	113	472	794	394	608	228
11	117	108	104	45	31	16	121	500	790	399	545	223
12	124	108	97	51	43	16	122	503	802	444	496	210
13	138	121	94	45	66	16	122	484	863	525	509	196
14	146	126	94	38	66	35	110	456	902	584	538	187
15	160	126	104	36	68	84	108	417	843	475	578	214
16	174	126	113	36	68	130	113	382	787	420	594	216
17	187	126	91	36	68	162	117	397	761	391	571	214
18	174	111	77	35	68	124	132	377	739	362	519	214
19	158	92	71	35	69	97	162	377	735	357	478	170
20	149	87	50	35	69	97	210	414	761	354	478	138
21	138	87	30	35	69	96	308	426	779	368	484	122
22	128	76	30	35	69	96	438	459	787	411	478	113
23	124	71	30	35	69	84	450	500	787	487	456	113
24	124	71	30	35	71	79	465	532	790	512	420	115
25	121	71	31	35	71	77	611	564	779	472	435	115
26	121	71	31	34	71	77	642	601	783	435	465	136
27	121	71	31	34	71	79	568	642	855	459	453	223
28	121	71	31	32	71	87	500	684	978	453	465	269
29	108	71	31	32	---	86	462	742	1200	478	456	266
30	110	69	38	32	---	42	441	805	1080	478	456	298
31	110	---	50	32	---	14	---	843	---	465	444	---
TOTAL	3878	3101	1894	1199	1514	2283	7162	15366	24569	14805	16350	7082
MEAN	125	103	61.1	38.7	54.1	73.6	239	496	819	478	527	236
MAX	187	181	113	51	71	162	642	843	1200	828	720	435
MIN	20	69	30	32	31	14	15	377	735	354	420	113
AC-FT	7690	6150	3760	2380	3000	4530	14210	30480	48730	29370	32430	14050
CAL YR 1982 TOTAL	64154	MEAN 176	MAX 805	MIN 17	AC-FT 127200							
WTR YR 1983 TOTAL	99203	MEAN 272	MAX 1200	MIN 14	AC-FT 196800							



## 06706000 NORTH FORK SOUTH PLATTE RIVER BELOW GENEVA CREEK, AT GRANT, CO

LOCATION.--Lat 39°27'26", long 105°39'29", in NW¼ sec.10, T.7 S., R.74 W., Park County, Hydrologic Unit 10190002, on left bank at Grant, 1,550 ft downstream from Geneva Creek, and 1.3 mi downstream from east portal of Harold D. Roberts tunnel.

DRAINAGE AREA.--127 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1908 to November 1913 (published as "at Cassells"), June 1942 to current year. Monthly discharge only for some periods, published in WSP 1310. December 1913 to March 1918, equivalent records may be obtained by summation of flow of North Fork South Platte River at Grant (above Geneva Creek) and Geneva Creek at Grant.

REVISED RECORDS.--WSP 956: Drainage area at site at Cassells. WSP 1116: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 8,560.81 ft, National Geodetic Vertical Datum of 1929, adjustment of 1960. See WSP 1710 or 1730 for history of changes prior to July 23, 1948. July 23, 1948, to Nov. 15, 1968, water-stage recorder at site 50 ft downstream at datum 3.49 ft, lower.

REMARKS.--Records excellent. Small diversions above station for irrigation of about 200 acres. Diversions from Colorado River basin to North Fork South Platte River above station through Harold D. Roberts tunnel (see elsewhere in this report). Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--46 years (water years 1909-13, 1943-83), 69.9 ft<sup>3</sup>/s; 50,640 acre-ft/yr, adjusted for inflow from Harold D. Roberts tunnel since 1964.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 990 ft<sup>3</sup>/s June 7, 8, 1912, gage height, 3.30 ft, site and datum then in use, from rating curve extended above 530 ft<sup>3</sup>/s; maximum gage height, 4.72 ft, site and datum then in use, Feb. 11, 1952 (backwater from ice); minimum daily discharge, 6.5 ft<sup>3</sup>/s Nov. 27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 805 ft<sup>3</sup>/s at 2130 June 18, gage height, 2.15 ft; minimum daily, 12 ft<sup>3</sup>/s Feb. 3, Apr. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	36	32	20	18	17	16	24	209	375	154	123
2	61	48	32	20	15	17	17	26	221	359	149	116
3	58	73	30	20	12	16	15	26	204	350	151	112
4	56	83	30	22	15	16	14	31	214	323	161	120
5	54	150	32	22	15	16	12	36	228	307	167	108
6	52	246	30	22	15	15	12	36	218	301	169	177
7	50	246	30	22	15	15	15	32	229	303	148	175
8	49	247	28	22	17	16	15	44	239	328	136	108
9	43	263	30	20	17	15	18	53	273	325	125	104
10	46	291	30	20	17	16	22	57	337	331	116	103
11	46	307	28	22	15	17	22	54	383	321	114	99
12	45	301	25	22	15	18	20	47	400	283	129	93
13	46	301	28	20	17	18	21	45	311	262	147	88
14	47	302	28	20	17	17	21	38	266	244	146	87
15	49	301	28	20	17	17	22	38	302	229	133	89
16	46	302	30	20	20	17	19	38	318	218	121	82
17	43	243	30	20	22	17	19	35	329	208	122	80
18	42	118	30	22	25	18	21	37	430	203	114	77
19	41	119	25	20	30	17	24	42	555	192	118	76
20	40	115	25	20	30	15	26	39	543	203	178	75
21	39	92	28	20	30	13	30	47	517	206	122	72
22	38	46	28	20	35	13	25	62	484	216	127	67
23	38	30	28	20	30	14	24	66	466	226	168	61
24	38	32	28	20	30	15	40	80	483	213	143	60
25	38	34	25	20	27	15	45	94	490	181	134	60
26	37	35	22	20	24	15	37	115	493	175	170	60
27	39	35	22	20	21	15	29	164	452	176	143	57
28	33	35	18	18	18	16	27	211	439	180	130	56
29	35	35	16	18	---	15	26	233	412	161	130	59
30	39	32	17	18	---	15	26	255	387	178	158	56
31	37	---	18	18	---	16	---	212	---	165	148	---
TOTAL	1390	4498	831	628	579	492	680	2317	10832	7742	4371	2700
MEAN	44.8	150	26.8	20.3	20.7	15.9	22.7	74.7	361	250	141	90.0
MAX	65	307	32	22	35	18	45	255	555	375	178	177
MIN	33	30	16	18	12	13	12	24	204	161	114	56
AC-FT	2760	8920	1650	1250	1150	976	1350	4600	21490	15360	8670	5360
CAL YR 1982	TOTAL	52192	MEAN 143	MAX 668	MIN 16	AC-FT 103500						
WTR YR 1983	TOTAL	37060	MEAN 102	MAX 555	MIN 12	AC-FT 73510						

## PLATTE RIVER BASIN

06709500 PLUM CREEK NEAR LOUVIERS, CO

LOCATION.--Lat 39°29'04", long 105°00'07", in SE¼ sec.33, T.6 S., R.68 W., Douglas County, Hydrologic Unit 10190002, on downstream side of bridge on county road from U.S. Highway 85 to Louviers, 0.8 mi northeast of Louviers, 1.2 mi downstream from Indian Creek, and 7.5 mi upstream from mouth.

DRAINAGE AREA.--302 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1730: 1958, drainage area at site 2.5 mi downstream. WSP 1918: 1957(M).

GAGE.--Water-stage recorder. Altitude of gage is 5,585 ft, from topographic map. Prior to Feb. 12, 1957, at site 2.5 mi downstream and Nov. 7, 1965, to Aug. 6, 1966, at site 2.2 mi downstream at different datums. Feb. 12, 1957, to Nov. 6, 1965, at present site at about present datum.

REMARKS.--Records poor. Diversions above station for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--36 years, 30.9 ft<sup>3</sup>/s; 22,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 154,000 ft<sup>3</sup>/s June 16, 1965, gage height, 22.4 ft, from floodmarks, by slope-area measurement of peak flow; no flow at times in 1951-52, 1956-60, 1963-64.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base 220 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 21	unknown	about 1,100	unknown	July 22	2130	1,090	3.25
May 20	0230	985	3.15	July 23	1800	* 2,610	3.72
June 27	0500	512	2.83	Aug. 14	2330	249	2.58
July 10	2130	1,020	3.22				

Minimum daily discharge, 0.97 ft<sup>3</sup>/s Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	15	18	13	12	13	60	350	599	312	105	26
2	15	12	13	18	13	16	58	450	567	278	96	26
3	14	12	10	15	13	24	54	519	538	235	83	27
4	12	12	14	13	16	36	60	519	499	190	153	28
5	5.6	9.2	16	14	18	45	67	488	499	169	153	28
6	9.2	12	14	13	24	42	70	535	499	135	139	24
7	10	10	13	10	62	42	88	559	418	118	148	22
8	18	13	10	8.0	48	30	101	500	408	105	114	20
9	21	12	16	6.8	57	33	111	450	386	99	90	16
10	12	12	21	1.5	48	30	120	400	355	203	80	15
11	18	12	18	2.5	45	45	124	350	263	148	90	19
12	10	15	16	2.5	48	73	134	320	249	105	99	19
13	15	14	18	2.8	39	45	134	350	235	96	114	20
14	14	13	5.6	3.0	39	101	130	400	235	77	105	19
15	6.8	14	2.8	3.4	36	124	120	420	190	72	114	20
16	10	15	4.8	3.3	21	98	114	460	174	64	93	19
17	4.8	15	5.6	1.5	24	104	127	530	148	69	74	16
18	4.8	14	4.8	8.0	24	83	200	559	135	64	55	17
19	4.8	15	3.6	3.6	27	88	350	583	126	69	64	16
20	5.6	12	5.2	4.0	21	93	600	765	99	52	57	16
21	12	14	7.0	3.6	18	67	1000	664	96	52	50	16
22	9.2	13	10	1.5	15	67	905	655	83	173	52	20
23	9.2	13	10	3.6	15	73	875	682	105	360	57	17
24	12	6.8	5.0	3.5	24	42	500	709	86	228	52	16
25	12	16	2.5	4.4	21	47	450	736	80	135	33	15
26	13	16	.97	4.5	21	54	430	805	195	93	28	20
27	12	15	2.5	5.6	13	62	400	775	397	86	33	14
28	15	13	4.0	8.0	10	72	350	745	386	96	38	15
29	10	14	8.0	10	---	76	310	745	450	86	33	15
30	10	15	10	13	---	75	260	736	386	90	32	15
31	9.2	---	12	13	---	62	---	709	---	86	30	---
TOTAL	358.2	394.0	301.37	217.6	772	1862	8302	17468	8886	4145	2464	576
MEAN	11.6	13.1	9.72	7.02	27.6	60.1	277	563	296	134	79.5	19.2
MAX	24	16	21	18	62	124	1000	805	599	360	153	28
MIN	4.8	6.8	.97	1.5	10	13	54	320	80	52	28	14
AC-FT	710	781	598	432	1530	3690	16470	34650	17630	8220	4890	1140

CAL YR 1982	TOTAL	5954.84	MEAN	16.3	MAX	124	MIN	.20	AC-FT	11810
WTR YR 1983	TOTAL	45746.17	MEAN	125	MAX	1000	MIN	.97	AC-FT	90740

## PLATTE RIVER BASIN

69

06709600 CHATFIELD LAKE NEAR LITTLETON, CO

LOCATION.--Lat 39°33'26", long 105°03'27", in NW¼SE¼ sec.1, T.6 S., R.69 W., Jefferson County, Hydrologic Unit 10190002, near left end of dam on South Platte River at mouth of Plum Creek and 4.7 mi southwest of courthouse in Littleton.

DRAINAGE AREA.--3,018 mi<sup>2</sup>.

PERIOD OF RECORD.--Contents, May 1975 to current year. Water-quality data available, October 1976 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army, Corps of Engineers); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by earthfill dam. Storage began May 29, 1975. Capacity, 235,000 acre-ft at elevation 5,500 ft, crest of spillway. No dead storage. Figures given represent total contents. Reservoir is for flood control and recreation.

COOPERATION.--Records furnished by U.S. Army, Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 54,690 acre-ft, May 26, 1980, elevation, 5,447.58 ft; no contents prior to May 29, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 53,320 acre-ft, June 30, elevation, 5,447.08 ft; minimum, 24,550 acre-ft, Oct. 26, elevation, 5,430.44 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,431.91	26,500	-
Oct. 31. . . . .	5,431.11	25,460	-1,040
Nov. 30. . . . .	5,432.66	27,640	+2,180
Dec. 31. . . . .	5,432.76	27,780	+140
CAL YR 1982. . . . .			+8,970
Jan. 31. . . . .	5,432.58	27,520	-260
Feb. 28. . . . .	5,432.97	28,080	+560
Mar. 31. . . . .	5,432.85	27,910	-170
Apr. 30. . . . .	5,432.33	27,160	-750
May 31. . . . .	5,442.24	43,640	+16,480
June 30. . . . .	5,447.08	53,320	+9,680
July 31. . . . .	5,431.83	26,460	-26,860
Aug. 31. . . . .	5,431.77	26,370	-90
Sept. 30. . . . .	5,431.05	25,370	-1,000
WTR YR 1983. . . . .			-1,130

## PLATTE RIVER BASIN

## 06710000 SOUTH PLATTE RIVER AT LITTLETON, CO

LOCATION.--Lat 39°37'08", long 105°01'07", in NE¼ sec.17, T.5 S., R.68 W., Arapahoe County, Hydrologic Unit 10190002, on left bank 200 ft downstream from Crestline Ave. Bridge at Littleton, 3.1 mi upstream from Bear Creek, and 6.3 mi downstream from Chatfield Dam.

DRAINAGE AREA.--3,069 mi<sup>2</sup>.

## WATER DISCHARGE RECORDS

PERIOD OF RECORD.--July 1941 to current year.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,304.36 ft, National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 23, 1948, nonrecording gage on bridge 200 ft upstream at datum 1.00 ft, higher. Nov. 23, 1948, to Sept. 30, 1951, water-stage recorder at present site at datum 1.00 ft, higher.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain diversions, storage and flood-control reservoirs, power developments, diversions for irrigation and municipal use, and return flow from irrigated areas. Flow regulated by Chatfield Dam since May 29, 1975 (station 06709600).

AVERAGE DISCHARGE.--33 years (water years 1942-74), 234 ft<sup>3</sup>/s; 169,500 acre-ft/yr, prior to completion of Chatfield Dam; 8 years (water years 1976-83), 231 ft<sup>3</sup>/s; 167,400 acre-ft/yr, subsequent to completion of Chatfield Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 110,000 ft<sup>3</sup>/s June 16, 1965, gage height, 15.45 ft, from floodmarks, estimated from contracted-opening and flow-over-road measurement of peak flow at point 1.6 mi downstream and slope-area measurement of peak flow on Plum Creek at point 12.7 mi upstream; minimum daily, 7.2 ft<sup>3</sup>/s Oct. 2, 1956. Stage and discharge of the flood of June 16, 1965, are the greatest since at least 1894.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,930 ft<sup>3</sup>/s at 1900 July 5, gage height, 5.67 ft; minimum daily, 17 ft<sup>3</sup>/s Feb. 11

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	307	60	21	70	26	85	237	1990	2080	2300	667	330
2	261	55	22	70	26	94	261	1990	2170	2400	631	136
3	169	56	110	70	26	131	263	1970	2130	2490	565	178
4	81	54	176	72	25	139	315	1960	2090	2590	493	225
5	75	54	25	106	25	182	416	1950	1790	2760	627	375
6	74	54	20	101	27	183	511	1740	1120	2840	906	347
7	74	52	19	88	26	179	514	1650	1600	2760	1290	191
8	350	51	19	86	26	179	519	1810	1790	2680	1010	133
9	448	49	19	86	25	203	518	1780	2010	2410	922	58
10	309	62	258	94	18	290	513	1720	2090	1940	802	56
11	310	85	364	87	17	309	511	2170	1960	1720	693	54
12	250	89	38	86	18	202	516	2330	1680	1680	723	54
13	187	94	31	85	19	70	520	2280	1730	1660	707	54
14	110	94	29	70	19	66	464	2160	1730	1550	783	55
15	140	91	27	51	26	198	310	2090	1880	1220	921	87
16	245	86	27	47	27	487	208	1610	1740	858	867	198
17	338	85	26	28	23	525	205	1070	2230	684	763	230
18	336	77	26	26	27	525	159	672	2330	736	667	164
19	272	69	26	23	28	524	97	1480	2340	649	591	42
20	277	69	26	23	28	523	216	1540	2330	441	625	38
21	358	68	26	23	29	320	637	1120	2330	315	684	38
22	361	61	26	22	41	87	1100	1690	2340	395	694	36
23	273	32	28	20	61	90	1520	1830	2340	824	685	39
24	201	28	45	19	76	113	1550	1980	2350	1180	677	46
25	303	26	52	18	78	122	1690	2270	2360	1340	528	45
26	339	26	52	18	78	165	1920	2320	2140	1070	398	44
27	229	25	52	18	80	157	1980	2200	1080	700	393	43
28	215	24	60	21	81	183	1980	2020	1630	580	577	43
29	160	23	65	26	---	213	1990	2030	1680	626	538	45
30	67	22	70	26	---	208	1990	2040	1940	703	526	46
31	63	---	70	26	---	207	---	2050	---	698	527	---
TOTAL	7182	1721	1855	1606	1006	6959	23630	57512	59010	44799	21480	3430
MEAN	232	57.4	59.8	51.8	35.9	224	788	1855	1967	1445	693	114
MAX	448	94	364	106	81	525	1990	2330	2360	2840	1290	375
MIN	63	22	19	18	17	66	97	672	1080	315	393	36
AC-FT	14250	3410	3680	3190	2000	13800	46870	114100	117000	88860	42610	6800
CAL YR 1982	TOTAL	52386	MEAN 144	MAX 736	MIN 11	AC-FT 103900						
WTR YR 1983	TOTAL	230190	MEAN 631	MAX 2840	MIN 17	AC-FT 456600						

06710000 SOUTH PLATTE RIVER AT LITTLETON, CO--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1979 to current year.

WATER TEMPERATURES: April 1970 to current year.

INSTRUMENTATION.--Temperature recorder since April 1970.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 692 micromhos Dec. 4, 1981; minimum daily, 118 micromhos Dec. 3, 1979.

WATER TEMPERATURES: Maximum, 32°C June 12, 1979; minimum, freezing point on many days during winter months most years.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 618 micromhos Oct. 27; minimum daily, 152 micromhos July 3, 4.

WATER TEMPERATURES: Maximum, 24.5°C Sept. 2, 9; minimum, 0.5°C Jan. 15, 16, Feb. 4, 6, 7.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 18...	1230	83	420	423	8.2	7.5	11	13.2	K4	120
JAN 11...	1330	87	441	434	7.8	4.0	2.5	14.8	60	K30
MAY 26...	0945	2330	210	212	7.8	12.0	80	9.0	--	--
JUL 13...	1030	1680	176	172	7.6	19.5	25	6.6	210	1600
SEP 30...	1220	46	530	484	8.2	17.5	3.7	9.9	210	390

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 18...	140	39	11	28	1	2.4	101	59	33	1.0
JAN 11...	150	40	11	29	1	2.4	105	62	32	1.0
MAY 26...	73	21	5.0	12	.6	2.3	57	26	14	1.1
JUL 13...	65	19	4.2	9.0	.5	2.3	58	20	6.8	1.1
SEP 30...	170	50	12	33	1	2.5	123	75	32	1.1

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV 18...	9.4	246	240	.33	55	.170	<.060	1.1	.050	.030
JAN 11...	10	231	250	.31	54	.430	.100	.40	.020	.010
MAY 26...	14	134	130	.18	843	.200	.170	.80	.130	.030
JUL 13...	13	118	110	.16	535	.110	.160	.80	.050	.030
SEP 30...	11	297	290	.40	37	.500	.060	.90	.010	<.010

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 18...	1230	1	66	<1	<1	<3	1	25
JAN 11...	1330	<1	62	<1	<1	<3	1	16
MAY 26...	0945	<1	40	<1	<1	<3	1	65
SEP 30...	1220	<1	67	<1	<1	<3	2	10

## PLATTE RIVER BASIN

06710000 SOUTH PLATTE RIVER AT LITTLETON, CO--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 18...	1	120	<.1	1	1	<1	<3
JAN 11...	<1	29	<.1	<1	1	<1	4
MAY 26...	9	7	<.1	2	1	<1	6
SEP 30...	<1	36	<.1	2	2	<1	8

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	1230	83	26	5.8	91	MAY 26...	0945	2330	208	1310	40
JAN 11...	1330	87	5	1.1	--	JUL 13...	1030	1680	98	445	--
MAR 10...	1030	285	79	61	75	SEP 30...	1220	46	6	.75	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	364	439	359	456	556	400	369	275	205	167	240	172
2	363	443	206	508	459	398	358	251	206	205	241	172
3	363	440	383	508	442	397	362	243	205	152	242	170
4	363	441	396	509	442	389	362	243	205	152	241	170
5	363	440	392	509	441	394	365	246	203	177	243	169
6	367	440	302	512	440	384	370	244	205	188	244	168
7	363	439	388	510	442	382	366	244	205	189	243	206
8	363	445	399	512	440	387	363	219	208	196	242	225
9	363	445	396	509	442	376	360	208	204	210	324	210
10	363	443	390	508	441	376	360	204	205	213	328	241
11	363	419	392	508	443	378	353	203	205	223	329	330
12	363	415	386	510	442	375	357	201	206	297	328	326
13	364	414	393	509	442	375	353	195	207	298	332	330
14	365	412	397	510	442	375	354	193	210	292	329	330
15	365	414	404	510	441	374	355	193	165	306	324	340
16	366	416	397	535	444	376	341	192	165	326	319	332
17	366	414	484	532	404	376	304	192	164	304	317	349
18	367	524	487	539	416	373	307	192	164	237	322	348
19	366	533	500	539	416	376	299	193	165	320	354	349
20	366	544	488	541	416	373	302	192	165	331	357	403
21	366	546	489	538	416	372	302	194	165	333	356	452
22	366	553	487	543	416	372	303	195	164	348	355	454
23	366	538	476	543	420	374	302	195	164	351	354	452
24	365	450	490	549	416	374	304	194	166	350	351	453
25	368	542	488	555	417	373	307	194	166	318	350	470
26	367	558	490	554	417	373	303	195	165	265	358	470
27	618	556	493	554	416	374	304	194	165	266	363	471
28	574	556	489	555	417	374	261	193	166	266	364	472
29	446	560	453	551	---	373	282	193	153	267	361	473
30	444	557	449	553	---	373	261	193	153	266	360	473
31	439	---	453	553	---	373	---	193	---	241	358	---
MEAN	387	478	426	527	435	379	330	208	183	260	317	333
WTR YR 1983	MEAN	355	MAX	618	MIN	152						

## PLATTE RIVER BASIN

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06710000 SOUTH PLATTE RIVER AT LITTLETON, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	10.5	7.0	.0	4.0	9.0	6.5	12.0	13.0	18.5	21.5	21.5
2	15.5	10.5	7.5	.0	4.0	9.0	6.5	12.0	13.0	18.5	22.0	21.5
3	15.5	10.0	7.0	1.0	3.5	8.5	6.0	12.0	13.5	18.5	21.5	21.5
4	15.5	9.5	6.5	1.0	4.0	8.5	6.0	12.5	13.5	18.0	22.0	21.0
5	15.0	9.0	6.5	1.5	3.0	8.5	6.5	12.0	13.0	18.5	22.5	21.5
6	15.0	9.5	6.0	1.5	3.0	8.0	6.0	12.0	13.0	19.0	22.0	21.0
7	15.0	8.5	6.0	2.0	2.0	7.5	6.0	12.5	13.5	18.5	22.5	21.0
8	14.5	8.0	6.0	2.5	2.0	8.0	6.0	13.0	13.0	18.5	22.5	21.0
9	14.0	8.0	6.5	2.0	2.0	7.5	5.5	12.5	13.5	19.0	23.0	21.5
10	14.5	8.0	6.5	2.0	3.5	8.0	5.5	12.5	13.5	19.0	23.0	21.0
11	14.5	8.0	6.0	2.5	3.5	8.5	5.5	13.0	13.0	19.0	23.5	21.0
12	14.0	8.5	6.0	2.0	4.0	8.0	5.0	13.0	13.5	19.5	23.0	21.5
13	14.0	8.5	6.5	2.5	4.0	7.5	5.0	13.5	13.5	19.5	23.5	21.0
14	14.0	8.5	6.0	2.5	4.5	7.5	6.0	13.0	14.5	20.0	23.5	21.0
15	13.5	8.5	5.5	2.0	5.0	8.0	6.5	12.5	14.0	19.5	23.5	20.5
16	13.0	9.0	5.5	2.5	5.0	7.5	6.5	12.5	15.0	20.0	23.0	21.0
17	13.0	9.0	5.5	3.0	6.0	7.0	7.0	13.0	15.0	20.0	23.0	20.5
18	13.0	9.0	5.5	3.0	5.5	7.0	7.5	13.0	14.5	20.0	23.5	20.0
19	13.5	9.0	5.5	3.0	6.0	7.0	8.5	12.5	15.0	20.0	23.0	20.0
20	13.0	9.0	6.0	3.5	6.5	7.0	8.5	12.5	16.0	20.5	23.0	19.0
21	13.5	8.5	5.5	3.0	6.5	7.5	9.0	13.0	16.0	20.5	23.0	19.5
22	13.5	8.0	5.0	3.5	7.5	7.5	10.0	13.0	16.5	20.0	22.5	19.5
23	13.5	7.5	4.5	4.0	7.5	7.0	11.0	13.5	17.0	20.5	22.5	19.0
24	13.0	7.5	4.5	4.5	7.5	7.0	11.0	13.5	16.5	21.0	22.0	18.5
25	13.5	7.5	4.5	5.0	7.5	7.0	11.0	13.0	16.5	21.5	22.5	18.5
26	13.5	7.0	4.0	4.5	8.0	6.5	11.5	13.0	17.0	21.0	22.0	18.0
27	10.5	7.0	3.5	4.0	9.0	6.5	11.0	13.0	17.5	21.5	22.0	18.5
28	10.0	7.5	1.0	4.5	9.0	6.5	12.0	13.0	18.0	21.5	22.5	18.0
29	10.0	7.0	1.5	4.5	---	6.5	11.5	13.0	17.5	22.0	22.0	18.0
30	10.0	7.0	.5	4.0	---	7.0	12.0	13.5	18.5	22.0	22.0	17.5
31	10.5	---	.0	4.0	---	7.0	---	13.5	---	21.5	21.5	---
MEAN	13.5	8.5	5.0	3.0	5.0	7.5	8.0	13.0	15.0	20.0	22.5	20.0
WTR YR 1983	MEAN	12.0		MAX	23.5	MIN	.0					

## PLATTE RIVER BASIN

06710500 BEAR CREEK AT MORRISON, CO

LOCATION.--Lat 39°39'11", long 105°11'43", in SE¼SW¼ sec.35, T.4 S., R.70 W., Jefferson County, Hydrologic Unit 10190002, on left bank at Morrison, 180 ft upstream from bridge on State Highway 8 and 0.2 mi upstream from Mount Vernon Creek.

DRAINAGE AREA.--164 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, September 1887 to September 1891, May 1895 to December 1901, February 1902 (gage heights only), October 1919 to current year. No winter records for water years 1888-90, 1896, 1898, 1900. Monthly discharge only for some periods, published in WSP 1310. Published as "near Morrison" 1900-1902, as "at Starbuck" 1919-28, and as "at Idledale" 1929-34. Water-quality data available, October 1976 to September 1981.

REVISED RECORDS.--WSP 976: 1942. WSP 1310: 1888, 1890-91, 1898, 1935(M). WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,780.43 ft, National Geodetic Vertical Datum of 1929. See WSP 1710 or 1730 for history of changes prior to Oct. 1, 1934. Oct. 1, 1934, to Oct. 10, 1961, water-stage recorder at site 80 ft downstream at present datum.

REMARKS.--Records fair except those for winter period, which are poor. Small diversions for irrigation of about 1,000 acres above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--68 years (water years 1891, 1897, 1899, 1901, 1920-83), 53.3 ft<sup>3</sup>/s; 38,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,600 ft<sup>3</sup>/s, estimated, July 24, 1896; minimum daily, 0.8 ft<sup>3</sup>/s Nov. 26, 1939, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,140 ft<sup>3</sup>/s at 1700 July. 22, gage height, 8.67 ft, only peak above base of 250 ft<sup>3</sup>/s; minimum daily, 10 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	36	27	18	14	18	70	282	430	280	112	117
2	65	28	22	19	13	20	62	270	400	260	128	108
3	61	21	22	20	12	20	60	238	370	240	115	105
4	58	33	21	22	12	21	49	230	375	220	144	107
5	57	38	24	22	12	26	51	230	380	205	149	100
6	57	31	23	27	12	23	50	248	375	201	198	92
7	53	30	27	25	13	19	48	232	375	193	157	88
8	58	30	25	20	14	22	47	240	380	189	142	82
9	52	35	23	18	14	20	48	261	385	183	132	80
10	54	29	25	16	12	22	53	294	390	193	125	75
11	51	32	22	18	12	29	60	288	395	212	119	75
12	49	22	22	18	11	33	59	255	365	181	119	68
13	57	20	21	17	14	32	58	245	330	161	130	67
14	48	24	20	18	14	35	54	212	306	144	138	67
15	49	22	22	16	14	38	54	193	326	139	130	73
16	49	30	24	16	14	33	57	183	318	126	114	67
17	47	28	16	17	14	35	65	201	303	119	128	64
18	45	29	19	18	15	32	87	205	322	113	128	61
19	45	30	19	17	15	30	124	240	330	113	138	60
20	42	23	18	18	14	30	157	282	340	109	178	59
21	43	22	16	18	13	28	208	297	320	119	146	58
22	41	23	16	16	16	35	228	354	315	434	171	57
23	42	28	18	16	17	32	232	378	378	178	164	57
24	41	27	14	16	18	32	255	412	332	149	151	56
25	40	25	13	16	18	36	322	458	330	119	134	54
26	40	23	13	16	18	35	318	466	325	123	130	54
27	39	28	10	16	16	32	303	476	320	153	128	52
28	39	29	11	16	17	32	294	485	310	140	114	50
29	32	29	12	16	---	40	288	490	300	121	108	52
30	43	25	14	15	---	48	300	495	290	112	128	51
31	37	---	16	14	---	74	---	460	---	110	125	---
TOTAL	1504	830	595	555	398	962	4061	9600	10415	5339	4223	2156
MEAN	48.5	27.7	19.2	17.9	14.2	31.0	135	310	347	172	136	71.9
MAX	70	38	27	27	18	74	322	495	430	434	198	117
MIN	32	20	10	14	11	18	47	183	290	109	108	50
AC-FT	2980	1650	1180	1100	789	1910	8050	19040	20660	10590	8380	4280
CAL YR 1982	TOTAL	15412.5	MEAN	42.2	MAX 136	MIN 8.0	AC-FT	30570				
WTR YR 1983	TOTAL	40638.0	MEAN	111	MAX 495	MIN 10	AC-FT	80610				



## PLATTE RIVER BASIN

75

06711500 BEAR CREEK AT MOUTH, AT SHERIDAN, CO

LOCATION.--Lat 39°39'08", long 105°01'57", in NW¼NW¼ sec.5, T.5 S., R.68 W., Arapahoe County, Hydrologic Unit 10190002, on left bank just downstream from bridge on road to Fort Logan Mental Health Center, at Highway Department maintenance building at northwest city limits of Sheridan, 1.3 mi upstream from mouth, and 2.1 mi west of city hall in Englewood.

DRAINAGE AREA.--260 mi<sup>2</sup>.

PERIOD OF RECORD.--April to November 1914, March 1927 to current year. Monthly discharge only prior to October 1933, published in WSP 1310. Published as "at Sheridan Junction" 1934-41.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,295 ft, from topographic map. See WSP 1710 or 1730 for history of changes prior to Oct. 9, 1953. Oct. 9, 1953, to Aug. 6, 1969, water-stage recorder at present site at datum 1.0 ft, higher.

REMARKS.--Records good. Flow regulated by Bear Creek Lake since July 1979. Storage and diversions above station for irrigation of about 12,000 acres. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--56 years, 40.7 ft<sup>3</sup>/s; 29,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,150 ft<sup>3</sup>/s May 7, 1969, gage height, 10.5 ft, present datum, from flood marks, from rating curve extended above 3,400 ft<sup>3</sup>/s; no flow July 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 799 ft<sup>3</sup>/s at 2200 May 30, gage height, 4.78 ft; maximum gage height, 4.80 ft at 1300 Apr. 26; minimum daily discharge, 9.1 ft<sup>3</sup>/s Feb. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	26	15	31	13	10	127	541	681	667	101	115
2	74	22	15	31	13	11	113	519	664	663	115	103
3	71	17	14	30	12	14	126	423	645	510	123	96
4	73	15	14	30	11	19	110	420	640	357	117	96
5	73	18	15	31	12	112	102	421	575	289	189	100
6	68	17	15	33	12	74	100	439	250	226	188	90
7	63	16	14	30	11	43	96	406	273	227	159	86
8	71	15	13	23	11	30	97	388	313	221	161	78
9	68	19	12	19	11	26	96	412	332	216	152	70
10	64	19	15	17	11	24	98	466	387	245	138	66
11	65	18	13	21	11	26	110	472	462	228	124	66
12	62	19	13	19	11	45	120	416	465	242	127	62
13	77	17	14	17	12	42	117	395	567	266	133	62
14	71	13	13	17	12	21	97	367	657	272	154	61
15	63	13	13	18	12	73	91	298	635	259	149	61
16	59	13	13	19	12	76	98	290	614	256	139	53
17	58	14	12	18	11	70	96	403	448	222	129	48
18	51	14	12	18	11	68	132	282	335	145	138	44
19	32	14	12	16	9.8	65	192	665	338	140	152	31
20	21	15	13	15	9.8	62	275	651	336	130	173	26
21	17	14	14	15	9.1	58	430	314	332	130	162	26
22	16	15	14	14	9.3	60	489	327	330	143	154	25
23	15	14	13	14	9.3	61	493	527	418	224	162	63
24	14	14	12	15	9.9	63	525	738	562	190	151	68
25	12	14	22	14	10	75	571	733	557	178	142	38
26	11	16	23	14	9.6	74	689	687	600	141	135	34
27	12	19	24	15	11	64	731	783	338	150	137	41
28	13	18	30	15	9.8	65	697	751	452	127	128	40
29	13	19	29	14	---	75	669	738	742	117	120	40
30	17	18	30	14	---	74	568	751	704	107	127	41
31	27	---	31	14	---	109	---	722	---	103	131	---
TOTAL	1426	495	512	611	306.6	1689	8255	15745	14652	7391	4410	1830
MEAN	46.0	16.5	16.5	19.7	11.0	54.5	275	508	488	238	142	61.0
MAX	77	26	31	33	13	112	731	783	742	667	189	115
MIN	11	13	12	14	9.1	10	91	282	250	103	101	25
AC-FT	2830	982	1020	1210	608	3350	16370	31230	29060	14660	8750	3630
CAL YR 1982	TOTAL	11092.6	MEAN	30.4	MAX 127	MIN 3.8	AC-FT	22000				
WTR YR 1983	TOTAL	57322.6	MEAN	157	MAX 783	MIN 9.1	AC-FT	113700				

## PLATTE RIVER BASIN

06711565 SOUTH PLATTE RIVER AT ENGLEWOOD, CO

LOCATION.--Lat 39°39'54", long 105°00'13", in NW¼NE¼ sec.33, T.4 S., R.68 W., Arapahoe County, Hydrologic Unit 10190002, on right bank, 0.3 mi downstream from Dartmouth Ave bridge at Englewood, 1.4 mi downstream from Bear Creek.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--February to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 5,250 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage and flood control reservoirs, power developments, diversions for irrigation and municipal use, and return flow from irrigated areas. Flow regulated by Chatfield Dam since May 29, 1975 (station 06709600), and Bear Creek Dam since July 1979.

EXTREMES FOR PERIOD, FEBRUARY TO SEPTEMBER.--Maximum discharge, 3,680 ft<sup>3</sup>/s at 2030 Aug. 5, gage height 5.10 ft; minimum daily 28 ft<sup>3</sup>/s Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					45	104	352	2380	2670	2190	817	535
2					45	107	358	2430	2810	2340	776	279
3					45	154	381	2340	2780	2400	696	320
4					45	175	424	2310	2720	2440	635	405
5					45	205	535	2260	2430	2680	1200	563
6					45	101	628	2060	1230	2930	1400	570
7					45	82	621	1770	1740	2880	1580	347
8					45	66	628	2020	1910	2860	1200	279
9					46	74	628	2020	2180	2570	1050	162
10					42	243	621	1950	2370	2170	937	132
11					28	376	635	2440	2310	1770	784	150
12					30	294	681	2670	1970	1680	809	91
13					37	124	696	2640	2140	1670	817	63
14					37	88	598	2460	2140	1580	919	104
15					48	274	418	2310	2220	1260	1100	187
16					52	606	310	1790	2060	954	1010	330
17					44	613	310	1470	2480	704	859	393
18					44	603	299	902	2460	720	768	294
19					44	598	294	1930	2430	635	704	104
20					35	598	455	2130	2420	430	776	82
21					33	418	1000	1200	2380	335	955	82
22					37	146	1560	1760	2340	766	928	76
23					71	142	1860	2070	2370	1340	937	104
24					101	166	1860	2370	2460	1590	919	139
25					101	201	2070	2800	2490	1600	743	94
26					104	243	2380	2860	2590	1280	563	104
27					104	205	2520	2850	1360	902	563	107
28					101	228	2480	2620	1630	751	748	107
29					---	289	2480	2620	1760	776	812	117
30					---	274	2430	2680	1880	902	745	121
31					---	299	---	2730	---	910	802	---
TOTAL					1499	8096	30512	68842	66730	48015	27552	6441
MEAN					53.5	261	1017	2221	2224	1549	889	215
MAX					104	613	2520	2860	2810	2930	1580	570
MIN					28	66	294	902	1230	335	563	63
AC-FT					2970	16060	60520	136500	132400	95240	54650	12780

## PLATTE RIVER BASIN

77

06712000 CHERRY CREEK NEAR FRANKTOWN, CO

LOCATION.--Lat 39°21'21", long 104°45'46", in NE¼ sec.15, T.8 S., R.66 W., Douglas County, Hydrologic Unit 10190003, on right bank 1.5 mi upstream from Russellville Gulch and 2.5 mi south of Franktown.

DRAINAGE AREA.--169 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1939 to current year.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 6,170 ft, from topographic map. See WSP 1730 for history of changes prior to Oct. 1, 1953.

REMARKS.--Records fair except those for winter period, which are poor. Many small diversions above station for irrigation of about 800 acres. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--43 years (water years 1941-83), 8.98 ft<sup>3</sup>/s; 6,510 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,170 ft<sup>3</sup>/s Aug. 5, 1945, gage height, 4.91 ft, site and datum then in use, by float measurement; minimum daily, 0.20 ft<sup>3</sup>/s July 13, 1946, Sept. 30, Oct. 1, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 3, 1933, caused by Castlewood Dam failure, exceeded all other observed floods at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
April 21	2100	* 1,380	6.20	June 5	1830	624	5.29
May 20	2030	1,340	6.27	Aug. 16	2200	290	4.56

Minimum daily discharge, 3.0 ft<sup>3</sup>/s Oct. 2, 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	6.1	7.3	4.4	7.5	24	53	69	60	37	16	8.1
2	3.0	5.7	6.6	4.6	7.3	32	43	81	62	28	15	7.8
3	3.1	5.7	7.2	4.7	6.5	26	48	86	59	24	14	7.5
4	3.0	5.6	6.6	5.1	6.0	22	32	73	54	22	33	7.6
5	3.0	5.8	6.6	5.1	5.0	10	25	62	114	20	27	7.6
6	3.1	5.8	6.7	5.6	5.5	7.0	31	58	83	18	30	7.3
7	3.1	6.0	6.4	6.0	6.0	7.6	36	52	60	17	25	7.3
8	4.2	6.0	6.3	6.1	7.3	8.7	35	47	55	15	21	7.0
9	4.5	6.0	6.4	6.0	7.8	11	36	44	50	14	20	6.8
10	4.7	6.1	6.7	5.9	7.2	17	44	40	44	13	16	6.7
11	4.3	6.8	6.2	6.7	7.1	22	59	36	42	15	14	7.2
12	4.1	7.3	7.2	6.7	7.3	26	58	37	38	16	14	7.1
13	5.8	7.5	6.8	6.4	8.0	26	35	37	37	14	31	7.1
14	5.4	7.6	6.1	6.3	8.7	33	25	44	39	14	44	7.3
15	5.1	7.6	7.1	6.2	8.7	23	30	44	33	13	23	7.5
16	4.7	7.5	6.1	6.1	9.4	12	43	43	30	12	55	7.5
17	4.5	7.8	5.9	6.3	10	12	56	46	29	11	32	7.3
18	4.4	9.2	6.1	6.1	11	14	102	73	27	11	18	6.8
19	4.4	10	8.0	6.0	10	16	188	186	24	10	17	7.0
20	4.3	9.4	6.2	5.8	8.9	19	459	512	23	10	14	6.7
21	4.4	8.0	6.2	6.2	10	17	684	267	21	9.6	13	6.7
22	4.2	7.2	6.6	6.6	11	18	494	154	18	20	12	7.0
23	4.2	7.1	6.4	6.5	14	19	308	111	18	24	11	7.5
24	4.4	7.6	6.0	6.3	18	18	173	90	17	35	11	7.6
25	4.4	7.3	5.8	6.8	21	21	230	74	16	25	11	7.8
26	4.4	7.1	5.4	7.1	19	17	126	66	30	20	10	8.0
27	4.7	7.0	5.2	7.3	24	12	94	60	52	18	9.6	8.1
28	5.7	7.0	4.7	7.3	22	14	80	54	43	17	8.9	8.0
29	5.2	7.3	4.2	7.8	---	27	69	50	52	16	8.7	8.0
30	5.5	7.3	4.5	7.8	---	41	66	51	48	15	8.9	8.1
31	5.6	---	4.3	7.8	---	66	---	60	---	15	8.5	---
TOTAL	134.5	212.4	191.8	193.6	294.2	638.3	3762	2707	1278	548.6	591.6	222.0
MEAN	4.34	7.08	6.19	6.25	10.5	20.6	125	87.3	42.6	17.7	19.1	7.40
MAX	5.8	10	8.0	7.8	24	66	684	512	114	37	55	8.1
MIN	3.0	5.6	4.2	4.4	5.0	7.0	25	36	16	9.6	8.5	6.7
AC-FT	267	421	380	384	584	1270	7460	5370	2530	1090	1170	440
CAL YR 1982 TOTAL	2456.51			MEAN 6.73	MAX 134	MIN .43	AC-FT 4870					
WTR YR 1983 TOTAL	10774.00			MEAN 29.5	MAX 684	MIN 3.0	AC-FT 21370					

## PLATTE RIVER BASIN

06712990 CHERRY CREEK LAKE NEAR DENVER, CO

LOCATION.--Lat 39°09'03", long 104°51'13", in NW¼NE¼ sec.2, T.55 S., R.67 W., Arapahoe County, Hydrologic Unit 10190003, 0.8 mi southwest from intersection of Interstate Highway 225 and Parker Road, 0.2 mi from right end of dam, 1.6 mi northwest of intersection of Parker and Airline Roads, and 11.5 mi upstream from mouth.

DRAINAGE AREA.--385 mi<sup>2</sup>.

PERIOD OF RECORD.--Contents, October 1960 to current year. Water-quality data available, October 1976 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army, Corps of Engineers); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by earthfill dam. Storage began May 15, 1957; dam completed in June 1950. Capacity, 92,820 acre-ft, at elevation 5,598.00 ft, crest of spillway. No dead storage. Figures given represent total contents. Reservoir is for flood control and recreation.

COOPERATION.--Records furnished by U.S. Army, Corps of Engineers. Capacity revised on basis of new capacity table dated January 1975.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,120 acre-ft, June 3, 1973, elevation, 5,565.82 ft; minimum, 9,980 acre-ft, Nov. 23, 24, 1978, elevation, 5,545.90 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,800 acre-ft July 25, elevation, 5,557.89 ft; minimum, 11,260 acre-ft, Oct. 8, elevation, 5,547.59 ft.

MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,547.67	11,320	-
Oct. 31. . . . .	5,547.67	11,320	0
Nov. 30. . . . .	5,547.68	11,330	+10
Dec. 31. . . . .	5,547.96	11,550	+220
CAL YR 1982 . . . . .		-	-50
Jan. 31. . . . .	5,548.04	11,610	+60
Feb. 28. . . . .	5,548.23	11,770	+160
Mar. 31. . . . .	5,550.78	13,900	+2,130
Apr. 30. . . . .	5,551.10	14,180	+280
May 31. . . . .	5,553.81	16,670	+2,490
June 30. . . . .	5,555.05	17,870	+1,200
July 31. . . . .	5,556.85	19,700	+1,830
Aug. 31. . . . .	5,551.29	14,350	-5,350
Sept. 30. . . . .	5,551.09	14,170	-180
WTR YR 1983 . . . . .			+2,850

## PLATTE RIVER BASIN

79

06713000 CHERRY CREEK BELOW CHERRY CREEK LAKE, CO

LOCATION.--Lat 39°39'12", long 104°51'41", in SW¼SW¼ sec.35, T.4 S., R.67 W., Arapahoe County, Hydrologic Unit 10190003, on right bank 2,000 ft downstream from Cherry Creek Dam, 2.2 mi southeast of Sullivan, 9 mi southeast of Civic Center in Denver, and 11 mi upstream from mouth.

DRAINAGE AREA.--385 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1950 to current year.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 5,490.51 ft, (Corps of Engineers bench mark).

REMARKS.--Records good. Flow regulated by Cherry Creek Lake (see elsewhere in this report). Diversions above station for irrigation of about 1,800 acres. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--33 years, 4.41 ft<sup>3</sup>/s; 3,190 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft<sup>3</sup>/s July 31, 1956, gage height, 6.07 ft; no flow most of time since May 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood known, 34,000 ft<sup>3</sup>/s Aug. 3, 1933, by slope-area measurement near present site (Castlewood Dam failure).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 344 ft<sup>3</sup>/s at 1000 Apr. 22, gage height, 4.56 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	282	292	.00	132	.00
2	.00	.00	.00	.00	.00	.00	.00	179	285	.00	155	.00
3	.00	.00	.00	.00	.00	.00	.00	123	146	.00	215	.00
4	.00	.00	.00	.00	.00	.00	.00	120	.08	.00	212	.00
5	.00	.00	.00	.00	.00	.00	.00	42	.74	.00	212	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	212	1.8
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	212	1.1
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	212	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.65	215	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	116	215	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	142	215	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	176	212	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	173	212	.00
14	.00	.00	.00	.00	.00	.00	.59	.00	.00	173	212	.00
15	.00	.00	.00	.00	.00	.00	101	.00	.00	170	87	.00
16	.00	.00	.00	.00	.00	.00	99	.00	.00	170	.00	.00
17	.00	.00	.00	.00	.00	.00	99	.27	.00	170	.00	.00
18	.00	.00	.00	.00	.00	.00	90	.30	.00	67	.00	.00
19	.00	.00	.00	.00	.00	.00	90	.35	.00	.16	.00	.00
20	.00	.00	.00	.00	.00	.00	90	.59	.00	.12	.00	.00
21	.00	.00	.00	.00	.00	.00	92	.00	.00	.16	.00	.00
22	.00	.00	.00	.00	.00	.00	226	.00	.00	.45	.00	.00
23	.00	.00	.00	.00	.00	.00	316	.00	.00	.63	.00	.00
24	.00	.00	.00	.00	.00	.00	316	.00	.00	.07	.00	.00
25	.00	.00	.00	.00	.00	.00	310	.00	.00	65	.00	.00
26	.00	.00	.00	.00	.00	.00	302	.00	.22	118	.00	.00
27	.00	.00	.00	.00	.00	.00	296	115	.28	118	.00	.00
28	.00	.00	.00	.00	.00	.00	292	313	.00	116	.00	.00
29	.00	.00	.00	.00	---	.00	288	310	.00	118	.00	.00
30	.00	.00	.00	.00	---	.00	285	306	.00	125	.00	.00
31	.00	---	.00	.00	---	.00	---	299	---	128	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	3351.00	2090.51	724.39	2211.59	2930.00	2.90
MEAN	.000	.000	.000	.000	.000	.000	112	67.4	24.1	71.3	94.5	.097
MAX	.00	.00	.00	.00	.00	.00	316	313	292	176	215	1.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	6650	4150	1440	4390	5810	5.8
CAL YR 1982 TOTAL	5.18	MEAN	.014	MAX	1.4	MIN	.00	AC-FT	10			
WTR YR 1983 TOTAL	11310.39	MEAN	31.0	MAX	316	MIN	.00	AC-FT	22430			

## PLATTE RIVER BASIN

06713500 CHERRY CREEK AT DENVER, CO

LOCATION.--Lat 39°44'58", long 105°00'08", in NE¼ sec.33, T.3 S., R.68 W., Denver County, Hydrologic Unit 10190003, on right bank on downstream side of Wazee Street Bridge in Denver, 0.5 mi upstream from mouth.

DRAINAGE AREA.--409 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1942 to September 1969, February 1980 to current year.

REVISED RECORDS.--WSP 1710: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,175.48 ft, National Geodetic Vertical Datum of 1929. See WSP 1730 for history of changes prior to July 16, 1951. July 16, 1951, to Sept. 30, 1969, water-stage recorder at present site and datum.

REMARKS.--Records fair. Several diversions above station for irrigation of about 1,900 acres. Floodflow regulated by Cherry Creek Reservoir 11 mi upstream capacity, 95,960 acre-ft. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--30 years (water years 1943-69, 1981-83), 17.8 ft<sup>3</sup>/s; 12,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3,120 ft<sup>3</sup>/s Aug. 5, 1945, gage height, 5.25 ft, site and datum then in use; maximum gage height, 11.91 ft, June 17, 1965 (backwater from South Platte River); minimum daily discharge, 0.4 ft<sup>3</sup>/s June 16-18, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 26, 1885, reached a discharge of 20,000 ft<sup>3</sup>/s, by float measurement. Flood of May 19, 20, 1864, reached a somewhat higher stage. Flood of Aug. 3, 1933, reached a discharge of about 15,000 ft<sup>3</sup>/s as determined by rise of South Platte River at Denver.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft<sup>3</sup>/s at 1900 July 30, gage height, 5.38 ft; minimum daily, 7.7 ft<sup>3</sup>/s Mar. 1.

REVISIONS.--The maximum discharge for water year 1982 has been revised to 808 ft<sup>3</sup>/s at 1645 June 24, gage height 4.92 ft, this figure supersedes that published in WDR-CO-82-1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	12	13	11	10	7.7	17	275	317	37	278	21
2	13	15	12	10	9.9	8.6	13	244	302	43	296	43
3	13	13	12	11	9.6	9.3	20	162	238	29	378	30
4	13	12	12	10	9.9	12	34	172	83	43	398	54
5	18	13	11	13	9.6	206	39	116	186	22	510	42
6	13	12	11	23	9.3	86	28	40	72	23	481	34
7	10	12	11	20	8.9	64	22	34	34	22	358	30
8	56	13	11	17	8.9	51	21	33	29	23	362	36
9	19	13	11	12	8.6	40	17	32	26	36	371	30
10	11	13	17	12	8.6	39	13	28	43	173	408	18
11	11	30	11	15	8.0	40	14	22	83	192	418	30
12	11	21	10	14	11	30	29	21	78	174	415	24
13	54	15	10	17	14	23	56	49	129	189	459	29
14	16	12	10	13	8.9	26	30	58	66	202	443	28
15	14	12	9.9	11	8.3	81	85	22	25	223	299	30
16	12	12	10	11	8.9	66	91	46	23	246	122	22
17	12	11	11	11	10	28	95	207	37	284	107	21
18	12	11	10	11	9.6	19	89	174	19	209	95	19
19	26	12	10	11	9.6	23	91	103	20	45	97	21
20	12	11	10	12	9.3	21	89	150	20	52	95	29
21	11	10	10	15	8.9	17	103	46	20	46	218	21
22	11	11	10	16	8.9	16	223	34	22	306	116	19
23	10	11	10	12	9.3	15	293	29	22	312	87	20
24	10	10	8.3	12	8.9	19	287	21	19	213	80	19
25	11	10	10	11	8.9	32	290	65	21	100	63	24
26	12	10	10	12	8.9	24	293	54	244	269	88	29
27	15	10	11	11	8.6	17	339	54	225	260	51	30
28	14	10	11	12	8.3	21	293	317	43	263	43	25
29	12	10	10	12	---	19	293	320	26	278	52	30
30	12	12	11	11	---	16	275	387	24	347	28	30
31	12	---	10	12	---	17	---	381	---	317	26	---
TOTAL	489	379	334.2	401	261.6	1093.6	3582	3696	2496	4978	7242	838
MEAN	15.8	12.6	10.8	12.9	9.34	35.3	119	119	83.2	161	234	27.9
MAX	56	30	17	23	14	206	339	387	317	347	510	54
MIN	10	10	8.3	10	8.0	7.7	13	21	19	22	26	18
AC-FT	970	752	663	795	519	2170	7100	7330	4950	9870	14360	1660
CAL YR 1982	TOTAL	5407.4	MEAN	14.8	MAX	201	MIN	5.9	AC-FT	10730		
WTR YR 1983	TOTAL	25790.4	MEAN	70.7	MAX	510	MIN	7.7	AC-FT	51160		

## 06714000 SOUTH PLATTE RIVER AT DENVER, CO

LOCATION.--Lat 39°45'35", long 105°00'10", in NW¼SE¼ sec.28, T.3 S., R.68 W., Denver County, Hydrologic Unit 10190003, on right bank 90 ft upstream from Nineteenth Street Bridge in Denver and 0.4 mi downstream from Cherry Creek.

DRAINAGE AREA.--3,804 mi<sup>2</sup>.

PERIOD OF RECORD.--May to October 1889, June to October 1890, July 1895 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1934(M). WSP 1730: 1957(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,157.64 ft, National Geodetic Vertical Datum, adjustment of 1960. Prior to Aug. 12, 1909, nonrecording gages, and Aug. 12, 1909, to Aug. 28, 1931, water-stage recorder, at several sites within 0.5 mi of present site at various datums. Aug. 29, 1931, to June 28, 1965, water-stage recorder at site 70 ft downstream at datum 3.66 ft, higher. June 29, 1965, to Mar. 18, 1966, water-stage recorder at site 70 ft downstream at present datum.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 79,000 acres and municipal use, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--79 years (water years 1896-1974), 344 ft<sup>3</sup>/s; 249,200 acre-ft/yr, prior to completion of Chatfield Dam; 8 years (water years 1976-83), 390 ft<sup>3</sup>/s; 282,600 acre-ft/yr, subsequent to completion of Chatfield Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft<sup>3</sup>/s June 17, 1965, gage height, 18.66 ft, from flood marks, present datum, from rating curve extended above 2,700 ft<sup>3</sup>/s, on basis of contracted-opening measurement of peak flow; minimum daily, 8.8 ft<sup>3</sup>/s Mar. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,600 ft<sup>3</sup>/s at 0030 June 27, gage height, 7.29 ft; minimum daily, 75 ft<sup>3</sup>/s Dec. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	134	87	151	105	139	426	3200	3370	2900	1020	624
2	429	145	87	146	99	144	431	3150	3570	3050	969	410
3	314	128	113	153	96	187	474	2890	3490	3010	966	380
4	234	111	335	138	93	240	546	2940	3240	3060	851	531
5	269	107	120	192	91	1120	637	2740	3320	3230	1790	666
6	239	104	86	283	89	640	738	2450	1460	3330	1890	740
7	191	100	95	240	89	465	710	2160	2050	3260	2150	438
8	665	98	93	218	88	396	707	2440	2240	3180	1630	389
9	632	112	82	185	88	362	701	2410	2560	2950	1400	254
10	423	116	278	174	86	438	693	2300	2780	2700	1320	222
11	432	222	577	199	77	442	698	2840	2810	2350	1100	237
12	395	178	136	190	82	413	780	3040	2370	2090	1130	216
13	530	177	102	205	94	227	864	3140	2760	2060	1200	215
14	259	157	94	173	87	207	702	2930	2590	1970	1630	228
15	257	157	86	122	88	513	601	2700	2590	1530	1520	248
16	328	152	87	124	93	767	465	2250	2410	1230	1220	379
17	458	152	81	108	95	667	465	2790	2870	857	1010	457
18	451	148	77	105	89	643	458	1350	2880	806	908	351
19	483	129	75	99	87	640	432	2320	2870	656	843	201
20	343	126	80	98	79	662	528	2920	2870	466	980	164
21	441	127	76	92	80	541	1320	1380	2850	366	1200	156
22	438	133	79	91	79	236	2200	2070	2850	1270	1090	147
23	345	103	78	87	109	217	2670	2320	2900	1910	1070	155
24	279	87	78	86	139	250	2650	2660	3060	1970	1050	207
25	333	85	99	91	144	325	2810	3170	3050	1850	865	160
26	429	81	121	87	148	353	3240	3270	3940	1760	696	169
27	345	86	123	88	145	303	3480	3270	2190	1170	622	171
28	289	84	115	91	149	330	3300	3320	2060	910	795	164
29	282	83	127	99	---	399	3280	3290	2280	917	981	172
30	133	85	138	98	---	365	3240	3510	2500	1250	787	176
31	146	---	138	98	---	384	---	3640	---	1230	929	---
TOTAL	11261	3707	3943	4311	2788	13015	40246	84860	82780	59288	35612	9027
MEAN	363	124	127	139	99.6	420	1342	2737	2759	1913	1149	301
MAX	665	222	577	283	149	1120	3480	3640	3940	3330	2150	740
MIN	133	81	75	86	77	139	426	1350	1460	366	622	147
AC-FT	22340	7350	7820	8550	5530	25820	79830	168300	164200	117600	70640	17910
CAL YR 1982	TOTAL	91599	MEAN 251	MAX 1150	MIN 46	AC-FT 181700						
WTR YR 1983	TOTAL	350838	MEAN 961	MAX 3940	MIN 75	AC-FT 695900						

## PLATTE RIVER BASIN

06714215 SOUTH PLATTE RIVER AT 64TH AVENUE AT COMMERCE CITY, CO

LOCATION.--Lat 39°48'44", long 104°57'28", in NW¼NW¼ sec. 12, T.3 S., R.68W., Adams County, Hydrologic Unit 10190003, on right bank 300 ft southeast of intersection of York Street and East 64th Avenue and 1,900 ft upstream from mouth of Sand Creek at Northeast corner of Metro Denver Sewage Disposal plant at Commerce City.

DRAINAGE AREA.--3,829 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,105 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage and flood-control reservoirs, power developments, diversions for irrigation and municipal use, and return flow from irrigated areas. Several observation of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,310 ft<sup>3</sup>/s June 26, 1983, gage height, 6.38 ft; minimum daily, 4.0 ft<sup>3</sup>/s Mar. 25, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 5,310 ft<sup>3</sup>/s at 2300 June 26, gage height 6.38 ft; minimum daily, 5.9 ft<sup>3</sup>/s Feb. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	147	124	150	143	7.7	350	3150	2770	2850	736	601
2	25	158	120	150	131	14	360	3140	2890	3000	848	400
3	22	147	139	145	131	20	380	2830	2790	2970	883	350
4	23	120	370	150	57	38	458	2830	2630	2960	771	480
5	87	113	173	160	19	1170	559	2500	2750	2940	1320	577
6	64	117	124	345	19	354	643	2210	1600	2990	1390	667
7	25	120	128	294	20	175	643	1850	1900	2890	1540	390
8	348	113	139	263	20	100	607	1950	2150	2780	1270	325
9	243	131	120	230	19	48	601	2100	2300	2610	1020	154
10	25	57	250	217	15	113	589	2300	2400	2410	988	70
11	22	70	600	230	15	103	583	2450	2600	2070	862	128
12	22	14	200	230	15	106	697	2600	2300	1810	876	177
13	178	12	130	196	17	14	799	2400	2400	1750	984	131
14	22	12	115	213	14	23	685	2300	2400	1670	1170	131
15	19	12	110	158	12	420	589	2100	2380	1360	1120	124
16	17	12	113	154	17	869	452	2300	2230	1260	911	221
17	23	14	106	139	20	661	447	2600	2470	1170	764	284
18	23	92	100	139	17	577	637	2100	2480	988	715	185
19	107	143	100	124	12	565	89	2020	2480	722	673	51
20	14	143	106	124	14	583	86	2800	2480	518	750	22
21	15	147	103	120	12	491	798	1370	2470	464	1000	22
22	14	158	103	120	29	267	1820	1850	2450	1280	897	23
23	19	131	103	113	38	246	2750	2020	2400	1610	876	32
24	19	117	93	113	25	276	2560	2190	2500	1810	911	131
25	51	113	100	120	12	360	2640	2710	2510	1580	799	73
26	29	106	110	120	5.9	385	3130	2850	3270	1580	661	80
27	51	113	120	106	9.6	330	3440	2790	2390	1080	607	110
28	20	110	130	128	8.6	251	3310	2750	2320	862	691	100
29	22	120	130	131	---	230	3370	2730	2520	876	869	100
30	48	120	135	128	---	147	3220	3000	2630	1080	697	100
31	162	---	140	131	---	207	---	3130	---	890	862	---
TOTAL	1781	2982	4634	5141	867.1	9150.7	37292	75920	73860	54830	28461	6239
MEAN	57.5	99.4	149	166	31.0	295	1243	2449	2462	1769	918	208
MAX	348	158	600	345	143	1170	3440	3150	3270	3000	1540	667
MIN	14	12	93	106	5.9	7.7	86	1370	1600	464	607	22
AC-FT	3530	5910	9190	10200	1720	18150	73970	150600	146500	108800	56450	12380
WTR YR 1983	TOTAL	301157.8	MEAN	825	MAX	3440	MIN	5.9	AC-FT	597300		



## PLATTE RIVER BASIN

83

06716500 CLEAR CREEK NEAR LAWSON, CO

LOCATION.--Lat 39°45'57", long 105°37'32", in NW¼NW¼ sec.25, T.3 S., R.74 W., Clear Creek County, Hydrologic Unit 10190004, on left bank at east edge of Lawson, 30 ft downstream from private bridge, and 2.0 mi downstream from West Fork Clear Creek.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1946 to current year. Records prior to 1959 include inflow from August P. Gumlick Tunnel (formerly Jones Pass tunnel).

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 8,080 ft, from topographic map. Mar. 29, 1946, to Sept. 30, 1967, at site 1.5 mi upstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Natural flow affected by minor transmountain diversion from Colorado River basin through Berthoud Pass ditch (see elsewhere in this report). No diversion above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--37 years, 137 ft<sup>3</sup>/s; 99,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,130 ft<sup>3</sup>/s June 4, 1956, gage height, 7.41 ft, site and datum then in use, from rating curve extended above 1,600 ft<sup>3</sup>/s, on basis of computation of peak flow over dam, caused by failure of Georgetown Dam on White Reservoir 5.0 mi upstream; minimum daily, 13 ft<sup>3</sup>/s Feb. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft<sup>3</sup>/s at 0030 June 26, gage height, 6.42 ft; only peak above base of 600 ft<sup>3</sup>/s; minimum daily, 25 ft<sup>3</sup>/s Dec. 29, Apr. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	58	38	35	33	33	30	41	284	1120	426	277
2	82	53	39	35	32	34	30	41	310	1120	400	261
3	82	45	41	40	30	34	31	39	317	1110	375	238
4	78	49	42	40	30	35	25	39	349	1030	390	268
5	78	55	38	45	32	37	33	40	372	969	457	255
6	76	53	37	45	32	32	34	43	342	970	428	233
7	76	52	36	50	30	32	33	37	334	1020	390	226
8	79	53	35	48	32	34	33	44	356	1090	371	212
9	69	53	37	40	32	32	30	48	406	1120	352	198
10	70	50	39	35	31	33	31	61	483	1130	339	189
11	68	53	39	37	31	35	31	73	613	1040	329	181
12	67	46	39	35	30	35	29	74	718	950	347	176
13	72	47	43	35	31	34	30	75	679	887	339	168
14	70	46	39	37	31	35	28	66	581	827	371	166
15	75	49	35	37	31	36	28	65	570	764	366	171
16	77	47	37	30	31	32	29	62	601	712	323	157
17	73	45	39	32	30	33	29	65	640	672	316	149
18	71	45	36	31	33	32	31	60	803	643	312	145
19	67	47	35	29	36	32	34	59	1040	636	290	138
20	63	45	40	29	35	32	34	58	1180	712	315	143
21	64	44	36	30	36	31	38	58	1250	675	289	132
22	62	42	36	33	36	32	34	68	1260	684	298	131
23	61	41	37	32	36	32	34	72	1230	649	325	128
24	60	44	35	33	35	32	35	95	1260	572	317	128
25	61	46	30	33	37	31	42	125	1360	561	313	124
26	61	42	30	32	36	30	44	160	1320	528	303	121
27	61	41	32	33	34	30	48	211	1280	511	286	117
28	54	44	28	32	34	31	47	265	1280	509	277	117
29	55	44	25	33	---	31	46	282	1230	458	282	121
30	62	41	28	32	---	31	45	315	1150	451	299	118
31	59	---	30	32	---	31	---	278	---	442	311	---
TOTAL	2138	1420	1111	1100	917	1014	1026	3019	23598	24562	10536	5188
MEAN	69.0	47.3	35.8	35.5	32.8	32.7	34.2	97.4	787	792	340	173
MAX	85	58	43	50	37	37	48	315	1360	1130	457	277
MIN	54	41	25	29	30	30	25	37	284	442	277	117
AC-FT	4240	2820	2200	2180	1820	2010	2040	5990	46810	48720	20900	10290
CAL YR 1982	TOTAL	52642	MEAN 144	MAX 835	MIN 18	AC-FT 104400						
WTR YR 1983	TOTAL	75629	MEAN 207	MAX 1360	MIN 25	AC-FT 150000						

## PLATTE RIVER BASIN

06719505 CLEAR CREEK AT GOLDEN, CO

LOCATION.--Lat 39°45'11", long 105°14'05", in NE¼NW¼ sec.33, T.3 S., R.70 W., Jefferson County, Hydrologic Unit 10190004, on left bank 100 ft downstream from U.S. Highway 6 bridge at west edge of Golden, 0.7 mi downstream from headgate of Church ditch, and 13.3 mi downstream from North Clear Creek.

DRAINAGE AREA.--400 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year. Records for station at site 0.8 mi upstream (October 1908 to December 1909, June 1911 to September 1974) are not equivalent due to diversions by Church ditch. Sediment data available April to September 1981.

GAGE.--Water-stage recorder. Altitude of gage is 5,695 ft, from topographic map.

REMARKS.--Records good except those for winter period which are poor. Natural flow of stream affected by minor transmountain diversions from Colorado River basin through Berthoud Pass ditch (see elsewhere in this report) and several small reservoirs above station. Diversion by Welch ditch 1.4 mi upstream and by Church Ditch 0.7 mi upstream for irrigation of about 5,200 acres below station.

AVERAGE DISCHARGE.--9 years, 184 ft<sup>3</sup>/s; 133,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,370 ft<sup>3</sup>/s July 10, 1983, gage height, 6.44 ft, minimum daily, 18 ft<sup>3</sup>/s Dec. 2, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,370 ft<sup>3</sup>/s at 1715 July 10, gage height, 6.44 ft; minimum daily, 32 ft<sup>3</sup>/s Mar. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	77	50	40	40	45	67	192	762	1560	565	380
2	85	75	50	40	38	45	66	184	791	1510	534	340
3	82	72	49	40	34	47	66	164	772	1500	506	312
4	80	72	50	40	38	49	65	167	821	1370	558	337
5	79	74	50	40	39	63	64	172	896	1280	614	345
6	79	73	45	40	40	59	67	185	844	1240	594	301
7	80	71	45	40	40	47	66	181	818	1270	525	291
8	83	70	44	40	40	51	66	194	826	1360	492	276
9	78	70	45	40	40	41	68	221	906	1420	461	261
10	77	69	45	40	40	32	68	269	1030	1560	435	244
11	77	69	45	40	40	38	68	295	1230	1450	413	234
12	76	67	45	40	40	40	68	270	1380	1220	432	219
13	77	63	45	40	40	43	69	267	1230	1120	455	214
14	82	68	45	40	40	60	67	241	1010	1030	475	201
15	88	66	42	40	38	64	67	224	980	941	546	235
16	92	67	42	40	38	62	68	210	1030	878	427	191
17	87	67	40	40	39	59	69	234	1070	820	440	174
18	89	65	39	40	40	55	70	232	1280	768	446	166
19	90	65	36	40	44	58	74	251	1550	735	427	162
20	84	63	38	40	42	56	84	269	1600	844	452	176
21	86	63	38	40	42	60	121	287	1740	813	405	168
22	83	59	38	40	45	63	130	357	1590	903	455	162
23	82	64	38	40	44	61	130	413	1570	866	474	150
24	81	56	38	40	45	60	141	487	1680	737	450	145
25	81	54	38	40	46	61	184	573	1750	681	435	140
26	80	50	37	40	46	60	210	653	1840	850	428	135
27	80	50	38	40	44	58	202	732	1920	737	404	130
28	78	50	38	40	44	60	201	828	1880	712	386	125
29	75	50	37	40	---	62	193	830	1720	612	387	120
30	79	50	37	40	---	63	206	887	1600	576	436	115
31	80	---	40	40	---	67	---	811	---	560	438	---
TOTAL	2537	1929	1307	1240	1146	1689	3085	11280	38116	31923	14495	6449
MEAN	81.8	64.3	42.2	40.0	40.9	54.5	103	364	1271	1030	468	215
MAX	92	77	50	40	46	67	210	887	1920	1560	614	380
MIN	75	50	36	40	34	32	64	164	762	560	386	115
AC-FT	5030	3830	2590	2460	2270	3350	6120	22370	75600	63320	28750	12790
CAL YR 1982	TOTAL	61939	MEAN 170	MAX 999	MIN 28	AC-FT 122900						
WTR YR 1983	TOTAL	115196	MEAN 316	MAX 1920	MIN 32	AC-FT 228500						

06719505 CLEAR CREEK AT GOLDEN, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1981 to current year.

pH: March to September 1981.

WATER TEMPERATURE: March 1981 to current year.

DISSOLVED OXYGEN: March to September 1981.

SUSPENDED-SEDIMENT DISCHARGE: March to September 1981.

INSTRUMENTATION.--Water-quality monitor since March 1981.

REMARKS.--Records rated good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 597 micromhos Jan. 9, 1983; minimum, 38 micromhos July 1, 1983.

pH: Maximum, 8.7 units Mar. 27, April 10, 1981; minimum, 6.6 units July 16, 1981.

WATER TEMPERATURES: Maximum, 23.0°C Aug. 4, 1981; minimum, freezing point on many days during winter months most years.

DISSOLVED OXYGEN: Maximum 14.2 mg/L May 7, 1981; minimum, 5.2 mg/L July 16, 1981.

SEDIMENT CONCENTRATIONS: Maximum daily, 282 mg/L May 29, 1981; minimum daily, 3 mg/L Sept. 21-24, 1981.

SEDIMENT LOADS: Maximum daily, 230 tons June 3, 1981; minimum daily, 0.62 ton Sept. 23-24, 1981.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 597 micromhos Jan. 9; minimum, 38 micromhos July 1.

WATER TEMPERATURES: Maximum, 18.5°C Aug. 23; minimum, freezing point on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN DIS- SOLVED (MG/L AS N)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)
NOV 09...	1300	78	210	229	7.9	2.0	11.0	.58	76	21
MAR 24...	1200	52	310	340	8.4	3.0	10.5	1.7	110	30
JUN 13...	1400	1160	113	109	7.9	8.5	10.2	.54	36	10
SEP 27...	1430	124	220	182	8.1	13.0	8.6	--	62	17

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 09...	5.6	11	.6	2.3	48	51	4.9	.70	9.9	140
MAR 24...	8.3	19	.8	3.4	68	76	13	.80	11	200
JUN 13...	2.7	4.0	.3	1.4	20	23	2.9	.50	9.0	66
SEP 27...	4.7	7.3	.4	1.6	36	41	4.5	.60	8.5	110

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV 09...	.18	29	.200	.180	.70	.30	.40	.90	.030	<.010
MAR 24...	.28	29	.400	.400	.80	.00	1.3	1.1	.070	.030
JUN 13...	.09	208	.100	.140	.90	.50	.40	1.0	.100	.010
SEP 27...	.15	36	<.100	<.100	.40	.00	.50	--	.040	.020

## PLATTE RIVER BASIN

06719505 CLEAR CREEK AT GOLDEN, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 09...	1	1	2	<1	<1	<1	34	4	5
MAR 24...	1	1	4	3	<1	<1	85	10	7
JUN 13...	2	<1	3	10	11	<1	87	17	43
SEP 27...	--	--	--	--	--	--	--	--	29

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 09...	2	<1	850	<.1	<.1	<1	<1	440	290
MAR 24...	8	<1	1200	<.1	<.1	1	1	640	300
JUN 13...	52	1	520	<.1	<.1	<1	<1	610	170
SEP 27...	--	--	980	--	--	--	--	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	191	265	247	---	301	331	162	164	45	---	136
2	164	193	---	278	---	308	348	160	150	49	---	140
3	210	216	---	241	---	303	347	159	157	45	---	140
4	195	222	---	261	---	297	352	174	156	47	---	139
5	161	208	---	252	---	281	354	193	146	50	---	134
6	156	207	---	228	---	299	347	---	163	51	---	138
7	156	211	---	272	---	325	360	206	176	64	---	145
8	155	214	---	252	---	325	365	200	165	82	---	149
9	160	214	---	289	---	323	358	200	159	70	135	151
10	166	217	---	291	---	315	356	218	148	74	107	150
11	164	220	---	243	---	313	---	220	134	75	---	148
12	166	233	---	229	---	306	---	235	118	76	---	144
13	169	235	---	250	---	307	---	233	113	74	---	167
14	175	233	---	244	336	304	---	239	119	75	---	165
15	176	242	---	242	295	286	---	256	126	75	---	166
16	173	235	---	242	292	298	---	264	123	76	---	167
17	173	238	---	---	292	310	---	241	119	76	---	176
18	177	233	---	---	291	322	---	259	111	---	---	183
19	177	232	---	---	286	326	322	227	105	---	---	178
20	181	242	---	---	279	299	309	205	102	---	---	149
21	184	256	---	---	278	221	309	207	95	---	---	148
22	177	261	---	---	284	314	312	195	93	---	129	153
23	180	258	---	---	300	321	315	200	84	---	130	158
24	178	275	---	---	307	325	307	195	81	---	124	191
25	178	276	---	---	308	327	226	200	81	---	124	188
26	179	259	---	---	309	334	189	177	81	---	126	192
27	182	264	---	---	309	341	174	160	84	---	132	214
28	182	266	---	---	306	341	167	149	109	---	129	209
29	196	259	---	---	---	336	165	143	80	---	127	213
30	189	259	247	---	---	337	162	136	79	---	131	211
31	186	---	261	---	---	328	---	152	---	---	131	---
MEAN	175	236	258	254	298	312	294	199	121	65	127	165
WTR YR 1983	MEAN	206	MAX	365	MIN	45						

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	10.0	6.5	4.0	2.0	.0	.0	.0	.0	.0	.0	5.5	2.0
2	10.0	7.0	2.0	.0	.0	.0	.0	.0	.0	.0	6.5	2.0
3	9.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	6.5	2.5
4	10.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	4.0	3.0
5	10.5	7.0	.5	.0	.5	.0	.0	.0	.0	.0	3.0	.0
6	9.0	6.0	1.5	.5	.5	.0	.0	.0	.0	.0	4.5	.5
7	8.5	5.0	2.0	1.0	.0	.0	.0	.0	.0	.0	4.5	.0
8	8.0	5.0	1.5	.0	.0	.0	.0	.0	.0	.0	4.0	1.5
9	5.0	2.5	2.0	1.0	.0	.0	.0	.0	.0	.0	6.5	2.0
10	4.5	2.0	2.0	.0	.0	.0	.0	.0	.0	.0	8.5	2.5
11	5.0	2.0	3.0	1.5	.0	.0	.0	.0	.5	.0	8.0	3.0
12	4.0	2.0	1.5	.0	.0	.0	.0	.0	.5	.0	7.0	4.0
13	6.0	3.0	.0	.0	.0	.0	.0	.0	.5	.0	8.0	3.5
14	6.5	3.0	.0	.0	.0	.0	.0	.0	1.0	.0	7.0	4.0
15	8.5	5.5	.0	.0	.0	.0	.0	.0	1.5	.0	4.0	.0
16	8.5	6.5	.0	.0	.0	.0	.0	.0	2.0	.0	2.0	.0
17	8.5	5.5	.0	.0	.5	.0	.0	.0	2.0	.0	1.5	.0
18	7.5	5.0	.0	.0	.0	.0	.0	.0	2.5	.0	.5	.0
19	6.5	4.0	.5	.0	.0	.0	.0	.0	1.5	.0	.0	.0
20	5.0	2.5	.0	.0	.0	.0	.0	.0	2.5	.0	1.0	.0
21	5.5	3.0	.0	.0	.0	.0	.0	.0	2.0	.0	.5	.0
22	4.5	3.0	.0	.0	.5	.0	.0	.0	3.0	.0	.5	.0
23	7.5	5.0	.0	.0	.5	.0	.0	.0	4.0	.0	1.5	.0
24	8.5	6.0	.0	.0	.0	.0	.0	.0	4.0	.5	5.0	.0
25	9.0	7.0	.0	.0	.0	.0	.0	.0	5.0	.5	5.0	1.5
26	8.0	6.0	.0	.0	.0	.0	.0	.0	5.0	1.5	4.0	.5
27	7.0	4.0	.0	.0	.0	.0	.0	.0	4.5	1.0	5.0	.0
28	3.5	1.0	.0	.0	.0	.0	.0	.0	4.0	1.5	4.0	.5
29	3.5	.5	.0	.0	.0	.0	.0	.0	---	---	7.5	1.0
30	5.0	3.0	.0	.0	.0	.0	.0	.0	---	---	9.5	2.5
31	5.5	3.5	---	---	.0	.0	.0	.0	---	---	7.5	3.5
MONTH	10.5	.5	4.0	.0	.5	.0	.0	.0	5.0	.0	9.5	.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	4.5	1.5	8.5	4.0	10.5	6.0	12.0	8.0	---	---	17.0	12.5
2	6.0	1.0	6.5	4.5	10.0	7.0	12.0	8.0	---	---	17.0	13.0
3	4.0	.0	10.5	4.0	12.0	6.5	12.0	9.0	---	---	16.5	13.5
4	.0	.0	12.0	5.5	11.5	6.5	12.0	8.0	---	---	15.5	13.5
5	1.0	.0	11.0	5.5	11.0	7.5	13.5	8.5	16.5	13.0	16.5	12.0
6	2.5	.0	9.5	5.5	10.0	5.5	13.5	9.0	17.5	13.0	16.5	11.5
7	3.5	.0	11.0	5.0	11.5	6.5	14.0	9.5	18.5	13.5	16.0	12.0
8	4.0	.0	11.5	6.0	12.0	6.5	14.5	10.0	18.5	14.0	15.5	13.0
9	7.0	.0	13.5	6.0	12.0	7.0	14.5	10.5	18.5	14.0	16.5	12.5
10	8.5	2.5	12.0	6.0	11.5	7.0	13.0	10.5	18.0	13.5	15.5	13.0
11	---	---	9.5	6.0	12.0	7.0	12.5	9.5	---	---	16.0	11.5
12	---	---	11.0	3.5	11.0	7.0	13.0	10.0	---	---	15.5	11.5
13	---	---	8.5	4.0	9.0	6.0	14.5	10.0	---	---	15.5	11.5
14	---	---	4.0	3.0	11.0	5.0	13.5	10.0	---	---	14.5	11.5
15	---	---	8.0	3.0	11.5	6.0	13.5	9.5	---	---	15.0	11.0
16	---	---	7.5	4.5	10.5	6.5	15.0	10.5	---	---	15.0	10.5
17	---	---	6.0	1.5	12.0	7.0	14.0	10.5	---	---	15.0	11.0
18	11.0	7.0	10.5	3.0	13.0	7.0	---	---	---	---	15.5	11.5
19	12.5	6.5	8.0	6.0	13.0	7.0	---	---	---	---	14.5	11.0
20	10.5	5.5	8.0	4.5	11.5	7.0	---	---	---	---	11.0	8.0
21	8.0	6.0	12.5	4.5	12.5	7.5	---	---	---	---	10.5	6.0
22	6.5	5.5	12.0	7.5	11.5	7.5	---	---	16.0	13.0	10.0	7.0
23	9.5	5.0	13.5	6.5	10.0	7.5	---	---	15.5	12.5	11.0	7.5
24	12.5	6.0	14.0	7.5	12.0	7.0	---	---	15.5	12.5	13.0	10.5
25	11.5	5.5	12.5	7.5	11.0	8.0	---	---	16.0	12.5	13.5	10.0
26	8.5	5.0	14.0	7.5	10.5	8.0	---	---	15.5	13.0	13.5	10.5
27	11.0	5.5	13.5	8.0	9.0	7.5	---	---	17.0	12.5	14.5	11.0
28	9.0	5.5	12.0	7.5	10.5	7.0	---	---	16.0	12.0	13.0	10.5
29	11.0	6.0	12.0	7.0	11.0	7.0	---	---	15.0	13.0	12.5	11.5
30	8.5	6.0	10.5	7.0	12.0	7.5	---	---	16.5	12.5	13.0	11.0
31	---	---	7.5	5.5	---	---	---	---	16.5	12.0	---	---
MONTH	12.5	.0	14.0	1.5	13.0	5.0	15.0	8.0	18.5	12.0	17.0	6.0
YEAR	18.5	.0										

## PLATTE RIVER BASIN

06719526 CLEAR CREEK AT TABOR STREET AT WHEATRIDGE, CO

LOCATION.--Lat 39°46'27", long 105°07'48", in NE¼SE¼ sec.20, T.3 S., R.69 W., Jefferson County, Hydrologic Unit 10190004, on left bank 330 ft southeast of dead end of Tabor Street near 42nd Avenue at Wheatridge.

DRAINAGE AREA.--427 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1981 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,400 ft from topographic map.

REMARKS.--Records good until June 20 and fair thereafter. Natural flow of stream affected by minor transmountain diversions, storage reservoirs, diversions for irrigation above station, and return flow from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,990 ft<sup>3</sup>/s June 12, 1983, gage height, 7.37 ft; minimum daily, 0.15 ft<sup>3</sup>/s Mar. 21, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,990 ft<sup>3</sup>/s at 2245 June 12, gage height, 7.37 ft; minimum daily, 14 ft<sup>3</sup>/s Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	46	66	55	56	60	100	208	726	946	474	179
2	17	44	51	58	55	63	92	214	787	994	438	137
3	14	32	48	57	44	57	92	188	748	1030	384	102
4	14	45	63	64	30	57	83	188	805	868	411	113
5	25	88	69	62	42	120	82	190	986	705	471	126
6	28	86	60	64	58	76	86	196	887	643	459	137
7	17	80	57	66	47	51	82	192	900	638	393	125
8	36	86	46	63	52	49	63	201	900	736	375	115
9	31	89	45	57	58	46	57	227	1000	1500	357	110
10	23	83	80	46	58	52	76	268	1140	1460	339	100
11	19	88	62	50	54	57	66	289	1500	1200	316	94
12	18	79	54	60	49	54	68	289	2020	894	322	88
13	25	67	63	59	52	55	69	310	1570	829	330	82
14	40	68	58	57	54	66	73	319	1150	775	374	78
15	62	72	38	51	52	97	75	297	1120	710	462	76
16	64	75	57	47	52	89	80	281	1180	695	372	168
17	59	73	71	49	52	75	79	381	1220	585	261	80
18	68	80	58	52	51	64	85	360	1490	578	244	60
19	88	75	38	50	56	62	97	390	2050	578	254	45
20	73	68	45	48	54	59	115	411	1770	720	274	42
21	78	60	63	50	54	66	159	414	1150	680	271	28
22	83	62	59	46	58	71	183	465	887	753	286	27
23	86	68	57	49	55	75	163	498	793	986	286	26
24	89	57	58	51	57	75	170	546	970	710	286	26
25	83	59	51	54	59	79	208	648	1690	512	284	28
26	72	67	45	52	56	78	241	715	1660	760	276	27
27	63	58	50	56	52	67	227	787	1690	848	229	25
28	58	69	46	57	55	76	222	970	1370	753	241	25
29	54	80	27	54	---	83	210	861	1140	578	229	27
30	47	75	18	52	---	91	222	949	1060	504	241	25
31	49	---	34	56	---	107	---	854	---	462	222	---
TOTAL	1504	2079	1637	1692	1472	2177	3625	13106	36359	24630	10161	2321
MEAN	48.5	69.3	52.8	54.6	52.6	70.2	121	423	1212	795	328	77.4
MAX	89	89	80	66	59	120	241	970	2050	1500	474	179
MIN	14	32	18	46	30	46	57	188	726	462	222	25
AC-FT	2980	4120	3250	3360	2920	4320	7190	26000	72120	48850	20150	4600
CAL YR 1982	TOTAL	25195.99	MEAN	69.0	MAX	690	MIN	.15	AC-FT	49980		
WTR YR 1983	TOTAL	100763.00	MEAN	276	MAX	2050	MIN	14	AC-FT	199900		

## PLATTE RIVER BASIN

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06719725 RALSTON CREEK NEAR PLAINVIEW, CO

LOCATION.--Lat 39°51'04", long 105°17'52", SE¼NE¼ sec.26, T.2 S., R.71 W., Jefferson County, Hydrologic Unit 101900041, on left bank, 20 ft downstream of Cotter Corporation property line, 3.2 mi south west of Plainview.

DRAINAGE AREA.--36.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 6,760 ft, from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD, MARCH TO SEPTEMBER.--Maximum recorded discharge, 334 ft<sup>3</sup>/s at 1600 May 26, gage-height, 3.16 ft; minimum daily, 1.2 ft<sup>3</sup>/s Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						3.2	25	95	190	23	5.7	3.3
2						3.2	23	82	170	21	5.7	2.7
3						3.6	20	80	150	20	7.1	2.1
4						4.0	18	77	143	19	11	2.1
5						4.6	17	77	169	17	8.1	2.3
6						5.5	19	82	147	15	6.6	2.1
7						6.6	17	95	114	14	5.7	2.0
8						5.1	14	96	117	13	4.8	1.9
9						4.2	13	110	119	12	4.2	1.8
10						4.9	13	130	117	25	3.4	1.7
11						7.3	15	120	116	22	3.1	1.7
12						10	16	116	106	19	3.4	1.5
13						12	15	108	96	17	5.3	1.5
14						13	15	91	84	15	9.2	1.5
15						14	15	80	76	14	9.8	1.5
16						15	16	70	66	13	6.6	1.6
17						12	18	64	59	12	5.9	1.4
18						11	27	68	52	11	5.1	1.2
19						11	45	78	48	10	4.9	1.2
20						11	65	82	46	10	5.3	1.3
21						11	86	107	41	12	4.9	1.5
22						11	84	200	37	10	5.7	1.5
23						11	73	210	35	14	5.9	1.5
24						11	77	230	34	12	4.2	1.5
25						10	82	260	29	9.5	4.2	1.5
26						10	122	263	33	8.4	3.6	1.5
27						11	120	255	42	8.7	4.2	1.8
28						11	107	263	36	13	3.3	1.9
29						12	111	255	31	8.7	3.1	1.8
30						16	113	250	27	7.1	3.6	1.7
31						24	---	220	---	6.4	3.6	---
TOTAL						299.2	1401	4314	2530	431.8	167.2	52.6
MEAN						9.65	46.7	139	84.3	13.9	5.39	1.75
MAX						24	122	263	190	25	11	3.3
MIN						3.2	13	64	27	6.4	3.1	1.2
AC-FT						593	2780	8560	5020	856	332	104

06719725 RALSTON CREEK NEAR PLAINVIEW, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March to September 1983.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March to September 1983.

pH: March to September 1983.

WATER TEMPERATURES: March to September 1983.

DISSOLVED OXYGEN: March to September 1983.

INSTRUMENTATION.--Water quality monitor since March 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 228 micromhos Sept. 19, 1983; minimum, 81 micromhos May 8, 1983.

pH: Maximum, 9.6 units July 10, 1983; minimum, 7.2 units Aug. 14, 1983.

WATER TEMPERATURES: Maximum, 21.0°C, July 9, Aug. 7 - 9, 1983; minimum 0.0°C, several days in Mar. and Apr.

DISSOLVED OXYGEN: Maximum, 12.2 mg/L Mar. 27, 1983; minimum, 4.9 mg/L Aug. 16, 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)
MAY												
16...	1215	78	95	102	7.8	6.0	10.3	9.6	2.9	4.4	1.4	32
18...	1100	66	95	104	8.1	3.0	10.5	9.8	3.0	--	--	35
19...	1130	87	100	107	7.9	4.0	10.2	10	3.1	--	--	36
19...	1915	86	111	111	7.6	4.5	10.2	10	3.2	--	--	36
20...	0300	77	111	110	7.8	3.0	10.3	10	3.4	4.6	1.4	35
23...	1830	118	93	100	7.7	9.0	9.1	12	4.9	4.6	3.0	28
24...	0045	126	93	98	7.6	6.0	9.6	14	5.2	--	--	30
24...	1910	144	91	96	7.7	9.5	8.8	11	4.7	--	--	29
24...	2100	133	91	94	7.7	8.0	9.2	13	5.1	--	--	29
JUN												
20...	1945	44	105	110	8.1	16.0	7.4	11	3.1	--	--	44
21...	0240	45	105	111	8.1	13.0	8.0	11	3.1	5.3	1.1	45
21...	2300	38	110	115	8.1	13.5	7.8	15	3.2	--	--	42
23...	0300	37	105	115	8.2	12.0	8.4	13	3.3	--	--	51
27...	1145	42	114	118	8.0	11.0	8.5	14	3.4	--	--	45
27...	1910	40	115	120	8.1	11.0	8.5	13	3.3	--	--	47
28...	1110	37	115	118	8.0	11.5	8.5	13	3.3	--	--	47
28...	1730	34	120	121	8.0	14.0	8.0	13	3.7	5.3	1.4	47
29...	0830	31	116	120	7.9	10.0	8.7	14	3.8	5.3	1.3	46
SEP												
12...	1715	1.4	202	199	8.1	15.0	7.5	23	5.9	--	--	82
13...	0300	1.7	206	201	8.2	11.0	8.0	22	5.9	8.4	1.7	83
13...	0930	1.4	202	199	8.1	11.0	8.4	23	5.9	--	--	82
13...	1950	1.4	209	200	8.0	14.0	7.4	22	5.8	--	--	82
14...	1200	1.4	200	199	8.2	14.0	8.1	22	5.7	--	--	81
14...	2330	1.5	201	194	8.1	12.0	7.7	21	5.7	8.1	1.8	81
15...	1500	1.4	195	196	8.1	15.0	7.6	21	5.6	--	--	82
16...	0300	1.7	196	200	8.3	11.0	7.6	22	5.8	--	--	81
16...	1130	1.8	197	196	8.1	13.5	8.0	21	5.6	8.5	1.6	80
DATE		SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)
MAY												
16...	12	3.3	84	.080	.020	.100	.140	1.4	1.5	1.6	.080	.050
18...	--	--	86	--	--	--	--	--	--	--	--	--
19...	--	--	90	--	--	--	--	--	--	--	--	--
19...	--	--	93	--	--	--	--	--	--	--	--	--
20...	16	2.9	94	.200	<.020	.200	.130	.47	.60	.80	.030	.030
23...	13	2.5	80	.180	.020	.200	.110	1.6	1.7	1.9	.150	.040
24...	--	--	85	--	--	--	--	--	--	--	--	--
24...	--	--	79	--	--	--	--	--	--	--	--	--
24...	--	--	78	--	--	--	--	--	--	--	--	--
JUN												
20...	--	--	105	--	--	--	--	--	--	--	--	--
21...	11	2.9	112	--	<.020	<.100	.100	.30	.40	--	.040	<.010
21...	--	--	85	--	--	--	--	--	--	--	--	--
23...	--	--	108	--	--	--	--	--	--	--	--	--
27...	--	--	63	--	--	--	--	--	--	--	--	--
27...	--	--	119	--	--	--	--	--	--	--	--	--
28...	--	--	87	--	--	--	--	--	--	--	--	--
28...	19	2.9	87	--	<.020	<.100	.070	.43	.50	--	.050	.020
29...	18	2.7	96	--	<.020	<.100	<.060	--	.70	--	.040	.040
SEP												
12...	--	--	123	--	--	--	--	--	--	--	--	--
13...	15	4.4	124	--	<.020	<.100	.090	.21	.30	--	.020	.010
13...	--	--	119	--	--	--	--	--	--	--	--	--
13...	--	--	140	--	--	--	--	--	--	--	--	--
14...	--	--	123	--	--	--	--	--	--	--	--	--
14...	15	4.4	118	--	<.020	<.100	.080	.32	.40	--	.010	.020
15...	--	--	128	--	--	--	--	--	--	--	--	--
16...	--	--	121	--	--	--	--	--	--	--	--	--
16...	15	4.6	128	--	<.020	<.100	.100	.30	.40	--	.020	.020



## PLATTE RIVER BASIN

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06719725 RALSTON CREEK NEAR PLAINVIEW, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY										
16...	<1	<100	50	<1	<1	10	5	2	1200	130
18...	--	--	--	<1	<1	--	4	2	1000	170
19...	--	--	--	<1	<1	--	4	2	930	160
19...	--	--	--	<1	<1	--	6	1	1100	99
20...	1	<100	60	<1	<1	<10	5	2	1100	130
23...	1	200	40	<1	<1	<10	14	4	8600	130
24...	--	--	--	<1	<1	--	15	6	11000	240
24...	--	--	--	<1	<1	--	13	3	9300	87
24...	--	--	--	<1	<1	--	15	2	11000	110
JUN										
20...	--	--	--	<1	<1	--	3	2	810	260
21...	<1	<100	60	<1	<1	30	2	2	750	250
21...	--	--	--	1	<1	--	3	2	840	200
23...	--	--	--	<1	<1	--	4	4	720	220
27...	--	--	--	<1	<1	--	2	2	1300	180
27...	--	--	--	<1	<1	--	9	1	940	210
28...	--	--	--	<1	<1	--	2	2	770	260
28...	1	<100	40	<1	<1	<10	5	2	860	230
29...	1	<100	30	<1	<1	<10	3	1	700	170
SEP										
12...	--	--	--	<1	<1	--	5	1	180	64
13...	<1	<100	30	<1	<1	<10	6	2	300	67
13...	--	--	--	<1	<1	--	5	2	190	56
13...	--	--	--	<1	<1	--	2	<1	140	87
14...	--	--	--	<1	<1	--	2	1	140	54
14...	<1	200	50	<1	1	<10	3	1	190	64
15...	--	--	--	<1	<1	--	2	1	100	63
16...	--	--	--	<1	<1	--	2	1	210	66
16...	<1	<100	20	<1	<1	<10	17	1	160	62

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY										
16...	<1	2	50	8	<.1	<1	5	1	<1	--
18...	4	1	40	8	--	--	--	<1	<1	--
19...	<1	<1	40	6	--	--	--	1	1	--
19...	<1	<1	40	6	--	--	--	1	<1	--
20...	2	<1	40	6	<.1	<1	6	<1	1	--
23...	10	4	340	9	<.1	<1	19	1	<1	--
24...	19	3	440	18	--	--	--	1	<1	--
24...	10	<1	380	7	--	--	--	<1	<1	--
24...	14	<1	440	8	--	--	--	<1	<1	--
JUN										
20...	3	<1	30	8	--	--	--	1	<1	--
21...	2	1	30	7	<.1	2	6	1	<1	20
21...	3	1	40	8	--	--	--	<1	<1	--
23...	<1	2	30	7	--	--	--	1	1	--
27...	3	1	80	9	--	--	--	<1	<1	--
27...	1	<1	50	10	--	--	--	<1	<1	--
28...	3	1	50	12	--	--	--	<1	<1	--
28...	5	2	50	12	.2	<1	11	<1	<1	20
29...	<1	3	40	9	.3	<1	6	<1	<1	20
SEP										
12...	1	<1	20	9	--	--	--	<1	<1	--
13...	1	<1	20	11	.1	2	3	<1	<1	30
13...	1	<1	10	11	--	--	--	<1	<1	--
13...	<1	<1	20	9	--	--	--	<1	<1	--
14...	<1	<1	20	9	--	--	--	<1	<1	--
14...	1	2	20	11	.1	2	18	<1	<1	30
15...	1	<1	10	9	--	--	--	<1	<1	--
16...	<1	3	20	10	--	--	--	<1	<1	--
16...	2	<1	10	9	<.1	2	21	<1	<1	10

## PLATTE RIVER BASIN

06719725 RALSTON CREEK NEAR PLAINVIEW, CO--Continued

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)	DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)
MAY						JUN					
16...	--	--	--	1.4	2.0	27...	--	--	--	1.5	2.1
18...	--	--	--	1.8	2.3	28...	1.6	1.0	.9	1.6	3.2
19...	--	--	--	1.5	2.0	28...	--	--	--	1.1	1.6
19...	--	--	--	2.0	2.6	29...	1.1	.7	.6	1.1	2.4
20...	--	--	--	1.7	2.4	SEP					
23...	--	--	--	1.9	7.7	12...	<.4	.4	.4	2.4	2.4
24...	--	--	--	2.6	7.5	13...	<.4	<.4	<.4	2.5	2.5
24...	--	--	--	1.6	6.8	13...	<.4	<.4	<.4	2.3	2.3
24...	--	--	--	1.6	9.1	13...	<.4	.7	.7	2.4	2.4
JUN						14...	<.4	.6	.6	2.2	2.2
20...	--	--	--	1.3	1.8	14...	<.4	<.4	<.4	2.4	2.4
21...	--	--	--	1.4	1.8	15...	<.4	.4	.4	2.7	2.7
21...	--	--	--	1.3	1.5	16...	1.1	.8	.8	2.4	3.5
23...	--	--	--	1.3	1.3	16...	<.4	.5	.5	2.5	2.5
27...	--	--	--	1.3	2.1						

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
MAY					JUN				
16...	1215	78	27	5.7	28...	1110	37	19	1.9
18...	1100	66	21	3.7	28...	1730	34	19	1.7
19...	1130	87	21	4.9	29...	0830	31	18	1.5
19...	1915	86	17	3.9	SEP				
20...	0300	77	21	4.4	12...	1715	1.4	1	.00
23...	1830	118	312	99	13...	0300	1.7	4	.02
24...	0045	126	406	138	13...	0930	1.4	2	.00
24...	1910	144	364	142	13...	1950	1.4	4	.02
24...	2100	133	451	162	14...	1200	1.4	3	.01
JUN					14...	2330	1.5	2	.00
20...	1945	44	17	2.0	15...	1500	1.4	2	.00
21...	0240	45	16	1.9	16...	0300	1.7	2	.00
21...	2300	38	22	2.3	16...	1130	1.8	1	.00
23...	0300	37	14	1.4					
27...	1145	42	30	3.4					
27...	1910	40	21	2.3					

06719725 RALSTON CREEK NEAR PLAINVIEW, CO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						178	139	97	---	123	163	188
2						180	137	94	---	122	165	192
3						179	132	---	---	123	164	198
4						176	127	102	---	123	165	198
5						166	125	93	---	124	169	196
6						177	129	93	90	126	166	199
7						182	131	93	91	130	167	200
8						179	132	88	90	131	171	202
9						175	130	103	87	133	175	202
10						167	132	103	94	126	178	203
11						151	130	---	97	125	182	203
12						142	127	---	97	126	179	206
13						139	123	---	97	126	174	206
14						---	127	---	96	128	158	207
15						---	126	---	101	128	149	200
16						---	132	87	101	131	160	206
17						---	140	---	101	133	164	208
18						---	142	---	101	136	168	217
19						---	141	---	103	139	168	217
20						---	134	---	103	140	162	215
21						---	129	---	104	141	164	205
22						---	127	---	105	147	170	205
23						137	121	---	105	146	176	207
24						135	106	---	109	151	185	213
25						138	103	---	113	156	171	206
26						139	98	---	115	154	176	200
27						139	102	---	116	155	163	194
28						138	110	---	119	150	185	196
29						135	105	---	120	158	183	196
30						133	98	---	120	161	180	200
31						141	---	---	---	163	184	---
MEAN						156	125	95	103	137	170	203
WTR YR 1983	MEAN	147		MAX	217		MIN	87				

06719725 RALSTON CREEK NEAR PLAINVIEW, CO--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1											8.0	8.0
2											8.0	8.0
3											8.0	8.0
4											8.0	8.0
5											8.0	8.0
6											8.0	8.0
7											8.0	8.0
8											8.0	8.0
9											8.0	8.0
10											8.0	8.0
11											8.5	8.0
12											8.7	8.3
13											8.7	8.5
14											---	---
15											---	---
16											---	---
17											---	---
18											---	---
19											---	---
20											---	---
21											---	---
22											---	---
23											8.9	8.7
24											8.9	8.6
25											8.9	8.6
26											8.8	8.6
27											8.7	8.5
28											8.7	8.5
29											8.7	8.4
30											8.6	8.3
31											8.4	8.3
MONTH											8.9	8.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.4	8.2	7.8	7.7	8.2	8.1	8.4	7.6	8.7	8.4	8.7	8.0
2	8.4	8.2	7.8	7.7	8.2	8.2	8.2	7.5	8.6	8.4	8.8	8.0
3	8.3	8.1	---	---	8.3	8.2	8.2	7.4	8.7	8.3	8.6	8.0
4	8.3	8.1	7.9	7.9	8.3	8.2	8.2	7.3	8.8	8.3	8.8	8.0
5	8.2	8.0	7.9	7.8	8.3	8.2	8.2	7.2	8.8	8.2	8.8	8.1
6	8.2	8.0	7.9	7.8	8.2	8.2	8.2	7.2	8.9	8.2	8.7	8.1
7	8.1	8.0	7.8	7.5	8.2	8.1	8.2	7.1	8.9	8.1	8.9	8.1
8	8.2	8.0	7.8	7.7	8.2	8.1	7.9	7.0	8.8	8.1	8.9	8.1
9	8.2	8.0	7.8	7.7	8.1	8.0	7.9	7.0	8.8	8.1	9.0	8.1
10	8.3	8.0	7.7	7.6	8.0	7.8	9.6	6.9	8.9	8.0	8.9	4.1
11	8.2	8.0	7.7	7.7	7.9	7.8	9.3	8.0	8.9	7.9	9.0	8.1
12	8.1	7.9	7.7	7.7	7.9	7.7	8.6	8.4	8.5	7.6	8.9	8.1
13	8.1	7.9	7.7	7.7	7.8	7.7	8.3	8.1	8.5	7.6	9.0	8.2
14	8.1	7.9	7.8	7.7	7.8	7.7	8.0	7.7	8.4	7.2	8.8	8.1
15	8.1	7.9	7.8	7.7	7.9	7.7	7.7	7.5	8.4	7.4	9.0	8.1
16	8.1	7.8	7.9	7.7	8.0	7.8	7.4	7.3	8.5	7.6	8.9	8.2
17	8.2	7.8	7.9	7.8	8.0	7.8	7.2	7.1	8.5	7.6	8.9	8.3
18	8.1	7.8	8.0	7.9	8.1	7.9	7.0	7.0	8.5	7.6	8.9	8.3
19	8.0	7.8	8.0	7.9	8.1	7.9	7.2	7.2	8.5	7.6	8.9	8.3
20	7.9	7.8	8.0	7.9	8.2	8.0	7.3	7.3	8.5	7.6	8.8	8.2
21	7.8	7.7	8.1	8.0	8.3	8.1	.4	.4	8.5	7.5	8.7	8.2
22	7.8	7.7	8.0	8.0	8.5	8.1	7.3	7.3	8.5	7.6	8.7	8.2
23	7.8	7.7	8.0	7.8	8.5	8.2	7.4	7.4	8.5	7.6	8.7	8.2
24	7.8	7.7	8.0	7.8	8.9	8.3	7.5	7.5	8.5	7.6	8.8	8.2
25	7.8	7.7	8.1	7.9	9.2	8.5	7.6	7.6	8.6	7.8	8.7	8.2
26	7.7	7.7	8.0	7.8	9.0	8.6	7.7	7.7	8.7	7.8	8.7	8.2
27	7.8	7.7	8.0	7.7	8.9	8.2	7.9	7.9	8.7	7.8	8.6	8.2
28	7.9	7.8	8.0	7.7	8.9	7.8	8.0	8.0	8.6	7.9	8.6	8.1
29	7.8	7.8	8.1	7.9	8.7	7.7	8.4	8.1	8.5	7.9	8.6	8.1
30	7.8	7.7	8.1	7.8	8.6	7.6	8.6	8.3	8.7	7.9	8.5	8.2
31	---	---	8.1	7.9	---	---	8.6	8.4	8.7	8.0	---	---
MONTH	8.4	7.7	8.1	7.5	9.2	7.6	9.6	.4	8.9	7.2	9.0	4.1
YEAR	9.6	.4										

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1											4.5	1.5
2											5.5	1.0
3											5.5	.5
4											2.5	1.0
5											1.0	.0
6												
7											2.0	.0
8											2.5	.0
9											3.0	.0
10											4.0	.0
											5.0	.5
11												
12											4.5	.5
13											5.5	1.5
14											5.0	1.5
15											---	---
											---	---
16												
17											---	---
18											---	---
19											---	---
20											---	---
21											---	---
22											---	---
23											1.0	.5
24											2.0	.0
25											2.5	.5
26											2.5	.5
27											2.5	.5
28											3.5	.5
29											4.5	.5
30											5.5	.5
31											4.5	.5
MONTH											5.5	.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	4.5	.5	5.5	2.0	8.0	4.0	17.0	11.0	19.0	13.0	18.5	13.5
2	4.0	.5	4.5	2.0	8.0	5.5	16.5	11.0	17.5	13.0	19.0	13.5
3	2.0	.0	---	---	10.5	5.5	17.0	12.0	18.5	13.0	18.0	14.0
4	.5	.0	9.0	5.0	10.5	5.5	16.5	10.0	18.0	14.5	16.5	13.5
5	1.5	.0	6.5	3.0	8.0	6.0	18.0	10.5	18.5	14.0	17.0	12.0
6	1.0	.0	7.5	3.5	7.0	4.5	19.0	11.5	20.0	14.5	16.5	11.5
7	1.0	.0	8.0	3.0	9.0	5.0	19.5	13.0	21.0	14.5	17.0	11.5
8	2.0	.5	8.5	3.5	10.0	5.0	20.5	13.0	21.0	15.0	16.0	13.0
9	2.5	.5	9.5	3.5	10.5	6.0	21.0	14.0	21.0	14.0	17.5	12.0
10	6.0	1.0	8.5	3.5	10.5	6.5	18.5	11.0	20.5	14.0	14.5	12.5
11	5.0	1.5	5.5	4.0	11.5	7.0	17.0	12.0	20.5	14.0	16.0	10.5
12	2.5	1.0	8.0	3.0	11.5	7.5	17.0	11.5	17.0	14.5	15.0	10.0
13	3.5	1.0	5.0	3.0	9.0	6.5	19.0	12.0	16.5	13.5	14.5	10.0
14	3.5	1.0	3.0	2.5	11.0	5.5	17.0	12.0	18.5	12.5	14.5	10.5
15	4.0	1.0	6.5	2.0	12.0	6.5	16.5	11.5	18.5	12.5	15.5	10.5
16	6.5	.5	6.0	3.0	11.0	7.5	18.0	11.0	18.5	14.0	15.5	10.0
17	8.0	1.0	3.5	.5	14.5	8.0	17.5	11.5	17.5	13.5	16.0	10.0
18	7.0	1.0	6.5	1.5	15.5	8.5	16.5	11.5	19.0	14.0	15.5	10.5
19	8.0	3.0	5.0	3.0	16.5	9.0	20.0	12.5	19.0	13.0	15.5	9.5
20	7.0	2.0	6.5	3.0	16.5	10.0	19.0	13.0	18.0	13.5	10.0	6.5
21	5.5	3.0	9.5	3.5	17.0	10.0	19.0	13.5	19.0	13.5	11.0	5.0
22	5.0	3.0	7.5	5.0	16.5	10.5	18.5	13.5	17.5	13.5	10.5	6.0
23	5.5	3.0	9.5	4.5	13.5	11.0	16.0	14.0	17.5	13.0	11.0	6.5
24	7.5	3.0	10.5	5.5	16.5	10.0	19.5	12.5	17.0	13.0	13.5	10.0
25	8.0	2.5	9.5	5.5	16.5	11.0	20.5	13.5	18.5	13.5	14.5	10.0
26	5.0	2.5	10.0	5.0	13.0	11.5	18.0	14.0	17.5	14.0	14.5	10.0
27	6.5	2.5	9.5	6.0	11.5	10.5	18.0	13.5	19.0	13.5	15.5	11.0
28	5.5	2.5	9.5	6.0	14.5	9.5	19.0	13.5	18.0	13.0	14.0	9.5
29	7.0	2.5	9.0	5.5	15.5	10.0	19.5	13.0	16.5	14.0	13.0	10.5
30	5.0	2.5	7.5	4.5	16.0	10.0	18.5	12.5	18.0	13.0	14.0	10.5
31	---	---	5.0	4.0	---	---	17.5	12.5	18.0	13.0	---	---
MONTH	8.0	.0	10.5	.5	17.0	4.0	21.0	10.0	21.0	12.5	19.0	5.0
YEAR	21.0	.0										

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

[illegible]

## PLATTE RIVER BASIN

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06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NEAR PLAINVIEW, CO

LOCATION.--Lat 39°50'37", long 105°16'33", SE¼SE¼ sec.25, T.2 S., R.71 W., Jefferson County, Hydrologic Unit 10190004, on right bank 100 ft downstream from Cotter Corporation property line, 3.2 mi south Plainview.

DRAINAGE AREA.--38.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 61,520 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by inflow from Schwartzwaldler Mine.

EXTREMES FOR PERIOD FEB. 10 TO SEPT. 30.--Maximum discharge, 302 ft<sup>3</sup>/s at 0915 May 25 gage height, 4.03 ft; minimum daily, 2.0 ft<sup>3</sup>/s Feb. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	3.1	29	111	196	25	7.0	3.9
2					---	3.3	26	96	170	23	6.9	3.4
3					---	3.7	23	82	150	22	7.8	3.3
4					---	4.3	20	81	146	21	11	3.3
5					---	4.9	19	87	158	21	8.3	3.3
6					---	4.9	18	91	144	19	7.2	3.1
7					---	4.3	13	91	132	16	6.5	2.8
8					---	4.1	13	99	114	14	5.7	2.8
9					---	3.8	12	117	110	14	5.3	2.7
10					2.0	4.5	12	139	104	19	4.9	2.7
11					2.0	6.5	15	135	102	22	4.6	2.6
12					2.1	9.0	17	118	93	19	4.5	2.5
13					2.2	11	16	109	91	17	5.8	2.5
14					2.2	13	15	86	80	15	8.9	2.5
15					2.2	12	15	76	73	14	8.9	2.6
16					2.2	13	14	72	67	13	6.7	2.6
17					2.2	13	16	68	60	12	6.2	2.5
18					2.3	12	22	70	53	11	5.6	2.4
19					2.3	10	37	84	49	11	5.6	2.3
20					2.3	9.9	62	93	46	11	5.8	2.5
21					2.3	9.3	81	132	42	12	5.5	2.6
22					2.5	9.4	85	222	38	11	6.2	2.6
23					2.6	8.9	83	233	37	14	5.9	2.6
24					2.6	8.7	86	260	35	13	4.7	2.5
25					2.8	8.7	107	284	30	9.9	4.8	2.5
26					2.9	8.5	130	269	34	9.6	4.6	2.5
27					3.0	8.2	113	274	46	9.5	5.0	2.5
28					2.9	8.5	107	279	39	13	4.1	2.7
29					---	9.8	109	275	34	9.5	4.0	2.7
30					---	16	127	268	29	8.1	4.4	2.6
31					---	30	---	224	---	7.2	4.2	---
TOTAL					---	276.3	1442	4625	2502	455.8	186.6	82.1
MEAN					---	8.91	48.1	149	83.4	14.7	6.02	2.74
MAX					---	30	130	284	196	25	11	3.9
MIN					---	3.1	12	68	29	7.2	4.0	2.3
AC-FT					---	548	2860	9170	4960	904	370	163

06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1983.

PERIOD OF DAILY RECORD.--February to September 1983.

SPECIFIC CONDUCTANCE: February to September 1983.

pH: February to September 1983.

WATER TEMPERATURES: February to September 1983.

DISSOLVED OXYGEN: February to September 1983.

INSTRUMENTATION.--Water quality monitor since February 1984.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum 1,280, micromhos Feb. 21, 1983; minimum, 67 micromhos May 9, 1983.

pH: Maximum, 8.9 units Feb. 16, 1983; minimum, 7.0 units Aug. 10, 1983.

WATER TEMPERATURES: Maximum, 25.0°C Aug. 11, 1983; minimum, 0.5°C March 31, Apr. 3-5, 1983.

DISSOLVED OXYGEN: Maximum 12.8 mg/L May 24, 1983; minimum, 6.4 mg/L Sept. 12, 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)
MAY												
16...	1730	70	140	145	7.9	6.5	9.6	11	3.6	9.6	1.6	47
16...	2245	81	140	142	7.9	4.0	10.0	12	4.6	--	--	36
18...	1700	82	135	145	7.7	7.0	9.5	12	4.0	--	--	39
18...	2300	88	130	141	7.8	4.5	10.2	11	4.0	7.6	1.7	40
19...	0900	88	137	141	7.9	4.0	10.3	11	3.9	7.9	1.5	40
20...	0130	88	141	148	7.8	3.5	10.4	12	4.1	--	--	41
23...	0930	238	119	125	7.9	6.0	10.5	15	5.1	--	--	36
23...	1500	236	120	125	7.9	10.0	9.6	14	4.8	--	--	37
24...	0900	241	110	123	7.9	7.0	9.4	17	6.9	--	--	34
JUN												
21...	0045	42	170	172	8.1	14.0	8.0	15	4.3	--	--	58
21...	2100	39	180	182	8.0	15.0	7.8	15	4.6	12	1.7	58
22...	0730	37	194	190	8.0	11.0	8.5	15	4.7	13	1.5	45
22...	2300	37	172	187	8.1	14.0	8.1	16	4.7	--	--	62
23...	0700	37	176	182	8.1	11.5	8.6	16	4.6	--	--	59
27...	1730	42	186	188	8.1	11.5	8.6	16	4.5	--	--	56
28...	0920	41	190	198	8.1	11.0	8.7	24	11	--	--	58
28...	1450	36	200	196	8.1	15.0	8.0	17	4.5	--	--	56
29...	1415	35	210	207	8.2	15.0	7.8	18	5.4	15	1.6	58
SEP												
12...	1110	2.6	820	795	8.4	18.0	7.7	46	16	--	--	158
12...	2300	2.4	931	847	8.4	17.0	7.1	47	16	--	--	161
13...	1255	2.5	790	745	8.4	20.0	7.1	45	15	--	--	148
13...	2300	2.4	931	868	8.3	17.0	7.2	52	18	120	4.6	160
14...	1310	2.5	810	763	8.4	19.0	7.3	44	15	--	--	149
15...	0300	2.5	882	810	8.4	16.0	7.6	44	15	--	--	155
15...	0955	2.5	808	776	8.4	16.5	7.7	41	15	--	--	151
15...	1900	2.4	882	833	8.4	18.0	6.8	44	15	--	--	155
16...	0530	2.8	882	798	8.4	15.0	7.5	45	16	100	4.2	150

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)
MAY												
16...	24	5.1	106	.300	<.020	.300	.150	.95	1.1	1.4	.050	.030
16...	--	--	89	--	--	--	--	--	--	--	--	--
18...	--	--	106	--	--	--	--	--	--	--	--	--
18...	21	3.7	108	.300	<.020	.300	.150	1.1	1.3	1.6	.050	.030
19...	18	3.7	100	.400	<.020	.400	.080	1.1	1.1	1.6	.040	.020
20...	--	--	108	--	--	--	--	--	--	--	--	--
23...	--	--	211	--	--	--	--	--	--	--	--	--
23...	--	--	147	--	--	--	--	--	--	--	--	--
24...	--	--	94	--	--	--	--	--	--	--	--	--
JUN												
21...	--	--	148	--	--	--	--	--	--	--	--	--
21...	29	3.6	134	.400	<.020	.400	.090	.41	.50	.90	.040	.020
22...	31	3.8	123	.500	<.020	.500	.200	.30	.50	1.0	.030	<.010
22...	--	--	136	--	--	--	--	--	--	--	--	--
23...	--	--	75	--	--	--	--	--	--	--	--	--
27...	--	--	115	--	--	--	--	--	--	--	--	--
28...	--	--	125	--	--	--	--	--	--	--	--	--
28...	--	--	129	--	--	--	--	--	--	--	--	--
29...	32	4.1	141	.400	<.020	.400	<.060	--	.80	1.1	.030	.020
SEP												
12...	--	--	538	--	--	--	--	--	--	--	--	--
12...	--	--	578	--	--	--	--	--	--	--	--	--
13...	--	--	501	--	--	--	--	--	--	--	--	--
13...	220	19	596	3.10	<.020	3.10	.100	1.0	1.1	4.2	.010	.020
14...	--	--	514	--	--	--	--	--	--	--	--	--
15...	--	--	549	--	--	--	--	--	--	--	--	--
15...	--	--	530	--	--	--	--	--	--	--	--	--
15...	--	--	568	--	--	--	--	--	--	--	--	--
15...	--	--	534	2.50	<.020	2.50	.660	.74	1.1	3.0	.010	.010



## PLATTE RIVER BASIN

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06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY										
16...	1	100	60	<1	<1	<10	6	3	1300	170
16...	--	--	--	<1	<1	--	15	4	6200	60
18...	--	--	--	<1	<1	--	7	2	2300	54
18...	1	<100	80	<1	<1	<10	5	2	2200	56
19...	1	100	50	1	<1	<10	5	2	1200	130
20...	--	--	--	<1	<1	--	4	3	1200	130
23...	--	--	--	<1	<1	--	14	5	7100	130
23...	--	--	--	<1	<1	--	11	2	6500	130
24...	--	--	--	1	<1	--	26	2	15000	170
JUN										
21...	--	--	--	<1	<1	--	5	2	740	220
21...	1	<100	60	<1	2	<10	8	7	770	200
22...	2	--	60	<1	<1	<10	2	2	650	190
22...	--	--	--	<1	<1	--	14	10	670	200
23...	--	--	--	<1	<1	--	11	2	620	210
27...	--	--	--	<1	<1	--	5	2	1000	160
28...	--	--	--	<1	<1	--	47	4	28000	78
28...	--	--	--	<1	<1	--	5	3	1000	160
29...	1	<100	50	<1	<1	<10	4	1	700	170
SEP										
12...	--	--	--	<1	<1	--	5	1	110	13
12...	--	--	--	<1	<1	--	6	1	180	20
13...	--	--	--	<1	<1	--	5	2	180	25
13...	11	100	230	1	<1	<10	5	3	250	25
14...	--	--	--	1	<1	--	3	2	130	20
15...	--	--	--	1	<1	--	6	2	240	24
15...	--	--	--	<1	<1	--	3	2	80	23
15...	--	--	--	<1	<1	--	4	3	120	23
16...	7	200	210	<1	1	<10	6	1	110	30

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY										
16...	3	2	60	8	<.1	14	5	<1	<1	--
16...	21	2	190	8	--	--	--	1	<1	--
18...	10	1	90	11	--	--	--	<1	<1	--
18...	6	<1	90	9	<.1	17	4	<1	<1	--
19...	<1	<1	50	7	<.1	17	6	<1	<1	--
20...	<1	<1	50	7	--	--	--	1	1	--
23...	14	1	230	6	--	--	--	<1	<1	--
23...	11	5	210	7	--	--	--	<1	<1	--
24...	35	<1	480	9	--	--	--	<1	<1	--
JUN										
21...	2	<1	30	8	--	--	--	1	<1	--
21...	1	2	30	11	<.1	32	16	1	1	40
22...	2	1	30	11	<.1	--	<1	<1	1	40
22...	2	6	30	10	--	--	--	1	1	--
23...	1	2	30	8	--	--	--	1	1	--
27...	1	<1	50	11	--	--	--	1	<1	--
28...	63	19	920	6	--	--	--	1	1	--
28...	4	2	50	13	--	--	--	<1	<1	--
29...	2	3	30	11	<.1	43	7	<1	<1	20
SEP										
12...	1	<1	<10	5	--	--	--	<1	<1	--
12...	3	<1	10	6	--	--	--	<1	<1	--
13...	2	<1	20	5	--	--	--	<1	<1	--
13...	1	3	10	7	<.1	290	4	<1	<1	30
14...	1	<1	20	6	--	--	--	<1	<1	--
15...	2	1	20	5	--	--	--	<1	<1	--
15...	1	<1	10	5	--	--	--	<1	<1	--
15...	2	2	20	6	--	--	--	<1	<1	--
16...	<1	<1	20	9	<.1	330	22	<1	<1	30

## PLATTE RIVER BASIN

06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)	DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)
MAY						JUN					
16...	--	--	--	8.3	11	27...	--	--	--	9.6	11
16...	--	--	--	20	40	28...	--	--	--	16	63
18...	--	--	--	12	19	28...	--	--	--	11	12
18...	--	--	--	12	15	29...	2.8	2.3	2.0	11	14
19...	--	--	--	14	17	SEP					
20...	--	--	--	12	15	12...	.6	10	11	71	72
23...	--	--	--	12	26	12...	1.4	11	11	63	64
23...	--	--	--	13	24	13...	1.1	8.5	8.6	69	70
24...	--	--	--	12	50	13...	1.7	6.1	5.7	71	73
JUN						14...	.9	8.8	8.8	77	78
21...	--	--	--	7.3	8.2	15...	3.5	6.3	5.9	74	78
21...	--	--	--	7.2	8.3	15...	1.8	8.8	9.0	71	73
22...	2.7	1.6	1.4	8.1	11	15...	1.7	9.1	9.3	70	72
22...	--	--	--	7.2	8.4	16...	1.4	10	10	61	63
23...	2.1	1.6	1.4	8.1	10						

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
APR					MAY				
21...	1514	--	343	--	30...	1230	257	179	124
22...	1450	--	136	--	31...	1630	213	126	72
23...	1315	--	35	--	JUN				
24...	1335	--	32	--	01...	1245	108	233	68
MAY					02...	1130	162	118	52
02...	1350	--	22	--	03...	1330	144	93	36
03...	1515	--	22	--	13...	1530	74	451	90
04...	1600	--	15	--	14...	1830	76	39	8.0
05...	1230	--	15	--	15...	1900	70	32	6.0
06...	1115	--	15	--	17...	1740	57	26	4.0
16...	1730	70	31	5.9	21...	0045	42	18	2.0
16...	2245	81	92	20	21...	2100	39	15	1.6
18...	1700	82	49	11	22...	0730	37	21	2.1
18...	2300	88	48	11	22...	2300	37	17	1.7
19...	0900	88	25	5.9	23...	0700	37	13	1.3
20...	0130	88	64	15	27...	1415	43	27	3.1
23...	0930	238	219	141	27...	1730	42	28	3.2
23...	1500	236	182	116	28...	1430	36	27	2.6
24...	0900	241	523	340					
JUN					AUG				
28...	1450	36	914	89	23...	1450	5.4	9	.13
29...	1030	35	17	1.6	24...	1450	4.6	6	.07
29...	1415	35	24	2.3	25...	1415	4.2	6	.07
30...	1100	29	14	1.1	26...	1040	4.7	4	.05
JUL					SEP				
01...	1345	25	16	1.1	12...	1110	2.6	2	.01
11...	1600	20	38	2.1	12...	1600	2.5	2	.01
12...	1745	18	18	.87	12...	2300	2.4	3	.02
13...	1900	21	16	.91	13...	1255	2.5	6	.04
14...	1230	16	6	.26	13...	1800	2.6	1	.00
15...	1115	14	9	.34	13...	2300	2.4	4	.03
25...	0900	10	8	.22	14...	1310	2.5	2	.01
26...	1045	9.6	8	.21	14...	1600	2.6	3	.02
27...	0700	9.1	11	.27	15...	0300	2.5	6	.04
29...	1445	9.1	11	.27	15...	0955	2.5	2	.01
AUG					15...	1900	2.4	1	.00
08...	1300	5.8	1	.02	16...	0530	2.8	2	.02
09...	1320	5.3	1	.01	16...	1410	2.5	2	.01
10...	1525	4.8	2	.03	26...	1815	2.7	4	.03
11...	1110	4.7	2	.03	27...	1755	2.5	3	.02
12...	0930	4.8	2	.03					
22...	1315	5.8	9	.14					
SEP					SEP				
28...	1600	2.5	4	.03	30...	1730	2.4	7	.05
29...	1350	2.6	5	.04					

06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	709	194	117	114	227	418	654
2					---	---	202	109	115	226	439	634
3					---	565	206	124	116	---	399	830
4					---	600	212	122	117	---	348	728
5					---	587	220	133	112	---	398	695
6					---	554	234	124	110	---	420	800
7					---	570	239	104	113	---	447	811
8					---	554	244	91	114	---	475	841
9					---	576	253	114	118	---	521	871
10					---	521	258	127	118	---	534	883
11					---	418	245	128	111	---	585	862
12					---	345	223	134	107	194	540	882
13					---	313	213	129	110	223	434	863
14					899	297	209	127	122	282	372	867
15					936	276	209	119	130	293	331	855
16					947	274	215	119	132	324	409	865
17					974	263	220	137	142	322	438	936
18					936	268	187	145	138	327	464	972
19					905	278	168	144	169	361	467	966
20					889	291	167	153	160	359	463	929
21					971	302	135	143	171	327	491	870
22					822	292	132	125	180	356	437	873
23					853	297	128	133	182	310	460	883
24					863	288	121	123	192	334	563	905
25					814	287	114	99	206	366	561	895
26					718	293	120	113	196	391	612	849
27					734	312	125	100	177	382	544	844
28					713	302	128	95	194	330	628	807
29					---	278	127	99	202	366	628	830
30					---	248	117	107	217	390	585	823
31					---	189	---	110	---	398	605	---
MEAN					865	378	186	121	146	322	484	844
WTR YR 1983	MEAN	390		MAX	974		MIN	91				

06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1									---	---	8.2	8.1
2									---	---	---	---
3									---	---	8.1	8.0
4									---	---	8.2	8.1
5									---	---	8.2	8.1
6									---	---	8.1	8.0
7									---	---	8.0	7.9
8									---	---	8.5	7.9
9									---	---	8.6	8.4
10									---	---	8.5	8.3
11									---	---	8.4	8.2
12									---	---	8.4	8.2
13									---	---	8.3	8.2
14									8.0	8.0	8.3	8.1
15									8.8	7.9	8.2	8.1
16									8.9	8.5	8.1	8.1
17									8.8	8.5	8.1	8.1
18									8.8	8.5	8.1	8.0
19									8.7	8.4	8.1	8.0
20									8.6	8.3	8.1	8.0
21									8.6	8.3	8.2	8.0
22									8.4	8.2	8.2	8.0
23									8.3	8.1	8.2	8.1
24									8.4	8.1	8.2	8.1
25									8.2	7.8	8.2	8.1
26									8.1	7.8	8.2	8.1
27									8.3	8.0	8.2	8.1
28									8.3	8.0	8.2	8.1
29									---	---	8.3	8.1
30									---	---	8.2	8.0
31									---	---	8.1	7.9
MONTH									8.9	7.8	8.6	7.9
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.0	7.9	8.0	7.9	8.0	8.0	7.8	7.3	8.5	8.3	8.5	8.2
2	8.1	7.9	8.0	7.9	8.0	8.0	7.8	7.2	8.4	8.2	8.5	8.1
3	8.0	8.0	8.0	8.0	8.0	8.0	---	---	8.4	8.2	8.5	8.2
4	8.0	8.0	8.1	7.8	8.0	8.0	---	---	8.4	8.2	8.5	8.2
5	8.1	8.0	8.1	8.0	8.1	7.9	---	---	8.4	8.2	8.6	8.2
6	8.2	8.0	8.1	8.0	8.0	7.9	---	---	8.4	8.2	8.6	8.3
7	8.1	8.0	8.0	7.8	8.1	7.9	---	---	8.4	8.2	8.6	8.3
8	8.1	8.0	8.0	7.9	8.0	7.9	---	---	8.4	8.2	8.5	8.3
9	8.2	8.1	8.0	7.8	8.0	7.9	---	---	8.3	8.2	8.6	8.3
10	8.4	8.2	7.9	7.8	8.0	7.9	---	---	8.3	7.0	8.6	8.3
11	8.4	8.2	7.8	7.8	8.0	7.9	---	---	7.9	7.3	8.6	8.4
12	8.2	8.0	7.8	7.8	8.2	8.0	8.7	7.9	8.3	7.9	8.7	8.4
13	8.1	8.0	7.9	7.8	8.2	7.9	8.6	7.9	8.3	8.1	8.6	8.3
14	8.1	8.0	7.8	7.8	8.1	7.9	8.1	7.8	8.3	7.8	8.6	8.3
15	8.1	8.0	7.8	7.7	8.1	8.0	8.1	7.8	8.3	7.9	8.7	8.4
16	8.4	8.0	8.3	7.8	8.1	7.7	8.3	8.0	8.3	8.0	8.6	8.3
17	8.5	8.1	7.9	7.8	8.0	7.8	8.3	8.1	8.3	8.1	8.7	8.4
18	8.2	8.0	8.1	7.8	8.2	8.0	8.3	8.1	8.4	8.1	8.7	8.4
19	8.7	7.8	7.9	7.8	8.4	8.2	8.3	8.2	8.3	8.1	8.7	8.4
20	7.9	7.8	7.9	7.8	8.6	8.4	8.3	8.2	8.3	8.1	8.7	8.4
21	7.9	7.7	8.2	7.8	8.8	8.5	8.3	8.1	8.4	8.1	8.7	8.4
22	7.9	7.7	7.8	7.7	8.8	8.1	8.4	8.2	8.4	8.1	8.7	8.3
23	7.8	7.7	8.1	7.7	8.4	8.1	8.3	8.1	8.4	8.1	8.6	8.3
24	7.9	7.8	8.3	8.0	8.5	8.1	8.4	8.2	8.4	8.1	8.6	8.3
25	7.9	7.7	8.2	8.1	8.7	8.1	8.4	8.2	8.4	8.0	8.6	8.3
26	7.8	7.8	8.2	8.1	8.4	8.1	8.4	8.1	8.4	8.1	8.6	8.3
27	7.9	7.8	8.1	8.1	8.2	7.5	8.4	8.2	8.5	8.1	8.6	8.2
28	7.9	7.8	8.1	8.0	8.4	8.0	8.4	8.2	8.5	8.1	8.6	8.2
29	7.9	7.8	8.3	8.0	8.5	7.4	8.4	8.3	8.4	8.2	8.5	8.2
30	7.9	7.8	8.1	8.0	7.8	7.3	8.4	8.3	8.5	8.1	8.6	8.2
31	---	---	8.0	8.0	---	---	8.4	8.3	8.5	8.2	---	---
MONTH	8.7	7.7	8.3	7.7	8.8	7.3	8.7	7.2	8.5	7.0	8.7	8.1
YEAR	8.9	7.0										

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1									---	---	5.0	4.5
2									---	---	---	---
3									---	---	9.5	5.0
4									---	---	6.0	4.0
5									---	---	4.0	2.5
6									---	---	5.0	2.5
7									---	---	5.5	2.5
8									---	---	6.0	3.0
9									---	---	8.0	3.0
10									---	---	9.5	3.0
11									---	---	8.0	3.0
12									---	---	7.0	3.0
13									---	---	6.0	2.5
14									9.0	7.5	6.0	2.5
15									9.5	6.5	2.5	.5
16									10.0	6.5	1.5	.5
17									10.5	5.0	1.5	1.0
18									10.5	6.5	1.5	1.0
19									8.5	5.0	1.5	1.0
20									9.0	4.0	2.0	1.0
21									10.5	5.0	2.5	1.0
22									10.5	5.5	2.5	1.5
23									10.5	6.0	2.5	1.5
24									10.0	5.0	4.5	1.5
25									9.0	5.0	4.0	1.5
26									9.5	4.5	4.0	1.5
27									8.0	4.0	3.5	1.5
28									8.0	4.0	4.5	1.5
29									---	---	5.5	1.5
30									---	---	6.5	1.5
31									---	---	5.5	.5
MONTH									10.5	4.0	9.5	.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	4.5	1.0	6.5	2.5	9.0	5.0	18.0	12.0	21.5	14.5	22.0	15.0
2	5.0	1.0	5.0	2.5	9.5	6.5	14.0	12.5	20.5	13.5	22.5	14.5
3	2.5	.5	7.5	2.5	12.0	6.5	---	---	21.5	14.5	23.0	17.0
4	.5	.5	9.0	3.0	12.0	7.0	---	---	21.0	16.0	20.5	16.0
5	2.0	.5	6.5	2.5	9.0	7.0	---	---	21.0	15.5	21.5	14.5
6	2.5	.5	7.0	3.0	9.0	6.0	---	---	23.0	14.0	22.0	15.0
7	2.0	1.0	8.0	2.5	11.0	6.5	---	---	24.0	16.5	22.5	14.5
8	3.0	1.0	8.5	3.0	12.5	7.0	---	---	24.0	17.0	20.5	16.0
9	4.5	1.0	10.0	3.5	13.0	7.5	---	---	24.5	16.0	23.0	15.5
10	7.5	1.5	9.0	3.0	12.5	8.0	---	---	24.5	16.5	20.0	16.5
11	5.0	2.0	5.5	4.0	13.5	8.0	---	---	25.0	17.0	22.0	14.5
12	3.0	1.0	8.0	2.5	12.5	8.5	18.0	15.0	23.0	17.5	21.5	14.0
13	3.5	.5	5.0	2.5	9.5	3.5	20.5	12.5	22.0	17.5	21.5	14.0
14	3.5	1.0	3.0	2.0	12.0	6.0	20.0	10.5	23.0	16.5	20.5	12.0
15	4.0	1.0	6.5	2.0	12.5	7.0	20.0	14.0	22.5	16.0	21.5	14.5
16	7.0	1.0	6.5	3.0	12.5	8.0	21.5	14.0	23.5	17.5	21.5	14.0
17	8.5	1.5	3.5	1.0	15.5	9.0	21.5	15.0	22.5	17.0	21.5	12.5
18	7.5	1.5	7.5	1.0	16.5	9.0	20.0	14.5	23.5	17.0	21.5	15.5
19	9.0	3.0	5.0	3.5	17.0	9.5	24.0	15.5	23.0	16.5	22.0	12.5
20	7.5	2.5	7.0	3.0	17.0	10.5	23.0	16.0	21.5	16.5	17.5	12.5
21	5.5	3.0	9.5	6.0	18.0	10.0	22.0	16.0	23.0	16.0	18.0	11.5
22	5.0	3.0	7.5	5.0	18.0	11.5	22.0	16.5	21.5	15.5	18.0	11.5
23	6.0	3.0	10.0	4.5	14.5	11.5	19.0	16.0	20.5	15.0	19.0	12.5
24	9.0	3.0	10.5	5.5	18.0	10.5	22.5	14.5	20.0	15.0	19.0	14.5
25	8.5	2.5	10.0	5.5	17.5	11.5	23.5	16.0	21.0	14.5	21.0	14.5
26	6.0	2.5	10.5	5.5	14.0	12.0	21.0	16.5	21.0	15.5	21.0	14.5
27	7.5	3.0	10.5	6.5	12.0	11.0	22.0	16.0	21.5	14.5	21.0	14.5
28	6.5	3.0	10.0	6.5	15.5	10.0	21.5	15.0	21.5	14.5	20.5	14.0
29	7.5	3.0	10.0	6.5	16.0	10.5	21.0	15.0	18.5	15.5	18.0	16.0
30	5.5	3.0	8.5	5.5	17.0	10.5	20.5	14.0	21.0	15.0	20.0	15.0
31	---	---	6.0	5.0	---	---	19.5	14.0	21.5	14.5	---	---
MONTH	9.0	.5	10.5	1.0	18.0	3.5	24.0	10.5	25.0	13.5	23.0	11.5
YEAR	25.0	.5										

06719735 RALSTON CREEK BELOW SCHWARTZWALDER MINE NR. PLAINVIEW, CO--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1			.						---	---	10.8	10.6
2									---	---	---	---
3									---	---	10.3	8.7
4									---	---	9.6	8.9
5									---	---	9.9	8.7
6									---	---	10.5	8.1
7									---	---	10.4	9.5
8									---	---	10.5	9.4
9									---	---	10.5	8.4
10									---	---	10.2	7.7
11									---	---	10.9	8.1
12									---	---	11.0	10.0
13									---	---	11.2	10.3
14									9.5	9.2	11.2	10.3
15									9.9	9.2	11.7	11.3
16									9.8	9.1	11.9	11.7
17									10.0	9.4	11.8	11.6
18									9.9	9.2	11.7	10.6
19									10.2	9.6	10.7	10.6
20									10.5	9.7	10.7	10.6
21									10.4	9.6	10.7	9.7
22									10.3	9.5	10.6	10.4
23									10.3	9.6	10.6	10.3
24									10.6	9.8	10.5	9.8
25									10.6	10.0	10.4	9.7
26									10.8	9.8	10.6	10.0
27									10.9	10.1	10.6	9.5
28									10.8	10.1	10.6	9.9
29									---	---	10.7	8.1
30									---	---	10.6	9.4
31									---	---	10.8	9.6
MONTH									10.9	9.1	11.9	7.7
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	10.8	9.9	9.5	8.4	10.4	9.6	8.1	7.1	7.8	7.0	7.7	6.9
2	10.8	9.7	10.7	9.1	10.2	9.6	8.6	7.2	7.7	7.1	7.8	6.8
3	10.8	10.2	11.4	9.6	10.2	9.2	---	---	7.8	7.0	7.4	6.7
4	10.9	10.7	11.2	9.8	10.2	9.2	---	---	7.6	7.0	7.4	6.9
5	10.8	10.5	11.4	10.3	10.1	9.7	---	---	7.7	7.0	7.6	6.7
6	10.7	10.4	11.1	10.0	10.3	9.6	---	---	7.6	6.8	7.5	6.7
7	10.9	10.4	11.3	10.0	10.1	9.2	---	---	7.5	6.7	7.5	6.6
8	10.8	10.3	11.0	1.6	10.0	8.9	---	---	7.4	6.6	7.2	6.6
9	10.8	10.0	10.6	.8	9.8	8.8	---	---	7.5	6.5	7.4	6.5
10	10.6	9.3	11.2	8.8	9.7	8.8	---	---	7.9	7.1	7.3	6.9
11	10.6	9.7	9.6	8.9	9.6	8.6	---	---	7.9	6.9	7.5	6.5
12	10.8	10.2	9.7	7.7	9.4	8.7	7.5	7.2	7.4	6.7	7.5	6.4
13	11.0	10.3	10.0	8.5	10.5	9.3	8.1	7.0	7.4	6.9	7.7	6.6
14	11.0	10.3	10.4	9.8	10.0	8.8	8.1	7.5	7.5	6.8	7.7	7.0
15	10.9	10.1	10.1	9.0	9.7	8.7	8.3	7.4	7.6	6.8	7.8	6.7
16	11.0	9.5	9.7	8.7	9.5	8.7	8.3	7.2	7.5	6.8	7.7	6.5
17	10.8	9.1	9.9	9.2	9.3	8.3	8.1	7.2	7.6	6.9	7.5	6.5
18	10.7	9.2	9.6	7.9	9.2	8.0	8.2	7.4	7.5	6.8	7.5	6.6
19	10.2	4.6	9.7	9.1	9.0	7.8	8.1	6.9	7.7	6.9	7.7	6.7
20	10.4	8.8	9.7	8.6	8.7	7.7	8.0	7.1	7.7	7.1	8.1	7.3
21	10.2	8.1	11.6	1.0	8.6	7.4	8.0	7.3	7.7	7.0	8.2	7.2
22	9.8	8.1	8.1	1.9	8.5	7.6	7.9	7.2	7.8	7.2	8.2	7.2
23	9.4	7.2	12.3	6.5	8.6	8.1	8.0	7.5	7.9	7.3	7.9	7.2
24	9.6	6.8	12.8	8.8	8.7	7.6	8.2	7.0	8.0	7.6	7.8	7.1
25	10.6	8.6	9.9	9.1	8.6	7.7	7.9	6.9	8.1	7.5	7.8	7.0
26	10.7	9.8	10.1	9.0	8.5	8.1	7.8	7.2	8.0	7.2	7.8	7.0
27	10.6	9.3	9.9	9.1	8.6	8.3	7.8	7.1	8.0	7.1	7.7	6.9
28	10.2	9.2	10.0	9.3	8.5	7.6	8.1	7.2	7.9	7.1	7.9	7.1
29	9.7	8.4	10.1	9.4	8.4	7.3	8.2	7.3	7.8	7.4	7.7	7.2
30	10.8	8.5	10.3	9.7	8.3	7.3	8.0	7.3	7.8	6.9	7.7	7.1
31	---	---	10.5	10.2	---	---	8.0	7.3	7.8	7.0	---	---
MONTH	11.0	4.6	12.8	.8	10.5	7.3	8.6	6.9	8.1	6.5	8.2	6.4
YEAR	12.8	.8										

## PLATTE RIVER BASIN

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06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO.

LOCATION.--Lat 39°49'47", long 105°15'40", SE¼NE¼ sec.6, T.3 S., R.70 W., Jefferson County, Hydrologic Unit 10190004, on right bank, 150 ft downstream from road culvert, 0.6 mi downstream from diversion dam, and 4.6 mi northwest of Golden.

DRAINAGE AREA.--42.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to September 1983. Gage operated by Denver Board of Water Commissioners prior to Feb. 15, 1983.

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 6,060 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by inflow from Schwartzwalder Mine and diversion above station for irrigation.

EXTREMES FOR PERIOD FEB. 15 TO SEPT. 30.--Maximum discharge, 282 ft<sup>3</sup>/s at 1900 May 25, gage height, 3.12 ft; no flow Aug. 11-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	3.1	13	93	170	27	10	4.0
2					---	3.1	11	82	154	22	9.8	3.3
3					---	3.6	8.3	69	143	19	9.6	3.3
4					---	4.3	5.3	67	144	15	13	3.3
5					---	6.4	5.1	70	156	12	9.6	3.3
6					---	5.6	5.1	73	142	11	8.6	3.3
7					---	4.5	4.5	74	136	10	7.4	3.1
8					---	4.3	3.6	80	125	9.6	6.4	2.9
9					---	4.2	2.5	91	121	9.6	5.1	2.9
10					---	4.5	2.7	112	117	24	2.6	2.9
11					---	6.0	4.5	115	112	18	.00	2.9
12					---	7.0	5.6	102	109	14	.00	2.7
13					---	9.5	5.6	95	103	13	.00	2.7
14					---	13	6.4	87	87	12	1.9	2.7
15					2.1	12	4.5	83	77	10	2.7	2.7
16					2.1	12	4.0	79	70	10	4.0	2.7
17					2.1	13	4.8	76	65	9.6	6.1	2.5
18					2.1	11	7.7	79	54	9.3	5.9	2.5
19					2.1	11	20	97	52	9.3	5.9	2.3
20					2.3	11	38	107	48	9.3	5.9	2.7
21					2.1	11	63	134	42	11	5.9	2.9
22					2.3	11	66	206	39	11	6.4	2.9
23					2.5	9.6	61	236	38	11	6.4	2.9
24					2.5	9.0	64	260	36	11	5.1	2.9
25					2.5	9.3	85	275	34	10	5.1	2.9
26					2.9	9.3	102	258	38	11	4.5	2.9
27					2.9	8.6	93	266	44	10	5.1	3.1
28					2.9	9.0	89	266	38	12	4.3	3.1
29					---	9.6	90	251	35	10	4.0	3.1
30					---	11	102	236	34	10	4.5	3.1
31					---	12	---	201	---	10	4.3	---
TOTAL					---	258.5	977.2	4320	2563	390.7	170.10	88.5
MEAN					---	8.34	32.6	139	85.4	12.6	5.49	2.95
MAX					---	13	102	275	170	27	13	4.0
MIN					---	3.1	2.5	67	34	9.3	.00	2.3
AC-FT					---	513	1940	8570	5080	775	337	176

## PLATTE RIVER BASIN

06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March to September 1983.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March to September 1983.

pH: March to September 1983.

WATER TEMPERATURES: March to September 1983.

DISSOLVED OXYGEN: March to September 1983.

INSTRUMENTATION.--Water quality monitor since March 1983.

EXTREMES FOR CURRENT YEAR:--

SPECIFIC CONDUCTANCE: Maximum, 1,220 micromhos Feb. 21, 1983; minimum, 93 micromhos May 12, 1983.

pH: Maximum 9.5 units Apr. 6 and June 23, 1983; minimum, 6.3 units Mar. 11, 1983.

WATER TEMPERATURES: Maximum, 29.0°C June 20, 1983; minimum 0.0°C Mar. 27 and Apr. 8, 1983.

DISSOLVED OXYGEN: Maximum, 13.8 mg/L May 17, 1983; minimum, 4.7 mg/L Aug. 11-12, 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)
MAY												
16...	1530	74	150	177	8.0	6.0	9.9	120	5.0	11	2.3	46
16...	2030	81	145	149	8.0	6.0	9.8	12	5.2	9.6	2.7	37
18...	1500	80	147	1020	7.9	8.0	9.3	15	5.9	--	--	42
18...	2100	97	141	152	7.8	5.5	10.0	13	4.5	--	--	41
19...	0700	95	147	153	8.0	4.0	10.3	12	4.4	--	--	43
19...	1500	94	137	149	8.0	6.0	9.9	12	4.4	--	--	42
19...	2300	104	150	156	7.6	4.5	10.4	13	4.7	--	--	42
23...	0730	109	124	139	8.0	6.0	9.6	17	6.5	--	--	39
24...	0730	257	120	133	8.0	7.0	9.6	20	8.8	6.3	4.9	44
JUN												
20...	2030	44	170	176	8.1	16.0	7.7	15	4.6	--	--	42
21...	1530	45	179	191	8.2	18.5	7.4	16	4.9	--	--	56
22...	1330	39	164	173	8.0	17.0	7.7	16	4.6	--	--	52
22...	2100	39	186	199	8.0	15.0	8.1	18	5.1	--	--	83
23...	0500	38	186	192	8.2	12.5	8.5	17	5.1	12	1.7	66
28...	0720	37	191	194	8.1	10.5	8.8	17	4.8	--	--	60
28...	1915	37	210	208	8.0	15.0	7.9	18	5.1	14	1.8	62
29...	0700	36	202	202	8.1	11.0	8.7	19	5.7	--	--	59
29...	1230	36	210	207	8.2	14.0	8.1	19	5.2	14	1.7	62
SEP												
12...	0920	2.9	740	725	8.5	13.0	8.7	46	15	--	--	152
12...	2100	2.9	760	687	8.3	16.0	6.8	41	14	83	3.7	145
13...	1450	2.3	740	717	8.8	20.0	8.2	44	15	--	--	150
14...	0100	2.7	833	807	8.3	14.5	7.3	47	16	--	--	157
14...	0500	2.7	833	799	8.3	13.5	7.7	47	16	--	--	156
14...	1720	2.5	750	722	8.5	16.0	7.7	44	15	90	4.3	148
15...	1115	3.0	776	748	8.7	16.0	9.0	44	16	--	--	151
16...	0100	3.1	833	775	8.4	14.0	7.3	46	16	100	4.3	153
16...	1250	2.9	700	672	8.8	18.5	8.5	41	14	--	--	140



## PLATTE RIVER BASIN

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06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)
MAY												
16...	27	5.0	101	.670	.030	.700	.200	1.0	1.1	1.9	.080	.050
16...	23	4.5	110	.250	.050	.300	.150	.95	1.1	1.4	.080	.070
18...	--	--	101	--	--	--	--	--	--	--	--	--
18...	--	--	153	--	--	--	--	--	--	--	--	--
19...	--	--	104	--	--	--	--	--	--	--	--	--
19...	--	--	107	--	--	--	--	--	--	--	--	--
19...	--	--	113	--	--	--	--	--	--	--	--	--
23...	--	--	100	--	--	--	--	--	--	--	--	--
24...	20	3.7	144	.270	.030	.300	.120	1.5	1.6	1.9	.210	.070
JUN												
20...	--	--	123	--	--	--	--	--	--	--	--	--
21...	--	--	118	--	--	--	--	--	--	--	--	--
22...	--	--	142	--	--	--	--	--	--	--	--	--
22...	--	--	160	--	--	--	--	--	--	--	--	--
23...	30	3.5	45	.380	.020	.400	.070	.43	.50	.90	.040	<.020
28...	--	--	130	--	--	--	--	--	--	--	--	--
28...	32	4.2	114	.300	<.020	.300	.070	.93	1.0	1.3	.030	.020
29...	--	--	136	--	--	--	--	--	--	--	--	--
29...	31	4.0	137	.300	<.020	.300	.060	.64	.70	1.0	.020	.020
SEP												
12...	--	--	490	--	--	--	--	--	--	--	--	--
12...	180	16	453	1.10	<.020	1.10	.050	.25	.30	1.4	.010	.010
13...	--	--	490	--	--	--	--	--	--	--	--	--
14...	--	--	545	--	--	--	--	--	--	--	--	--
14...	--	--	124	--	--	--	--	--	--	--	--	--
14...	190	17	486	2.10	<.020	2.10	.110	.89	1.0	3.1	.010	.010
15...	--	--	512	--	--	--	--	--	--	--	--	--
16...	230	18	526	2.20	<.020	2.20	.030	.57	.60	2.8	.020	.020
16...	--	--	452	--	--	--	--	--	--	--	--	--

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY										
16...	2	<100	50	<1	<1	10	13	2	4800	67
16...	2	<100	50	1	<1	10	17	2	6600	93
18...	--	--	--	1	<1	--	21	3	8200	150
18...	--	--	--	1	<1	--	8	4	2800	110
19...	--	--	--	<1	<1	--	7	2	1600	140
19...	--	--	--	<1	<1	--	6	1	1900	130
19...	--	--	--	<1	<1	--	8	4	2500	110
23...	--	--	--	<1	<1	--	28	4	11000	160
24...	6	200	60	<1	<1	20	36	3	21000	140
JUN										
20...	--	--	--	<1	<1	--	2	2	750	210
21...	--	--	--	<1	<1	--	4	3	650	170
22...	--	--	--	<1	<1	--	8	2	600	150
22...	--	--	--	<1	1	--	6	10	740	180
23...	1	<100	50	<1	<1	<10	4	2	690	190
28...	--	--	--	<1	<1	--	4	2	900	170
28...	1	<100	50	<1	<1	<10	9	1	930	170
29...	--	--	--	<1	<1	--	3	1	880	130
29...	2	<100	50	<1	<1	<10	5	2	640	160
SEP										
12...	--	--	--	<1	<1	--	5	2	110	16
12...	4	<100	150	1	<1	<10	9	3	460	19
13...	--	--	--	<1	<1	--	3	3	150	14
14...	--	--	--	1	<1	--	4	3	210	13
14...	--	--	--	<1	<1	--	4	3	250	18
14...	5	200	180	<1	<1	<10	4	2	140	16
15...	--	--	--	<1	<1	--	3	3	160	14
16...	5	100	180	<1	<1	<10	4	2	230	28
16...	--	--	--	<1	<1	--	3	3	130	14

## PLATTE RIVER BASIN

06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY										
16...	14	<1	150	8	<.1	18	7	1	<1	--
16...	20	2	200	12	<.1	17	10	1	<1	--
18...	22	<1	220	11	--	--	--	1	<1	--
18...	7	<1	100	9	--	--	--	<1	<1	--
19...	22	<1	60	7	--	--	--	<1	<1	--
19...	2	<1	60	7	--	--	--	1	1	--
19...	5	<1	70	5	--	--	--	<1	<1	--
23...	28	3	360	8	--	--	--	1	1	--
24...	70	<1	680	7	<.1	19	25	1	<1	--
JUN										
20...	2	<1	30	9	--	--	--	1	<1	--
21...	2	<1	30	9	--	--	--	1	1	--
22...	<1	1	20	8	--	--	--	<1	1	--
22...	2	4	30	10	--	--	--	1	1	--
23...	2	1	30	7	<.1	32	15	1	1	80
28...	2	2	50	7	--	--	--	<1	<1	--
28...	3	1	40	9	<.1	34	7	<1	1	90
29...	<1	1	40	7	--	--	--	<1	<1	--
29...	3	3	30	9	<.1	37	7	<1	<1	10
SEP										
12...	1	1	<10	4	--	--	--	<1	<1	--
12...	4	<1	20	8	.5	200	9	<1	<1	30
13...	1	<1	10	6	--	--	--	<1	<1	--
14...	<1	3	10	5	--	--	--	<1	<1	--
14...	1	2	20	5	--	--	--	<1	<1	--
14...	1	<1	20	7	<.1	240	22	<1	<1	30
15...	2	<1	10	4	--	--	--	<1	<1	--
16...	1	<1	20	5	<.1	300	20	<1	<1	20
16...	1	<1	10	4	--	--	--	<1	<1	--

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)	DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL TOTAL (UG/L AS U)
MAY						JUN					
16...	--	--	--	13	21	28...	--	--	--	10	81
16...	--	--	--	14	30	28...	--	--	--	19	20
18...	--	--	--	20	38	29...	3.1	2.7	2.5	12	15
18...	--	--	--	16	21	29...	3.3	2.2	2.0	11	14
19...	--	--	--	14	17	SEP					
19...	--	--	--	13	17	12...	.6	12	12	110	110
19...	--	--	--	14	21	12...	5.3	22	21	96	100
23...	--	--	--	12	30	13...	1.0	12	12	100	100
24...	--	--	--	19	89	14...	1.3	7.0	6.6	100	110
JUN						14...	.8	13	13	110	120
20...	--	--	--	9.8	11	14...	.9	8.0	8.1	120	120
21...	--	--	--	9.2	10	15...	2.2	12	12	82	84
22...	1.7	1.8	1.7	9.9	12	16...	2.5	14	14	91	94
22...	--	--	--	10	10	16...	.8	9.4	9.5	91	92
23...	--	--	--	9.0	10						

## PLATTE RIVER BASIN

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06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)
APR					JUN				
21...	1410	--	215	--	01...	1015	155	124	52
22...	1317	--	157	--	02...	1015	153	97	40
23...	1045	--	55	--	03...	1030	110	90	27
24...	1240	--	43	--	13...	1430	79	36	7.7
MAY					14...	1730	76	44	9.0
02...	1130	--	48	--	15...	1830	73	36	7.1
03...	1400	--	32	--	17...	1700	54	22	3.2
04...	1244	--	29	--	20...	2030	44	16	1.9
05...	1100	--	28	--	21...	1530	45	17	2.1
06...	0900	--	27	--	22...	1330	39	16	1.7
16...	1530	74	36	7.2	22...	2100	39	18	1.9
16...	2030	81	155	34	23...	0500	38	72	7.4
18...	1500	80	161	35	27...	1330	40	27	2.9
18...	2100	97	84	22	28...	0720	37	24	2.4
19...	0700	95	38	9.7	28...	1345	31	24	2.0
19...	1500	94	37	9.4	28...	1915	37	19	1.9
19...	2300	104	65	18	29...	0700	36	21	2.0
23...	0730	109	418	123	29...	1230	36	18	1.7
24...	0730	257	--	--	29...	1250	28	12	.91
30...	1145	200	150	81					
31...	1530	166	170	76					
JUN					AUG				
30...	1030	36	12	1.1	26...	0955	5.1	5	.07
JUL					SEP				
01...	1330	26	12	.84	12...	0920	2.9	2	.02
11...	1530	13	45	1.6	12...	1530	2.3	2	.01
12...	1730	14	24	.91	12...	2100	2.9	10	.08
13...	1830	12	17	.55	13...	1450	2.3	8	.05
14...	1200	12	9	.29	13...	1740	2.7	0	.00
15...	1100	11	6	.18	14...	0100	2.7	5	.04
25...	1230	11	15	.45	14...	0500	2.7	2	.01
26...	1015	9.6	9	.23	14...	1530	2.7	3	.02
27...	0830	10	18	.49	14...	1720	2.5	2	.01
29...	1415	10	5	.14	15...	1115	3.0	4	.03
AUG					16...	0100	3.1	2	.02
08...	1220	6.7	5	.09	16...	1250	2.9	3	.02
09...	1300	5.6	1	.02	16...	1400	2.7	2	.01
11...	1415	.00	3	.00	26...	1800	2.9	6	.05
12...	0900	.00	1	.00	27...	1740	2.9	6	.05
22...	1250	6.1	68	1.1	28...	1505	2.9	4	.03
23...	1435	6.1	12	.20	29...	1330	3.1	2	.02
24...	1435	4.8	8	.10	30...	1720	3.1	3	.03
25...	1400	5.3	7	.10					

## PLATTE RIVER BASIN

06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	678	293	137	126	232	425	574
2					---	679	291	142	124	236	454	549
3					---	636	300	152	115	240	424	761
4					---	590	320	155	114	245	346	686
5					---	526	333	148	111	255	394	614
6					---	553	368	143	111	263	428	693
7					---	582	372	131	112	285	450	697
8					---	581	369	132	110	289	479	740
9					---	655	372	124	117	307	529	780
10					---	676	346	116	111	272	515	799
11					---	627	291	110	108	226	386	773
12					---	598	272	107	109	236	370	794
13					---	614	267	112	113	252	369	784
14					---	569	276	114	134	278	358	791
15					---	949	367	275	113	277	343	788
16					---	952	298	267	137	148	308	780
17					---	1000	290	261	145	155	314	840
18					---	963	313	235	163	146	316	891
19					---	943	327	201	157	182	354	883
20					---	924	334	175	174	166	363	882
21					---	965	360	171	180	168	317	829
22					---	887	338	178	152	172	354	821
23					---	873	360	184	140	188	309	824
24					---	844	352	---	112	206	324	841
25					---	773	359	---	117	236	362	851
26					---	698	364	---	103	232	392	822
27					---	714	379	---	107	193	389	790
28					---	686	368	---	109	204	317	766
29					---	---	403	134	113	208	355	813
30					---	---	407	132	106	220	400	776
31					---	---	307	---	114	---	407	---
MEAN					---	869	467	267	131	153	306	774
WTR YR 1983	MEAN	398		MAX	1000		MIN	103				

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PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

[illegible]

## PLATTE RIVER BASIN

06719740 RALSTON CREEK ABOVE RALSTON RESERVOIR NEAR GOLDEN, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX		MIN		MAX		MIN		MAX		MIN	
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1									---	---	10.0	3.0
2									---	---	11.0	3.0
3									---	---	10.5	3.0
4									---	---	6.0	3.5
5									---	---	4.5	1.0
6									---	---	6.5	1.5
7									---	---	8.5	.5
8									---	---	6.0	2.0
9									---	---	12.5	1.5
10									---	---	14.0	2.0
11									---	---	14.5	3.0
12									---	---	14.0	4.0
13									---	---	12.5	3.5
14									---	---	12.5	3.5
15									7.0	2.0	3.5	.5
16									8.0	2.0	2.0	.5
17									8.5	.5	2.0	1.0
18									9.0	2.5	2.5	.5
19									6.0	2.0	3.0	.5
20									8.5	1.0	4.0	.5
21									9.5	3.5	4.5	.5
22									10.0	2.0	4.5	.5
23									10.0	2.5	1.0	.5
24									9.0	1.5	6.0	1.0
25									10.0	1.0	5.5	1.5
26									9.5	3.0	5.0	1.0
27									8.5	1.5	6.5	.0
28									8.5	2.0	6.0	1.0
29									---	---	12.5	1.0
30									---	---	13.5	1.5
31									---	---	7.5	1.5
MONTH									10.0	.5	14.5	.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	5.5	1.5	7.5	3.0	9.5	2.0	19.0	12.0	22.5	15.5	22.5	15.0
2	6.5	1.0	6.0	3.5	12.0	4.0	19.5	12.0	22.0	16.0	23.5	15.5
3	3.0	.5	9.0	3.5	17.0	6.5	19.0	13.5	22.5	15.5	22.5	16.0
4	1.5	.5	10.0	4.5	16.0	6.5	18.5	11.0	21.0	16.0	20.5	15.5
5	4.0	.5	7.5	4.0	11.0	7.0	20.0	11.5	21.5	16.0	21.5	14.0
6	3.5	1.0	8.0	4.0	11.0	4.0	21.0	12.5	22.5	16.5	21.5	12.5
7	4.0	1.0	9.5	4.0	14.0	6.0	22.0	14.5	24.0	16.0	22.5	14.0
8	8.0	.0	10.0	4.0	17.0	6.0	22.5	15.0	24.0	16.0	20.5	15.5
9	8.5	3.0	11.0	4.5	17.0	7.5	23.5	15.5	24.0	12.5	22.5	14.5
10	13.0	1.5	10.0	4.0	17.0	8.0	21.0	13.5	24.5	15.0	18.5	15.0
11	7.0	2.0	6.5	5.0	19.0	8.0	19.0	13.0	25.0	13.5	21.5	13.0
12	3.5	1.0	9.5	2.5	17.0	9.5	20.0	13.0	22.0	13.5	20.5	12.5
13	5.0	1.5	6.0	2.5	11.0	7.5	21.0	12.5	21.0	15.0	21.0	12.0
14	5.5	2.0	4.0	2.5	17.0	4.5	19.5	14.0	24.0	14.5	19.0	12.0
15	8.0	3.0	7.5	3.0	18.0	6.5	19.0	12.0	26.0	15.0	20.5	12.5
16	9.5	.5	7.5	1.0	16.5	9.0	20.5	12.5	23.0	15.5	21.5	12.0
17	11.5	1.0	---	---	23.5	10.5	21.5	14.0	22.5	16.0	20.5	12.5
18	10.0	1.5	9.5	2.5	26.5	12.0	20.0	14.0	23.5	16.0	20.5	12.5
19	10.0	3.5	4.0	1.0	28.5	14.0	23.5	15.0	23.0	15.5	21.5	11.0
20	8.0	2.5	7.0	.5	29.0	14.5	23.0	15.5	22.0	16.0	14.5	8.5
21	6.5	3.5	12.5	5.0	24.0	9.0	21.5	15.5	23.0	15.5	16.0	7.0
22	5.5	3.5	7.5	2.5	21.5	9.5	22.0	16.0	20.5	15.0	16.0	8.0
23	5.5	3.0	11.5	1.0	19.5	11.5	19.0	16.0	21.0	15.0	17.0	9.5
24	---	---	11.5	2.0	23.5	10.0	22.0	14.0	21.5	14.5	17.0	12.5
25	---	---	10.5	2.0	23.5	11.5	23.5	15.5	22.0	15.0	20.0	12.0
26	---	---	13.0	2.5	15.5	12.5	20.5	15.5	21.5	15.5	20.0	12.0
27	---	---	13.5	5.0	18.0	11.0	21.5	15.5	22.5	14.5	20.5	13.5
28	---	---	13.5	6.0	16.5	10.5	22.0	15.0	22.0	14.5	18.5	12.0
29	8.5	5.0	14.0	7.5	16.5	11.0	23.5	15.0	19.0	15.0	16.5	12.5
30	6.5	4.0	12.0	6.0	18.0	11.5	23.0	15.5	22.0	15.0	18.0	12.5
31	---	---	5.0	4.0	---	---	21.5	15.0	22.5	14.5	---	---
MONTH	13.0	.0	14.0	.5	29.0	2.0	23.5	11.0	26.0	12.5	23.5	7.0
YEAR	29.0	.0										

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OXYGEN, DISSOLVED (DO), MG/L. WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

[illegible]

## PLATTE RIVER BASIN

## 06720500 SOUTH PLATTE RIVER AT HENDERSON, CO

LOCATION.--Lat 39°55'19", long 104°52'00", in SE¼NE¼ sec.34, T.1 S., R.67 W., Adams County, Hydrologic Unit 10190003, on right bank 500 ft upstream from bridge on State Highway 22 and 0.2 mi northwest of Henderson.

DRAINAGE AREA.--4,713 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1933, monthly discharge only, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1934-36(M). WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,003.12 ft, National Geodetic Vertical Datum of 1929. See WSP 1710 or 1730 for history of changes prior to June 1, 1960. June 1, 1960, to May 10, 1969, water-stage recorder at site 1,200 ft upstream at datum 2.00 ft higher. May 11 to Oct. 2, 1969, nonrecording gage at site 500 ft downstream at present datum.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals, diversions for irrigation of about 253,000 acres, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--48 years (water years 1927-74), 366 ft<sup>3</sup>/s; 265,200 acre-ft/yr, prior to completion of Chatfield Dam; 8 years (water years 1976-83), 579 ft<sup>3</sup>/s; 419,500 acre-ft/yr, subsequent to completion of Chatfield Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft<sup>3</sup>/s May 6, 1973, gage height, 11.67 ft, from rating curve extended above 7,200 ft<sup>3</sup>/s, partly on basis of flow-over-road measurement of peak flow; maximum gage height, 12.93 ft, June 17, 1965, site and datum then in use; minimum daily discharge, 4.4 ft<sup>3</sup>/s Apr. 1, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,300 ft<sup>3</sup>/s at 0230 June 27, gage height, 7.58 ft; minimum daily, 232 ft<sup>3</sup>/s Feb. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	280	456	424	464	433	259	880	3390	4390	4080	1240	951
2	276	456	424	474	424	255	840	3490	4760	3850	1320	724
3	259	420	399	482	407	246	873	3070	4690	3780	1410	616
4	259	399	572	482	355	246	1000	3150	4210	3650	1240	706
5	266	411	478	500	316	2460	1090	2740	5450	3370	1910	880
6	359	424	403	712	324	1260	1160	2590	2700	3340	2720	1070
7	272	420	407	700	308	873	1120	2150	2990	3120	2410	736
8	660	411	403	634	276	706	1080	2410	3190	2980	2040	682
9	700	446	387	599	262	646	1050	2380	3550	3200	1520	510
10	330	438	530	540	246	670	1030	2190	3890	2900	1510	400
11	316	379	572	550	280	664	1040	2490	4370	3800	1220	340
12	272	363	500	560	359	670	1180	2880	4080	2590	1250	474
13	566	294	438	577	383	496	1360	2900	4880	2280	1460	424
14	355	269	433	566	387	442	1230	2730	4250	2140	1530	399
15	351	283	391	487	383	1090	1090	2420	3740	1720	2180	433
16	347	347	391	478	391	1530	899	2120	3310	1560	1380	670
17	335	456	420	478	403	1240	932	4790	4000	1490	1150	622
18	351	496	407	460	363	1120	847	3200	4020	1310	1140	482
19	482	492	387	451	324	1100	622	3620	4330	1050	1140	410
20	375	482	391	446	320	1100	646	5330	4590	944	1550	340
21	367	464	403	446	312	1060	1400	2180	4350	932	1700	310
22	363	478	399	428	312	782	2540	2690	3910	2550	1630	340
23	371	474	399	424	280	750	3220	3010	3710	2830	1570	350
24	355	442	403	424	236	788	3030	3320	3930	2890	1580	446
25	367	415	367	424	239	912	3170	3890	4370	1880	1480	460
26	383	411	433	428	232	944	3690	4060	5790	1890	1200	482
27	375	420	438	415	255	834	4040	4040	6030	2090	1060	482
28	403	415	456	424	262	756	3670	4170	3850	1520	1000	469
29	363	424	433	428	---	808	3710	4290	3960	1350	1400	487
30	363	428	438	420	---	682	3510	4690	3890	1310	1050	535
31	456	---	438	433	---	718	---	5400	---	1570	1310	---
TOTAL	11577	12513	13364	15334	9072	26107	51949	101780	125180	73966	46300	16230
MEAN	373	417	431	495	324	842	1732	3283	4173	2386	1494	541
MAX	700	496	572	712	433	2460	4040	5400	6030	4080	2720	1070
MIN	259	269	367	415	232	246	622	2120	2700	932	1000	310
AC-FT	22960	24820	26510	30410	17990	51780	103000	201900	248300	146700	91840	32190
CAL YR 1982 TOTAL	134861			369	MAX	2340	MIN	64	AC-FT	267500		
WTR YR 1983 TOTAL	503372			1379	MAX	6030	MIN	232	AC-FT	998400		



## 06724000 ST. VRAIN CREEK AT LYONS, CO

LOCATION.--Lat 40°13'05", long 105°15'34", in NW¼NW¼ sec.20, T.3 N., R.70 W., Boulder County, Hydrologic Unit 10190005, on left bank 75 ft southwest of U.S. Highway 36 (State Highways 7 and 66) at southeast edge of Lyons, 400 ft upstream from St. Vrain Supply Canal, and 0.4 mi downstream from confluence of North and South St. Vrain Creeks.

DRAINAGE AREA.--212 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, August 1887 to September 1891, June 1895 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as "near Lyons" 1901, 1903. Water-quality data available, October 1977 to February 1981.

REVISED RECORDS.--WSP 1310: 1898, 1900. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,292 ft, from topographic map. Prior to Apr. 6, 1923, nonrecording gages near present site at different datums. Apr. 6, 1923, to Sept. 30, 1956, water-stage recorder at same site at datum 1.00 ft, higher.

REMARKS.--Records good. Diversions above station for irrigation of about 20,000 acres. Flow partly regulated by small reservoirs above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--92 years (water years 1888-91, 1896-1983), 129 ft<sup>3</sup>/s; 93,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft<sup>3</sup>/s June 22, 1941, gage height, 9.06 ft, present datum, from floodmark, from rating curve extended above 2,100 ft<sup>3</sup>/s, on basis of slope-area measurement at gage height, 8.90 ft; no flow Jan. 19, 20, 1922, Jan. 12, 13, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods occurred in June 1864 and May 1876. Flood in May or June 1894 reached a stage of 9.13 ft, from information by local resident, discharge, about 9,800 ft<sup>3</sup>/s. For discussions of these floods, see WSP 997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft<sup>3</sup>/s at 2200 June 19, gage height, 5.51 ft; minimum daily, 13 ft<sup>3</sup>/s Dec. 18, Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	40	25	24	17	14	93	250	589	794	224	100
2	70	37	25	21	13	17	83	233	660	671	230	105
3	71	33	24	19	15	17	78	184	687	739	229	107
4	68	27	23	20	15	19	69	179	668	746	222	119
5	66	33	25	22	16	42	66	183	724	621	230	126
6	62	32	24	20	15	34	59	180	690	604	265	115
7	55	33	22	20	16	27	60	174	671	667	229	106
8	59	29	23	22	15	30	55	169	689	837	213	103
9	61	32	22	19	17	24	55	178	721	793	202	97
10	54	31	23	15	15	25	61	185	787	876	186	95
11	53	34	21	20	18	29	67	213	896	982	177	92
12	58	30	23	21	16	26	81	205	1180	684	170	90
13	60	25	21	17	18	28	89	196	1010	590	174	90
14	57	24	19	19	21	30	86	196	877	510	185	90
15	54	21	18	15	22	48	79	187	757	463	296	84
16	57	25	22	18	18	49	78	184	679	437	261	71
17	51	20	20	19	18	50	78	305	661	407	222	67
18	50	28	13	18	19	50	84	362	741	403	212	65
19	54	38	15	15	18	50	107	459	1220	444	219	62
20	51	35	20	18	20	47	131	469	1300	505	192	55
21	51	25	19	18	17	45	205	519	1250	492	173	57
22	50	28	17	18	19	46	277	628	1200	444	165	54
23	45	27	19	16	16	44	356	605	1050	442	153	56
24	43	22	23	16	18	46	375	616	1040	381	144	50
25	42	28	19	19	20	48	419	637	998	308	142	50
26	36	29	20	16	19	47	417	606	978	328	140	42
27	42	23	22	18	18	46	384	605	921	320	131	45
28	39	26	16	19	17	49	348	638	946	324	113	46
29	32	26	18	19	---	51	324	622	914	312	113	50
30	37	25	19	17	---	62	294	650	868	275	117	48
31	39	---	20	20	---	98	---	622	---	264	109	---
TOTAL	1640	866	640	578	486	1238	4958	11439	26372	16663	5838	2337
MEAN	52.9	28.9	20.6	18.6	17.4	39.9	165	369	879	538	188	77.9
MAX	73	40	25	24	22	98	419	650	1300	982	296	126
MIN	32	20	13	15	13	14	55	169	589	264	109	42
AC-FT	3250	1720	1270	1150	964	2460	9830	22690	52310	33050	11580	4640
CAL YR 1982	TOTAL	45295.2	MEAN 124	MAX 970	MIN 2.5	AC-FT 89840						
WTR YR 1983	TOTAL	73055.0	MEAN 200	MAX 1300	MIN 13	AC-FT 144900						

## PLATTE RIVER BASIN

06725500 MIDDLE BOULDER CREEK AT NEDERLAND, CO

LOCATION.--Lat 39°57'42", long 105°30'14", in NE¼SE¼ sec.13, T.1 S., R.73 W., Boulder County, Hydrologic Unit 10190005, on left bank at Nederland just downstream from North Beaver Creek and 1,000 ft upstream from Barker Reservoir.

DRAINAGE AREA.--36.2 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1907 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder and compound sharp-crested weir. Datum of gage is 8,186.0 ft, Public Service Co. datum. Prior to Mar. 18, 1909, at datum 4.0 ft, lower. Mar. 18, 1909, to Apr. 23, 1952, at datum 2.5 ft, lower than present datum.

REMARKS.--Records good. No diversion above station. Flow regulated at times by Jasper Lake, capacity, 326 acre-ft. North Beaver Creek entered Middle Boulder Creek downstream from station June 1 to Dec. 31, 1907, March 1911 to Dec. 31, 1916. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--76 years, 54.3 ft<sup>3</sup>/s; 39,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 811 ft<sup>3</sup>/s June 2, 1914, gage height, 5.37 ft, datum then in use, by computation of peak flow over compound weir; minimum daily, 0.8 ft<sup>3</sup>/s Jan. 14, 1908.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 11	2000	436	3.08	July 10	1800	* 579	3.65
June 27	2300	504	3.34	July 19	2300	466	3.24

Minimum daily discharge, 5.1 ft<sup>3</sup>/s Feb. 7, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	15	9.5	7.9	5.5	6.1	8.3	25	147	375	145	42
2	20	13	9.8	7.7	5.5	6.7	8.3	23	174	351	143	39
3	18	12	10	7.5	5.3	6.7	7.3	22	180	359	139	38
4	16	14	10	7.7	5.3	6.5	6.9	24	210	318	136	42
5	15	14	10	7.7	5.3	8.3	7.7	26	220	302	145	41
6	16	14	10	7.5	5.3	5.9	7.3	27	180	320	132	35
7	16	14	10	7.5	5.1	6.9	7.1	27	183	359	128	33
8	15	14	9.5	7.5	5.5	7.5	6.9	31	204	388	126	31
9	11	12	9.5	7.1	5.3	7.3	6.7	38	249	423	122	31
10	17	12	9.5	6.9	5.3	7.5	7.5	51	310	458	110	30
11	20	11	9.3	7.1	5.3	8.7	7.3	53	362	415	106	29
12	18	9.8	10	7.3	5.3	8.7	6.7	45	406	349	110	26
13	18	12	9.3	6.9	5.3	8.7	6.9	42	333	312	120	26
14	17	10	8.7	6.7	5.3	8.5	6.7	38	249	286	106	26
15	17	11	9.1	6.1	5.1	7.9	7.5	36	237	264	139	29
16	20	11	9.5	6.1	5.3	9.3	7.5	34	242	256	108	25
17	17	11	9.1	6.1	5.3	8.5	6.7	36	266	237	104	24
18	16	11	8.5	6.1	5.5	8.1	8.5	34	354	227	93	23
19	16	11	8.9	5.9	5.3	8.3	10	33	434	274	86	24
20	15	11	8.7	5.7	5.3	8.7	12	31	434	351	85	29
21	15	11	8.5	5.5	5.5	8.1	14	33	431	286	83	25
22	14	11	8.7	5.3	5.5	7.7	13	42	425	302	83	24
23	14	9.8	8.5	5.3	5.5	7.9	14	48	401	276	77	24
24	14	11	8.1	5.3	5.5	7.7	20	75	406	232	71	24
25	15	12	8.0	5.7	5.3	7.5	27	112	425	225	64	22
26	16	11	8.0	5.9	5.5	7.5	30	143	406	237	59	22
27	17	12	8.7	5.9	5.5	8.1	28	176	388	215	56	21
28	12	12	8.5	5.9	5.5	7.3	25	194	442	213	48	21
29	15	10	8.7	5.7	---	7.3	25	199	417	176	48	22
30	19	10	8.5	5.7	---	8.1	26	192	415	162	48	22
31	16	---	7.9	5.5	---	8.1	---	154	---	149	45	---
TOTAL	506	352.6	281.0	200.7	150.2	240.1	375.8	2044	9530	9097	3065	850
MEAN	16.3	11.8	9.06	6.47	5.36	7.75	12.5	65.9	318	293	98.9	28.3
MAX	21	15	10	7.9	5.5	9.3	30	199	442	458	145	42
MIN	11	9.8	7.9	5.3	5.1	5.9	6.7	22	147	149	45	21
AC-FT	1000	699	557	398	298	476	745	4050	18900	18040	6080	1690
CAL YR 1982	TOTAL	21460.0	MEAN 58.8	MAX 341	MIN 4.7	AC-FT 42570						
WTR YR 1983	TOTAL	26692.4	MEAN 73.1	MAX 458	MIN 5.1	AC-FT 52940						

## PLATTE RIVER BASIN

117

06727000 BOULDER CREEK NEAR ORODELL, CO

LOCATION.--Lat 40°00'23", long 105°19'49", in NE¼SW¼ sec.34, T.1 N., R.71 W., Boulder County, Hydrologic Unit 10190005, on left bank along State Highway 119, 0.7 mi southwest of old Orodell, 1.1 mi upstream from Fourmile Creek, and 2.9 mi southwest of courthouse in Boulder.

DRAINAGE AREA.--102 mi<sup>2</sup>.

PERIOD OF RECORD.--August to October 1887, April to October 1888, October 1906 to November 1914, March 1916 to current year. Monthly discharge only for some periods, published in WSP 1310. Figures of daily discharge for Feb. 3-10, 17-25, 1912, published in WSP 326, have been found to be unreliable and should not be used. Published as North Boulder Creek, Colorado 1887-88 and as "at Orodell" March 1907 to December 1916.

REVISED RECORDS.--WSP 1310: 1941(M). WSP 1560: 1914(M). WSP 1730: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Altitude of gage is 5,826 ft, from topographic map. Prior to Sept. 1, 1907, nonrecording gage, and Sept. 1, 1907, to May 11, 1917, water-stage recorder, at sites 1.1 mi downstream, just upstream from Fourmile Creek, at different datums.

REMARKS.--Records good. Flow regulated by Barker Reservoir, capacity, 11,500 acre-ft. Low flow during nonirrigation season regulated by Orodell powerplant 1,500 ft upstream from station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--75 years (water years 1907-14, 1917-83), 88.3 ft<sup>3</sup>/s; 63,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft<sup>3</sup>/s June 6, 1921, gage height, 4.31 ft, from rating curve extended above 1,200 ft<sup>3</sup>/s; minimum daily, 1 ft<sup>3</sup>/s Jan. 29, Feb. 1-3, 16-24, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods are known to have occurred in June 1864, May 1876, June 1894, and June 1914, stages and discharges unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 830 ft<sup>3</sup>/s at 1930 June 28, gage height, 3.77 ft; minimum daily, 2.3 ft<sup>3</sup>/s Feb. 13, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	39	22	14	8.6	43	58	149	225	634	240	70
2	54	50	16	13	7.5	38	54	140	243	612	235	62
3	34	47	14	16	13	40	52	130	231	625	221	53
4	26	45	16	17	44	42	53	123	231	606	219	59
5	23	26	14	11	46	47	52	121	237	558	214	78
6	44	17	12	11	45	49	50	118	214	521	222	67
7	40	13	14	11	45	46	50	113	198	509	177	44
8	12	13	8.9	11	42	44	50	120	226	536	125	46
9	22	16	7.5	9.5	18	43	50	125	229	547	118	52
10	17	13	2.8	9.0	5.0	43	51	132	251	620	107	44
11	12	14	3.0	9.2	3.5	45	53	131	274	704	91	51
12	12	15	3.0	8.8	2.5	47	56	118	328	608	99	45
13	13	15	11	8.5	2.3	46	56	129	377	573	148	31
14	16	15	9.5	8.6	2.5	46	56	131	393	523	194	34
15	31	13	8.9	9.7	2.5	49	56	124	357	450	221	48
16	31	13	8.3	11	2.3	45	55	118	332	413	188	48
17	23	12	8.0	10	14	46	55	128	325	388	181	33
18	53	13	10	12	50	45	57	134	351	370	167	23
19	45	12	8.5	10	51	45	75	164	412	371	148	31
20	43	12	8.9	17	48	45	82	176	443	467	143	57
21	44	12	7.4	37	47	42	145	191	484	450	133	62
22	42	20	10	40	50	43	150	231	594	446	115	53
23	50	11	10	37	48	45	143	244	612	484	94	41
24	43	13	15	44	49	45	153	269	582	439	94	37
25	40	13	10	45	50	46	174	281	593	372	73	36
26	44	14	13	44	47	45	171	283	650	351	58	35
27	53	13	14	46	50	46	156	264	643	333	65	24
28	50	17	17	9.0	49	46	150	255	666	336	61	23
29	33	20	15	9.4	---	49	148	257	673	314	58	14
30	37	19	12	11	---	51	166	255	677	278	74	21
31	37	---	13	9.3	---	59	---	231	---	254	79	---
TOTAL	1067	565	342.7	559.0	842.7	1411	2677	5385	12051	14692	4362	1328
MEAN	34.4	18.8	11.1	18.0	30.1	45.5	89.2	174	402	474	141	44.3
MAX	54	50	22	46	51	59	174	283	677	704	240	78
MIN	12	11	2.8	8.5	2.3	38	50	113	198	254	58	14
AC-FT	2120	1120	680	1110	1670	2800	5310	10680	23900	29140	8650	2630
CAL YR 1982	TOTAL	27973.0	MEAN	76.6	MAX 449	MIN 2.8	AC-FT	55480				
WTR YR 1983	TOTAL	45282.4	MEAN	124	MAX 704	MIN 2.3	AC-FT	89820				

## PLATTE RIVER BASIN

06729500 SOUTH BOULDER CREEK NEAR ELDORADO SPRINGS, CO

LOCATION.--Lat 39°55'52", long 105°17'43", in SE¼ sec.26, T.1 S., R.71 W., Boulder County, Hydrologic Unit 10190005, on left bank 0.2 mi downstream from South Draw, 1.0 mi west of Eldorado Springs, 1.8 mi downstream from South Boulder diversion canal, 5.0 mi south of Boulder, and 6.7 mi downstream from Gross Reservoir.

DRAINAGE AREA.--109 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1888 to October 1892, May 1895 to September 1901, August 1904 to current year. No winter records for water years 1889-92, 1900. Monthly discharge only for some periods, published in WSP 1310. Prior to January 1911, published as "at" or "near Marshall"; January 1911 to December 1913 as "at Eldorado Springs." Records for periods June 1900 to September 1901, August 1904 to September 1908, and October 1909 to September 1911, are not adjusted for diversions by Community ditch and South Boulder and Coal Creek ditch; all other records contain flow in these ditches.

REVISED RECORDS.--WSP 856: 1937(M). WSP 1310: 1937. WSP 1440: 1896. WSP 1710: Drainage area. WSP 1730: 1959-60.

GAGE.--Water-stage recorder. Altitude of gage is 6,080 ft, from topographic map. See WSP 1710 or 1730 for history of changes prior to May 10, 1940.

REMARKS.--Records good except those for winter period, which are fair. Many small diversions above station for irrigation. Water is imported above Gross Reservoir from Colorado River basin through Moffat water tunnel. Flow regulated since May 1, 1955, by Gross Reservoir, capacity, 43,060 acre-ft, 6.7 mi above station. City of Denver diverts water 1.8 mi above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--27 years (water years 1957-83), 62.6 ft<sup>3</sup>/s; 45,350 acre-ft/yr, unadjusted for storage and diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,390 ft<sup>3</sup>/s Sept. 2, 1938, gage height, 9.24 ft, from floodmarks, site and datum then in use, from rating curve extended above 600 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Oct. 15, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 602 ft<sup>3</sup>/s at 0500 June 13, gage height, 3.00 ft; minimum daily, 0.90 ft<sup>3</sup>/s Dec. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	13	10	13	13	14	60	59	54	302	187	50
2	26	13	7.6	13	12	15	49	54	52	212	187	44
3	26	13	5.6	15	12	15	42	48	48	184	187	46
4	25	14	5.2	14	12	15	37	43	46	136	187	46
5	25	14	5.2	16	10	16	32	42	46	181	187	44
6	28	14	5.2	15	9.5	17	29	38	45	206	161	45
7	26	14	5.2	15	9.0	19	26	35	220	212	128	44
8	23	14	4.4	14	8.5	20	25	34	343	240	121	38
9	19	14	3.1	14	8.0	22	25	34	375	258	126	36
10	19	19	2.2	14	8.5	24	28	36	406	262	128	36
11	19	23	1.6	14	8.0	25	35	37	455	262	111	35
12	19	23	1.3	16	8.0	27	36	38	531	262	100	35
13	20	23	.90	17	8.0	29	29	38	558	274	100	35
14	16	23	1.0	17	8.0	32	24	35	389	278	113	42
15	13	23	1.0	17	8.0	45	22	34	420	282	128	40
16	12	19	2.2	17	8.0	48	22	34	411	270	142	40
17	12	16	2.2	17	8.0	43	25	54	380	270	144	40
18	12	16	1.9	17	8.5	42	33	65	388	274	144	40
19	13	16	1.0	17	9.0	40	49	100	402	258	144	43
20	12	17	2.5	17	9.0	39	69	133	406	243	142	46
21	12	12	3.7	17	9.0	39	116	150	384	243	142	38
22	12	12	6.8	17	9.0	38	118	172	334	243	142	32
23	12	12	7.6	16	16	38	109	147	326	246	131	33
24	12	12	8.0	16	14	35	104	126	339	246	116	33
25	12	14	8.0	16	14	32	104	109	334	246	109	32
26	12	14	7.5	14	14	32	91	89	380	226	102	29
27	12	14	7.5	12	14	31	78	79	420	209	85	25
28	12	14	7.5	12	14	33	69	70	475	203	74	24
29	12	14	7.5	12	---	39	65	62	430	190	64	21
30	12	13	10	12	---	50	65	60	393	184	60	17
31	12	---	13	13	---	76	---	59	---	184	60	---
TOTAL	523	472	156.40	466	289.0	990	1616	2114	9790	7286	3952	1109
MEAN	16.9	15.7	5.05	15.0	10.3	31.9	53.9	68.2	326	235	127	37.0
MAX	28	23	13	17	16	76	118	172	558	302	187	50
MIN	12	12	.90	12	8.0	14	22	34	45	136	60	17
AC-FT	1040	936	310	924	573	1960	3210	4190	19420	14450	7840	2200
CAL YR 1982	TOTAL	25674.40	MEAN 70.3	MAX 425	MIN .90	AC-FT 50930						
WTR YR 1983	TOTAL	28763.40	MEAN 78.8	MAX 558	MIN .90	AC-FT 57050						

## 06730500 BOULDER CREEK AT MOUTH NEAR LONGMONT, CO

LOCATION.--Lat 40°09'08", long 105°00'52", in NW¼SW¼ sec.9, T.2 N., R.68 W., Weld County, Hydrologic Unit 10190005, on left bank 0.6 mi upstream from mouth, 1.0 mi downstream from State Highway 254, and 4.8 mi southeast of Longmont.

DRAINAGE AREA.--439 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1927 to September 1949, May 1951 to September 1955, October 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,860 ft, from topographic map. Prior to June 10, 1939, at site 0.8 mi upstream at different datum. June 10, 1939, to Sept. 30, 1949, at site 1.0 mi upstream, at different datum. May 1, 1951, to Sept. 30, 1955, at site 1.4 mi upstream, at different datum.

REMARKS.--Records good except those for period of no gage-height record, which are poor.

AVERAGE DISCHARGE.--31 years (water years, 1928-49, 1952-55, 1979-83), 64.5 ft<sup>3</sup>/s; 46,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,410 ft<sup>3</sup>/s Sept. 3, 1938, gage height, 6.94 ft, site and datum then in use, from rating curve extended above 340 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow at times many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,090 ft<sup>3</sup>/s at 0300 May 19, gage height, 4.82 ft; minimum daily, 7.5 ft<sup>3</sup>/s Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	90	64	45	60	81	251	428	512	815	120	43
2	46	93	65	45	60	79	222	460	520	716	90	37
3	46	102	59	45	60	60	188	376	530	656	72	29
4	47	96	59	45	60	60	178	344	525	550	67	27
5	45	109	60	45	60	258	202	332	555	432	64	21
6	42	68	59	45	60	365	192	328	540	317	69	16
7	54	67	59	45	60	195	180	314	525	248	21	13
8	42	60	62	45	60	143	169	311	770	239	24	14
9	42	59	51	45	85	124	180	305	800	251	12	12
10	39	60	58	45	52	111	200	302	822	374	14	7.9
11	41	60	48	45	52	103	230	281	868	776	10	7.9
12	42	60	45	45	54	103	220	272	1000	610	7.5	8.4
13	55	60	48	45	54	93	233	263	1200	530	12	8.4
14	55	59	52	45	54	93	218	278	1010	444	43	11
15	59	60	55	45	51	160	205	257	882	356	78	21
16	69	59	52	48	50	182	185	242	830	269	74	27
17	72	55	52	50	50	167	180	996	776	248	45	16
18	55	54	51	50	55	156	195	1270	740	215	46	20
19	85	52	47	50	78	147	218	1600	822	228	78	33
20	75	50	48	50	82	145	275	1370	860	212	103	27
21	71	48	51	50	82	138	472	1060	788	212	85	33
22	72	50	48	50	82	138	650	1160	770	242	84	27
23	75	62	48	50	84	120	686	1120	794	320	69	19
24	102	63	46	50	81	140	590	1060	770	356	58	37
25	93	62	45	50	79	171	620	972	644	314	50	37
26	93	58	45	54	79	162	590	830	764	290	46	23
27	92	56	45	57	81	147	516	722	1180	275	34	16
28	111	58	45	60	81	149	464	650	1130	290	30	14
29	100	64	45	60	---	169	444	550	1060	245	32	14
30	85	65	45	60	---	182	428	560	920	195	46	14
31	92	---	45	60	---	260	---	644	---	150	48	---
TOTAL	2030	1959	1602	1524	1846	4601	9581	19657	23907	11375	1631.5	633.6
MEAN	65.5	65.3	51.7	49.2	65.9	148	319	634	797	367	52.6	21.1
MAX	111	109	65	60	85	365	686	1600	1200	815	120	43
MIN	33	48	45	45	50	60	169	242	512	150	7.5	7.9
AC-FT	4030	3890	3180	3020	3660	9130	19000	38990	47420	22560	3240	1260
CAL YR 1982	TOTAL	18729.02	MEAN	51.3	MAX	432	MIN	.80	AC-FT	37150		
WTR YR 1983	TOTAL	80347.10	MEAN	220	MAX	1600	MIN	7.5	AC-FT	159400		

NOTE.--NO GAGE-HEIGHT RECORD DEC. 26 TO FEB. 8.

## PLATTE RIVER BASIN

06730500 BOULDER CREEK AT MOUTH NEAR LONGMONT, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 04...	1120	43	805	819	8.5	14.0	15.3	64	210
NOV 30...	1130	56	620	573	8.4	4.0	13.5	50	210
JAN 05...	1500	44	740	648	7.8	.0	8.7	K1900	K1200
FEB 08...	1300	61	450	446	7.7	2.0	13.0	460	290
MAR 23...	1400	107	750	753	--	7.0	10.7	--	--
APR 25...	1330	567	314	314	8.7	13.0	9.6	100	330
MAY 11...	1300	263	380	392	7.9	11.0	11.2	180	220
JUN 08...	1500	824	240	237	7.8	17.0	8.1	--	360
JUL 13...	1600	556	280	206	7.4	20.5	9.3	K1400	1300
AUG 03...	1500	83	520	500	8.5	26.0	13.2	570	430
SEP 07...	1330	16	900	854	8.7	24.0	12.5	--	680
28...	1000	11	1050	1050	8.9	16.5	16.1	480	360

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 04...	290	50	40	72	2	4.9	220	180	29
NOV 30...	180	33	24	44	1	6.1	148	110	30
JAN 05...	200	39	24	52	2	5.2	170	120	25
FEB 08...	140	27	17	36	1	3.2	119	81	15
MAR 23...	260	50	32	62	2	4.0	175	180	25
APR 25...	110	26	11	18	.8	2.4	75	62	10
MAY 11...	140	30	15	24	.9	2.7	91	83	13
JUN 08...	82	19	8.3	13	.6	1.9	61	39	5.8
JUL 13...	70	16	7.4	12	.6	1.4	52	36	5.4
AUG 03...	180	39	21	36	1	2.7	116	130	13
SEP 07...	340	55	49	71	2	3.7	179	260	25
28...	410	66	59	88	2	4.0	226	--	27

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

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06730500 BOULDER CREEK AT MOUTH NEAR LONGMONT, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 04...	1.3	6.2	520	.70	60	3.70	.970	39	8
NOV 30...	.70	6.6	340	.47	52	1.20	.990	54	72
JAN 05...	.90	7.7	380	.51	45	1.40	2.00	57	140
FEB 08...	.60	7.2	260	.35	43	.910	.890	110	61
MAR 23...	.90	7.7	470	.63	135	1.30	.570	13	59
APR 25...	.40	11	190	.25	284	.810	.180	41	20
MAY 11...	.50	9.1	230	.32	165	.840	.340	93	21
JUN 08...	.30	10	130	.18	298	.550	.140	26	15
JUL 13...	.30	6.4	120	.16	174	.520	.160	81	18
AUG 03...	.60	7.6	320	.43	72	.920	.250	22	19
SEP 07...	1.1	1.3	570	.78	25	.770	.060	37	11
28...	--	2.1	--	--	--	1.60	.600	48	29

## PLATTE RIVER BASIN

06731000 ST. VRAIN CREEK AT MOUTH, NEAR PLATTEVILLE, CO

LOCATION.--Lat 40°15'29", long 104°52'45", in SE¼NW¼ sec.3, T.3 N., R.67 W., Weld County, Hydrologic Unit 10190005, on right bank 140 ft downstream from bridge on county road, 1.3 mi upstream from mouth, and 4.2 mi northwest of Platteville.

DRAINAGE AREA.--976 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1904 to December 1906, April to December 1915, March 1927 to current year. Prior to October 1933, monthly discharge only, published in WSP 1310.

REVISED RECORDS.--WSP 956: 1938(M). WSP 1440: 1934, 1935(M). WSP 1730: 1958, drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,740 ft, from topographic map. See WSP 1730 for history of changes prior to Apr. 25, 1960.

REMARKS.--Records good. Diversions above station for irrigation of about 177,000 acres. Flow partly regulated by many small reservoirs above station.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--58 years (water years 1905-6, 1928-83), 213 ft<sup>3</sup>/s; 154,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft<sup>3</sup>/s Sept. 3, 1938, gage height, 8.93 ft, site and datum then in use, from rating curve extended above 4,700 ft<sup>3</sup>/s; minimum daily, 12 ft<sup>3</sup>/s Apr. 23, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,830 ft<sup>3</sup>/s at 1300 May 19, gage height, 6.45 ft; minimum daily, 70 ft<sup>3</sup>/s Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	206	167	180	173	173	540	884	1720	30	550	282
2	200	212	165	170	167	167	477	906	1740	630	508	270
3	200	217	157	160	159	157	446	767	1840	1590	470	257
4	200	215	157	180	157	153	416	706	1840	1540	446	257
5	200	212	159	200	177	338	431	695	1930	1330	437	280
6	202	206	165	219	181	619	416	691	1960	1090	440	266
7	210	198	161	241	181	362	407	679	1750	875	410	257
8	208	193	153	217	183	288	395	655	1890	880	362	257
9	204	191	151	206	179	270	371	651	1970	862	325	254
10	195	193	159	193	173	264	389	659	2040	888	305	257
11	189	200	161	193	157	248	428	663	2100	950	292	250
12	191	202	157	179	159	248	431	675	2320	990	285	234
13	195	193	163	177	163	239	458	611	2640	980	295	230
14	195	187	160	171	159	237	449	635	2500	980	332	223
15	195	187	165	161	159	345	428	587	2170	839	371	230
16	195	185	165	155	159	404	398	554	2020	731	386	234
17	195	181	169	157	165	386	389	1400	1940	683	312	234
18	185	179	165	165	167	365	392	2300	1870	631	308	215
19	195	179	153	159	185	348	419	2560	2140	561	392	204
20	202	183	159	159	183	338	470	2540	2460	575	398	195
21	195	177	163	171	183	332	635	2200	2440	579	368	200
22	198	171	143	181	187	332	980	2220	2310	803	371	198
23	200	179	141	181	179	320	1210	2240	2190	834	345	187
24	210	171	100	177	175	338	1100	2080	2070	955	335	189
25	210	167	70	198	173	398	1150	2020	1830	816	325	183
26	210	167	160	189	173	401	1160	1900	1940	776	330	169
27	210	167	170	187	167	365	1070	1770	2540	808	320	167
28	221	163	180	191	169	374	945	1720	2420	862	300	155
29	215	169	160	169	---	395	945	1560	2450	834	275	159
30	206	173	170	165	---	404	930	1600	2290	687	285	157
31	206	---	170	169	---	494	---	1880	---	639	288	---
TOTAL	6237	5623	4838	5620	4792	10102	18675	41008	63320	29578	11166	6650
MEAN	201	187	156	181	171	326	623	1323	2111	954	360	222
MAX	221	217	180	241	187	619	1210	2560	2640	2180	550	282
MIN	185	163	70	155	157	153	371	554	1720	561	275	155
AC-FT	12370	11150	9600	11150	9500	20040	37040	81340	125600	58670	22150	13190
CAL YR 1982 TOTAL	67725		MEAN 186	MAX 951	MIN 32	AC-FT 134300						
WTR YR 1983 TOTAL	207609		MEAN 569	MAX 2640	MIN 70	AC-FT 411800						



## PLATTE RIVER BASIN

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06733000 BIG THOMPSON RIVER AT ESTES PARK, CO

LOCATION.--Lat 40°22'42", long 105°30'48", in NW¼NW¼ sec.30, T.5 N., R.72 W., Larimer County, Hydrologic Unit 10190006, on right bank in Estes Park, 600 ft downstream from bridge on State Highways 7 and 66,900 ft downstream from Black Canyon Creek, and 0.3 mi northwest of Estes powerplant. Station is upstream from Lake Estes.

DRAINAGE AREA.--137 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year. Prior to October 1947, published as Thompson River at Estes Park.

GAGE.--Water-stage recorder and Parshall flume with overflow weirs. Datum of gage is 7,492.5 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to May 18, 1949, at site 740 ft downstream at different datum. May 18, 1949, to Mar. 22, 1951, at site 60 ft upstream at datum 1.2 ft, higher.

REMARKS.--Records good except those for winter period, which are fair. Diversion from Colorado River basin to Big Thompson River basin above station through Alva B. Adams tunnel began Aug. 10, 1947, and ended Aug. 2, 1950. Small power developments and small diversions for irrigation and municipal use above station. Diversions above station from Wind River to Lake Estes (bypassing this station) were 1,390 acre-ft during current year. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--37 years, 126 ft<sup>3</sup>/s; 91,290 acre-ft/yr, adjusted for inflow from Alva B. Adams tunnel Aug. 10, 1947, to Aug. 2, 1950.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,500 ft<sup>3</sup>/s July 15, 1982, caused by failure of Lawn Lake Dam, gage height, indeterminate. Minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 12	0600	1,080	5.80	July 10	0630	1,410	6.32
June 20	0400	* 1,450	6.40	July 23	0230	784	5.00

Minimum daily discharge, 10 ft<sup>3</sup>/s Jan. 19-22, Feb. 1-19, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	45	23	14	10	11	14	55	385	976	449	113
2	105	40	23	16	10	12	14	52	457	905	408	107
3	97	30	22	15	10	15	14	48	417	1070	368	105
4	91	44	22	15	10	13	14	48	457	878	352	133
5	87	42	22	16	10	12	17	54	500	747	431	135
6	80	39	21	16	10	13	19	62	408	769	473	112
7	72	38	21	16	10	12	17	57	392	882	391	101
8	72	38	20	15	10	14	16	65	431	1200	346	92
9	62	36	19	15	10	15	17	80	519	1200	323	92
10	62	33	19	14	10	17	17	105	608	1300	300	90
11	64	36	17	14	10	18	17	115	808	1080	282	88
12	64	31	18	13	10	18	16	100	1020	802	277	82
13	64	33	17	13	10	18	17	90	742	695	328	80
14	62	30	16	13	10	18	16	82	551	632	277	74
15	64	30	16	12	10	15	16	78	536	577	353	76
16	64	30	15	12	10	17	17	75	601	572	293	75
17	59	30	14	11	10	16	18	77	685	542	277	65
18	56	31	14	11	10	15	21	82	909	519	263	62
19	54	31	14	10	10	15	30	88	1260	525	257	62
20	49	31	14	10	11	15	34	85	1290	566	244	67
21	49	33	14	10	11	14	45	95	1270	583	222	62
22	48	30	14	10	11	14	40	118	1260	590	204	61
23	47	25	15	11	12	15	39	133	1290	662	185	57
24	45	25	16	11	12	15	43	185	1280	527	172	55
25	49	25	15	11	12	15	60	252	1270	449	166	55
26	48	25	14	12	10	14	62	302	1160	451	157	53
27	51	24	15	12	11	15	56	381	1080	423	149	50
28	44	24	15	12	11	16	51	435	1140	455	138	47
29	37	24	16	12	---	15	50	423	1040	402	129	48
30	50	24	15	11	---	15	57	477	972	379	129	48
31	49	---	14	11	---	14	---	391	---	406	125	---
TOTAL	1958	957	530	394	291	461	864	4690	24738	21764	8468	2347
MEAN	63.2	31.9	17.1	12.7	10.4	14.9	28.8	151	825	702	273	78.2
MAX	113	45	23	16	12	18	62	477	1290	1300	473	135
MIN	37	24	14	10	10	11	14	48	385	379	125	47
AC-FT	3880	1900	1050	781	577	914	1710	9300	49070	43170	16800	4660

CAL YR 1982 TOTAL 46135 MEAN 126 MAX 733 MIN 10 AC-FT 91510  
WTR YR 1983 TOTAL 67462 MEAN 185 MAX 1300 MIN 10 AC-FT 133800

NOTE.--NO GAGE-HEIGHT RECORD DEC. 15 TO FEB. 24.

## PLATTE RIVER BASIN

06734900 OLYMPUS TUNNEL AT LAKE ESTES, CO

LOCATION.--Lat 40°22'30", long 105°29'13", in SE¼NW¼ sec.29, T.5 N., R.72 W., Larimer County, Hydrologic Unit 10190006, at tunnel entrance at south end of Olympus Dam on Lake Estes, 1.9 mi east of Estes Park.

PERIOD OF RECORD.--September 1970 to current year.

REMARKS.--Tunnel is part of Colorado-Big Thompson project. Field data collected prior to 1974 water year available in district office. Records of discharge are estimated values. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)
OCT											
05...	1430	562	32	34	7.6	10.0	8.6	--	--	11	3.5
NOV											
30...	0830	200	45	50	8.1	2.0	9.8	--	--	17	5.0
JAN											
05...	1100	204	58	58	7.1	1.5	8.3	--	--	21	6.2
FEB											
08...	1000	414	55	64	7.4	1.5	8.1	--	--	23	6.9
MAR											
23...	0930	425	58	66	7.6	2.0	9.5	--	--	24	7.4
APR											
20...	1130	18	62	68	7.7	6.0	8.4	42	<1	25	7.4
MAY											
11...	0830	200	58	72	7.6	10.0	8.8	35	K3	25	7.0
JUN											
08...	0900	400	45	50	7.7	9.0	8.4	K580	60	15	4.3
JUL											
13...	1000	275	22	27	7.1	9.5	7.4	200	K31	8	2.4
AUG											
03...	0930	201	23	25	7.6	16.0	10.2	K920	K550	7	2.3
SEP											
07...	0930	499	37	38	7.1	15.5	9.8	1600	130	14	4.1
28...	1500	200	40	45	7.4	13.0	8.2	570	100	24	8.1

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT											
05...	.48	1.6	.2	.50	15	6.0	.60	.20	4.3	26	.04
NOV											
30...	1.1	2.1	.2	.60	22	5.0	.90	.20	4.0	32	.04
JAN											
05...	1.3	2.2	.2	.70	27	5.0	.50	.10	3.9	36	.05
FEB											
08...	1.3	2.4	.2	.80	29	<5.0	.50	.20	4.2	--	--
MAR											
23...	1.4	2.6	.2	.90	29	4.8	.70	.20	4.5	40	.05
APR											
20...	1.5	2.9	.3	.90	29	5.1	1.1	.20	4.9	41	.06
MAY											
11...	1.8	3.7	.3	1.1	26	9.3	2.3	.20	7.9	49	.07
JUN											
08...	1.1	2.5	.3	.80	16	10	1.3	.20	8.2	38	.05
JUL											
13...	.50	1.3	.2	.40	11	4.0	.30	.10	4.6	20	.03
AUG											
03...	.41	1.1	.2	.40	10	3.8	.30	.10	3.5	18	.02
SEP											
07...	.90	1.7	.2	.50	17	4.3	.50	.20	4.5	27	.04
28...	1.0	2.3	.2	.80	19	4.4	.90	.10	4.4	33	.05

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

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06734900 OLYMPUS TUNNEL AT LAKE ESTES, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
OCT 05...	40	--	<.020	<.100	.160	.030	.030	140	20	--	--
NOV 30...	17	--	<.020	<.100	.100	.040	.040	67	6	--	--
JAN 05...	20	--	<.020	<.100	.100	.040	.040	40	5	--	--
FEB 08...	--	.100	<.020	.100	.090	.030	.020	35	4	--	--
MAR 23...	46	.110	<.020	.110	.120	.020	.010	55	10	--	--
APR 20...	2.0	.100	<.020	.100	.150	.040	.020	42	6	<1.0	15000
MAY 11...	27	.160	<.020	.160	.080	.050	.020	280	15	185	5900
JUN 08...	41	.100	<.020	.100	.070	.020	.020	180	24	23	1300
JUL 13...	15	--	<.020	<.100	.100	.060	.030	77	21	14	930
AUG 03...	9.8	--	<.020	<.100	.050	.040	.020	63	3	7.7	790
SEP 07...	37	--	.020	<.100	.100	.030	.020	130	6	11	9700
28...	18	--	<.020	<.100	.070	.070	.080	94	6	253	8500

## PLATTE RIVER BASIN

## 06735500 BIG THOMPSON RIVER NEAR ESTES PARK, CO

LOCATION.--Lat 40°22'35", long 105°29'06", in NE¼NE¼ sec.29, T.5 N., R.72 W., Larimer County, Hydrologic Unit 10190006, on right bank 100 ft upstream from Dry Gulch, 600 ft downstream from Olympus Dam, and 2.0 mi east of Estes Park.

DRAINAGE AREA.--155 mi<sup>2</sup>. Area at site used Jan. 29, 1934, to Mar. 21, 1951, 162 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1930 to current year. Prior to October 1933, monthly discharges only, published in WSP 1310. Published as Thompson River near Estes Park 1934-47.

REVISED RECORDS.--WDR CO-76-1: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 7,422.5 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Jan. 29, 1934, nonrecording gage on highway bridge 1.5 mi downstream at different datum. Jan. 29, 1934, to Mar. 21, 1951, water-stage recorder at site 0.4 mi downstream at datum 10.5 ft, lower.

REMARKS.--Records excellent. Low flow regulated by Lake Estes since Nov. 30, 1948. Diversion from Colorado River basin to Big Thompson River basin above station through Alva B. Adams tunnel began Aug. 10, 1947 (see station 09013000 in Volume 2 for diversion during current year); since Apr. 15, 1953, this imported water has been diverted from Lake Estes through Olympus tunnel bypassing this station. Since May 17, 1955, part of the natural flow of Big Thompson River (183,800 acre-ft during current year) has also been diverted through Olympus tunnel and returned to the river below the station at mouth of canyon, near Drake. Small power developments and small diversions for irrigation and municipal use above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,800 ft<sup>3</sup>/s June 20, 1933, gage height, 4.0 ft, site and datum then in use, from rating curve extended above 460 ft<sup>3</sup>/s; no flow Aug. 1 to Sept. 30, 1976 (all flow into Lake Estes diverted through Olympus tunnel after flood of July 31, 1976).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft<sup>3</sup>/s at 1400 June 19, gage height, 5.83 ft; minimum daily, 8.9 ft<sup>3</sup>/s Feb. 10-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	43	25	14	11	12	14	73	152	610	655	77
2	52	41	24	14	11	11	13	72	105	702	699	75
3	51	37	22	14	11	11	14	68	172	706	657	75
4	49	30	24	13	9.3	12	14	64	175	728	614	78
5	50	40	24	13	10	13	14	64	247	553	697	77
6	50	39	24	13	9.3	13	16	73	247	504	754	78
7	153	35	24	14	9.3	12	14	76	221	536	723	78
8	155	35	24	15	9.3	12	20	75	175	802	695	80
9	155	35	24	15	9.3	13	20	75	181	917	601	80
10	50	33	21	15	8.9	14	20	74	287	968	674	80
11	49	30	22	14	8.9	14	20	74	672	990	651	80
12	52	33	21	14	8.9	14	21	75	985	942	635	80
13	51	28	20	14	8.9	14	21	62	757	750	533	78
14	48	36	20	13	8.9	14	21	49	508	648	346	78
15	50	33	21	13	8.9	14	21	50	339	601	278	77
16	49	34	20	13	8.9	14	21	51	357	730	350	50
17	49	35	16	14	8.9	14	21	50	498	681	295	49
18	49	34	16	16	8.9	14	22	50	740	681	280	49
19	49	30	16	16	9.3	14	20	49	938	683	263	50
20	48	31	16	14	9.3	14	20	50	938	688	152	50
21	50	31	16	9.8	9.3	14	22	49	946	726	136	51
22	93	31	16	9.3	10	14	50	51	1010	860	113	49
23	92	32	13	9.3	11	14	50	52	1010	814	100	51
24	90	30	12	9.3	11	14	50	74	972	878	100	50
25	93	26	13	9.3	12	14	62	75	905	728	99	51
26	93	26	13	9.8	11	14	78	75	905	655	100	50
27	95	26	13	9.8	11	14	84	85	905	651	100	50
28	98	23	13	11	11	14	76	101	905	626	100	47
29	72	25	13	11	---	14	69	100	871	657	100	43
30	34	26	14	11	---	14	68	107	601	648	101	43
31	48	---	14	11	---	14	---	198	---	626	101	---
TOTAL	2242	968	574	391.6	274.5	417	976	2241	17724	22289	11702	1904
MEAN	72.3	32.3	18.5	12.6	9.80	13.5	32.5	72.3	591	719	377	63.5
MAX	155	43	25	16	12	14	84	198	1010	990	754	80
MIN	34	23	12	9.3	8.9	11	13	49	105	504	99	43
AC-FT	4450	1920	1140	777	544	827	1940	4450	35160	44210	23210	3780
CAL YR 1982	TOTAL	26375.5	MEAN	72.3	MAX	531	MIN	9.3	AC-FT	52320		
WTR YR 1983	TOTAL	61703.1	MEAN	169	MAX	1010	MIN	8.9	AC-FT	122400		

## PLATTE RIVER BASIN

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## 06737500 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO

LOCATION.--Lat 40°36'00", long 105°10'06", in NW¼SW¼ sec.6, T.7 N., R.69 W., Larimer County, Hydrologic Unit 10190007, on right bank near abutment of Horsetooth Dam on tributaries to Cache la Poudre River, 4.8 mi west of city hall in Fort Collins. Water-quality sampling at three sites in reservoir.

## WATER-CONTENTS RECORDS

PERIOD OF RECORD.--April 1951 to current year.

GAGE.--Nonrecording gage read at irregular intervals from 1 to 10 days. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by an earth and rockfill dike and dams closing openings in subsequent valleys between hogbacks; storage began Jan. 10, 1951; dams completed July 21, 1949. Usable capacity, 143,500 acre-ft above elevations 5,320 ft, invert of channel from Spring Canyon Dam, 5,310 ft, invert of channel from Dixon Canyon Dam, 5,270 ft, trashrack sill of outlet at Soldier Canyon Dam, and below maximum water-surface elevation, 5,430 ft, 6 ft below crest of Satanka Dike. Dead storage, 8,270 acre-ft. Figures given represent usable contents. Water is diverted from Colorado River basin through Alva B. Adams tunnel for supplemental irrigation supply to Cache la Poudre River.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 141,600 acre-ft July 2, 1970, elevation, 5,429.02 ft; minimum observed, 9 acre-ft Nov. 16-30, 1977, elevation, 5,270.25 ft; no storage prior to Apr. 18, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 137,300 acre-ft June 9, 10, 14, 16, elevation, 5,426.70 ft; minimum, observed, 75,560 acre-ft Nov. 5, elevation, 5,388.24 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,400.84	93,810	-
Oct. 31. . . . .	5,388.36	75,720	-18,090
Nov. 30. . . . .	5,391.20	79,680	+3,960
Dec. 31. . . . .	5,395.62	86,020	+6,340
CAL YR 1982. . . . .			+24,590
Jan. 31. . . . .	5,403.52	97,940	+11,920
Feb. 28. . . . .	5,410.62	109,300	+11,360
Mar. 31. . . . .	5,415.08	116,700	+7,400
Apr. 30. . . . .	5,415.68	117,700	+1,000
May 31. . . . .	5,426.14	136,300	+18,600
June 30. . . . .	5,426.30	136,600	+300
July 31. . . . .	5,423.18	130,900	-5,700
Aug. 31. . . . .	5,414.92	116,500	-14,400
Sept. 30. . . . .	5,405.66	101,300	-15,200
WTR YR 1983 . . . . .			+7,490

## PLATTE RIVER BASIN

06737500 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1969 to current year.

REMARKS.--Samples collected at various depths near north end of reservoir near Soldier Canyon Dam. Reservoir storage represents usable contents. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SPE- CIFIC CON- DUCT- ANCE (UMHOS)					PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)		
DATE	TIME	SAM- PLING DEPTH (FEET)									
MAY											
26...	0945	.10		79	7.7	14.0	9.2				
26...	0946	10.0		77	7.7	13.0	9.2				
26...	0947	20.0		82	7.8	10.0	9.8				
26...	0948	30.0		79	7.8	9.5	9.9				
26...	0949	40.0		80	7.8	9.0	10.0				
26...	0950	50.0		77	7.7	9.0	10.0				
26...	0951	60.0		80	7.7	9.0	10.1				
26...	0952	70.0		78	7.8	8.5	10.2				
26...	0953	80.0		79	7.8	8.5	10.4				
26...	0954	90.0		79	7.8	8.0	10.4				
26...	0955	100		83	7.8	8.0	10.4				
26...	0956	110		79	7.7	8.0	10.4				
26...	0957	120		80	7.7	7.5	10.6				
26...	0958	130		78	7.7	7.5	10.7				
26...	0959	140		78	7.7	7.5	10.8				
26...	1000	150		77	7.7	7.0	10.8				
26...	1100	155		79	7.7	7.0	10.7				
JUL											
07...	0915	.10		81	7.6	22.0	7.2				
07...	0916	10.0		82	7.7	19.0	7.5				
07...	0917	20.0		83	7.7	16.0	7.2				
07...	0918	30.0		80	7.6	10.0	8.1				
07...	0919	40.0		79	7.6	8.5	8.4				
07...	0920	50.0		79	7.6	8.0	8.5				
07...	0921	60.0		79	7.6	7.5	8.5				
07...	0922	70.0		79	7.6	7.5	8.6				
07...	0923	80.0		79	7.6	7.5	8.6				
07...	0924	90.0		79	7.6	7.0	8.6				
07...	0925	100		79	7.6	7.0	8.6				
07...	0926	110		79	7.6	7.0	8.6				
07...	0927	120		78	7.6	7.0	8.6				
07...	0928	130		77	7.6	7.0	8.6				
07...	0929	140		78	7.6	6.5	8.6				
07...	1025	150		78	7.5	6.5	8.5				
SEP											
27...	1400	.10		70	8.0	19.0	7.6				
27...	1401	5.00		70	8.0	18.5	7.6				
27...	1402	10.0		70	7.9	17.5	7.4				
27...	1403	20.0		70	7.7	17.0	7.0				
27...	1404	25.0		70	7.6	17.0	6.8				
27...	1405	30.0		70	7.6	17.0	6.8				
27...	1406	40.0		70	7.5	17.0	6.8				
27...	1407	50.0		70	7.3	16.0	6.2				
27...	1408	60.0		70	7.3	13.0	5.8				
27...	1409	70.0		80	7.3	11.0	6.3				
27...	1410	75.0		80	7.4	10.5	6.4				
27...	1411	80.0		80	7.4	10.0	6.5				
27...	1412	90.0		85	7.4	10.0	6.5				
27...	1413	100		85	7.4	9.5	6.6				
27...	1414	110		85	7.4	9.0	6.6				
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
MAY											
26...	0945	.10	80	98.4	--	--	32	9.8	1.8	2.6	.2
26...	1100	155	80	--	--	--	--	--	--	--	--
JUL											
07...	0915	.10	82	107	<1	<1	33	10	1.9	2.9	.2
07...	0918	30.0	82	--	--	--	32	10	1.8	2.8	.2
07...	1025	150	78	--	--	--	31	9.8	1.7	2.5	.2
SEP											
27...	1400	.10	70	57.0	--	--	28	8.9	1.5	2.5	.2
27...	1414	110	80	--	--	--	--	--	--	--	--

06737500 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
MAY										
26...	.90	33	6.0	.70	.10	4.1	--	46	.06	3
26...	--	--	--	--	.10	3.5	--	--	--	<1
JUL										
07...	.80	36	7.5	.80	.20	4.6	52	50	.07	8
07...	.80	35	7.1	.70	.20	4.6	--	49	.07	6
07...	.70	35	5.9	.60	.10	3.9	46	46	.06	8
SEP										
27...	.70	30	5.4	.90	.10	4.4	--	43	.06	11
27...	--	--	--	--	.10	4.3	--	--	--	<1

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
MAY										
26...	<.020	.140	--	.070	--	.20	--	.010	--	--
26...	<.020	--	--	.060	--	.50	--	.010	--	--
JUL										
07...	--	.110	.060	<.060	.34	.40	.020	.010	11	370
07...	<.020	.200	--	<.060	--	.30	--	.010	--	--
07...	--	.200	<.060	<.060	--	.30	.020	.030	--	--
SEP										
27...	.060	<.100	--	<.020	--	.60	--	<.010	--	--
27...	.060	--	--	<.020	--	.30	--	<.010	--	--

DATE	TIME	SAM- PLING DEPTH (FEET)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY								
26...	0945	.10	380	--	--	2	310	61
26...	1100	155	320	--	--	1	240	20
JUL								
07...	0915	.10	440	--	--	9	340	70
07...	0918	30.0	340	--	--	12	290	73
07...	1025	150	--	<1	<10	10	240	61
SEP								
27...	1400	.10	330	--	--	7	240	59
27...	1414	110	470	--	--	8	350	46

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY								
26...	2	10	3	<.1	--	--	<0	10
26...	2	<10	1	<.1	--	--	<0	20
JUL								
07...	3	10	4	.2	--	--	<0	10
07...	6	10	2	--	--	--	<0	90
07...	2	10	2	<.1	<1	1	<0	20
SEP								
27...	3	10	1	<.1	--	--	<0	30
27...	3	10	2	<.1	--	--	<0	40

## PLATTE RIVER BASIN

403147905083800 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1983.

REMARKS.--Samples collected at various depths near south end of reservoir, near Spring Canyon Dam. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)			
DATE	TIME								
MAY									
26...	1215	.10	80	7.5	14.0	9.0			
26...	1216	10.0	78	7.7	11.0	9.3			
26...	1217	20.0	79	7.7	10.0	9.7			
26...	1218	30.0	82	7.7	9.5	9.7			
26...	1219	40.0	80	7.8	9.0	9.8			
26...	1220	50.0	83	7.8	9.0	9.8			
26...	1221	60.0	81	7.8	9.0	9.9			
26...	1222	70.0	79	7.8	8.5	10.0			
26...	1223	80.0	80	7.7	8.0	10.1			
26...	1224	90.0	81	7.7	8.0	10.0			
26...	1225	100	82	7.7	8.0	10.0			
26...	1226	110	83	7.7	7.5	10.0			
26...	1227	120	83	7.7	7.5	10.1			
26...	1228	130	84	7.7	7.5	10.1			
26...	1229	140	83	7.7	7.5	10.1			
26...	1230	150	82	7.6	7.0	10.2			
26...	1310	155	83	7.6	7.0	10.2			
JUL									
07...	1305	.10	78	7.7	22.5	7.4			
07...	1306	10.0	80	7.7	18.5	7.4			
07...	1307	20.0	79	7.6	16.5	7.1			
07...	1308	30.0	80	7.5	10.5	7.8			
07...	1309	40.0	80	7.5	9.0	8.0			
07...	1310	50.0	80	7.5	8.0	8.2			
07...	1311	60.0	78	7.5	8.0	8.3			
07...	1312	70.0	78	7.5	7.5	8.3			
07...	1313	80.0	78	7.5	7.5	8.3			
07...	1314	90.0	78	7.5	7.5	8.3			
07...	1315	100	77	7.5	7.5	8.3			
07...	1316	110	77	7.5	7.5	8.3			
07...	1317	120	77	7.5	7.5	8.3			
07...	1318	130	77	7.5	7.5	8.2			
07...	1319	140	77	7.5	7.5	8.1			
07...	1410	150	77	7.5	7.0	8.1			
SEP									
27...	1105	.10	70	7.7	17.5	7.6			
27...	1106	5.00	70	7.7	17.5	7.6			
27...	1107	10.0	70	7.7	17.0	7.5			
27...	1108	20.0	70	7.7	17.0	7.4			
27...	1109	25.0	70	7.6	17.0	7.3			
27...	1110	30.0	70	7.6	17.0	7.2			
27...	1111	40.0	70	7.6	17.0	7.0			
27...	1112	50.0	70	7.6	16.0	6.9			
27...	1113	60.0	75	7.3	13.0	5.9			
27...	1114	70.0	75	7.3	11.0	6.2			
27...	1115	75.0	79	7.3	10.5	6.2			
27...	1116	80.0	79	7.3	9.5	6.3			
27...	1117	90.0	84	7.5	9.0	6.4			
27...	1118	100	84	7.4	9.0	6.2			
27...	1119	110	84	7.4	8.5	6.4			
27...	1120	120	84	7.3	8.0	6.1			
27...	1121	125	84	7.3	8.0	6.0			
27...	1122	130	84	7.3	8.0	5.6			
27...	1123	140	85	7.3	8.0	4.0			
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
MAY									
26...	1215	.10	83	60.0	--	--	32	9.6	1.9
26...	1218	30.0	81	--	--	--	--	--	--
26...	1310	155	82	--	--	--	--	--	--
JUL									
07...	1305	.10	--	98.4	<1	<1	--	--	--
07...	1307	20.0	84	--	--	--	--	--	--
07...	1410	150	79	--	--	--	--	--	--
SEP									
27...	1105	.10	68	60.0	--	--	--	--	--
27...	1113	60.0	72	--	--	--	--	--	--
27...	1123	140	83	--	--	--	--	--	--



403147105083800 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
MAY									
26...	3.1	.2	.90	33	.20	5.8	--	--	<1
26...	--	--	--	--	.10	4.5	--	--	--
26...	--	--	--	--	.20	5.5	--	--	--
JUL									
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	.20	4.7	--	--	<1
07...	--	--	--	--	.10	4.4	45	.06	6
SEP									
27...	--	--	--	--	.10	4.9	--	--	15
27...	--	--	--	--	.10	4.5	--	--	--
27...	--	--	--	--	.10	5.0	--	--	12

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
MAY									
26...	<.020	.160	--	.090	1.0	--	<.010	--	--
26...	<.020	--	--	.110	.40	--	<.010	--	--
26...	<.020	--	--	.070	.40	--	.020	--	--
JUL									
07...	--	--	--	--	--	--	--	12	320
07...	<.020	--	--	.080	.40	--	.010	--	--
07...	--	.180	<.060	--	.30	.020	.010	--	--
SEP									
27...	.050	--	--	<.020	.40	--	<.010	--	--
27...	.070	--	--	<.020	.40	--	<.010	--	--
27...	.060	--	--	<.020	.70	--	.040	--	--

DATE	TIME	SAM- PLING DEPTH (FEET)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY								
26...	1215	.10	410	--	--	3	330	68
26...	1310	155	370	--	--	3	340	24
JUL								
07...	1307	20.0	410	--	--	14	350	57
07...	1410	150	--	<1	<10	9	350	61
SEP								
27...	1105	.10	340	--	--	6	250	74
27...	1123	140	570	--	--	8	440	26

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVER- ABLE (UG/L)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY								
26...	2	10	3	<.1	--	--	<0	10
26...	<1	20	7	<.1	--	--	<0	20
JUL								
07...	4	10	3	--	--	--	<0	30
07...	3	10	2	.1	<1	<1	<0	--
SEP								
27...	<1	10	<1	<.1	--	--	<0	20
27...	2	40	23	.1	--	--	<0	40

## PLATTE RIVER BASIN

403147105083800 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

				NAPH- THA- LENES, POLY- CHLOR.							
DATE	TIME	SAM- PLING DEPTH (FEET)	PCB, TOTAL (UG/L)	TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	
SEP 27...	1105	.10	<.1	<.10	<.010	<.1	<.010	<.010	<.010	<.01	
DATE	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	
SEP 27...	<.010	<.010	<.010	<.01	<.010	<.010	<.010	<.01	<.01	<.01	
DATE	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
SEP 27...	<.01	<.01	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01	

## PLATTE RIVER BASIN

403317105090000 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1983

REMARKS.--Samples collected at various depths near center of reservoir, near Dixon Canyon Dam. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SPE- CIFIC CON- DUCT- ANCE (UMHOS)					PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)		
DATE	TIME	SAM- PLING DEPTH (FEET)									
MAY											
26...	1340	.10			77	7.8	14.0	9.0			
26...	1341	10.0			80	7.9	11.5	9.2			
26...	1342	20.0			82	7.9	11.5	9.2			
26...	1343	30.0			80	7.8	9.0	9.4			
26...	1344	40.0			79	7.8	9.0	9.5			
26...	1345	50.0			84	7.8	8.5	9.5			
26...	1346	60.0			77	7.8	8.5	9.5			
26...	1347	70.0			78	7.8	8.0	9.6			
26...	1348	80.0			82	7.8	8.0	9.6			
26...	1349	90.0			80	7.8	8.0	9.6			
26...	1350	100			78	7.8	8.0	9.7			
26...	1351	110			84	7.8	8.0	9.7			
26...	1352	120			85	7.8	8.0	9.8			
26...	1353	130			84	7.8	7.5	9.9			
26...	1354	140			79	7.8	7.5	9.9			
26...	1355	150			79	7.8	7.5	9.9			
26...	1430	155			82	7.8	7.0	9.9			
JUL											
07...	1100	.10			81	7.8	21.0	7.4			
07...	1101	10.0			82	7.8	21.0	7.5			
07...	1102	20.0			81	7.7	17.5	7.1			
07...	1103	30.0			81	7.6	11.0	7.8			
07...	1104	40.0			79	7.6	9.0	8.2			
07...	1105	50.0			79	7.5	8.0	8.3			
07...	1106	60.0			79	7.5	7.5	8.4			
07...	1107	70.0			79	7.5	7.5	8.4			
07...	1108	80.0			79	7.5	7.5	8.4			
07...	1109	90.0			79	7.5	7.5	8.4			
07...	1110	100			78	7.5	7.5	8.4			
07...	1111	110			78	7.5	7.5	8.4			
07...	1112	120			78	7.5	7.5	8.4			
07...	1113	130			78	7.5	7.5	8.4			
07...	1114	140			78	7.5	7.5	8.4			
07...	1205	150			78	7.5	7.0	8.4			
SEP											
27...	1235	.10			70	7.9	18.5	7.6			
27...	1236	5.00			70	7.9	17.0	7.5			
27...	1237	10.0			70	7.8	17.0	7.2			
27...	1238	20.0			70	7.7	17.0	7.0			
27...	1239	25.0			70	7.7	17.0	7.0			
27...	1240	30.0			70	7.7	17.0	7.1			
27...	1241	40.0			70	7.7	17.0	7.0			
27...	1242	50.0			70	7.7	16.0	6.2			
27...	1243	60.0			70	7.5	13.5	5.6			
27...	1244	70.0			75	7.4	11.5	6.0			
27...	1245	75.0			75	7.3	11.0	6.2			
27...	1246	80.0			80	7.3	10.0	6.4			
27...	1247	90.0			80	7.3	9.0	6.6			
27...	1248	100			85	7.3	8.5	6.9			
27...	1249	110			85	7.3	8.0	6.8			
27...	1250	120			85	7.3	8.0	6.6			
27...	1251	125			85	7.3	8.0	6.4			
27...	1252	130			85	7.3	8.0	6.2			
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO
MAY											
26...	1340	.10	82	78.0	K3	K1	32	9.7	1.8	2.8	.2
26...	1430	155	79	--	--	--	--	--	--	--	--
JUL											
07...	1100	.10	83	78.0	<1	<1	--	--	--	--	--
07...	1102	20.0	81	--	--	--	--	--	--	--	--
07...	1205	150	79	--	--	--	--	--	--	--	--
SEP											
27...	1235	.10	68	64.0	<1	<1	--	--	--	--	--
27...	1252	130	81	--	--	--	--	--	--	--	--

K BASED ON NON-IDEAL COLONY COUNT.

403317115090000 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)
MAY										
26...	.90	33	7.2	.80	.20	4.9	42	48	.06	1
26...	--	--	--	--	.10	3.8	--	--	--	--
JUL										
07...	--	--	--	--	.20	4.5	56	--	.08	<1
07...	--	--	--	--	.20	4.6	--	--	--	11
07...	--	--	--	--	.10	4.0	44	--	.06	10
SEP										
27...	--	--	--	--	.10	4.5	47	--	.06	12
27...	--	--	--	--	.20	4.3	--	--	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
MAY										
26...	--	.130	.200	.070	.10	.30	.020	<.010	90	140
26...	<.020	--	--	.060	--	.20	--	.010	--	--
JUL										
07...	--	.110	.070	.060	.33	.40	.020	.010	8.4	400
07...	<.020	--	--	.070	--	.50	--	.010	--	--
07...	--	.170	<.060	--	--	.40	.030	.010	--	--
SEP										
27...	--	<.100	.020	<.100	.48	.50	<.010	<.010	2.0	3900
27...	<.020	--	--	.040	--	.70	--	.010	--	--

DATE	TIME	SAM- PLING DEPTH (FEET)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
MAY								
26...	1340	.10	360	--	--	7	310	26
26...	1430	155	330	--	--	2	240	48
JUL								
07...	1100	.10	410	--	--	7	310	71
07...	1102	20.0	390	--	--	15	320	88
07...	1205	150	--	<1	<10	8	270	24
SEP								
27...	1235	.10	400	--	--	7	260	34

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
MAY							
26...	2	10	2	.1	--	--	20
26...	1	10	1	<.1	--	--	10
JUL							
07...	2	10	3	.2	--	--	10
07...	3	10	3	--	--	--	20
07...	2	10	1	<.1	3	<1	--
SEP							
27...	2	<10	3	<.1	--	--	70

## 06738000 BIG THOMPSON RIVER AT MOUTH OF CANYON, NEAR DRAKE, CO

LOCATION.--Lat 40°25'18", long 105°13'34", in SW¼SW¼ sec.3, T.5 N., R.70 W., Larimer County, Hydrologic Unit 10190006, on right bank at mouth of canyon, 400 ft upstream from Handy Ditch diversion dam, and 6.0 mi east of Drake.

DRAINAGE AREA.--305 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1887 to September 1892, May 1895 to September 1903, October 1926 to September 1933 (no winter records prior to October 1932, except water years 1927-28), April 1938 to September 1949, March 1951 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as Big Thompson Creek at Arkins 1887-92, Big Thompson Creek near Arkins 1901-3, and as Thompson River at mouth of canyon, near Drake 1927-30, 1938-47.

REVISED RECORDS.--WSP 1310: 1891, 1927. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,305.47 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Oct. 1, 1949, to Sept. 18, 1977, at present site, datum 8.00 ft lower, Sept. 19, 1977, to July 27, 1980, at present site, datum 7.37 ft lower. See WSP 1710 or 1730 for history of changes prior to Oct. 1, 1949.

REMARKS.--Records good except those for winter period and those for period of no gage height record, which are poor. Diversions above station for irrigation. Diversions from Colorado River basin to Big Thompson River basin above station through Alva B. Adams tunnel began Aug. 10, 1947 (see station 09013000 in Volume 2 for diversion during current year); since Apr. 15, 1953, this imported water has been diverted from Lake Estes through Olympus tunnel bypassing this station. Part of the natural flow of the Big Thompson River has also been diverted through Olympus tunnel since May 17, 1955, 183,800 acre-ft diverted during current year, and Dille tunnel since Apr. 20, 1959, 42,320 acre-ft during current year, and returned to the river just below this station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft<sup>3</sup>/s July 31, 1976, gage height, 19.86 ft, from floodmarks, from slope-area measurements of peak flow; no flow at times in 1976 (all flow above station diverted through Olympus and Dille tunnels after flood of July 31, 1976), 1979-80 (all flow above station diverted through Dille tunnel).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft<sup>3</sup>/s at 0130 June 20, gage height, 4.92 ft; no flow Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	58	36	20	20	29	64	244	563	912	355	134
2	23	56	35	26	17	28	60	178	472	960	408	122
3	23	48	33	23	16	24	60	81	556	936	350	122
4	23	51	34	20	13	27	54	74	556	960	295	131
5	23	53	35	24	14	32	53	81	657	776	397	127
6	6.7	54	33	30	15	31	35	80	643	636	514	120
7	.00	54	32	26	14	27	34	46	650	708	526	118
8	99	50	31	25	14	26	43	29	490	1040	397	113
9	159	51	30	22	14	24	56	22	550	1200	270	113
10	94	48	31	21	14	25	63	19	657	1330	330	113
11	69	47	31	22	14	28	75	22	1030	1370	330	111
12	74	42	30	22	15	28	80	23	1950	1130	305	111
13	75	41	31	20	15	28	78	26	1320	912	270	109
14	73	38	32	18	15	31	74	29	992	745	365	107
15	74	45	30	18	15	36	74	29	678	629	212	115
16	73	47	28	18	14	38	73	29	730	912	141	91
17	73	46	25	20	15	38	75	45	896	896	159	77
18	73	49	26	21	16	31	86	90	1130	896	181	77
19	74	46	25	22	16	29	105	146	1650	880	371	77
20	70	43	28	20	17	31	115	176	1730	896	295	78
21	72	30	29	16	17	26	187	148	1610	904	234	77
22	91	35	30	14	17	26	290	174	1790	808	190	74
23	102	38	25	14	20	34	335	95	1690	715	165	72
24	100	26	21	15	20	41	290	246	1580	700	149	73
25	102	32	20	16	25	41	290	231	1340	514	141	75
26	104	33	20	16	25	40	280	69	1290	419	136	63
27	107	33	20	19	25	40	252	66	1300	397	131	81
28	107	35	20	17	26	43	219	70	1210	370	131	73
29	86	37	19	16	---	43	193	66	1140	386	76	69
30	63	37	20	16	---	49	230	118	928	370	86	66
31	58	---	20	17	---	65	---	423	---	335	157	---
TOTAL	2195.70	1303	860	614	478	1039	3923	3175	31778	24642	8067	2889
MEAN	70.8	43.4	27.7	19.8	17.1	33.5	131	102	1059	795	260	96.3
MAX	159	58	36	30	26	65	335	423	1950	1370	526	134
MIN	.00	26	19	14	13	24	34	19	472	335	76	63
AC-FT	4360	2580	1710	1220	948	2060	7780	6300	63030	48880	16000	5730

CAL YR 1982 TOTAL 40398.70 MEAN 111 MAX 784 MIN .00 AC-FT 80130  
WTR YR 1983 TOTAL 80963.70 MEAN 222 MAX 1950 MIN .00 AC-FT 160600

NOTE.--NO GAGE-HEIGHT RECORD DEC. 2 TO FEB. 17.

## PLATTE RIVER BASIN

06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO

## WATER-QUALITY RECORDS

LOCATION.--Lat 40°24'02", long 105°07'20", in SW¼ sec.16, T.5 N., R.69 W., Larimer County, Hydrologic Unit 10190006, at Wilson Avenue bridge 9 mi upstream from Greeley-Loveland Ditch and 2.5 mi west of Loveland.

DRAINAGE AREA.--525 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 19...	1040	2.1	926	879	7.7	10.0	12.8	460	140	26
NOV 29...	1300	2.4	1400	1220	8.0	4.0	13.5	670	190	47
JAN 04...	1430	2.0	1320	1170	7.8	2.0	13.3	--	--	--
FEB 07...	1530	1.8	1200	1000	7.9	2.0	14.2	--	--	--
MAR 23...	1100	2.2	1150	1160	8.2	5.0	14.2	--	--	--
APR 20...	0800	3.8	1130	1160	8.8	8.0	8.8	--	--	--
MAY 10...	1500	195	162	183	7.8	13.0	13.5	--	--	--
JUN 07...	1300	1670	92	92	7.0	10.0	9.6	35	9.9	2.5
JUL 12...	1500	349	68	73	7.8	17.5	14.2	--	--	--
AUG 02...	1500	197	130	91	8.1	17.0	8.8	--	--	--
SEP 06...	1430	40	360	356	7.0	22.0	11.3	--	--	--
29...	0900	17	780	755	8.1	15.0	10.1	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 19...	22	.5	2.3	156	330	6.6	.40	8.5	630
NOV 29...	36	.6	2.5	178	550	14	.40	8.6	960
JAN 04...	--	--	--	--	--	--	.40	8.9	--
FEB 07...	--	--	--	--	--	--	.40	8.4	--
MAR 23...	--	--	--	--	--	--	.40	7.4	--
APR 20...	--	--	--	--	--	--	.40	7.2	--
MAY 10...	--	--	--	--	--	--	.20	13	--
JUN 07...	4.4	.3	1.1	29	12	1.7	.20	12	62
JUL 12...	--	--	--	--	--	--	.20	5.7	--
AUG 02...	--	--	--	--	--	--	.10	4.9	--
SEP 06...	--	--	--	--	--	--	.30	7.0	--
29...	--	--	--	--	--	--	.40	8.3	--

## 06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CYANIDE TOTAL (MG/L AS CN)
OCT 19...	.86	3.6	.540	.020	.560	.070	.80	.020	--
NOV 29...	1.3	6.2	1.20	<.020	1.20	.110	.60	.010	--
JAN 04...	--	--	--	.020	--	.100	.80	.020	--
FEB 07...	--	--	--	.020	--	.090	.70	.010	--
MAR 23...	--	--	--	.020	--	.110	.70	.010	.01
APR 20...	--	--	--	.020	--	.120	1.0	.050	--
MAY 10...	--	--	--	<.020	--	.110	.80	.030	--
JUN 07...	.08	277	.140	<.020	.140	.110	.60	.040	<.01
JUL 12...	--	--	--	<.020	--	.100	.60	.020	--
AUG 02...	--	--	--	<.020	--	.050	1.1	.070	--
SEP 06...	--	--	--	.020	--	.010	.40	.050	<.01
29...	--	--	--	<.020	--	.060	.50	.020	--

DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT 19...	1040	30	--	--	<1	3	--	1	--
NOV 29...	1300	--	<1	100	<1	<10	<1	2	150
JAN 04...	1430	80	--	--	1	4	--	2	--
FEB 07...	1530	60	--	--	1	4	--	1	--
MAR 23...	1100	--	1	--	1	10	--	2	100
APR 20...	0800	100	--	--	1	1	--	4	--
MAY 10...	1500	1800	--	--	<1	<1	--	9	--
JUN 07...	1300	--	<1	--	<1	<10	--	7	3100
JUL 12...	1500	1300	--	--	<1	5	--	4	--
AUG 02...	1500	330	--	--	<1	<1	--	7	--
SEP 06...	1430	--	1	--	<1	<10	--	8	1700
29...	0900	150	--	--	<1	<1	--	4	--

## PLATTE RIVER BASIN

06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT									
19...	28	<1	--	66	--	--	--	--	10
NOV									
29...	38	1	210	200	<.1	<1	4	42	20
JAN									
04...	30	1	--	150	--	--	--	--	10
FEB									
07...	32	1	--	160	--	--	--	--	10
MAR									
23...	40	1	170	160	.1	--	9	42	10
APR									
20...	85	1	--	300	--	--	--	--	30
MAY									
10...	150	1	--	8	--	--	--	--	20
JUN									
07...	66	4	70	8	<.1	--	2	1	30
JUL									
12...	51	<1	--	9	--	--	--	--	20
AUG									
02...	91	<1	--	7	--	--	--	--	20
SEP									
06...	10	5	40	7	<.1	--	15	3	40
29...	34	1	--	42	--	--	--	--	50



## PLATTE RIVER BASIN

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06741510 BIG THOMPSON RIVER AT LOVELAND, CO

LOCATION.--Lat 40°22'43", long 105°03'38", in SE¼SE¼ sec.24, T.5 N., R.69 W., Larimer County, Hydrologic Unit 10190006, on right bank 690 ft downstream from county road bridge C-13, 1.7 mi south of sugar refinery in Loveland, and 1.9 mi from Farmers Ditch diversion.

DRAINAGE AREA.--535 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,906 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions for irrigation, and return flow from irrigated areas.

COOPERATION.--City of Loveland.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,970 ft<sup>3</sup>/s Apr. 30, 1980, gage height, 10.10 ft, from highwater mark; minimum daily, 0.80 ft<sup>3</sup>/s May 11, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,240 ft<sup>3</sup>/s at 2200 June 12, gage height, 7.65 ft; minimum daily, 2.0 ft<sup>3</sup>/s Jan. 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184	4.8	5.5	3.2	2.6	5.2	7.8	391	1400	936	175	47
2	171	4.8	6.2	2.6	2.8	6.6	7.4	294	1220	1000	204	49
3	169	4.8	12	2.6	3.4	7.8	9.4	200	1180	995	173	45
4	178	4.8	10	3.0	3.7	7.8	8.8	171	1190	990	104	47
5	184	4.6	10	4.0	3.7	17	7.8	182	1520	779	90	43
6	184	4.6	11	3.2	3.7	7.8	7.0	202	1700	561	162	43
7	180	4.6	11	3.0	3.7	6.2	8.3	210	1720	561	192	41
8	180	4.2	10	3.0	4.0	3.4	7.0	208	1440	380	148	38
9	190	4.2	11	4.2	4.2	2.4	7.4	204	1400	346	122	41
10	108	4.2	13	4.2	3.7	2.4	7.4	212	1420	355	125	40
11	7.0	4.6	13	2.4	4.6	3.0	7.4	214	1570	367	85	40
12	5.5	3.7	12	2.8	4.6	6.2	8.3	202	2070	377	76	40
13	4.8	4.0	12	3.2	4.2	6.6	7.0	180	1820	175	89	42
14	4.2	3.7	11	2.6	4.6	7.8	7.0	171	1410	118	136	33
15	4.2	4.2	11	3.2	4.2	16	7.0	155	1240	110	92	28
16	4.0	4.2	11	3.7	4.2	11	6.6	155	1200	142	50	25
17	4.0	4.2	11	3.2	4.8	9.9	6.6	300	1300	120	67	29
18	4.0	4.2	7.0	3.0	4.6	8.3	7.4	438	1560	118	101	26
19	4.8	4.2	2.8	3.2	4.6	10	7.8	777	1910	109	89	32
20	4.0	4.2	2.6	3.0	4.2	9.4	8.3	894	1960	109	72	34
21	4.0	4.0	3.0	2.8	4.2	9.4	15	932	1810	115	67	24
22	4.2	4.2	2.6	3.0	3.4	7.8	70	1060	1850	182	54	24
23	5.2	4.6	2.6	2.8	4.6	7.8	184	966	1720	300	46	34
24	5.2	4.6	2.8	3.0	4.8	7.8	157	1040	1580	460	47	23
25	5.2	4.8	3.0	2.6	5.2	9.4	194	1100	1360	317	48	16
26	5.2	4.8	2.4	2.4	5.2	7.4	115	1020	1280	184	49	8.3
27	5.2	4.8	2.4	2.4	5.2	7.0	62	985	1380	151	47	6.6
28	5.2	4.8	4.6	2.0	5.2	7.0	23	1040	1320	126	53	6.2
29	4.8	4.8	3.2	2.2	---	7.0	3.0	1040	1270	117	52	6.6
30	4.8	5.2	2.8	2.0	---	7.4	214	1150	995	126	45	6.2
31	4.8	---	3.0	2.4	---	7.8	---	1370	---	144	49	---
TOTAL	1828.3	133.4	225.5	90.9	117.9	240.6	1188.7	17463	44795	10870	2909	917.9
MEAN	59.0	4.45	7.27	2.93	4.21	7.76	39.6	563	1493	351	93.8	30.6
MAX	190	5.2	13	4.2	5.2	17	214	1370	2070	1000	204	49
MIN	4.0	3.7	2.4	2.0	2.6	2.4	3.0	155	995	109	45	6.2
AC-FT	3630	265	447	180	234	477	2360	34640	88850	21560	5770	1820
CAL YR 1982	TOTAL	12824.9	MEAN	35.1	MAX	354	MIN	1.0	AC-FT	25440		
WTR YR 1983	TOTAL	80780.2	MEAN	221	MAX	2070	MIN	2.0	AC-FT	160200		

## PLATTE RIVER BASIN

06741510 BIG THOMPSON RIVER AT LOVELAND, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 19...	1310	5.3	1360	1370	7.9	10.5	13.1	610	150	58
NOV 29...	1130	4.2	1650	1480	8.0	3.0	13.4	680	170	63
JAN 04...	1230	5.6	1650	1480	7.9	.5	12.0	--	--	--
FEB 07...	1230	5.6	1520	1570	7.8	1.0	12.6	--	--	--
MAR 22...	1400	8.0	1260	1260	8.4	4.0	14.6	--	--	--
APR 19...	1600	8.6	1290	1210	8.1	15.5	9.5	--	--	--
MAY 10...	1230	208	210	213	7.6	11.5	12.9	--	--	--
JUN 07...	1500	1670	140	144	6.9	11.0	9.4	51	13	4.5
JUL 12...	1200	349	110	117	7.1	15.5	13.9	--	--	--
AUG 02...	1300	209	--	390	8.2	18.0	8.6	--	--	--
SEP 06...	1300	31	720	695	6.9	20.0	10.9	--	--	--
29...	1200	6.9	1130	1060	8.2	18.0	14.0	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 19...	85	2	4.6	180	540	42	.40	4.2	1000
NOV 29...	71	1	4.1	210	640	19	.40	6.0	1100
JAN 04...	--	--	--	--	--	--	.30	6.9	--
FEB 07...	--	--	--	--	--	--	.40	7.3	--
MAR 22...	--	--	--	--	--	--	.50	4.0	--
APR 19...	--	--	--	--	--	--	.50	2.9	--
MAY 10...	--	--	--	--	--	--	.20	13	--
JUN 07...	6.7	.4	1.4	33	30	1.9	.20	12	90
JUL 12...	--	--	--	--	--	--	.20	5.6	--
AUG 02...	--	--	--	--	--	--	.20	5.2	--
SEP 06...	--	--	--	--	--	--	.40	7.0	--
29...	--	--	--	--	--	--	.40	6.1	--

## 06741510 BIG THOMPSON RIVER AT LOVELAND, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CYANIDE TOTAL (MG/L AS CN)
OCT 19...	1.4	14	.600	.020	.620	.100	1.0	.040	--
NOV 29...	1.5	13	.810	.020	.830	.150	1.0	.020	--
JAN 04...	--	--	--	.020	--	.150	.80	.030	--
FEB 07...	--	--	--	.020	--	.210	.90	.040	--
MAR 22...	--	--	--	.020	--	.080	.70	.010	.01
APR 19...	--	--	--	.020	--	.130	1.1	.050	--
MAY 10...	--	--	--	<.020	--	.080	1.1	.020	--
JUN 07...	.12	404	.140	<.020	.140	.090	.80	.030	<.01
JUL 12...	--	--	--	<.020	--	.100	.80	.020	--
AUG 02...	--	--	--	<.020	--	.070	.80	.060	--
SEP 06...	--	--	--	.020	--	.010	.60	.040	<.01
29...	--	--	--	<.020	--	.050	.90	.010	--

DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT 19...	1310	60	--	--	<1	1	--	1	--
NOV 29...	1130	--	1	100	<1	10	1	6	2200
JAN 04...	1230	1500	--	--	1	8	--	4	--
FEB 07...	1230	100	--	--	1	4	--	1	--
MAR 22...	1400	--	1	--	1	10	--	3	150
APR 19...	1600	120	--	--	1	1	--	4	--
MAY 10...	1230	2000	--	--	<1	2	--	15	--
JUN 07...	1500	--	<1	--	<1	<10	--	10	6500
JUL 12...	1200	1400	--	--	<1	5	--	11	--
AUG 02...	1300	390	--	--	<1	<1	--	4	--
SEP 06...	1300	--	1	--	<1	10	--	7	550
29...	1200	100	--	--	<1	<1	--	4	--

## PLATTE RIVER BASIN

06741510 BIG THOMPSON RIVER AT LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT									
19...	120	1	--	100	--	--	--	--	10
NOV									
29...	38	2	160	77	<.1	<1	3	16	20
JAN									
04...	15	2	--	99	--	--	--	--	20
FEB									
07...	29	1	--	110	--	--	--	--	20
MAR									
22...	36	1	50	38	.1	--	10	12	10
APR									
19...	52	1	--	14	--	--	--	--	20
MAY									
10...	130	<1	--	10	--	--	--	--	30
JUN									
07...	68	3	110	8	.2	--	7	1	40
JUL									
12...	57	<1	--	13	--	--	--	--	20
AUG									
02...	55	<1	--	14	--	--	--	--	30
SEP									
06...	12	4	40	23	<.1	--	18	3	40
29...	40	2	--	46	--	--	--	--	20

## PLATTE RIVER BASIN

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06741520 BIG THOMPSON RIVER BELOW LOVELAND, CO

## WATER-QUALITY RECORDS

LOCATION.--Lat 40°23'00", long 105°01'45", in NW¼SE¼ sec.20, T.5 N., R.68 W., Larimer County, Hydrologic Unit 101190006, at county road 9 E bridge, about 0.3 mi upstream from outlet ditch and 2.0 mi southeast of Loveland.

DRAINAGE AREA.--540 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 19...	1530	17	1550	1570	8.5	13.0	14.2	560	120	63
NOV 29...	1015	13	1650	1510	8.0	4.0	10.5	630	140	67
JAN 04...	1030	14	1450	1420	7.6	2.5	10.6	--	--	--
FEB 07...	1030	10	1320	1390	7.7	2.0	11.0	--	--	--
MAR 22...	1000	17	1340	1370	7.9	4.0	10.7	--	--	--
APR 19...	1130	20	1330	1410	8.4	17.0	12.4	--	--	--
MAY 10...	1000	229	270	285	8.6	10.5	8.9	--	--	--
JUN 07...	1030	1670	152	158	8.0	9.5	9.6	56	14	5.0
JUL 12...	1000	349	158	152	7.4	14.0	13.8	--	--	--
AUG 02...	1100	241	470	454	7.9	19.0	14.4	--	--	--
SEP 06...	1100	73	800	778	7.3	20.0	11.2	--	--	--
29...	1430	19	980	1140	8.2	20.5	11.1	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 19...	140	3	7.3	165	650	30	1.1	4.9	1100
NOV 29...	110	2	6.0	197	610	28	.80	6.7	1100
JAN 04...	--	--	--	--	--	--	.90	8.2	--
FEB 07...	--	--	--	--	--	--	.70	8.8	--
MAR 22...	--	--	--	--	--	--	.80	5.6	--
APR 19...	--	--	--	--	--	--	.90	6.9	--
MAY 10...	--	--	--	--	--	--	.30	14	--
JUN 07...	7.7	.5	1.4	36	34	2.2	.20	12	98
JUL 12...	--	--	--	--	--	--	.20	5.7	--
AUG 02...	--	--	--	--	--	--	.30	5.4	--
SEP 06...	--	--	--	--	--	--	.50	8.0	--
29...	--	--	--	--	--	--	.90	7.4	--

## PLATTE RIVER BASIN

06741520 BIG THOMPSON RIVER BELOW LOVELAND, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CYANIDE TOTAL (MG/L AS CN)
OCT 19...	1.5	52	3.59	.210	3.80	.680	2.5	2.50	--
NOV 29...	1.5	39	2.84	.160	3.00	1.60	3.4	2.10	--
JAN 04...	--	--	--	.190	--	1.50	2.7	2.20	--
FEB 07...	--	--	--	.300	--	5.40	6.6	3.80	--
MAR 22...	--	--	--	.340	--	2.80	4.8	2.20	<.01
APR 19...	--	--	--	.340	--	1.10	3.5	2.90	--
MAY 10...	--	--	--	.020	--	.380	1.7	.280	--
JUN 07...	.13	443	.210	<.020	.210	.120	.80	.050	<.01
JUL 12...	--	--	--	<.020	--	.180	.70	.160	--
AUG 02...	--	--	--	.020	--	.110	1.1	.330	--
SEP 06...	--	--	--	.160	--	1.30	2.1	.920	<.01
29...	--	--	--	<.020	--	5.50	8.0	2.00	--

DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT 19...	1530	100	--	--	<1	2	--	3	--
NOV 29...	1015	--	1	<100	<1	10	<1	3	110
JAN 04...	1030	70	--	--	<1	4	--	4	--
FEB 07...	1030	200	--	--	<1	4	--	6	--
MAR 22...	1000	--	1	--	<1	<10	--	7	240
APR 19...	1130	260	--	--	<1	<1	--	10	--
MAY 10...	1000	2000	--	--	<1	4	--	12	--
JUN 07...	1030	--	1	--	<1	10	--	11	8000
JUL 12...	1000	2900	--	--	<1	8	--	6	--
AUG 02...	1100	460	--	--	<1	<1	--	6	--
SEP 06...	1100	--	1	--	<1	<10	--	11	1000
29...	1430	110	--	--	<1	<1	--	7	--

06741520 BIG THOMPSON RIVER BELOW LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 19...	40	<1	--	55	--	--	--	--	20
NOV 29...	39	<1	70	65	<.1	<1	2	9	20
JAN 04...	40	<1	--	94	--	--	--	--	10
FEB 07...	54	1	--	120	--	--	--	--	30
MAR 22...	41	<1	80	57	<.1	--	9	9	20
APR 19...	46	4	--	51	--	--	--	--	40
MAY 10...	220	4	--	13	--	--	--	--	30
JUN 07...	60	7	130	11	.2	--	12	1	40
JUL 12...	44	<1	--	17	--	--	--	--	20
AUG 02...	43	<1	--	18	--	--	--	--	20
SEP 06...	48	6	60	33	<.1	--	30	3	50
29...	36	1	--	42	--	--	--	--	20

## PLATTE RIVER BASIN

06742500 CARTER LAKE NEAR BERTHOUD, CO

LOCATION.--Lat 40°19'28", long 105°12'41", in SE¼ sec.10, T.4 N., R.70 W., Larimer County, Hydrologic Unit 10190006, in hoist house 293 ft from right abutment of Carter Lake Dam on Dry Creek, 7.0 mi west of Berthoud, and 8.9 mi upstream from mouth. Water-quality sampling site near center of reservoir.

## WATER-CONTENTS RECORDS

PERIOD OF RECORD.--March 1954 to current year.

GAGE.--Nonrecording gage read at irregular intervals from 1 to 13 days. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by an earth and rockfill dam and dikes enlarging the natural basin of Carter Lake. Storage began in February 1954. Usable capacity, 113,500 acre-ft between elevations 5,618.00 ft, trashrack sill at outlet, and 5,763.00 ft, maximum water surface, 6 ft below crest of dam. Dead storage, 3,310 acre-ft. Figures given represent usable contents. Water diverted from Colorado River basin through Alva B. Adams tunnel is pumped from Flatiron Reservoir into Carter Lake for supplemental irrigation supply to Little Thompson River and St. Vrain and Boulder Creek basins. Water above elevation 5,620 ft may be released for return to Flatiron Reservoir where pump turbines can operate in reverse to generate power and water can be used for irrigation in Big Thompson or Cache la Poudre River basins.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 109,100 acre-ft, Apr. 27-29, 1971, elevation, 5,759.12 ft; minimum observed since appreciable storage was attained, 960 acre-ft, Oct. 25, 1954, elevation, 5,621.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,300 acre-ft Apr. 27, 29, elevation, 5,754.96 ft; minimum contents, 59,880 acre-ft, Sept. 30, elevation, 5,712.10 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,714.26	61,920	-
Oct. 31. . . . .	5,714.94	62,570	+650
Nov. 30. . . . .	5,720.54	67,990	+5,420
Dec. 31. . . . .	5,727.80	75,240	+7,250
CAL YR 1982. . . . .			+17,230
Jan. 31. . . . .	5,733.08	80,660	+5,420
Feb. 28. . . . .	5,739.78	87,700	+7,040
Mar. 31. . . . .	5,749.78	98,550	+10,850
Apr. 30. . . . .	5,754.92	104,300	+5,750
May 31. . . . .	5,754.36	103,700	-600
June 30. . . . .	5,752.88	102,000	-1,700
July 31. . . . .	5,743.88	92,100	-9,900
Aug. 31. . . . .	5,723.16	70,570	-21,530
Sept. 30. . . . .	5,712.10	59,880	-10,690
WTR YR 1983 . . . . .			-2,040



06742500 CARTER LAKE NEAR BERTHOUD, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1970 to current year.

REMARKS.--Samples collected at various depths near south end of reservoir. Reservoir storage represents usable contents. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	
DATE	TIME						
MAY							
25...	1200	.10	78	8.3	13.5	9.2	
25...	1201	10.0	78	8.4	11.0	8.8	
25...	1202	20.0	80	8.1	8.0	9.0	
25...	1203	30.0	80	8.0	7.5	9.0	
25...	1204	40.0	77	7.8	7.0	9.0	
25...	1205	50.0	78	7.8	7.0	9.0	
25...	1206	60.0	78	7.8	7.0	9.0	
25...	1207	70.0	78	7.8	7.0	9.0	
25...	1208	80.0	78	7.8	6.5	9.1	
25...	1209	90.0	78	7.7	6.5	9.0	
25...	1210	100	78	7.7	6.0	9.0	
25...	1211	110	77	7.7	6.0	9.0	
25...	1212	120	78	7.7	6.0	9.2	
25...	1213	130	79	7.7	6.0	9.2	
25...	1214	140	79	7.7	6.0	9.1	
25...	1215	150	78	7.5	6.0	9.0	
25...	1216	155	81	7.4	6.0	8.8	
JUL							
06...	1010	.10	78	8.0	20.0	8.0	
06...	1011	10.0	81	8.1	19.0	8.5	
06...	1012	20.0	78	8.0	18.0	8.2	
06...	1013	30.0	81	7.6	11.0	9.0	
06...	1014	40.0	78	7.5	7.5	8.9	
06...	1015	50.0	78	7.1	6.5	8.7	
06...	1016	60.0	77	7.1	6.0	8.8	
06...	1017	70.0	78	7.2	6.0	8.7	
06...	1018	80.0	78	7.1	5.5	8.7	
06...	1019	90.0	78	7.1	5.5	8.6	
06...	1020	100	78	7.1	5.5	8.5	
06...	1021	110	78	7.1	5.5	8.6	
06...	1022	120	78	7.1	5.5	8.6	
06...	1023	130	78	7.1	5.0	8.5	
06...	1115	130	78	7.1	5.0	8.5	
SEP							
28...	0955	.10	95	7.8	17.0	7.2	
28...	0956	5.00	95	7.8	17.0	7.4	
28...	0957	10.0	95	7.9	17.0	7.4	
28...	0958	20.0	95	7.9	17.0	7.4	
28...	0959	25.0	95	8.0	17.0	7.2	
28...	1000	30.0	95	8.0	17.0	7.2	
28...	1001	40.0	85	7.8	13.0	6.5	
28...	1002	50.0	85	7.7	8.5	6.6	
28...	1003	60.0	80	7.6	7.0	6.6	
28...	1004	70.0	80	7.5	7.0	6.6	
28...	1005	75.0	80	7.4	7.0	6.5	
28...	1006	80.0	80	7.4	6.5	6.4	
28...	1007	90.0	85	7.4	6.5	6.2	
28...	1008	100	85	7.3	6.0	6.0	
28...	1009	110	85	7.3	6.0	5.4	
		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
DATE	TIME						
MAY							
25...	1200	.10	--	126	--	--	--
JUL							
06...	1010	.10	80	154	<1	<1	42
SEP							
28...	0955	.10	--	106	--	--	--

## PLATTE RIVER BASIN

06742500 CARTER LAKE NEAR BERTHOUD, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
MAY 25...	--	--	--	--	--	--	--
JUL 06...	.06	<.020	<.100	<.060	.010	11	97
SEP 28...	--	--	--	--	--	--	--

## PLATTE RIVER BASIN

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402009105130700 CARTER LAKE NEAR BERTHOUD, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1983.

REMARKS.--Samples collected at various depths near center of reservoir. A complete taxonomic identification with cell counts for phytoplankton available in district office.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SPE- CIFIC CON- DUCT- ANCE (UMHOS)					PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
DATE	TIME	SAM- PLING DEPTH (FEET)							
MAY									
25...	1400	.10	80	8.3	13.5	9.2			
25...	1401	10.0	78	8.3	12.0	9.4			
25...	1402	20.0	78	8.3	11.0	9.4			
25...	1403	30.0	78	8.2	10.0	9.8			
25...	1404	40.0	78	8.1	9.0	9.8			
25...	1405	50.0	80	8.0	8.0	9.8			
25...	1406	60.0	79	7.9	7.5	9.9			
25...	1407	70.0	80	7.9	7.0	9.9			
25...	1408	80.0	78	7.9	7.0	9.9			
25...	1409	90.0	77	7.8	7.0	10.0			
25...	1410	100	77	7.8	7.0	10.0			
25...	1411	110	78	7.8	6.5	10.1			
25...	1412	120	77	7.8	6.0	10.2			
25...	1413	130	78	7.8	6.0	10.3			
25...	1414	140	80	7.8	6.0	10.3			
25...	1415	150	78	7.8	6.0	10.4			
25...	1416	155	79	7.8	6.0	10.4			
JUL									
06...	1230	.10	78	7.8	22.0	7.7			
06...	1231	10.0	78	8.1	19.0	8.4			
06...	1232	20.0	81	8.1	17.0	8.6			
06...	1233	30.0	81	7.7	11.0	8.8			
06...	1234	40.0	81	7.4	8.5	8.7			
06...	1235	50.0	79	7.3	7.0	8.6			
06...	1236	60.0	80	7.3	6.0	8.6			
06...	1237	70.0	79	7.2	6.0	8.6			
06...	1238	80.0	78	7.2	5.5	8.6			
06...	1239	90.0	77	7.1	5.5	8.6			
06...	1240	100	77	7.2	5.0	8.6			
06...	1241	110	78	7.2	5.0	8.5			
06...	1242	120	78	7.2	5.0	8.5			
06...	1243	130	78	7.2	5.0	8.6			
06...	1244	140	78	7.2	5.0	8.7			
06...	1245	150	79	7.2	5.0	8.2			
06...	1325	150	79	7.2	5.0	8.2			
SEP									
28...	1055	.10	90	8.0	17.5	7.2			
28...	1056	5.00	90	8.0	17.0	7.4			
28...	1057	10.0	90	8.0	17.0	7.4			
28...	1058	20.0	90	8.1	17.0	7.4			
28...	1059	25.0	90	8.1	17.0	7.2			
28...	1100	30.0	90	8.0	17.0	7.2			
28...	1101	40.0	80	7.8	12.0	6.6			
28...	1102	50.0	80	7.7	8.5	6.8			
28...	1103	60.0	80	7.6	8.0	6.8			
28...	1104	70.0	80	7.6	7.0	6.9			
28...	1105	75.0	80	7.5	7.0	6.8			
28...	1106	80.0	80	7.5	7.0	6.8			
28...	1107	90.0	80	7.5	6.5	6.8			
28...	1108	100	80	7.4	6.0	6.4			
		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)		
MAY									
25...	1400	.10	81	140	<1	<1	41		
JUL									
06...	1230	.10	81	192	<1	<1	39		
SEP									
28...	1055	.10	89	116	K3	K2	50		

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

402009105130700 CARTER LAKE NEAR BERTHOUD, CO--Continued

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)
MAY 25...	.06	.020	.100	.150	.010	52	930
JUL 06...	.05	<.020	<.100	.070	.010	--	--
SEP 28...	.07	<.100	<.100	<.010	<.010	1.7	1800

## 06746095 JOE WRIGHT CREEK ABOVE JOE WRIGHT RESERVOIR, CO

LOCATION.--Lat 40°32'24", long 105°52'56", in SE¼SE¼ sec.26, T.7 N., R.76 W., Larimer County, Hydrologic Unit 10190007, on left bank 150 ft below unnamed tributary and Colorado Highway 14 culvert crossing, 1.5 mi northeast of Cameron Pass, 1.5 mi southwest of Joe Wright Dam, and 8 mi east of Gould.

DRAINAGE AREA.--3.01 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 9,990 ft, from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 238 ft<sup>3</sup>/s July 7, 1983, gage height, 2.20 ft; maximum gage height, 5.41 ft, May 27, 1983 (backwater from ice); minimum daily discharge, 0.20 ft<sup>3</sup>/s Jan. 30-Apr. 4, 1979, Feb. 9 to Apr. 9, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 238 ft<sup>3</sup>/s at 1900 July 7, gage height, 2.20 ft; maximum gage height, 5.41 ft at 2330 May 27 (backwater from ice); minimum daily discharge, 0.45 ft<sup>3</sup>/s Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1.0	.90	.50	.60	.50	.50	1.0	10	63	16	4.8
2	1.9	1.0	.90	.50	.60	.50	.50	1.0	12	68	14	4.6
3	1.6	1.0	.80	.50	.60	.50	.50	1.0	15	80	13	5.0
4	1.4	1.0	.78	.50	.60	.50	.50	1.0	17	55	13	8.8
5	1.2	1.0	.78	.50	.60	.50	.50	1.0	14	51	15	6.6
6	1.4	1.0	.78	.50	.55	.50	.50	1.1	12	52	14	5.7
7	1.4	1.0	.78	.60	.55	.50	.50	1.0	14	85	13	5.0
8	1.4	1.0	.78	.60	.55	.50	.50	1.1	17	98	12	5.4
9	1.3	1.0	.78	.60	.55	.50	.54	2.1	18	90	10	4.6
10	1.2	1.0	.78	.60	.55	.50	.54	2.7	20	84	8.8	4.2
11	1.2	.90	.78	.60	.55	.50	.54	2.7	25	65	8.0	3.9
12	1.2	.90	.78	.60	.55	.50	.54	2.9	28	52	7.8	3.7
13	1.2	.90	.78	.60	.55	.50	.53	2.7	26	45	6.5	3.5
14	1.2	.90	.78	.60	.55	.50	.53	2.1	22	40	6.4	3.8
15	1.2	.90	.78	.60	.55	.50	.53	1.7	23	37	11	3.4
16	1.2	.90	.78	.60	.55	.50	.53	1.6	24	34	18	3.2
17	1.1	.90	.78	.60	.55	.50	.53	1.6	29	30	15	3.1
18	1.0	.90	.78	.60	.55	.50	.68	1.6	48	28	15	3.0
19	1.0	.90	.70	.60	.55	.50	.80	1.7	65	27	15	3.3
20	1.0	.90	.70	.60	.55	.50	.74	1.7	60	27	14	3.0
21	1.0	.90	.70	.60	.55	.50	.74	1.8	66	30	12	2.9
22	1.0	.90	.70	.60	.55	.50	.74	2.2	74	27	11	2.6
23	1.0	.90	.70	.60	.55	.50	.74	3.5	76	30	9.4	2.6
24	1.0	.90	.60	.60	.55	.50	.86	4.5	79	25	9.1	2.5
25	1.0	.90	.50	.60	.55	.50	1.0	5.3	70	23	8.1	2.5
26	1.0	.90	.50	.60	.55	.50	1.0	7.0	59	22	7.1	2.5
27	1.0	.90	.50	.60	.55	.50	1.0	10	65	22	6.8	2.5
28	.90	.90	.50	.60	.55	.50	1.0	12	69	20	6.2	2.4
29	.70	.90	.50	.60	---	.50	1.0	13	64	16	6.3	2.3
30	.80	.90	.45	.60	---	.50	1.0	12	64	16	6.6	2.2
31	1.0	---	.50	.60	---	.50	---	9.9	---	15	5.4	---
TOTAL	36.50	28.00	21.85	18.00	15.65	15.50	20.11	114.5	1185	1357	333.5	113.6
MEAN	1.18	.93	.70	.58	.56	.50	.67	3.69	39.5	43.8	10.8	3.79
MAX	2.0	1.0	.90	.60	.60	.50	1.0	13	79	98	18	8.8
MIN	.70	.90	.45	.50	.55	.50	.50	1.0	10	15	5.4	2.2
AC-FT	72	56	43	36	31	31	40	227	2350	2690	661	225

CAL YR 1982 TOTAL 3366.67 MEAN 9.22 MAX 96 MIN .26 AC-FT 6680  
WTR YR 1983 TOTAL 3259.21 MEAN 8.93 MAX 98 MIN .45 AC-FT 6460

NOTE.--NO GAGE-HEIGHT RECORD OCT. 8 TO APR. 13.

## PLATTE RIVER BASIN

06746110 JOE WRIGHT CREEK BELOW JOE WRIGHT RESERVOIR, CO

LOCATION.--Lat 40°33'43", long 105°52'09", in SE¼NE¼ sec.24, T.7 N., R.76 W., Larimer County, Hydrologic Unit 10190007, on left bank 500 ft downstream from unnamed tributary, 2,000 ft downstream from Joe Wright Dam, and 3 mi southwest of Chambers Lake.

DRAINAGE AREA.--6.90 mi<sup>2</sup>.

PERIOD OF RECORD.--June 29, 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 9,710 ft, from topographic map.

REMARKS.--Records poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 145 ft<sup>3</sup>/s, June 30, 1978, gage height, 2.46 ft; minimum daily, 0.27 ft<sup>3</sup>/s Jan. 31 to Feb. 14, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 130 ft<sup>3</sup>/s at 0500 July 10, gage height, 2.34 ft; minimum daily, 0.42 ft<sup>3</sup>/s Apr. 10-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	3.0	2.7	1.4	1.3	1.3	.70	1.0	28	101	17	24
2	1.0	2.7	2.7	1.4	1.3	1.3	.70	1.0	29	102	16	27
3	1.0	2.7	2.7	1.4	1.3	1.3	.70	1.0	29	107	15	28
4	1.0	2.7	2.7	1.4	1.3	1.3	.70	1.0	29	107	15	29
5	1.0	2.7	2.7	1.4	1.3	1.3	.70	1.0	28	104	15	28
6	1.0	2.7	2.7	1.4	1.3	1.3	.45	1.0	24	101	14	28
7	1.0	2.7	2.7	1.4	1.3	1.3	.45	1.0	20	103	14	29
8	1.0	2.7	2.7	1.4	1.3	1.4	.45	1.2	20	109	13	34
9	1.0	2.7	2.7	1.4	1.3	1.4	.45	2.0	20	120	13	38
10	1.0	2.7	2.7	1.4	1.3	1.4	.42	2.5	22	123	12	38
11	1.0	2.7	2.7	1.4	1.3	1.4	.42	2.5	26	120	12	38
12	1.0	2.7	2.7	1.4	1.3	1.4	.42	2.5	32	120	11	39
13	1.0	2.7	2.7	1.4	1.3	1.4	.42	2.5	34	105	11	40
14	1.0	2.7	1.4	1.4	1.3	1.4	.52	2.5	33	90	11	40
15	1.0	2.7	1.4	1.4	1.3	1.4	.52	2.0	33	70	10	40
16	1.0	2.7	1.4	1.4	1.3	1.4	.52	2.0	34	52	10	40
17	1.0	2.7	2.0	1.4	1.3	1.4	.52	2.0	36	46	10	40
18	1.0	2.7	1.4	1.4	1.3	1.4	.64	2.0	41	41	10	39
19	1.0	2.7	1.4	1.4	1.3	1.4	.74	2.0	52	37	10	39
20	1.0	2.7	1.4	1.4	1.3	1.4	.74	2.0	61	35	10	39
21	1.0	2.7	1.4	1.4	1.3	1.4	.74	2.4	66	33	10	39
22	1.0	2.7	1.4	1.4	1.3	1.4	.74	3.0	78	31	10	39
23	1.0	2.7	1.4	1.4	1.3	1.4	.74	4.0	93	30	10	33
24	1.0	2.7	1.4	1.4	1.3	1.4	.84	6.9	94	28	10	1.1
25	1.0	2.7	1.4	1.4	1.3	1.4	.96	8.0	97	26	11	1.1
26	1.0	2.7	1.4	1.4	1.3	1.4	1.0	11	93	25	12	1.1
27	1.0	2.7	1.4	1.4	1.3	1.4	1.0	14	83	23	12	1.1
28	1.0	2.7	1.4	1.4	1.3	1.4	1.0	16	87	22	12	1.1
29	1.0	2.7	1.4	1.4	---	1.4	1.0	17	93	21	12	1.1
30	1.0	2.7	1.4	1.4	---	1.4	1.0	16	96	19	12	1.1
31	1.0	---	1.4	1.4	---	1.4	---	24	---	18	21	---
TOTAL	31.0	81.3	60.9	43.4	36.4	42.7	20.20	157.0	1511	2069	381	815.7
MEAN	1.00	2.71	1.96	1.40	1.30	1.38	.67	5.06	50.4	66.7	12.3	27.2
MAX	1.0	3.0	2.7	1.4	1.3	1.4	1.0	24	97	123	21	40
MIN	1.0	2.7	1.4	1.4	1.3	1.3	.42	1.0	20	18	10	1.1
AC-FT	61	161	121	86	72	85	40	311	3000	4100	756	1620
CAL YR 1982	TOTAL	5895.34	MEAN 16.2	MAX 103	MIN .32	AC-FT 11690						
WTR YR 1983	TOTAL	5249.60	MEAN 14.4	MAX 123	MIN .42	AC-FT 10410						

NOTE.--NO GAGE-HEIGHT RECORD OCT. 1 TO MAY 24, JULY 14 TO AUG. 24.

## PLATTE RIVER BASIN

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06749500 CACHE LA POUUDRE RIVER NEAR FORT COLLINS, CO

## WATER-QUALITY RECORDS

LOCATION.--Lat 40°42'04", long 105°14'27", in NW¼SW¼ sec.33, T.9 N., R.70 W., Larimer County, Hydrologic Unit 10190007, 1,000 ft upstream from North Fork and 11 mi northwest of Fort Collins.

PERIOD OF RECORD.--October 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT										
21...	1130	23	60	62	7.5	4.0	11.3	23	6.2	1.8
NOV										
10...	1020	44	69	69	7.7	.5	12.0	24	6.5	1.8
DEC										
06...	1200	37	80	72	8.0	.0	11.9	28	7.5	2.2
JAN										
19...	1030	26	90	85	7.5	.0	11.8	31	8.3	2.4
FEB										
16...	1330	27	89	82	7.9	.5	11.6	32	9.0	2.3
MAR										
22...	0920	21	94	99	7.4	.5	11.5	35	9.9	2.6
APR										
14...	0945	55	120	127	7.3	1.0	11.4	46	13	3.4
MAY										
13...	1045	437	86	91	7.8	5.5	10.4	34	9.4	2.6
JUN										
17...	1220	2640	36	53	7.7	7.5	10.1	19	5.1	1.4
JUL										
27...	0850	1320	36	37	7.4	12.5	8.7	15	4.3	.98
AUG										
17...	1220	646	45	45	7.6	17.5	8.0	17	4.9	1.1
31...	1015	432	36	45	7.7	14.0	8.5	21	6.5	1.1

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT										
21...	3.0	.3	.90	30	5.0	1.1	.20	9.9	46	.06
NOV										
10...	3.2	.3	.80	30	6.0	1.1	.20	11	49	.07
DEC										
06...	3.6	.3	.90	34	5.0	.90	.20	11	52	.07
JAN										
19...	3.9	.3	.90	37	6.0	1.4	.20	11	56	.08
FEB										
16...	4.3	.3	1.1	36	5.0	1.3	.20	10	55	.07
MAR										
22...	4.7	.4	1.0	42	6.3	1.9	.30	10	62	.08
APR										
14...	5.8	.4	1.1	52	9.8	2.4	.30	12	79	.11
MAY										
13...	4.3	.3	1.0	35	11	1.6	.20	13	64	.09
JUN										
17...	2.4	.3	.80	20	8.6	1.0	.20	9.7	42	.06
JUL										
27...	1.6	.2	.80	17	4.8	.50	.20	7.1	31	.04
AUG										
17...	1.8	.2	.60	21	4.1	.40	.10	7.2	33	.04
31...	1.7	.2	.70	19	5.8	.40	.20	7.2	35	.05

## PLATTE RIVER BASIN

06749500 CACHE LA POUDRE RIVER NEAR FORT COLLINS, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)
OCT 21...	2.9	--	<.020	<.100	.120	1.0	.020	--	--
NOV 10...	5.8	--	<.020	<.100	.070	.40	.050	--	--
DEC 06...	5.2	.080	.020	.100	.060	1.5	.010	--	--
JAN 19...	4.0	.080	.020	.100	.060	.40	.030	--	--
FEB 16...	4.0	.080	.020	.100	.060	.20	.030	--	--
MAR 22...	3.5	.110	<.020	.110	.130	.30	.010	--	--
APR 14...	12	.130	.020	.150	.080	.50	.020	--	--
MAY 13...	76	--	<.020	<.100	.080	1.0	.020	<.1	<.10
JUN 17...	296	--	<.020	<.100	.150	.30	.010	--	--
JUL 27...	109	--	<.020	<.100	.010	.50	.040	<.1	<.10
AUG 17...	57	--	<.020	<.100	.040	.70	.040	--	--
31...	41	--	<.020	<.100	.100	.30	<.010	--	--

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 21...	40	--	--	<1	1	--	1	--	56
NOV 10...	--	<1	<100	<1	<10	<1	1	90	40
DEC 06...	20	--	--	1	2	--	1	--	36
JAN 19...	40	--	--	1	1	--	4	--	30
FEB 16...	--	1	--	1	10	--	1	220	42
MAR 22...	40	--	--	<1	<1	--	2	--	29
APR 14...	90	--	--	1	1	--	3	--	60
MAY 13...	--	<1	--	<1	<10	--	4	950	120
JUN 17...	860	--	--	<1	8	--	1	--	120
JUL 27...	340	--	--	<1	2	--	4	--	76
AUG 17...	--	1	--	<1	<10	--	2	410	71
31...	130	--	--	<1	<1	--	7	--	62



## PLATTE RIVER BASIN

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06749500 CACHE LA POUDRE RIVER NEAR FORT COLLINS, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 21...	<1	--	3	--	--	--	--	10
NOV 10...	4	<10	1	.1	<1	6	<1	10
DEC 06...	1	--	1	--	--	--	--	10
JAN 19...	2	--	2	--	--	--	--	10
FEB 16...	1	10	6	.1	--	5	1	10
MAR 22...	<1	--	3	--	--	--	--	10
APR 14...	4	--	2	--	--	--	--	10
MAY 13...	2	20	3	<.1	--	1	<1	10
JUN 17...	3	--	3	--	--	--	--	20
JUL 27...	<1	--	3	--	--	--	--	10
AUG 17...	1	20	2	.1	--	7	<1	10
31...	<1	--	4	--	--	--	--	20

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)
MAY 13...	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010	<.010
JUL 27...	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010	<.010

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
MAY 13...	<.01	<.010	<.010	<.010	<.01	<.01	--	<.01	<.01
JUL 27...	<.01	<.010	<.010	<.010	<.01	<.01	<.01	<.01	<.01

DATE	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)
MAY 13...	--	<.1	<1	<.01	<.01	<.01	<.01	<.01
JUL 27...	<.01	<.1	<1	<.01	<.01	<.01	<.01	<.01

## PLATTE RIVER BASIN

06752000 CACHE LA POUDE RIVER AT MOUTH OF CANYON, NEAR FORT COLLINS, CO

LOCATION.--Lat 40°39'52", long 105°13'26", in NW¼ sec.15, T.8 N., R.70 W., Larimer County, Hydrologic Unit 10190007, on left bank at mouth of canyon, 0.5 mi downstream from headgate of Poudre Valley Canal, 1.2 mi upstream from Lewstone Creek, and 9.3 mi northwest of courthouse in Fort Collins.

DRAINAGE AREA.--1,056 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, June to August 1881, May to July 1883, October 1883 to current year. Monthly discharge only for some periods, published in WSP 1310. Records for Mar. 23 to Apr. 30 and July 4 to Aug. 20, 1883, published in WSP 9, have been found to be unreliable and should not be used. Prior to 1902, published as Cache la Poudre Creek or River at or near Fort Collins. Water-quality data available, June 1962 to October 1965, October 1971 to September 1982.

REVISED RECORDS.--WSP 1310: 1885-87, 1889, 1892, 1894-96, 1934. WSP 1730: 1960, drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Altitude of gage is 5,220 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by transbasin and transmountain diversions (see elsewhere in this report), diversions above station for irrigation of about 50,000 acres, most of which is below station 65,350 acre-ft during current year, and diversions for municipal use 10,870 acre-ft during current year. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, occurred May 20, 1904; maximum discharge determined, 21,000 ft<sup>3</sup>/s June 9, 1891 (from reports of State Engineer of Colorado), caused by failure of Chambers Lake Dam; minimum daily discharge, 1.6 ft<sup>3</sup>/s Nov. 20, 28, 1948, caused by diversion of Poudre Valley Canal 0.5 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,590 ft<sup>3</sup>/s at 0530 June 21, gage height, 7.72 ft; minimum daily, 15 ft<sup>3</sup>/s Dec. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	46	18	19	170	34	130	1500	3470	4310	887	507
2	68	72	18	19	235	36	69	1450	3990	3950	908	455
3	66	52	18	20	130	37	73	1390	4020	4180	785	368
4	72	37	19	35	70	41	67	1350	4050	3770	826	356
5	81	74	21	30	65	56	59	1330	4620	3060	834	395
6	87	70	146	25	65	46	95	1320	4610	2550	978	296
7	112	62	272	20	65	41	154	1290	4400	2410	891	260
8	104	58	105	21	80	57	163	1280	4200	3300	810	226
9	106	60	23	22	105	47	178	1290	4280	3800	768	226
10	101	56	24	21	125	47	213	1350	4510	3580	707	275
11	123	61	24	20	110	51	206	1430	4800	3170	622	265
12	108	52	182	22	110	56	193	1460	5630	2610	604	240
13	40	30	332	23	105	52	208	1440	5350	2150	641	245
14	24	35	136	23	100	74	217	1390	4490	1880	611	230
15	23	34	35	24	80	121	236	1330	3990	1640	799	260
16	24	40	20	26	50	110	228	1250	3940	1540	746	165
17	24	44	20	26	25	113	199	1230	3990	1570	746	120
18	38	60	19	26	25	107	213	1110	4430	1470	834	93
19	108	72	19	120	20	102	263	1290	5430	1400	794	72
20	93	64	57	160	19	106	364	1420	5690	1460	786	68
21	76	51	30	74	18	100	597	1590	5970	1570	738	77
22	80	40	25	25	20	103	1350	1840	5780	1680	685	95
23	82	26	20	20	20	130	1770	1930	5810	1860	606	125
24	82	22	20	25	22	151	1650	2040	5400	1650	585	169
25	112	28	19	120	20	153	1650	2150	5410	1390	520	172
26	81	25	16	240	31	147	1670	2250	4870	1330	552	140
27	55	25	16	95	38	141	1620	2500	5210	1330	578	146
28	32	26	15	25	36	155	1580	2870	5200	1310	559	113
29	30	25	16	20	---	169	1520	3380	4940	1150	526	72
30	30	22	18	19	---	199	1510	3670	4550	1020	526	61
31	34	---	18	35	---	183	---	3670	---	886	533	---
TOTAL	2167	1369	1723	1400	1959	2965	18445	54790	143030	68976	21985	6292
MEAN	69.9	45.6	55.6	45.2	70.0	95.6	615	1767	4768	2225	709	210
MAX	123	74	332	240	235	199	1770	3670	5970	4310	978	507
MIN	23	22	15	19	18	34	59	1110	3470	886	520	61
AC-FT	4300	2720	3420	2780	3890	5880	36590	108700	283700	136800	43610	12480

CAL YR 1982 TOTAL 129092.9 MEAN 354 MAX 2860 MIN 7.0 AC-FT 256100  
WTR YR 1983 TOTAL 325101.0 MEAN 891 MAX 5970 MIN 15 AC-FT 644800

NOTE.--NO GAGE-HEIGHT RECORD NOV. 25 TO FEB. 11.

06752258 CACHE LA POUDDRE RIVER AT SHIELDS STREET AT FORT COLLINS, CO

## WATER-QUALITY RECORDS

LOCATION.--Lat 40°36'11", long 105°05'43", in NE¼SE¼ sec.3, T.7 N., R.69 W., Larimer County, Hydrologic Unit 10190007, at Shields Street bridge, 0.8 mi downstream from Larimer-Weld Canal and 1.0 mi northwest of Fort Collins.

PERIOD OF RECORD.--October 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 08...	1000	--	--	<1	<20	--	9	--	22
NOV 17...	--	1	100	1	<10	1	4	210	23
DEC 16...	100	--	--	<1	3	--	5	--	17
JAN 20...	120	--	--	<1	7	--	2	--	12
FEB 23...	--	1	100	<1	10	1	8	60	20
MAR 24...	140	--	--	<1	5	--	14	--	16
APR 13...	180	--	--	1	3	--	3	--	24
MAY 12...	--	1	<100	<1	<10	1	10	150	59
JUN 10...	440	--	--	<1	3	--	4	--	110
JUL 14...	230	--	--	<1	6	--	1	--	84
AUG 19...	--	<1	<100	<1	<10	<1	2	500	68
SEP 15...	510	--	--	<1	11	--	17	--	77

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 08...	3	--	8	--	--	--	--	20
NOV 17...	2	30	16	.1	1	<1	<1	10
DEC 16...	2	--	11	--	--	--	--	10
JAN 20...	2	--	16	--	--	--	--	30
FEB 23...	2	40	26	<.1	2	1	1	10
MAR 24...	8	--	20	--	--	--	--	10
APR 13...	1	--	15	--	--	--	--	20
MAY 12...	8	10	8	<.1	5	15	<1	10
JUN 10...	<1	--	8	--	--	--	--	10
JUL 14...	1	--	5	--	--	--	--	10
AUG 19...	<1	30	5	.1	<1	3	<1	10
SEP 15...	<1	--	11	--	--	--	--	10

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

[illegible]

## PLATTE RIVER BASIN

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06752258 CACHE LA POUDRE RIVER AT SHIELDS STREET AT FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOS- PHORUS, DIS-SOLVED (MG/L AS P)	MALA- THION, TOTAL (UG/L)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA- NESE, DIS-SOLVED (UG/L AS MN)
OCT 21...	90	.12	13	.120	.140	.020	--	67	4
NOV 10...	150	.21	20	.300	<.060	.010	--	31	8
DEC 06...	210	.28	17	.540	.060	.010	--	26	13
JAN 19...	--	--	--	--	.090	.020	--	22	12
FEB 14...	--	--	--	--	.090	.040	--	34	10
MAR 22...	--	--	--	--	.080	.020	--	29	8
APR 14...	--	--	--	--	.060	.020	--	61	3
MAY 13...	80	.11	301	.140	.150	.020	<.01	120	5
JUN 17...	55	.08	601	<.100	.130	.010	--	79	5
JUL 27...	54	.07	92	<.100	.030	.020	<.01	760	30
AUG 17...	--	--	--	--	.060	.030	--	75	13
31...	--	--	--	--	.070	<.010	--	57	8

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 21...	220	--	--	<1	2	--	3	--	67
NOV 10...	--	<1	<100	<1	<10	<1	1	90	31
DEC 06...	20	--	--	<1	1	--	1	--	26
JAN 19...	100	--	--	1	<1	--	5	--	22
FEB 14...	--	1	--	<1	<10	--	<1	190	34
MAR 22...	100	--	--	<1	<1	--	2	--	29
APR 14...	230	--	--	<1	<1	--	5	--	61
MAY 13...	--	1	--	<1	<10	--	19	2100	120
JUN 17...	2000	--	--	1	8	--	14	--	79
JUL 27...	770	--	--	<1	3	--	5	--	760
AUG 17...	--	1	--	<1	<10	--	4	450	75
31...	260	--	--	<1	<1	--	13	--	57

## PLATTE RIVER BASIN

06752258 CACHE LA POUDE RIVER AT SHIELDS STREET AT FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 21...	1	--	4	--	--	--	--	<10
NOV 10...	5	10	8	.1	<1	2	<1	10
DEC 06...	1	--	13	--	--	--	--	10
JAN 19...	1	--	12	--	--	--	--	10
FEB 14...	<1	10	10	<.1	--	3	1	10
MAR 22...	1	--	8	--	--	--	--	10
APR 14...	4	--	3	--	--	--	--	10
MAY 13...	140	60	5	.1	--	3	<1	30
JUN 17...	27	--	5	--	--	--	--	40
JUL 27...	<1	--	30	--	--	--	--	20
AUG 17...	2	30	13	.1	--	11	<1	30
31...	1	--	8	--	--	--	--	30

## PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
MAY 13...	1415	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010
JUL 27...	1055	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR- EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
MAY 13...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	--	<.01
JUL 27...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAY 13...	<.01	<.10	--	<.1	<1	<.01	.01	<.01	<.01
JUL 27...	<.01	<.10	<.01	<.1	<1	<.01	<.01	<.01	<.01

## PLATTE RIVER BASIN

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06752260 CACHE LA POUDRE RIVER AT FORT COLLINS, CO

LOCATION.--Lat 40°35'17", long 105°04'08", in NE¼SW¼ sec.12, T.7 N., R.69 W., Larimer County, Hydrologic Unit 10190007, on left bank 150 ft downstream from Lincoln Ave. Bridge, and 2,200 ft east of intersection of College Ave. (U.S. Highway 287) and Mountain Ave. in Fort Collins.

DRAINAGE AREA.--1,127 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,940 ft, from topographic map.

REMARKS.--Records good except for period of no gage-height record, which are poor. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions above station for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft<sup>3</sup>/s June 21, 1983, gage height, 8.31 ft; maximum gage height, 8.84 ft, Aug. 1, 1976, from floodmarks; minimum daily discharge, 0.77 ft<sup>3</sup>/s Sept. 16, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,660 ft<sup>3</sup>/s at 0845 June 21, gage height, 8.31 ft; minimum daily, 1.4 ft<sup>3</sup>/s Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	24	30	46	51	6.3	146	1640	3510	3920	520	94
2	1.6	75	30	46	197	9.1	90	1630	4010	3500	605	125
3	1.6	59	30	46	141	11	92	1570	4270	3660	505	144
4	1.4	37	30	46	48	48	92	1530	4330	3420	605	141
5	24	64	30	48	42	105	81	1500	4720	2400	803	166
6	68	81	102	55	24	70	86	1480	4930	1460	878	130
7	83	70	234	46	20	39	155	1460	4600	1090	259	97
8	52	55	172	44	31	42	163	1460	4280	1940	88	97
9	60	53	28	22	57	37	175	1460	4280	2700	115	133
10	68	64	18	9.9	92	26	207	1480	4450	2500	92	155
11	69	55	19	11	103	26	210	1510	4790	2160	128	130
12	38	59	54	15	103	35	207	1530	5540	1410	359	94
13	39	28	270	15	99	28	214	1520	5750	828	668	117
14	56	19	191	15	92	37	214	1460	4930	465	377	138
15	57	26	35	9.1	55	120	217	1390	4370	175	293	234
16	70	22	18	7.3	46	112	220	1310	4290	248	101	285
17	63	33	16	9.9	19	110	197	1350	4320	645	97	172
18	56	55	37	22	11	99	207	1250	4640	685	144	128
19	53	72	28	70	13	94	230	1360	5600	599	220	33
20	46	61	44	185	13	90	281	1450	6070	809	399	7.8
21	50	46	50	138	13	92	702	1550	6080	981	317	11
22	90	33	53	16	8.4	99	1760	1740	5670	1280	169	11
23	55	28	48	9.9	7.8	112	1820	1880	5380	1600	120	86
24	46	28	42	6.3	7.3	141	1720	1940	4920	1190	90	112
25	55	28	18	42	7.8	146	1700	2040	4930	413	86	97
26	68	28	19	194	5.5	138	1720	2090	4420	234	155	70
27	39	28	33	152	5.1	133	1700	2120	4660	588	227	64
28	19	28	39	12	5.9	138	1660	2380	4740	953	220	57
29	14	28	46	4.5	---	149	1640	2800	4460	1020	144	20
30	11	30	46	1.8	---	172	1640	3110	4180	1210	115	8.4
31	24	---	46	1.8	---	182	---	3600	---	853	104	---
TOTAL	1379.2	1317	1856	1346.5	1317.8	2646.4	19546	54590	143120	44936	9003	3157.2
MEAN	44.5	43.9	59.9	43.4	47.1	85.4	652	1761	4771	1450	290	105
MAX	90	81	270	194	197	182	1820	3600	6080	3920	878	285
MIN	1.4	19	16	1.8	5.1	6.3	81	1250	3510	175	86	7.8
AC-FT	2740	2610	3680	2670	2610	5250	38770	108300	283900	89130	17860	6260
CAL YR 1982	TOTAL	55580.9	MEAN	152	MAX	2810	MIN	1.4	AC-FT	110200		
WTR YR 1983	TOTAL	284215.1	MEAN	779	MAX	6080	MIN	1.4	AC-FT	563700		

## PLATTE RIVER BASIN

06752260 CACHE LA POUDRE RIVER AT FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)
OCT									
20...	1530	44	180	185	8.5	10.5	10.8	73	21
NOV									
10...	1500	48	271	286	8.5	7.0	11.2	120	34
DEC									
08...	0820	251	305	295	8.2	.0	12.4	130	37
JAN									
20...	1345	193	340	342	8.2	.5	12.2	140	39
FEB									
16...	0950	49	317	311	8.2	1.5	11.8	--	--
MAR									
22...	1240	95	257	258	8.3	2.5	12.1	--	--
APR									
14...	1330	210	200	210	8.0	6.5	11.5	--	--
MAY									
12...	1700	1620	119	123	7.8	9.0	9.5	51	15
JUN									
23...	1040	5860	60	59	7.6	10.0	9.5	22	6.4
JUL									
26...	1530	265	91	91	7.8	18.0	8.0	38	11
AUG									
18...	0945	236	109	109	8.0	16.0	8.7	--	--
31...	1410	109	126	123	8.5	17.5	9.2	51	15

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT									
20...	5.0	5.9	.3	1.3	66	24	2.5	.20	4.9
NOV									
10...	8.2	7.7	.3	1.3	97	44	3.2	.30	8.2
DEC									
08...	9.6	11	.4	1.6	134	20	5.5	.80	13
JAN									
20...	11	--	--	--	141	--	--	.80	12
FEB									
16...	--	--	--	--	--	--	--	.60	11
MAR									
22...	--	--	--	--	--	--	--	.50	9.7
APR									
14...	--	--	--	--	--	--	--	.60	12
MAY									
12...	3.2	4.7	.3	1.5	47	10	2.1	.60	14
JUN									
23...	1.4	2.2	.2	1.0	22	9.6	.90	.20	8.8
JUL									
26...	2.5	3.4	.3	1.1	35	12	1.5	.30	8.4
AUG									
18...	--	--	--	--	--	--	--	.20	7.4
31...	3.3	4.1	.3	1.1	47	13	1.6	.30	6.6



06752260 CACHE LA POUDRE RIVER AT FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT									
20...	110	.14	13	.140	.020	.160	.080	1.0	.040
NOV									
10...	170	.22	21	.270	<.020	.270	<.060	.50	<.010
DEC									
08...	180	.24	121	.150	.020	.170	.060	1.4	.020
JAN									
20...	--	--	--	--	.020	--	.130	1.1	.020
FEB									
16...	--	--	--	--	.020	--	.080	.90	.040
MAR									
22...	--	--	--	--	.020	--	.060	.50	.010
APR									
14...	--	--	--	--	.020	--	.100	.30	.020
MAY									
12...	80	.11	352	.200	.020	.220	.120	.90	.030
JUN									
23...	44	.06	696	--	<.100	<.100	.160	1.5	.020
JUL									
26...	61	.08	44	.100	<.020	.100	.080	.60	.040
AUG									
18...	--	--	--	--	<.020	--	.050	.70	.030
31...	73	.10	22	.130	<.020	.130	.070	.60	<.010

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT									
20...	190	--	--	<1	2	--	3	--	66
NOV									
10...	--	1	<100	<1	<10	<1	1	100	30
DEC									
08...	170	--	--	1	2	--	2	--	21
JAN									
20...	370	--	--	1	1	--	5	--	21
FEB									
16...	--	1	--	1	10	--	1	150	39
MAR									
22...	90	--	--	1	1	--	2	--	27
APR									
14...	250	--	--	1	1	--	4	--	65
MAY									
12...	--	1	--	<1	<10	--	24	2200	88
JUN									
23...	7300	--	--	<1	14	--	27	--	110
JUL									
26...	470	--	--	<1	2	--	5	--	96
AUG									
18...	--	1	--	<1	<10	--	6	830	67
31...	250	--	--	<1	<1	--	6	--	51

## PLATTE RIVER BASIN

06752260 CACHE LA POUDRE RIVER AT FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
20...	15	--	7	--	--	--	--	20
NOV								
10...	4	10	8	.1	<1	2	<1	10
DEC								
08...	1	--	4	--	--	--	--	10
JAN								
20...	1	--	10	--	--	--	--	10
FEB								
16...	1	20	14	.1	--	3	1	10
MAR								
22...	1	--	9	--	--	--	--	10
APR								
14...	5	--	5	--	--	--	--	10
MAY								
12...	180	60	8	<.1	--	4	1	30
JUN								
23...	23	--	8	--	--	--	--	60
JUL								
26...	<1	--	12	--	--	--	--	10
AUG								
18...	2	40	9	<.1	--	4	1	20
31...	1	--	9	--	--	--	--	10

## PLATTE RIVER BASIN

06752270 CACHE LA POUDRE RIVER BELOW FORT COLLINS, CO

LOCATION.--Lat 40°34'01", long 105°01'36", in NW¼NE¼ sec.20, T.7 N., R.68 W., Larimer County, Hydrologic Unit 10190007, 1.4 mi west of Interstate 25 on Prospect Street in Fort Collins.

PERIOD OF RECORD.--January 1978 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 20...	1315	18	451	460	8.5	10.0	13.6	190	51	16
NOV 12...	1130	77	440	443	8.4	3.0	12.8	170	45	13
DEC 08...	1000	289	340	339	8.1	.0	12.8	140	39	11
JAN 19...	1450	7.0	765	749	8.8	4.0	>20.0	340	89	28
FEB 14...	1340	72	325	328	8.4	5.0	12.6	--	--	--
MAR 21...	1420	95	365	362	8.3	6.0	12.4	--	--	--
APR 13...	1310	187	276	280	8.1	4.5	12.4	--	--	--
JUN 02...	1540	3780	108	--	8.0	9.5	9.5	--	--	--
JUN 23...	1215	5000	77	77	8.7	11.0	9.4	31	9.6	1.6
JUL 27...	1400	751	117	115	7.8	18.5	8.0	50	15	3.1
AUG 17...	0850	88	340	335	7.8	18.0	8.1	--	--	--
SEP 01...	1540	106	260	258	8.6	20.5	10.2	93	26	6.9

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT 20...	22	.7	2.5	148	71	14	.40	6.2	280	.38
NOV 12...	21	.7	2.4	123	78	15	.40	9.1	260	.36
DEC 08...	14	.5	1.7	138	25	8.2	.80	13	200	.27
JAN 19...	--	--	--	228	--	--	.60	9.8	--	--
FEB 14...	--	--	--	--	--	--	.60	11	--	--
MAR 21...	--	--	--	--	--	--	.60	9.8	--	--
APR 13...	--	--	--	--	--	--	.60	11	--	--
JUN 02...	--	--	--	--	--	--	--	--	--	--
JUN 23...	2.6	.2	1.1	31	11	1.1	.20	8.8	55	.07
JUL 27...	4.6	.3	1.1	42	12	2.9	.30	8.7	73	.10
AUG 17...	--	--	--	--	--	--	.40	8.4	--	--
SEP 01...	15	.7	1.8	73	24	13	.40	7.1	140	.19

06752270 CACHE LA POUDRE RIVER BELOW FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)
OCT 20...	14	1.58	.020	1.60	.140	1.7	.140	--	--
NOV 12...	55	1.16	.040	1.20	.160	.90	<.010	--	--
DEC 08...	153	.470	.020	.490	.060	1.5	.080	--	--
JAN 19...	--	--	.030	--	.100	.90	.130	--	--
FEB 14...	--	--	.030	--	.200	.50	.290	--	--
MAR 21...	--	--	.030	--	.390	1.1	.280	--	--
APR 13...	--	--	.030	--	.230	1.0	.080	--	--
JUN 02...	--	--	.020	--	.140	1.4	--	<.1	<.10
JUN 23...	743	--	<.020	<.100	.220	1.3	.060	--	--
JUL 27...	148	.140	<.020	.140	.100	.80	.040	<.1	<.10
AUG 17...	--	--	.030	--	.330	1.3	.120	--	--
SEP 01...	40	.350	.070	.420	.480	1.1	.100	--	--
DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 20...	270	--	--	<1	2	--	2	--	36
NOV 12...	--	1	<100	<1	<10	<1	2	150	42
DEC 08...	270	--	--	<1	3	--	2	--	18
JAN 19...	100	--	--	1	<1	--	5	--	18
FEB 14...	--	1	--	<1	<10	--	2	630	22
MAR 21...	120	--	--	<1	<1	--	4	--	28
APR 13...	310	--	--	<1	<1	--	5	--	63
JUN 02...	--	1	--	1	<10	--	22	5600	--
JUN 23...	7700	--	--	<1	23	--	34	--	88
JUL 27...	1900	--	--	<1	10	--	17	--	100
AUG 17...	--	1	--	<1	<10	--	41	470	46
SEP 01...	230	--	--	<1	<1	--	17	--	30

## PLATTE RIVER BASIN

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06752270 CACHE LA POUDRE RIVER BELOW FORT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 20...	3	--	23	--	--	--	--	20
NOV 12...	5	30	16	.1	<1	1	1	10
DEC 08...	1	--	6	--	--	--	--	10
JAN 19...	2	--	36	--	--	--	--	10
FEB 14...	<1	30	14	.1	--	6	1	20
MAR 21...	<1	--	15	--	--	--	--	30
APR 13...	6	--	9	--	--	--	--	20
JUN 02...	37	110	--	.1	--	8	<1	60
JUL 23...	36	--	7	--	--	--	--	80
JUL 27...	1	--	18	--	--	--	--	30
AUG 17...	3	50	27	<.1	--	10	1	60
SEP 01...	3	--	14	--	--	--	--	20

## PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 02...	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010
JUL 27...	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR- EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JUN 02...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	<.01	<.01
JUL 27...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 02...	<.01	<.01	<.1	<1	<.01	.03	<.01	<.01
JUL 27...	<.01	<.01	<.1	<1	<.01	.02	<.01	<.01

## PLATTE RIVER BASIN

06752280 CACHE LA POUDRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO

LOCATION.--Lat 40°32'56", long 105°00'28", in NW¼NE¼ sec.28, T.7 N., R.68 W., Larimer County, Hydrologic Unit 10190007, on left bank 2,100 ft upstream from Box Elder Creek, 2.0 mi upstream from Interstate Highway 25 bridge and 3.8 mi southeast of intersection of College Avenue and Prospect Street in Fort Collins.

DRAINAGE AREA.--1,245 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,860 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions above station for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,810 ft<sup>3</sup>/s June 21, 1983, gage height, 8.02 ft; minimum daily, 3.0 ft<sup>3</sup>/s Oct. 4, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,810 ft<sup>3</sup>/s at 1230 June 21, gage height, 8.02 ft; minimum daily, 8.9 ft<sup>3</sup>/s Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	12	19	17	24	28	100	1270	3490	3620	419	112
2	33	29	15	17	152	26	66	1200	3710	3250	458	125
3	32	31	16	17	198	26	65	1130	3850	3200	409	171
4	30	19	16	17	50	44	65	1150	3810	3080	446	145
5	25	15	17	17	44	114	61	1150	4100	2340	554	184
6	25	19	37	17	42	81	57	1140	4290	1530	648	161
7	19	18	190	17	38	64	84	1120	4310	1250	267	114
8	14	16	159	18	28	58	94	1130	4250	1600	114	104
9	14	16	22	18	17	57	100	1150	4250	2210	134	148
10	14	18	20	18	22	52	130	1200	4390	2080	117	171
11	14	18	19	18	28	50	124	1230	4550	1820	120	161
12	15	18	20	18	26	48	114	1240	4960	1270	263	109
13	18	17	242	18	25	48	114	1240	5180	898	500	137
14	20	16	217	19	25	48	114	1180	4710	634	333	161
15	22	16	62	20	20	88	128	1100	4330	373	284	215
16	20	16	62	20	21	91	148	1030	4230	315	123	279
17	19	17	34	20	23	85	126	1130	4230	590	96	191
18	14	17	18	20	24	82	134	994	4370	641	134	164
19	14	18	18	20	23	81	160	1070	4830	578	171	62
20	10	19	18	24	20	79	225	1220	5350	683	320	33
21	9.1	18	18	28	20	79	395	1460	5460	778	284	33
22	14	17	18	24	23	80	946	1760	5180	1000	191	31
23	9.1	17	18	22	28	80	1720	1930	4910	1190	148	84
24	8.9	16	18	19	34	92	1570	2030	4630	978	99	125
25	9.1	17	17	18	35	100	1490	2150	4610	470	89	112
26	12	17	17	58	34	92	1490	2200	4230	297	135	89
27	13	17	17	95	34	85	1370	2330	4310	419	230	64
28	12	17	17	18	30	89	1280	2580	4350	662	204	62
29	11	17	17	17	---	92	1270	3180	4130	676	137	48
30	11	19	17	17	---	113	1290	3320	3890	858	128	36
31	11	---	17	17	---	120	---	3670	---	641	123	---
TOTAL	525.2	537	1412	703	1088	2272	15030	49684	132890	39931	7678	3631
MEAN	16.9	17.9	45.5	22.7	38.9	73.3	501	1603	4430	1288	248	121
MAX	33	31	242	95	198	120	1720	3670	5460	3620	648	279
MIN	8.9	12	15	17	17	26	57	994	3490	297	89	31
AC-FT	1040	1070	2800	1390	2160	4510	29810	98550	263600	79200	15230	7200
CAL YR 1982 TOTAL	42872.7			MEAN 117	MAX 3000	MIN 3.3	AC-FT 85040					
WTR YR 1983 TOTAL	255381.2			MEAN 700	MAX 5460	MIN 8.9	AC-FT 506500					

06752280 CACHE LA POUDRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 20...	1050	11	2110	2040	8.1	9.0	12.2	1000	250	97
NOV 12...	0940	18	2110	2230	8.4	3.0	11.7	1200	270	120
DEC 08...	1230	198	600	571	8.4	.0	13.0	260	66	24
JAN 20...	1100	20	2460	2430	8.1	2.5	13.2	1200	280	130
FEB 14...	1150	27	1330	1260	8.2	5.0	13.0	--	--	--
MAR 21...	1220	78	1140	1080	8.4	5.0	13.7	--	--	--
APR 13...	1050	111	400	401	8.1	4.0	12.8	--	--	--
MAY 12...	1215	1300	186	193	8.1	9.5	9.6	76	21	5.7
JUN 23...	1640	4650	98	97	8.9	12.0	9.0	39	12	2.1
JUL 26...	1245	259	225	219	7.9	18.0	7.6	85	24	6.2
AUG 18...	1230	166	330	326	8.0	20.0	8.2	--	--	--
SEP 01...	1320	114	393	383	8.1	19.0	9.8	140	38	11

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT 20...	110	2	6.2	192	1000	25	1.0	9.3	1600	2.2
NOV 12...	140	2	5.6	226	1200	25	.80	11	1900	2.6
DEC 08...	29	.8	2.2	149	150	10	.80	13	380	.52
JAN 20...	--	--	--	251	--	--	.80	12	--	--
FEB 14...	--	--	--	--	--	--	.80	11	--	--
MAR 21...	--	--	--	--	--	--	.60	9.5	--	--
APR 13...	--	--	--	--	--	--	.60	11	--	--
MAY 12...	7.9	.4	1.7	53	32	3.4	.60	14	120	.16
JUN 23...	3.0	.2	1.1	35	11	1.3	.20	9.7	62	.08
JUL 26...	10	.5	1.6	63	31	8.0	.30	9.2	130	.18
AUG 18...	--	--	--	--	--	--	.50	8.5	--	--
SEP 01...	22	.8	2.7	86	73	14	.70	7.6	230	.31

06752280 CACHE LA POUDRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)
OCT									
20...	48	1.87	.030	1.90	.160	1.6	.110	--	--
NOV									
12...	94	3.76	.040	3.80	.140	1.6	.170	--	--
DEC									
08...	206	.920	.020	.940	.060	1.6	.080	--	--
JAN									
20...	--	--	.040	--	.200	1.5	.050	--	--
FEB									
14...	--	--	.030	--	.160	1.0	.110	--	--
MAR									
21...	--	--	.020	--	.160	1.0	.110	--	--
APR									
13...	--	--	.020	--	.120	.90	.060	--	--
MAY									
12...	416	.260	<.020	.260	.160	1.0	.050	<.1	<.10
JUN									
23...	776	.100	<.020	.100	.160	1.5	.070	--	--
JUL									
26...	91	.270	.020	.290	.170	.90	.070	<.1	<.10
AUG									
18...	--	--	.040	--	.180	1.1	.460	--	--
SEP									
01...	70	1.48	.120	1.60	.230	1.1	.760	--	--
DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT									
20...	130	--	--	<1	4	--	1	--	50
NOV									
12...	--	1	<100	<1	<10	<1	2	490	60
DEC									
08...	360	--	--	1	2	--	3	--	15
JAN									
20...	360	--	--	1	1	--	6	--	30
FEB									
14...	--	1	--	1	10	--	2	660	16
MAR									
21...	190	--	--	1	1	--	2	--	25
APR									
13...	300	--	--	1	1	--	5	--	38
MAY									
12...	--	1	--	<1	<10	--	17	2500	93
JUN									
23...	5400	--	--	<1	13	--	21	--	140
JUL									
26...	720	--	--	<1	3	--	8	--	71
AUG									
18...	--	1	--	<1	<10	--	6	780	47
SEP									
01...	250	--	--	<1	3	--	10	--	27



06752280 CACHE LA POUDRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 20...	<1	--	50	--	--	--	--	10
NOV 12...	5	70	40	.2	4	5	11	20
DEC 08...	2	--	11	--	--	--	--	10
JAN 20...	2	--	80	--	--	--	--	20
FEB 14...	1	80	54	.1	--	5	7	20
MAR 21...	5	--	32	--	--	--	--	10
APR 13...	5	--	13	--	--	--	--	20
MAY 12...	170	60	10	<.1	--	2	1	40
JUN 23...	20	--	9	--	--	--	--	60
JUL 26...	<1	--	21	--	--	--	--	20
AUG 18...	3	60	20	.1	--	9	1	30
SEP 01...	1	--	20	--	--	--	--	30

## PESTICIDE ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
MAY 12...	<.010	<.1	<.010	<.010	<.010	<.01	<.010	<.010
JUL 26...	<.010	<.1	<.010	<.010	<.010	.01	<.010	<.010

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
MAY 12...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	--	<.01
JUL 26...	<.010	<.01	<.010	<.010	<.010	<.01	<.01	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAY 12...	<.01	--	<.1	<1	<.01	.02	<.01	<.01
JUL 26...	<.01	<.01	<.1	<1	<.01	.02	<.01	<.01

## PLATTE RIVER BASIN

06752500 CACHE LA POUDE RIVER NEAR GREELEY, CO

LOCATION.--Lat 40°25'04", long 104°38'22", in NW¼ sec.11, T.5 N., R.65 W., Weld County, Hydrologic Unit 10190007, on right bank 25 ft downstream from highway bridge, 2.9 mi east of courthouse in Greeley, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--1,877 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, March to October 1903, August to November 1904, January 1914 to December 1919, June 1924 to current year. Monthly discharge only for some periods, published in WSP 1310. Water-quality data available, November 1951 to September 1952, August 1954 to August 1956, December 1963 to September 1966, October 1967 to September 1968, October 1970 to September 1982.

REVISED RECORDS.--WSP 1440: 1935, 1938(M), 1942-43. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,610 ft, from topographic map. See WSP 1710 or 1730 for history of changes prior to Dec. 14, 1933.

REMARKS.--Records good. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions above station for irrigation of about 250,000 acres, and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--64 years (water years 1915-19, 1925-83), 126 ft<sup>3</sup>/s; 91,290 acre-ft/yr

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,360 ft<sup>3</sup>/s June 14, 1983; gage height, 8.92 ft; maximum gage height, 8.95 ft, June 22, 1983; minimum daily discharge, 0.8 ft<sup>3</sup>/s Oct. 3, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,360 ft<sup>3</sup>/s at 0300 June 14, gage height, 8.92 ft; maximum gage height, 8.95 ft at 1000 June 22; minimum daily discharge, 96 ft<sup>3</sup>/s Nov. 14, Feb. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	124	195	160	110	147	358	2040	3920	4040	840	173
2	161	119	198	160	128	131	320	1860	3820	3700	573	165
3	151	131	198	170	280	119	292	1750	4250	3350	421	167
4	146	135	203	175	135	123	301	1660	4550	3790	301	207
5	144	123	200	185	112	207	301	1680	4720	3170	424	238
6	159	110	210	187	109	222	286	1550	4820	1850	759	225
7	153	111	298	191	106	182	289	1450	4820	1120	674	195
8	161	113	421	182	103	146	348	1390	4740	850	396	175
9	138	113	310	175	100	155	355	1410	4520	2010	240	165
10	135	114	217	173	97	157	368	1420	4440	2340	210	191
11	135	123	210	182	96	119	424	1350	4580	2300	189	212
12	140	119	203	178	96	108	407	1350	5110	1780	191	203
13	144	105	300	173	97	113	365	1460	6030	1150	476	189
14	140	96	491	171	113	131	358	1500	6090	715	515	207
15	147	97	318	167	111	147	355	1430	5360	407	435	230
16	135	103	212	116	110	189	390	1370	4910	283	320	310
17	133	108	203	106	114	178	379	1770	4820	260	193	271
18	138	103	193	108	116	173	365	1610	4840	568	165	220
19	144	102	186	105	123	161	379	1580	5010	618	175	198
20	142	103	193	106	118	155	432	1740	5400	609	240	151
21	138	102	193	111	124	155	560	1870	5600	765	335	140
22	133	102	191	111	121	254	977	2070	5540	1260	304	133
23	133	102	193	108	121	257	2010	2290	4970	1610	222	131
24	126	98	189	108	130	277	2300	2350	4740	1690	193	149
25	126	97	153	113	140	332	2130	2400	4420	870	163	163
26	130	97	191	113	140	326	2140	2420	4490	432	155	155
27	133	97	235	165	140	298	2070	2430	4200	320	210	142
28	133	97	227	173	151	298	1920	2440	4250	629	249	140
29	124	100	180	114	---	313	1880	2900	4340	770	257	140
30	126	152	140	110	---	342	2020	3360	4280	1210	205	130
31	123	---	160	110	---	362	---	3680	---	1260	175	---
TOTAL	4322	3296	7011	4506	3441	6277	25079	59480	143580	45726	10205	5515
MEAN	139	110	226	145	123	202	836	1919	4786	1475	329	184
MAX	161	152	491	191	230	362	2300	3680	6090	4040	840	310
MIN	123	96	140	105	96	108	286	1350	3820	260	155	130
AC-FT	8570	6540	13910	8940	6830	12450	49740	118000	284800	90700	20240	10940
CAL YR 1982	TOTAL	64099.7	MEAN	176	MAX	3070	MIN	6.0	AC-FT	127100		
WTR YR 1983	TOTAL	318438.0	MEAN	872	MAX	6090	MIN	96	AC-FT	631600		

## PLATTE RIVER BASIN

173

06754000 SOUTH PLATTE RIVER NEAR KERSEY, CO

LOCATION.--Lat 40°24'44", long 104°33'46", in NW¼SW¼ sec.9, T.5 N., R.64W., Weld County, Hydrologic Unit 10190003, on downstream side of bridge on State Highway 37, 1.9 mi north of railroad in Kersey, and 2.5 mi downstream from Cache la Poudre River.

DRAINAGE AREA.--9,598 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1901 to December 1903, March 1905 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as "at Kersey" 1901-3.

REVISED RECORDS.--WSP 1310: 1902, 1906, 1935(M). WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,575.77 ft, National Geodetic Vertical Datum of 1929. See WSP 1710 or 1730 for history of changes prior to July 3, 1935.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 888,000 acres, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--71 years (water years 1902-03, 1906-74), 777 ft<sup>3</sup>/s; 562,900 acre-ft/yr, prior to completion of Chatfield Dam; 8 years (water years 1976-83), 1,317 ft<sup>3</sup>/s; 954,200 acre-ft/yr, subsequent to completion of Chatfield Dam. The figure of average discharge was published in error in the reports for water years 1980-82, the correct figures are: 1980, 5 years (water years 1976-80), 1,132 ft<sup>3</sup>/s; 820,100 acre-ft/yr; 1981, 6 years (water years 1976-81), 1,041 ft<sup>3</sup>/s; 753,500 acre-ft/yr; 1982, 7 years (water years 1976-82), 986 ft<sup>3</sup>/s; 714,400 acre-ft/yr, subsequent to completion of Chatfield Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,500 ft<sup>3</sup>/s May 8, 1973, gage height, 11.73 ft; minimum daily, 28 ft<sup>3</sup>/s Apr. 30, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,600 ft<sup>3</sup>/s at 0230 June 14, gage height, 10.00 ft; minimum daily, 668 ft<sup>3</sup>/s Feb. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	912	1160	1100	948	905	804	2180	8550	14900	12600	2940	1560
2	940	1310	1070	980	926	798	2260	8520	14200	12500	2380	1330
3	933	1200	1050	1000	1040	756	2140	8150	14800	11600	2220	1170
4	912	1220	1030	980	940	734	2160	7470	14600	11300	2020	1180
5	891	1160	1160	996	877	926	2280	7410	14700	10300	2140	1200
6	905	1050	1150	1060	846	3470	2340	6920	15600	8120	3290	1330
7	980	1000	1100	1260	828	2720	2420	6340	14700	6530	3840	1480
8	972	1040	1180	1230	828	2040	2430	5970	14300	5500	3490	1360
9	1080	1030	1100	1290	768	1770	2360	6020	13900	6210	2770	1280
10	1290	1060	1000	1200	712	1570	2310	5920	13800	6900	2220	1260
11	948	1210	1140	1200	673	1430	2380	5790	14500	8900	1950	1170
12	877	1080	1490	1150	668	1370	2540	6370	15100	8830	1620	1060
13	912	1100	1250	1190	768	1310	2610	6730	16400	5990	1800	1040
14	1150	956	1310	1160	852	1200	2820	6900	16600	4260	2120	1110
15	1120	996	1180	1170	919	1220	2730	6760	14400	3330	2380	1120
16	1080	1020	1020	964	858	2120	2570	6180	13200	2560	2610	1220
17	1040	1060	1010	919	864	2780	2300	7200	12800	2340	1940	1320
18	1000	1060	996	940	858	2530	2190	11000	13000	2530	1640	1190
19	1000	1090	940	884	858	2320	2140	10800	13600	2340	1650	1140
20	1140	1110	940	905	919	2300	2020	11800	15000	1940	1870	1170
21	1090	1100	988	919	877	2260	2190	12800	15800	1900	2280	1090
22	1040	1050	1060	919	822	2300	3900	11000	15300	2970	2310	996
23	1050	1020	972	912	834	2010	6830	11800	14500	6420	2140	1000
24	1010	1000	988	877	816	1920	7730	11800	13900	6240	2040	1010
25	980	972	810	919	774	2080	7530	12000	13400	5320	1970	1030
26	996	948	864	912	780	2280	7940	12200	13900	4500	1830	1030
27	948	940	988	980	756	2200	8460	11800	14700	3800	1700	1050
28	933	933	980	972	768	2060	8460	11500	15600	3710	1660	1000
29	972	972	980	898	---	2020	8240	11600	14600	3430	1530	980
30	1030	1040	933	912	---	2070	8360	12400	13700	3230	1660	1000
31	1010	---	948	905	---	2040	---	13600	---	3200	1400	---
TOTAL	31141	31887	32727	31551	23334	57408	116820	283300	435500	179300	67410	34876
MEAN	1005	1063	1056	1018	833	1852	3894	9139	14520	5784	2175	1163
MAX	1290	1310	1490	1290	1040	3470	8460	13600	16600	12600	3840	1560
MIN	877	933	810	877	668	734	2020	5790	12800	1900	1400	980
AC-FT	61770	63250	64910	62580	46280	113900	231700	561900	863800	355600	133700	69180
CAL YR 1982	TOTAL	285185	MEAN	781	MAX	5640	MIN	61	AC-FT	565700		
WTR YR 1983	TOTAL	1325254	MEAN	3631	MAX	16600	MIN	668	AC-FT	2629000		

## PLATTE RIVER BASIN

## 06756995 SOUTH PLATTE RIVER AT MASTERS, CO

LOCATION.--Lat 40°18'22", long 104°14'40", in SE¼ sec.18, T.4 N., R.61 W., Weld County, Hydrologic Unit 10190003, on right bank at bridge on Weld County Road 87, 1.0 mi north of U.S. Highway 34 at Masters.

DRAINAGE AREA.--12,119 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,450 ft, from topographic map.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. Natural flow of stream affected by transmountain, transbasin, and storage diversions, power developments, ground-water withdrawals and diversions for irrigation, and return flows from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft<sup>3</sup>/s May 2, 1980, gage height, 10.06 ft; minimum daily, 3.5 ft<sup>3</sup>/s Mar. 16, 18, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,300 ft<sup>3</sup>/s at 1600 June 14, gage height 9.37 ft; minimum daily, 296 ft<sup>3</sup>/s Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	381	362	655	1130	905	677	1730	6460	9140	6600	2510	1350
2	386	405	642	1110	877	641	1900	6570	9050	6090	1900	1320
3	376	410	622	1090	961	683	1790	6670	8720	5470	1660	1260
4	386	512	636	1060	929	593	1690	6020	8830	5110	1620	1180
5	362	566	690	1040	863	555	1760	5580	9050	5050	1670	1200
6	390	536	774	1020	828	1200	1860	5370	9140	3910	2320	1320
7	376	512	711	990	807	2030	2020	5150	9420	2800	3550	1400
8	415	524	819	1010	765	1590	2030	4810	8660	3210	3090	1380
9	437	506	867	1030	716	1290	2050	4830	8440	2920	2510	1210
10	655	542	746	1060	716	1090	2060	4870	8350	3140	1920	1120
11	629	572	795	1090	695	993	2110	4850	8410	3800	1720	1090
12	524	512	920	1060	671	913	2310	5010	8740	5010	1600	1020
13	506	518	1060	1060	716	929	2260	5730	9360	3340	1600	996
14	494	454	1110	1100	835	807	2340	5650	10000	2110	1810	1080
15	548	415	1090	1180	793	779	2320	5730	9390	2050	2100	1160
16	454	400	952	1130	786	1020	2210	5350	8070	2000	2460	1210
17	442	437	909	1050	772	1400	2050	5430	7200	2000	1860	1320
18	442	442	996	1020	751	1800	1990	7200	6820	1960	1550	1320
19	454	494	934	969	758	1750	1990	8770	6900	1920	1440	1250
20	476	530	900	921	716	1700	1930	8910	7520	1710	1550	1260
21	542	512	892	937	702	1690	2000	9470	8440	1620	1930	1260
22	506	470	918	945	765	1680	2840	8440	8460	1990	2170	1160
23	376	524	952	937	751	1600	4630	7740	8040	3650	2090	1140
24	313	506	969	891	716	1460	6720	8020	7570	5010	2020	1150
25	300	494	943	884	665	1530	6820	7880	7170	5150	1860	1110
26	317	518	900	891	635	1660	6670	8040	6770	3330	1740	1130
27	313	500	1040	884	623	1730	6740	8040	7270	3000	1590	1160
28	296	530	1070	945	629	1740	6700	7720	8180	3030	1630	1120
29	309	584	1100	898	---	1650	6420	7640	8040	2860	1480	1090
30	357	596	1150	870	---	1700	6390	7900	7300	2590	1540	1100
31	344	---	1150	913	---	1730	---	8440	---	2630	1400	---
TOTAL	13106	14883	27912	31115	21346	40610	96330	208290	248450	105060	59890	35866
MEAN	423	496	900	1004	762	1310	3211	6719	8282	3389	1932	1196
MAX	655	596	1150	1180	961	2030	6820	9470	10000	6600	3550	1400
MIN	296	362	622	870	623	555	1690	4810	6770	1620	1400	996
AC-FT	26000	29520	55360	61720	42340	80550	191100	413100	492800	208400	118800	71140
CAL YR 1982	TOTAL	166850	MEAN	457	MAX	3870	MIN	31	AC-FT	330900		
WTR YR 1983	TOTAL	902858	MEAN	2474	MAX	10000	MIN	296	AC-FT	1791000		

06756995 SOUTH PLATTE RIVER AT MASTERS, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to September 1979. March 1982 to Current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
18...	1500	462	1550	8.2	15.0	1.0	9.0
NOV							
09...	1420	523	1360	8.2	5.5	12	10.0
DEC							
15...	1515	1160	1290	8.0	2.5	2.0	10.4
JAN							
18...	1100	1050	1420	8.2	2.0	17	10.0
FEB							
09...	1500	745	1440	8.3	3.0	12	10.3
MAR							
23...	1040	1600	1260	8.0	5.0	37	9.4
APR							
12...	1500	2280	1080	8.0	6.5	40	8.6
MAY							
11...	1720	4410	580	8.0	13.0	80	8.0
JUN							
16...	1430	8040	406	8.0	22.0	80	6.0
JUL							
19...	1500	2030	882	8.1	25.0	70	6.3
AUG							
16...	1430	2580	860	8.0	26.5	150	6.2
SEP							
02...	1420	1410	1200	8.2	24.5	40	7.7

DATE	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI KF AGAR (COLS. PER 100 ML)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT							
18...	510	K63	K160	5.50	3.1	8.6	.810
NOV							
09...	--	K8200	K1700	6.20	1.8	8.0	.950
DEC							
15...	K11000	1000	1600	4.90	6.5	11	1.70
JAN							
18...	K8200	940	880	6.00	4.2	10	1.70
FEB							
09...	740	K19	240	5.80	4.4	10	1.70
MAR							
23...	860	K93	5600	4.10	2.8	6.9	1.10
APR							
12...	K2500	500	K6200	4.50	2.5	7.0	1.00
MAY							
11...	K4200	1400	3600	2.00	1.9	3.9	.730
JUN							
16...	2000	430	720	1.00	1.3	2.3	.340
JUL							
19...	4000	1900	2500	3.00	1.8	4.8	.510
AUG							
16...	4400	2500	2300	2.80	2.6	5.4	.960
SEP							
02...	940	540	620	3.60	1.6	5.2	.630

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO

LOCATION.--Lat 40°19'19", long 103°55'17", in SW¼SW¼ sec.7, T.4 N., R.58 W., Morgan County, Hydrologic Unit 10190003, on left bank 400 ft downstream from bridge on State Highway 144, 2.8 mi southeast of Weldona, and 4.2 mi upstream from Bijou Creek.

DRAINAGE AREA.--13,245 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1710: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,307.80 ft, National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--22 years (water years 1953-74), 572 ft<sup>3</sup>/s; 414,400 acre-ft/yr, prior to completion of Chatfield Dam. 8 years (water years 1976-83), 931 ft<sup>3</sup>/s; 674,500 acre-ft/yr, subsequent to completion of Chatfield Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft<sup>3</sup>/s May 8, 1973, gage height, 11.68 ft, from rating curve extended above 16,000 ft<sup>3</sup>/s; minimum daily, 39 ft<sup>3</sup>/s May 19, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,700 ft<sup>3</sup>/s at 1300 June 29, gage height, 9.58 ft; maximum gage height, 9.72 ft at 0600 June 15; minimum daily discharge, 325 ft<sup>3</sup>/s Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	407	392	783	1070	909	671	1830	6790	11100	12200	2340	1350
2	402	443	811	1090	909	671	1920	6790	12400	10900	2030	1550
3	423	470	790	1110	923	665	1970	6660	12000	9990	1720	1380
4	418	518	783	1130	994	665	1910	6320	11600	8890	1690	1330
5	412	588	790	1130	923	659	1910	5700	12100	8660	1650	1330
6	407	588	888	1070	895	707	2000	5590	12600	7690	2010	1400
7	438	583	881	1060	839	2140	2060	5210	13500	5450	3050	1470
8	443	572	888	1220	811	2070	2060	4900	13000	4360	3100	1540
9	464	566	946	1280	797	1670	2080	4740	11900	4340	2810	1400
10	501	572	916	1230	770	1380	2080	4770	11400	4480	2150	1320
11	665	600	846	1170	777	1250	2210	4800	11500	5340	1700	1310
12	600	623	946	1160	777	1160	2250	4870	11900	7380	1500	1270
13	518	600	1130	1180	790	1070	2360	5620	12800	6540	1420	1190
14	523	588	1050	1190	818	1060	2450	5590	14600	4160	1710	1180
15	572	528	1100	1190	832	1010	2620	5730	15300	3150	2010	1200
16	545	518	1030	1160	853	1020	2600	5480	13000	2520	2430	1210
17	491	534	946	1060	853	1600	2430	5480	11100	2200	2180	1270
18	464	545	923	1010	818	2160	2240	6480	10100	2200	1700	1320
19	459	588	916	994	797	2100	2150	8850	10000	2270	1490	1260
20	464	617	895	978	783	2000	2070	9040	10900	2020	1500	1250
21	512	623	874	954	751	1960	2010	9990	12200	1780	1670	1260
22	512	623	867	946	738	1940	2240	10700	13500	1860	1900	1230
23	480	629	881	954	744	1920	3610	8660	13300	2840	1890	1130
24	325	671	874	946	738	1750	5560	8930	12400	4380	1770	1130
25	348	647	860	923	725	1750	6660	8970	11800	5080	1710	1120
26	348	629	818	923	683	1860	6380	9080	11000	3590	1670	1130
27	363	629	881	938	665	1970	6690	9470	11600	2790	1510	1010
28	358	629	978	962	659	1940	6850	9240	12800	2770	1510	978
29	353	677	1000	970	---	1840	6890	8850	14900	2740	1400	946
30	368	764	1060	938	---	1820	6690	9200	13100	2380	1360	946
31	372	---	1070	916	---	1850	---	10000	---	2410	1400	---
TOTAL	13955	17554	28421	32852	22571	46328	96780	222500	369400	147360	57980	37410
MEAN	450	585	917	1060	806	1494	3226	7177	12310	4754	1870	1247
MAX	665	764	1130	1280	994	2160	6890	10700	15300	12200	3100	1550
MIN	325	392	783	916	659	659	1830	4740	10000	1780	1360	946
AC-FT	27680	34820	56370	65160	44770	91890	192000	441300	732700	292300	115000	74200
CAL YR 1982	TOTAL	171111	MEAN	469	MAX	3000	MIN	42	AC-FT	339400		
WTR YR 1983	TOTAL	1093111	MEAN	2995	MAX	15300	MIN	325	AC-FT	2168000		

## PLATTE RIVER BASIN

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06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1967 to September 1968, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: March 1977 to March 1979, April 1982 to October 1982, April 1983 to September 1983.

EXTREMES FOR PERIOD OF PUBLISHED DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 8,050 mg/L August 14, 1982; minimum daily, 8 mg/L Oct. 14, 1977.

SEDIMENT LOADS: Maximum daily, 69,400 tons June 15, 1983; minimum daily, 1.7 tons Apr. 16, 1982.

EXTREMES FOR 1982 WATER YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 8,050 mg/L Aug. 14; minimum daily, 15 mg/L April 16, 17.

SEDIMENT LOADS: Maximum daily, 22,900 tons Sept. 17; minimum daily, 1.7 tons April 16, 17.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 3,250 mg/L July 29; minimum daily, 53 mg/L Sept. 25, 26.

SEDIMENT LOADS: Maximum daily, 69,400 tons June 15; minimum daily, 160 tons Sept. 25.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)
OCT									
18...	1115	480	1820	1800	8.0	12.0	10.0	690	160
NOV									
09...	1120	566	1500	1550	8.3	5.0	10.9	550	130
DEC									
15...	1200	1100	1490	1340	8.2	1.5	11.6	440	100
JAN									
18...	1300	970	1490	1490	8.0	1.5	8.0	470	110
FEB									
09...	1200	820	1490	1460	8.2	1.0	11.4	500	120
MAR									
23...	1300	1920	1290	1330	8.4	6.5	9.9	420	95
APR									
12...	1045	2250	1130	1180	8.1	7.0	9.4	410	93
MAY									
11...	1245	4800	640	631	8.1	13.5	8.0	210	53
JUN									
16...	1140	13100	406	450	8.0	18.5	6.8	160	41
JUL									
20...	1100	2230	1050	977	8.1	24.5	7.0	360	83
AUG									
16...	1100	2430	1040	959	8.2	24.0	6.8	360	81
SEP									
02...	1030	1550	1290	1190	8.3	22.5	7.8	410	89

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT									
18...	70	170	3	7.9	265	640	74	1.1	16
NOV									
09...	54	140	3	7.0	240	490	67	1.1	13
DEC									
15...	46	110	2	6.3	215	400	60	1.0	13
JAN									
18...	47	130	3	7.0	218	440	77	1.1	13
FEB									
09...	49	130	3	7.1	235	430	68	1.0	14
MAR									
23...	44	120	3	6.1	164	380	83	1.0	11
APR									
12...	42	110	2	5.2	159	380	70	1.0	10
MAY									
11...	20	50	2	3.6	105	170	28	.90	12
JUN									
16...	13	31	1	3.2	94	110	16	.70	12
JUL									
20...	37	83	2	4.8	161	330	36	.90	13
AUG									
16...	38	86	2	4.8	168	310	39	.90	11
SEP									
02...	46	110	2	5.5	179	410	41	1.1	11

## PLATTE RIVER BASIN

06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS- PHORUS, DIS-SOLVED (MG/L AS P)	ALGAL GROWTH POTENTIAL, BOTTLE TEST (MG/L)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA- NESE, DIS-SOLVED (UG/L AS MN)
OCT 18...	1300	1.8	1680	5.90	.410	--	4	17
NOV 09...	1000	1.4	1600	5.70	.660	--	10	8
DEC 15...	870	1.1	2570	5.40	.780	--	26	10
JAN 18...	960	1.3	2500	5.80	1.30	--	11	13
FEB 09...	960	1.3	2130	5.90	1.30	--	11	18
MAR 23...	840	1.1	4350	4.30	.640	--	13	13
APR 12...	810	1.1	4900	4.50	.600	35	15	14
MAY 11...	400	.54	5190	2.10	.050	61	19	7
JUN 16...	280	.39	9980	.970	.140	36	48	14
JUL 20...	680	.93	4120	3.20	.280	19	27	13
AUG 16...	670	.91	4410	2.80	.350	28	130	9
SEP 02...	820	1.1	3440	3.00	.290	23	8	6

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
APR 28...	1440	6760	763	13900	55	AUG 18...	1630	1660	243	1090	69
MAY 10...	1440	4840	630	8230	49	SEP 01...	1520	1420	581	2230	29
JUL 05...	1300	8740	472	11100	52	SEP 15...	1605	1190	148	476	57



## PLATTE RIVER BASIN

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06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY				JUNE	
1	165	80	36	98	53	14	204	66	36
2	160	80	35	104	53	15	226	67	41
3	159	80	34	117	50	16	263	95	67
4	158	80	34	122	59	19	308	77	64
5	155	80	33	127	56	19	285	64	49
6	154	79	33	131	44	16	185	57	28
7	155	62	26	130	45	16	180	78	38
8	142	45	17	136	110	40	178	79	38
9	131	40	14	148	115	46	164	51	23
10	126	40	14	147	95	38	153	35	14
11	124	48	16	142	64	25	142	27	10
12	149	70	28	141	45	17	148	30	12
13	96	46	12	151	68	28	150	60	24
14	42	34	3.9	454	1220	1340	203	269	160
15	42	25	2.8	960	550	1430	308	170	141
16	42	15	1.7	336	119	118	441	200	238
17	43	15	1.7	204	46	25	432	250	292
18	43	28	3.3	147	57	23	376	135	137
19	67	115	24	122	76	25	359	135	131
20	146	86	34	135	400	146	441	272	324
21	167	65	29	138	92	34	359	304	320
22	166	68	30	142	46	18	200	84	45
23	140	59	22	136	59	22	142	49	19
24	127	70	24	118	81	26	128	49	17
25	125	74	25	124	79	26	104	65	18
26	124	41	14	130	61	21	843	2900	10100
27	113	27	8.2	173	76	35	1920	1440	7860
28	111	41	12	244	143	94	1620	530	2320
29	102	45	12	225	39	24	1490	350	1410
30	98	35	9.3	153	32	13	1510	420	1710
31	---	---	---	148	77	31	---	---	---
TOTAL	3572	---	588.9	5783	---	3760	13462	---	25686
JULY				AUGUST				SEPTEMBER	
1	2310	1750	10900	869	690	1620	503	135	183
2	2540	1280	8780	436	350	412	447	142	171
3	3000	1300	10500	276	270	201	398	96	103
4	2670	1040	7500	326	276	243	344	86	80
5	1850	1110	5540	376	206	209	335	92	83
6	1110	580	1740	363	290	284	360	74	72
7	461	266	331	479	250	323	401	68	74
8	204	210	116	603	370	602	458	96	119
9	135	110	40	494	230	307	459	128	159
10	178	138	66	333	152	137	449	154	187
11	165	146	65	291	154	121	508	160	219
12	145	138	54	274	216	7260	539	153	223
13	126	138	47	263	122	87	647	228	398
14	142	118	45	320	8050	6960	1180	780	2490
15	143	122	47	402	500	543	2240	2330	9610
16	188	114	58	387	292	305	2320	1590	2350
17	186	100	50	427	310	357	1930	4400	22900
18	163	86	38	438	520	615	1480	2250	8990
19	173	100	47	566	360	550	963	2140	5560
20	151	124	53	377	272	277	688	1610	2990
21	172	152	71	323	324	283	549	1760	2610
22	193	138	72	325	314	276	496	1280	1710
23	176	86	41	699	426	804	496	458	613
24	168	84	38	462	294	367	499	240	323
25	165	86	38	395	266	284	502	198	268
26	165	96	43	334	160	144	483	236	308
27	256	160	111	342	160	148	501	240	325
28	551	398	637	486	176	231	477	146	188
29	870	670	1670	496	176	236	458	99	122
30	1550	1660	6950	492	178	236	422	108	123
31	1410	1650	6280	480	154	200	---	---	---
TOTAL	21724	---	61968	13134	---	24622	21532	---	63551
YEAR	127099		180175.9						

## PLATTE RIVER BASIN

06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	407	142	156	392			783		
2	402	142	154	443			811		
3	423	147	168	470			790		
4	418	150	169	518			783		
5	412	150	167	588			790		
6	407	82	90	588			888		
7	438	98	116	583			881		
8	443	78	93	572			888		
9	464	1650	2070	566			946		
10	501	1350	1830	572			916		
11	665	240	431	600			846		
12	600	140	227	623			946		
13	518	105	147	600			1130		
14	523	368	520	588			1050		
15	572	375	579	528			1100		
16	545	270	397	518			1030		
17	491	168	223	534			946		
18	464	222	278	545			923		
19	459	285	353	588			916		
20	464	202	253	617			895		
21	512	202	279	623			874		
22	512	262	362	623			867		
23	480	188	244	629			881		
24	325	117	103	671			874		
25	348	2070	1940	647			860		
26	348	357	335	629			818		
27	363	158	155	629			881		
28	358	75	72	629			978		
29	353	84	80	677			1000		
30	368	1540	1530	764			1060		
31	372	1050	1050	---			1070		
TOTAL	13955	---	14571	17554			28421		
JANUARY			FEBRUARY			MARCH			
1	1070			909			671		
2	1090			909			671		
3	1110			923			665		
4	1130			994			665		
5	1130			923			659		
6	1070			895			707		
7	1060			839			2140		
8	1220			811			2070		
9	1280			797			1670		
10	1230			770			1380		
11	1170			777			1250		
12	1160			777			1160		
13	1180			790			1070		
14	1190			818			1060		
15	1190			832			1010		
16	1160			853			1020		
17	1060			853			1600		
18	1010			818			2160		
19	994			797			2100		
20	978			783			2000		
21	954			751			1960		
22	946			738			1940		
23	954			744			1920		
24	946			738			1750		
25	923			725			1750		
26	923			683			1860		
27	938			665			1970		
28	962			659			1940		
29	970			---			1840		
30	938			---			1820		
31	916			---			1850		
TOTAL	32852			22571			46328		

## PLATTE RIVER BASIN

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06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1830	590	2920	6790	680	12500	11100	401	12000
2	1920	735	3810	6790	678	12400	12400	382	12800
3	1970	650	3460	6660	645	11600	12000	355	11500
4	1910	505	2600	6320	627	10700	11600	347	10900
5	1910	510	2630	5700	650	10000	12100	314	10300
6	2000	595	3210	5590	692	10400	12600	292	9930
7	2060	582	3240	5210	725	10200	13500	480	17500
8	2060	622	3460	4900	748	9900	13000	340	11900
9	2080	638	3580	4740	1750	22400	11900	309	9930
10	2080	638	3580	4770	718	9250	11400	309	9510
11	2210	650	3880	4800	700	9070	11500	310	9630
12	2250	730	4430	4870	702	9230	11900	310	9960
13	2360	634	4040	5620	795	12100	12800	323	11200
14	2450	650	4300	5590	775	11700	14600	410	16200
15	2620	815	5770	5730	897	13900	15300	1680	69400
16	2600	610	4280	5480	760	11200	13000	1060	37200
17	2430	410	2690	5480	660	9770	11100	700	21000
18	2240	361	2180	6480	935	16400	10100	505	13800
19	2150	360	2090	8850	804	19200	10000	425	11500
20	2070	350	1960	9040	806	19700	10900	368	10800
21	2010	325	1760	9990	698	18800	12200	314	10300
22	2240	550	3330	10700	514	14800	13500	380	13900
23	3610	1500	14600	8660	440	10300	13300	370	13300
24	5560	1650	24800	8930	407	9810	12400	341	11400
25	6660	1100	19800	8970	379	9180	11800	339	10800
26	6380	900	15500	9080	349	8560	11000	339	10100
27	6690	822	14800	9470	290	7420	11600	351	11000
28	6850	755	14000	9240	254	6340	12800	475	16400
29	6890	685	12700	8850	281	6710	14900	570	22900
30	6690	680	12300	9200	353	8770	13100	364	12900
31	---	---	---	10000	380	10300	---	---	---
TOTAL	96780	---	201700	222500	---	362610	369400	---	459960
JULY			AUGUST			SEPTEMBER			
1	12200	527	17400	2340	510	3220	1350	500	1820
2	10900	593	17500	2030	298	1630	1550	480	2010
3	9990	454	12200	1720	270	1250	1380	288	1070
4	8890	536	12900	1690	262	1200	1330	178	639
5	8660	629	14700	1650	278	1240	1330	139	499
6	7690	680	14100	2010	490	2660	1400	124	469
7	5450	680	10000	3050	1120	9220	1470	218	865
8	4360	690	8120	3100	640	5360	1540	334	1390
9	4340	889	10400	2810	610	4630	1400	242	915
10	4480	1100	13300	2150	332	1930	1320	181	645
11	5340	1260	18200	1700	218	1000	1310	161	569
12	7380	1590	31700	1500	190	769	1270	157	538
13	6540	1040	18400	1420	230	882	1190	153	492
14	4160	706	7930	1710	360	1660	1180	151	481
15	3150	651	5540	2010	450	2440	1200	150	486
16	2520	672	4570	2430	590	3870	1210	158	516
17	2200	969	5760	2180	498	2930	1270	242	830
18	2200	1550	9210	1700	353	1620	1320	166	592
19	2270	1090	6680	1490	252	1010	1260	138	469
20	2020	717	3910	1500	207	838	1250	148	499
21	1780	935	4490	1670	450	2030	1260	203	691
22	1860	1890	9490	1900	378	1940	1230	137	455
23	2840	2800	21500	1890	317	1620	1130	74	226
24	4380	3250	38400	1770	250	1190	1130	57	174
25	5080	2470	33900	1710	209	965	1120	53	160
26	3590	836	8100	1670	220	992	1130	53	162
27	2790	1390	10500	1510	277	1130	1010	63	172
28	2770	1220	9120	1510	288	1170	978	70	185
29	2740	881	6520	1400	269	1020	946	70	179
30	2380	644	4140	1360	308	1130	946	70	179
31	2410	505	3290	1400	261	987	---	---	---
TOTAL	147360	---	391970	57980	---	63533	37410	---	18377
YEAR	1093111		1512721						

## PLATTE RIVER BASIN

06759100 BIJOU CREEK NEAR FORT MORGAN, CO

LOCATION.--Lat 40°16'58", long 103°52'31", in NW1/4 sec.28, T.4 N., R.58 W., Morgan County, Hydrologic Unit 10190011, on left bank 1,000 ft downstream from bridge on State Highway 144, 0.8 mi upstream from South Platte River, and 4.0 mi northwest of Fort Morgan.

DRAINAGE AREA.--1,500 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, December 1976 to current year. Water quality data available October 1976 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 4,302 ft, from topographic map.

REMARKS.--Records poor. Natural flow of stream affected by delivery of stored water from Bijou No. 2 reservoir to South Platte River past the gage, and waste flows from Fort Morgan Canal, which crosses 1.5 mi upstream. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft<sup>3</sup>/s July 26, 1977, gage height, 6.01 ft, from floodmark, from rating curve extended above 58 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 4.8 ft<sup>3</sup>/s Oct. 2-4, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 123 ft<sup>3</sup>/s at 0100 June 16, gage height, 1.87 ft; maximum gage height, 1.97 ft at 1900 June 12; minimum daily discharge, 7.3 ft<sup>3</sup>/s Jan. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	10	11	9.2	10	9.2	21	16	22	11	9.2
2	11	10	9.6	10	8.8	10	8.8	18	18	22	11	8.8
3	10	10	9.6	10	8.4	10	8.8	18	18	22	10	8.8
4	9.6	10	10	10	34	10	9.6	19	18	22	10	8.8
5	9.6	10	10	10	57	10	9.6	18	21	22	10	8.4
6	10	9.6	10	9.6	54	10	9.2	16	21	22	10	8.4
7	9.6	9.2	10	9.6	42	10	16	15	22	22	10	8.8
8	9.6	8.8	10	9.2	39	10	69	16	22	22	9.6	9.2
9	9.6	9.2	10	9.2	40	10	82	19	27	22	9.2	9.2
10	10	9.6	10	9.6	47	10	67	17	56	22	9.2	9.2
11	9.6	10	10	9.2	50	10	32	15	99	22	9.2	8.8
12	10	12	10	9.2	37	10	32	14	107	22	10	9.2
13	10	11	10	9.2	32	10	38	15	115	22	9.2	9.2
14	10	11	10	9.2	32	10	34	14	115	22	8.8	9.2
15	9.6	10	10	9.2	29	10	32	14	114	22	8.8	9.2
16	9.6	10	10	9.2	37	10	37	14	116	20	8.4	9.6
17	9.6	10	11	8.8	45	10	31	15	116	14	8.4	9.2
18	9.6	10	10	8.8	42	10	32	13	107	12	8.4	9.2
19	10	10	11	8.4	36	10	25	13	85	11	8.4	9.2
20	10	10	11	8.0	30	10	26	13	85	11	8.8	9.2
21	10	10	11	7.6	10	10	25	14	50	11	8.8	9.6
22	10	11	11	7.6	10	10	25	14	22	11	8.8	9.6
23	10	10	12	7.3	10	10	28	14	22	11	8.8	9.6
24	9.2	10	12	7.6	10	9.2	33	13	22	11	8.4	10
25	9.2	10	12	7.6	10	9.2	34	13	22	11	8.4	10
26	8.8	10	12	8.4	10	8.8	37	13	22	11	8.4	10
27	8.4	10	12	8.8	10	8.8	42	13	22	11	8.4	19
28	10	10	13	8.8	10	8.8	22	12	22	11	8.8	35
29	9.6	10	13	8.8	---	9.2	28	13	22	11	8.0	10
30	9.6	10	12	8.8	---	8.8	23	14	22	10	8.8	9.2
31	10	---	11	8.8	---	9.2	---	16	---	10	8.8	---
TOTAL	302.8	302.4	333.2	277.5	789.4	302.0	905.2	466	1546	517	282.8	312.8
MEAN	9.77	10.1	10.7	8.95	28.2	9.74	30.2	15.0	51.5	16.7	9.12	10.4
MAX	11	12	13	11	57	10	82	21	116	22	11	35
MIN	8.4	8.8	9.6	7.3	8.4	8.8	8.8	12	16	10	8.0	8.4
AC-FT	601	600	661	550	1570	599	1800	924	3070	1030	561	620

CAL YR 1982 TOTAL 5907.5 MEAN 16.2 MAX 99 MIN 5.2 AC-FT 11720  
WTR YR 1983 TOTAL 6337.1 MEAN 17.4 MAX 116 MIN 7.3 AC-FT 12570

NOTE.--NO GAGE-HEIGHT RECORD FEB. 20 TO MAR. 23, JUNE 19 TO JULY 19.

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, Hydrologic Unit 10190018, on left bank of channel 4 (left channel) 215 ft downstream from bridge, and on right bank of channel 2, 800 ft downstream from bridge on U.S. Highway 385, 0.9 mi southeast of Julesburg, 3.0 mi upstream from Colorado-Nebraska State line, and 8 mi downstream from Lodgepole Creek.

## WATER-DISCHARGE RECORDS

GAGE.--Two water-stage recorders. Datum of gages is 3,446.76 ft, National Geodetic Vertical Datum of 1929. See WSP 1710 or 1730 for history of changes prior to Oct. 1, 1956. Since Oct. 1, 1956, water-stage recorders on channels nos. 2 and 4. Channel no. 2: Oct. 1, 1956, to Sept. 22, 1965, at site 300 ft downstream at present datum. Channel no. 4: Oct. 1, 1956, to Dec. 10, 1958, at site 135 ft downstream at present datum. Since May 11, 1973, supplementary water-stage recorder on channel no. 2 at bridge 800 ft upstream at same datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,480 ft<sup>3</sup>/s at 0900 June 18, gage height, 8.85 ft; minimum daily, 95 ft<sup>3</sup>/s Oct. 24, 25.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	92	165	234	431	273	96	48	87	784	66	32
2	44	96	174	253	383	269	99	50	136	813	50	34
3	52	98	192	252	275	292	106	40	166	860	39	35
4	74	98	189	268	250	294	114	35	241	1280	39	33
5	82	98	190	246	250	283	123	45	236	1510	35	33
6	91	97	193	175	250	270	125	43	229	1540	33	43
7	100	95	194	110	235	268	127	54	226	1260	36	36
8	108	94	192	70	225	268	131	61	214	789	33	29
9	124	93	187	85	230	266	125	61	194	437	32	31
10	138	92	191	80	305	272	120	51	160	252	35	30
11	146	92	193	70	465	257	115	50	152	175	35	31
12	155	93	194	65	675	204	110	60	123	125	34	68
13	153	92	195	70	780	185	111	104	217	106	33	105
14	153	92	195	80	790	162	104	138	767	109	47	186
15	164	92	197	75	810	150	117	150	487	95	127	261
16	174	91	200	80	730	140	115	141	482	80	232	301
17	152	93	205	150	710	135	96	145	486	61	179	320
18	121	97	201	230	604	129	95	151	360	47	132	440
19	116	99	198	280	388	126	79	186	320	44	122	643
20	110	101	224	290	357	118	83	148	267	46	126	656
21	106	104	225	325	355	115	79	116	189	43	90	571
22	106	104	213	360	355	112	62	107	169	40	67	450
23	105	103	208	370	335	109	53	102	243	38	55	316
24	103	103	193	350	317	109	52	91	159	39	44	263
25	102	103	205	280	304	108	43	88	148	39	44	207
26	104	103	225	305	288	107	44	91	286	39	42	179
27	102	101	226	340	289	106	64	88	210	43	35	172
28	107	102	233	490	284	105	56	92	217	56	30	166
29	102	142	224	650	---	105	58	90	207	112	26	154
30	100	174	218	570	---	104	52	89	406	126	28	144
31	94	---	218	468	---	96	---	87	---	101	30	---
TOTAL	3425	3034	6257	7671	11670	5537	2754	2802	7784	11089	1956	5969
MEAN	110	101	202	247	417	179	91.8	90.4	259	358	63.1	199
MAX	174	174	233	650	810	294	131	186	767	1540	232	656
MIN	37	91	165	65	225	96	43	35	87	38	26	29
AC-FT	6790	6020	12410	15220	23150	10980	5460	5560	15440	22000	3880	11840
CAL YR 1981	TOTAL	103073										
WTR YR 1982	TOTAL	69948										
			MEAN 282	MAX 1790	MIN 16	AC-FT 204400						
			MEAN 192	MAX 1540	MIN 26	AC-						

## PLATTE RIVER BASIN

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	220	409	400	1390	1020	2020	7150	9080	11900	2030	958
2	151	226	408	550	1360	975	2000	7060	9250	12600	1950	926
3	151	230	421	750	1360	947	2010	6780	10800	11600	1880	891
4	150	231	439	850	1350	893	2030	6660	11700	10800	1700	958
5	152	235	464	900	1350	894	2100	6650	12800	10000	1600	1010
6	152	239	491	950	1360	983	2150	6600	13000	9110	1540	970
7	150	247	504	1100	1400	1010	2160	6200	12600	8230	1460	926
8	141	247	515	1400	1360	891	2180	5890	12800	7320	1410	916
9	142	260	606	1600	1350	892	2230	5700	13000	5660	1520	936
10	141	270	762	1800	1320	1210	2270	5460	13200	4610	1750	996
11	120	302	866	2000	1310	1290	2290	5170	13300	4270	1700	1080
12	113	302	975	1900	1290	1290	2330	4960	13200	4240	1550	1080
13	113	290	1040	1950	1270	1280	2360	4930	13000	4370	1440	1080
14	113	277	1080	2000	1260	1240	2400	4960	12700	4850	1300	1060
15	115	283	1130	2050	1230	1190	2480	5180	12800	4920	1200	1050
16	121	290	1250	2000	1210	1160	2500	5350	13100	4050	1130	1010
17	120	286	1290	1950	1200	1110	2560	5550	13900	3510	1080	1000
18	115	282	1320	1900	1210	1050	2590	5660	14300	3260	1070	1000
19	109	282	1270	1800	1240	1140	2570	5660	13000	2920	1110	1000
20	107	275	1250	1700	1230	1420	2480	5720	11800	2510	1060	1070
21	102	275	1230	1750	1190	1590	2400	6290	11200	2230	1040	1110
22	100	274	1210	1600	1190	1630	2340	7640	11000	2010	983	1150
23	97	269	1210	1550	1180	1670	2330	8310	11200	2030	962	1190
24	95	270	1190	1500	1150	1710	2380	8910	11900	2240	1120	1210
25	95	284	700	1500	1130	1870	2700	9420	12200	2270	1240	1210
26	101	277	500	1400	1120	2000	3530	8900	12200	2620	1230	1200
27	107	278	450	1400	1110	1990	4800	8750	12100	3000	1200	1200
28	115	300	400	1450	1060	2000	5520	8690	11900	2880	1170	1220
29	170	352	350	1500	---	2030	5860	8710	11500	2440	1130	1250
30	199	383	300	1480	---	2060	6670	8980	11600	2200	1110	1250
31	209	---	300	1430	---	2050	---	9050	---	2170	1050	---
TOTAL	4006	8236	24330	46110	35180	42485	84240	210940	366130	156820	41715	31907
MEAN	129	275	785	1487	1256	1370	2808	6805	12200	5059	1346	1064
MAX	209	383	1320	2050	1400	2060	6670	9420	14300	12600	2030	1250
MIN	95	220	300	400	1060	891	2000	4930	9080	2010	962	891
AC-FT	7950	16340	48260	91460	69780	84270	167100	418400	726200	311100	82740	63290
CAL YR 1982	TOTAL	93804	MEAN	257	MAX	1540	MIN	26	AC-FT	186100		
WTR YR 1983	TOTAL	1052099	MEAN	2882	MAX	14300	MIN	95	AC-FT	2087000		

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO--Continued  
(Irrigation network station)  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1945 to September 1981 (discontinued).

WATER TEMPERATURES: Water years 1945-49, October 1950 to September 1981 (discontinued).

INSTRUMENTATION.--Water-quality monitor from July 1973 to September 1979.

REMARKS.--Specific-conductance and temperature data obtained on channel no. 2 (station 06763990).

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,270 micromhos Jan. 12, 1971; minimum daily, 348 micromhos Aug. 15, 1968.

WATER TEMPERATURES: Maximum, 36.0°C July 17, 19, 1977, July 16, 1978; minimum, freezing point on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 08...	1430	254	2130	2250	8.4	5.5	12	11.4	K20	120
FEB 08...	1400	1360	1760	1790	8.4	1.0	65	12.0	K120	220
JUN 15...	1630	12800	689	704	8.1	22.0	130	7.1	K100	1300
SEP 29...	1230	1250	1650	1640	8.6	16.0	36	10.4	K100	440

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINIT- LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 08...	820	210	70	230	4	15	257	880	99	.80
FEB 08...	640	160	57	160	3	10	247	610	85	1.0
JUN 15...	220	56	20	54	2	5.2	127	190	25	.80
SEP 29...	590	140	57	150	3	10	225	600	74	1.0

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV 08...	26	1760	1700	2.4	1210	2.00	.200	1.4	.110	.030
FEB 08...	18	1300	1300	1.8	4770	5.30	.700	2.2	.940	.660
JUN 15...	13	453	440	.62	15700	.680	.090	1.5	.370	.150
SEP 29...	14	1240	1200	1.7	4180	2.60	.050	1.9	.330	.110

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 08...	1430	3	100	<1	<1	<5	5	20
FEB 08...	1400	2	48	<1	<1	<3	3	4
JUN 15...	1630	3	160	<1	<1	<3	6	41
SEP 29...	1230	2	73	<1	<1	<3	2	8

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 08...	<5	10	<.1	15	4	<1	10
FEB 08...	1	6	<.1	3	4	<1	10
JUN 15...	2	11	<.1	3	2	<1	49
SEP 29...	<1	3	<.1	6	3	<1	58

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)
SEP 29...	1230	6.7	<43	9.8	17	14	14	12	.16

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 08...	1430	254	1560	1070	36
FEB 08...	1400	1360	2140	7840	15
JUN 15...	1630	12800	1830	63300	32
SEP 29...	1200	1250	1430	4810	48



## KANSAS RIVER BASIN

187

## 06823000 NORTH FORK REPUBLICAN RIVER AT COLORADO-NEBRASKA STATE LINE

LOCATION.--Lat 40°04'10", long 102°03'05", in sec.10, T.1 N., R.42 W., Dundy County, NE, Hydrologic Unit 10250002, on right bank 100 ft east of Colorado-Nebraska State line and 9.5 mi upstream from confluence with Arikaree River.

DRAINAGE AREA.--1,360 mi<sup>2</sup>, approximately, of which about 100 mi<sup>2</sup> contribute directly to surface runoff.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1932, published as North Fork of Arikaree River at Colorado-Nebraska State line. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1947(M). WSP 1390: 1934. WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Steel-piling control since January 1965. Datum of gage is 3,336.09 ft, National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1934, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow affected by diversion in Pioneer Canal for irrigation of about 2,700 acres in Colorado and Nebraska.

AVERAGE DISCHARGE.--53 years, 47.4 ft<sup>3</sup>/s; 34,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft<sup>3</sup>/s Apr. 28, 1947, gage height, 5.92 ft, from rating curve extended above 800 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Aug. 25, 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 160 ft<sup>3</sup>/s at 2000 Aug. 22, gage height, 1.75 ft, only peak above base of 130 ft<sup>3</sup>/s; minimum daily, 7.3 ft<sup>3</sup>/s, Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	53	58	34	59	61	66	73	51	21	11	20
2	42	55	56	51	58	61	62	66	51	19	9.1	17
3	42	55	56	34	59	61	64	62	52	21	9.5	18
4	42	55	56	43	57	63	66	59	49	21	9.5	19
5	39	57	57	55	57	97	68	58	60	19	9.0	20
6	37	56	58	61	61	95	70	61	58	17	9.5	21
7	34	56	57	74	58	79	68	64	54	12	9.5	21
8	34	57	56	65	58	69	66	60	50	11	10	19
9	40	58	56	55	59	65	63	56	51	9.9	11	20
10	53	58	58	52	61	64	62	55	50	9.1	11	22
11	53	64	57	51	63	63	63	55	47	11	11	22
12	53	65	57	51	64	62	77	55	45	11	9.2	24
13	54	61	57	52	65	61	85	56	60	9.2	7.6	22
14	54	59	57	53	65	62	74	61	66	8.9	8.0	21
15	54	58	57	52	65	62	69	59	52	8.3	8.2	20
16	54	58	56	51	64	65	66	57	42	8.4	9.3	19
17	53	58	57	52	64	66	65	62	45	8.7	9.0	22
18	53	58	57	50	65	66	64	61	42	8.7	8.2	22
19	53	58	55	50	64	65	64	59	36	8.5	7.3	20
20	54	58	57	51	62	65	64	59	35	8.5	8.2	18
21	54	58	57	51	65	65	63	59	31	8.6	9.0	20
22	55	58	58	51	65	66	69	56	25	8.9	29	22
23	55	59	58	53	62	66	70	54	24	9.3	43	25
24	54	58	60	53	61	66	67	53	23	12	24	22
25	55	58	31	54	61	70	64	27	22	13	21	23
26	55	58	69	54	61	69	61	36	22	12	21	23
27	54	57	61	55	61	66	60	37	29	12	28	19
28	52	58	28	58	61	66	60	38	38	14	26	18
29	53	58	21	59	---	63	64	38	30	13	27	18
30	52	58	25	60	---	62	65	39	24	12	27	17
31	52	---	26	60	---	63	---	44	---	12	22	---
TOTAL	1532	1737	1629	1645	1725	2074	1989	1679	1264	378.0	462.1	614
MEAN	49.4	57.9	52.5	53.1	61.6	66.9	66.3	54.2	42.1	12.2	14.9	20.5
MAX	55	65	69	74	65	97	85	73	66	21	43	25
MIN	34	53	21	34	57	61	60	27	22	8.3	7.3	17
AC-FT	3040	3450	3230	3260	3420	4110	3950	3330	2510	750	917	1220
CAL YR 1982	TOTAL	16950.4	MEAN	46.4	MAX	495	MIN	5.5	AC-FT	33620		
WTR YR 1983	TOTAL	16728.1	MEAN	45.8	MAX	97	MIN	7.3	AC-FT	33180		

## KANSAS RIVER BASIN

## 06826000 BONNY RESERVOIR NEAR HALE, CO

LOCATION.--Lat 39°37'24", long 102°10'26", in SE¼SE¼ sec.9, T.5 S., R.43 W., Yuma County, Hydrologic Unit 10250003, in stair well to outlet conduit of Bonny Dam on South Fork Republican River, 1.7 mi west of Hale, and 3.0 mi downstream from Landsman Creek.

DRAINAGE AREA.--1,820 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1710: 1955.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Oct. 1, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by an earthfill dam. Storage began July 6, 1950; dam completed May 4, 1951. Capacity of reservoir, 170,200 acre-ft below elevation 3,710 ft, crest of spillway, of which 128,800 acre-ft is for flood control and 39,900 acre-ft is for irrigation. Dead storage, 1,420 acre-ft below elevation 3,635.0 ft, sill of trashrack at outlet conduit. Figures given represent total contents.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 55,030 acre-ft May 17, 1957, elevation, 3,678.10 ft; minimum observed since appreciable contents was attained, 22,520 acre-ft Oct. 6-14, 1952, elevation, 3,661.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 42,930 acre-ft June 20, 21, elevation, 3,672.77 ft; minimum, 35,280 acre-ft Sept. 28-30, elevation, 3,668.88 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)  
(Furnished by U.S. Bureau of Reclamation)

3,665.0	28,460
3,672.8	42,990

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36600	36100	36700	37600	38100	38100	39500	41200	42400	42600	40800	38500
2	36500	36100	36700	37600	38100	38100	39600	41200	42500	42600	40700	38400
3	36500	36100	36700	37700	38000	38100	39600	41200	42500	42500	40700	38300
4	36500	36100	36800	37700	38000	38300	39600	41300	42600	42400	40600	38200
5	36400	36100	36800	37700	38000	38400	39700	41300	42600	42300	40500	38200
6	36400	36100	36800	37700	38000	38400	39700	41300	42700	42200	40400	38100
7	36400	36100	36800	37700	38000	38400	39800	41300	42700	42100	40400	38000
8	36300	36100	36800	37700	38000	38500	39800	41400	42700	42000	40300	37900
9	36200	36100	36800	37700	38000	38500	39800	41400	42700	41900	40200	37900
10	36200	36200	36800	37800	38000	38500	39900	41400	42700	41800	40100	37700
11	36200	36200	36900	37700	38000	38600	39900	41400	42800	41600	40000	37600
12	36200	36200	36900	37700	38000	38600	40000	41400	42800	41600	39900	37500
13	36100	36200	36900	37800	38000	38700	40000	41400	42800	41600	39800	37500
14	36100	36200	37000	37800	38000	38700	40100	41400	42800	41500	39700	37500
15	36100	36300	37000	37800	38000	38700	40100	41400	42900	41400	39700	37300
16	36200	36400	37000	37700	38100	38900	40200	41500	42900	41400	39600	37100
17	36100	36400	37000	37700	38100	38900	40200	41800	42900	41300	39600	37100
18	36100	36400	37000	37800	38100	38900	40200	41900	42900	41300	39400	37000
19	36100	36400	37100	37800	38100	39000	40300	42000	42900	41300	39300	36800
20	36100	36400	37100	37800	38100	39000	40400	42000	42900	41200	39200	36600
21	36100	36500	37100	37800	38100	39000	40500	42100	42900	41100	39200	36300
22	36100	36500	37200	37900	38100	39100	40500	42200	42900	41000	39100	36100
23	36100	36500	37200	37900	38100	39100	40600	42200	42800	41100	40000	35800
24	36100	36600	37300	38000	38100	39200	40600	42200	42800	41100	39000	35700
25	36100	36600	37400	38000	38100	39200	40600	42300	42700	41200	38900	35600
26	36100	36600	37400	38000	38100	39300	40700	42300	42700	41100	38800	35400
27	36100	36700	37500	38000	38100	39300	40700	42300	42700	41100	38700	35400
28	36100	36700	37500	38000	38100	39300	40900	42300	42600	41000	38700	35300
29	36100	36700	37500	38000	---	39400	41000	42300	42600	41000	38600	35300
30	36100	36700	37500	38000	---	39400	41100	42300	42600	40900	38500	35300
31	36100	---	37600	38000	---	39500	---	42400	---	40900	38500	---
MAX	36600	36700	37600	38000	38100	39500	41100	42400	42900	42600	40800	38500
MIN	36100	36100	36700	37600	38000	38100	39500	41200	42400	40900	38500	35300
WTR YR 1983	MAX	42900	MIN	35300								

06826500 SOUTH FORK REPUBLICAN RIVER NEAR HALE, CO

LOCATION.--Lat 39°37'26", long 102°09'47", in SW¼NE¼ sec.15, T.5 S., R.43 W., Yuma County, Hydrologic Unit 10250003, on right bank 0.5 mi downstream from Bonny Dam and 1.2 mi west of Hale.

DRAINAGE AREA.--1,825 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1946 to September 1948, May 1951 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,610 ft, from topographic map. Oct. 1, 1946, to Sept. 30, 1948, at site 4 mi downstream at different datum.

REMARKS.--Records good. Flow regulated by Bonny Reservoir since July 6, 1950 (station 06826000). Many diversions above station for irrigation. Water diverted by Hale ditch from Bonny Reservoir bypasses station (2,660 acre-ft diverted during current year). Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Hale ditch diversion records furnished by State Engineer of Colorado.

AVERAGE DISCHARGE.--32 years (water years 1952-83), 20.1 ft<sup>3</sup>/s; 14,560 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,790 ft<sup>3</sup>/s May 28, 1947, gage height, 4.71 ft, site and datum then in use; maximum gage height, 4.84 ft, Apr. 28, 1947, site and datum then in use; no flow Aug. 11-13, 1947.

EXTREMES OUTSIDE PERIOD OF RECORD.--Greatest flood known occurred May 31, 1935, stage and discharge not determined. A discharge of 103,000 ft<sup>3</sup>/s was determined at a site near Newton 5.5 mi upstream, with a drainage area of approximately 1,270 mi<sup>2</sup>.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 174 ft<sup>3</sup>/s at 2200 Sept. 15, gage height, 5.14 ft; minimum daily, 4.2 ft<sup>3</sup>/s Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	5.8	5.4	4.9	25	24	5.6	8.2	6.7	6.8	6.9	5.6
2	6.9	5.3	5.3	4.9	24	24	5.3	6.2	6.9	7.9	6.7	5.6
3	6.6	5.4	5.3	5.0	24	24	5.3	6.0	6.4	9.1	6.5	5.2
4	6.3	5.8	5.3	4.9	24	18	5.3	5.9	6.3	9.8	6.3	5.2
5	6.4	5.7	5.6	4.9	24	15	5.5	6.6	6.4	9.3	6.3	5.2
6	5.9	5.8	5.4	19	24	14	5.4	5.9	5.9	9.6	6.2	5.0
7	5.8	5.8	5.2	39	24	10	5.3	5.6	5.8	9.9	6.9	5.0
8	6.3	5.8	5.3	39	24	6.6	5.3	5.7	5.6	8.7	6.3	4.8
9	6.4	5.8	5.4	40	24	6.6	5.3	5.9	5.1	7.6	6.3	4.7
10	5.8	5.8	5.4	39	24	6.4	5.3	5.8	5.9	8.0	6.8	4.7
11	5.7	6.1	5.3	38	23	6.6	5.5	5.8	5.5	9.3	7.6	4.5
12	5.9	5.8	5.5	38	23	6.6	6.9	5.4	5.3	9.8	7.9	4.2
13	5.6	6.0	5.6	38	23	6.4	6.1	6.0	6.3	9.8	8.0	4.5
14	5.6	5.6	5.5	38	23	6.6	5.6	6.1	5.1	6.7	8.5	4.6
15	5.5	7.1	5.3	38	24	6.7	5.6	6.0	5.1	5.8	8.6	64
16	5.6	5.7	5.3	39	24	6.6	5.4	5.4	5.3	6.7	8.2	100
17	5.7	5.8	5.4	40	24	6.4	5.7	11	5.5	8.6	8.4	6.2
18	5.4	5.5	5.5	28	24	6.6	5.6	8.5	5.0	7.0	8.2	4.9
19	5.6	5.8	5.3	5.9	24	6.5	5.7	7.7	5.0	5.7	9.1	4.9
20	5.4	5.3	5.3	5.4	24	6.3	5.9	9.3	4.9	4.9	9.8	95
21	5.5	5.5	5.4	5.2	24	6.0	7.1	7.8	5.0	5.2	8.5	165
22	5.7	5.4	5.4	5.1	24	6.4	6.6	7.3	4.7	5.3	6.0	169
23	5.7	5.2	5.4	5.3	24	6.3	6.1	7.3	4.5	6.8	6.1	133
24	5.7	5.3	5.4	5.3	24	6.7	6.1	7.1	4.6	7.8	5.9	104
25	5.7	5.3	5.8	16	24	7.6	6.3	7.1	5.9	6.1	5.2	104
26	5.7	5.3	5.6	25	24	7.1	5.9	7.1	6.3	7.0	5.2	48
27	5.7	5.3	5.6	25	24	6.1	5.9	7.0	6.4	7.2	5.2	6.1
28	5.5	5.3	5.7	25	24	6.4	7.7	6.1	7.0	7.1	5.0	5.2
29	5.8	5.4	4.9	25	---	5.8	9.8	5.7	7.1	6.9	5.1	5.2
30	5.8	5.3	5.0	24	---	5.3	7.0	7.0	6.3	6.6	5.1	5.0
31	5.8	---	5.0	24	---	5.5	---	6.6	---	7.4	5.6	---
TOTAL	182.4	169.0	166.8	693.8	669	283.1	180.1	209.1	171.8	234.4	212.4	1088.3
MEAN	5.88	5.63	5.38	22.4	23.9	9.13	6.00	6.75	5.73	7.56	6.85	36.3
MAX	7.4	7.1	5.8	40	25	24	9.8	11	7.1	9.9	9.8	169
MIN	5.4	5.2	4.9	4.9	23	5.3	5.3	5.4	4.5	4.9	5.0	4.2
AC-FT	362	335	331	1380	1330	562	357	415	341	465	421	2160
CAL YR 1982	TOTAL	2843.0	MEAN	7.79	MAX	40	MIN	4.0	AC-FT	5640		
WTR YR 1983	TOTAL	4260.2	MEAN	11.7	MAX	169	MIN	4.2	AC-FT	8450		

## ARKANSAS RIVER BASIN

## 07079200 LEADVILLE DRAIN AT LEADVILLE, CO

LOCATION.--Lat 39°16'29", long 106°17'15", in SW¼SW¼ sec.12 T.9 S., R.80 W., Lake County, Hydrologic Unit 11020001, at Parshall flume, 500 ft below Leadville Drainage tunnel, 0.4 mi upstream from mouth and 1.6 mi north of courthouse in Leadville.

PERIOD OF RECORD.--October 1982 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)
OCT							
04...	1030	4.0	670	701	7.0	86	37
NOV							
01...	1045	3.9	810	753	7.0	94	40
DEC							
06...	1100	3.8	860	792	6.9	100	44
JAN							
03...	1130	3.8	900	850	6.9	110	47
FEB							
07...	1030	3.8	884	884	6.9	110	47
MAR							
14...	1330	3.4	930	888	6.9	120	47
APR							
04...	1400	3.2	830	891	6.9	110	47
MAY							
02...	1045	3.1	873	873	7.0	110	48
JUN							
06...	1115	3.1	965	965	6.7	130	54
JUL							
05...	1100	3.1	766	766	6.8	93	40
AUG							
01...	1345	2.9	607	607	7.0	80	34
SEP							
06...	1115	3.5	643	643	7.0	82	34

DATE	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
OCT						
04...	3.2	1.1	133	250	1.7	4
NOV						
01...	3.3	1.4	133	290	1.0	8
DEC						
06...	3.6	1.4	136	320	1.9	4
JAN						
03...	3.6	1.5	136	350	1.8	2
FEB						
07...	4.0	1.3	138	370	1.9	7
MAR						
14...	3.9	1.4	137	370	1.8	6
APR						
04...	3.8	1.4	139	340	1.9	20
MAY						
02...	3.9	1.4	135	370	1.8	<1
JUN						
06...	4.2	1.7	115	470	1.9	<1
JUL						
05...	3.9	1.3	124	300	1.5	21
AUG						
01...	3.3	1.1	126	210	1.4	14
SEP						
06...	3.4	1.1	129	220	.60	14

## ARKANSAS RIVER BASIN

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07079200 LEADVILLE DRAIN AT LEADVILLE, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT						
04...	16	10	1800	5	1500	3600
NOV						
01...	16	<10	2000	5	1700	3800
DEC						
06...	14	<10	2400	7	2000	3700
JAN						
03...	14	<10	2700	7	2300	3800
FEB						
07...	13	<10	3100	12	2400	3900
MAR						
14...	13	<10	2600	11	2300	3500
APR						
04...	14	10	2700	9	2300	3900
MAY						
02...	11	<10	3000	6	2400	4000
JUN						
06...	14	30	3100	2	5200	12000
JUL						
05...	28	<10	1500	12	2800	6800
AUG						
01...	19	<10	1400	<1	1500	3800
SEP						
06...	15	<10	1100	6	1100	2800

## ARKANSAS RIVER BASIN

07079300 EAST FORK ARKANSAS RIVER AT US HIGHWAY 24, NEAR LEADVILLE, CO--Continued

## WATER-QUALITY RECORDS

LOCATION.--Lat 39°16'21", long 106°18'21", in NW¼NW¼ sec 14, T.9 S., R.80 W., Lake County, Hydrologic Unit 11020001, at U. S. highway 24 bridge, 1.6 mi northwest of courthouse in Leadville.

PERIOD OF RECORD.--October 1982 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
OCT											
04...	1100	255	8.7	30	12	2.0	.9	86	42	.70	1
NOV											
01...	1100	306	8.4	35	15	2.1	.9	92	61	.70	6
DEC											
06...	1115	357	8.5	42	17	2.3	1.0	103	82	1.0	6
JAN											
03...	1145	434	8.4	51	22	2.3	1.1	110	110	1.1	3
FEB											
07...	1045	482	8.2	55	23	2.8	1.0	115	140	1.1	<1
MAR											
14...	1345	447	8.4	55	22	2.9	1.0	114	120	1.1	<1
APR											
04...	1415	428	8.3	49	21	2.3	1.1	116	110	1.1	18
MAY											
02...	1100	397	8.5	44	20	2.5	1.3	105	100	1.1	<1
JUN											
06...	1130	183	8.1	21	8.0	1.9	1.0	57	28	.80	<1
JUL											
05...	1115	124	8.0	13	5.5	1.6	.7	49	13	.30	17
AUG											
01...	1400	155	8.3	19	7.5	1.7	.7	61	18	.30	12
SEP											
06...	1130	215	8.5	25	10	2.0	.9	77	27	.60	10

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT						
04...	2	<10	370	1	170	430
NOV						
01...	2	<10	350	<1	250	610
DEC						
06...	3	<10	400	2	380	770
JAN						
03...	4	<10	700	2	570	1200
FEB						
07...	5	<10	1300	4	760	1400
MAR						
14...	3	<10	530	2	570	960
APR						
04...	4	<10	520	2	520	910
MAY						
02...	5	<10	3400	10	780	1300
JUN						
06...	2	<10	380	1	180	380
JUL						
05...	1	<10	450	13	80	130
AUG						
01...	1	<10	590	<1	100	170
SEP						
06...	2	<10	330	4	120	240

## LOWER MISSISSIPPI RIVER BASIN

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## ARKANSAS RIVER BASIN

07081200 ARKANSAS RIVER NEAR LEADVILLE, CO

LOCATION.--Lat 39°15'26", long 106°20'35", in NW¼NW¼ sec.21, T.9 S., R.80 W., Lake County, Hydrologic Unit 11020001, 500 ft downstream from confluence of East Fork Arkansas River and Tennessee Creek, 0.5 mi downstream from highway bridge, and 2.8 mi west of Leadville.

DRAINAGE AREA.--97.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 9,730 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record Nov. 24 to May 16, which are poor. Transmountain diversion from Colorado River basin to Arkansas River basin enters above this station (see elsewhere in this report). Small diversions upstream for irrigation and municipal use. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--16 years, 72.4 ft<sup>3</sup>/s; 52,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft<sup>3</sup>/s June 21, 1983, gage height, 4.30 ft; minimum daily, 7.0 ft<sup>3</sup>/s Feb. 3-20, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft<sup>3</sup>/s at 0530 June 21, gage height, 4.30 ft; minimum daily, 15 ft<sup>3</sup>/s Dec. 28 to Jan. 1, Feb. 3-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	33	26	15	17	20	19	24	225	567	162	89
2	49	30	25	16	16	20	19	26	278	478	141	80
3	45	27	24	16	15	19	19	27	226	473	143	73
4	42	27	24	17	15	18	18	29	221	406	170	79
5	41	28	24	18	15	18	18	32	270	370	170	74
6	39	27	24	19	15	17	17	34	214	352	457	64
7	37	26	25	20	15	18	17	37	204	338	240	60
8	37	25	25	20	16	18	17	41	230	346	176	58
9	36	28	25	19	17	19	17	47	270	338	154	56
10	37	28	25	18	17	20	18	48	328	324	136	53
11	38	28	25	18	18	20	18	49	390	331	121	53
12	35	28	24	19	18	19	18	50	489	255	121	51
13	36	29	24	20	18	19	18	48	456	220	127	49
14	35	29	24	20	19	18	18	45	317	206	113	48
15	36	29	24	20	19	18	18	44	354	188	107	51
16	35	29	24	20	19	17	18	43	431	176	115	50
17	34	29	24	19	19	17	18	42	469	168	101	47
18	33	29	24	18	19	17	17	42	606	160	98	45
19	33	29	23	17	20	18	17	42	898	160	94	44
20	31	29	22	17	20	18	17	41	946	167	99	47
21	31	29	21	16	20	18	17	45	958	216	85	46
22	30	29	20	16	20	17	17	58	916	270	78	44
23	29	29	19	16	20	17	17	76	929	197	77	44
24	28	29	18	16	20	17	17	98	953	176	93	44
25	29	28	18	17	20	17	17	111	932	157	79	44
26	29	28	17	18	20	17	18	121	905	162	95	44
27	31	28	16	19	20	18	19	151	832	148	97	43
28	28	28	15	20	20	18	20	186	767	146	98	43
29	25	28	15	20	---	18	21	202	699	133	87	41
30	32	27	15	19	---	19	22	241	602	157	102	41
31	33	---	15	18	---	19	---	231	---	143	101	---
TOTAL	1089	850	674	561	507	563	541	2311	16315	7928	4037	1605
MEAN	35.1	28.3	21.7	18.1	18.1	18.2	18.0	74.5	544	256	130	53.5
MAX	55	33	26	20	20	20	22	241	958	567	457	89
MIN	25	25	15	15	15	17	17	24	204	133	77	41
AC-FT	2160	1690	1340	1110	1010	1120	1070	4580	32360	15730	8010	3180
CAL YR 1982	TOTAL	29019	MEAN	79.5	MAX	513	MIN	10	AC-FT	57560		
WTR YR 1983	TOTAL	36981	MEAN	101	MAX	958	MIN	15	AC-FT	73350		

## ARKANSAS RIVER BASIN

07082400 TURQUOISE LAKE NEAR LEADVILLE, CO

LOCATION.--Lat 39°15'10", long 106°22'26", in SW¼NE¼ sec.19, T.9 S., R.80 W., Lake County, Hydrologic Unit 11020001, in control house of Sugar Loaf Dam on Lake Fork, 4.0 mi west of Leadville and 4.6 mi upstream from mouth.

DRAINAGE AREA.--28.1 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Nonrecording gage read once daily. Datum of gage is 9,754.00 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir formed by earthfill dam completed in 1909, capacity, 17,400 acre-ft. Enlargement of dam began Dec. 8, 1965, and closure was made Apr. 15, 1968. Enlarged capacity, 129,400 acre-ft at elevation 9,869.4 ft, crest of spillway. Dead storage, 2,770 acre-ft below elevation 9,765.90 ft, sill of lowest outlet. Figures given are total contents. Since Apr. 15, 1968, Turquoise Lake has been a regulatory reservoir for the Fryingpan-Arkansas project and stores water imported from the Colorado River basin through Charles H. Boustead Tunnel for irrigation, municipal water supply, and power development. It also stores water for industrial use, and water imported from the Colorado River basin through Busk-Ivanhoe tunnel for irrigation and through Homestake tunnel for municipal water supply.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES (at 0800 of following day) FOR PERIOD OF RECORD.--Maximum contents, 131,820 acre-ft, July 10, 1983, elevation, 9,870.73 ft; minimum since appreciable storage was attained, 14,510 acre-ft, Oct. 1, 1968, elevation, 9,782.85 ft.

EXTREMES (at 0800 of the following day) FOR CURRENT YEAR.--Maximum contents, 131,820 acre-ft, July 10, 1983, elevation, 9,870.73 ft; minimum, 63,810 acre-ft, Feb. 28, elevation, 9,828.98 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	9,865.44	122,410	-
Oct. 31. . . . .	9,862.70	117,620	-4,790
Nov. 30. . . . .	9,856.88	107,630	-9,990
Dec. 31. . . . .	9,844.75	87,620	-20,010
CAL YR 1982 . . . . .			+23,270
Jan. 31. . . . .	9,836.32	74,510	-13,110
Feb. 28. . . . .	9,828.98	63,810	-10,700
Mar. 31. . . . .	9,833.81	70,760	+6,950
Apr. 30. . . . .	9,833.79	70,730	-30
May 31. . . . .	9,836.26	74,420	+3,690
June 30. . . . .	9,865.23	122,040	+47,620
July 31. . . . .	9,868.33	127,520	+5,480
Aug. 31. . . . .	9,868.67	128,130	+610
Sept. 30. . . . .	9,867.92	126,790	-1,340
WTR YR 1983 . . . . .			+22,380



ARKANSAS RIVER BASIN  
07083000 HALFMOON CREEK NEAR MALTA, CO

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(Hydrologic bench-mark station)

LOCATION.--Lat 39°10'20", long 106°23'19", in SE¼SE¼ sec.13, T.10 S., R.81 W., Lake County, Hydrologic Unit 11020001, on right bank 1.4 mi upstream from culvert, 3.3 mi upstream from mouth, and 4.3 mi southwest of Malta.

DRAINAGE AREA.--23.6 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1946 to current year.

REVISED RECORDS.--WSP 2121: Drainage area at site 1.4 mi downstream. WRD Colo. 1968: 1967(M). WRD CO-79-1: 1976(M). WRD CO-80-1: 1954(M).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 9,830 ft, from topographic map. Prior to Oct. 19, 1966, at sites 1.4 mi downstream at different datums.

REMARKS.--Records good except those for period of no gage-height record, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--37 years, 28.5 ft<sup>3</sup>/s; 20,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 450 ft<sup>3</sup>/s June 30, 1957, gage height, 3.48 ft, site and datum then in use; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 11	2300	191	3.05	July 21	2200	270	3.31
June 19	2400	341	3.37	Aug. 1	0100	167	3.01
June 24	2300	* 347	3.39	Aug. 6	0100	209	3.17
July 8	2300	295	3.33				

Minimum daily discharge, 2.6 ft<sup>3</sup>/s Apr. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	10	7.8	2.8	3.8	3.7	2.7	4.4	68	175	133	42
2	25	9.9	6.9	2.8	3.5	3.5	2.7	4.4	65	175	106	40
3	25	13	6.7	2.9	3.1	3.3	2.7	4.6	59	180	103	38
4	24	13	7.8	3.0	3.0	3.3	2.7	5.1	68	164	108	40
5	22	12	7.5	3.1	3.2	3.3	2.9	6.0	72	159	112	35
6	21	14	6.9	3.3	3.5	3.2	2.9	6.0	68	172	152	32
7	20	11	6.9	3.4	3.6	3.2	2.9	6.0	75	197	113	31
8	19	11	6.7	3.5	3.7	3.2	3.2	6.9	86	219	96	29
9	19	8.8	6.7	3.4	3.8	3.3	2.9	9.9	97	215	88	29
10	19	8.8	6.0	3.2	3.9	3.2	2.9	11	121	209	80	27
11	18	8.2	4.1	3.2	3.9	3.3	2.7	13	152	180	72	26
12	18	7.2	3.9	3.4	4.0	3.3	2.7	11	152	164	75	25
13	18	7.2	5.1	3.5	4.0	3.3	2.7	10	112	146	77	24
14	18	7.6	4.9	3.6	4.0	3.3	2.7	10	88	148	65	23
15	18	8.0	6.4	3.7	4.0	3.2	2.7	8.8	99	131	64	24
16	16	9.0	6.0	3.7	4.0	3.2	2.6	8.5	113	123	68	21
17	16	10	4.9	3.7	4.0	3.2	2.9	8.2	131	115	61	20
18	14	11	3.9	3.7	4.0	3.2	3.2	7.2	185	112	58	19
19	13	11	5.5	3.7	3.8	3.2	3.5	6.9	235	113	67	20
20	13	12	5.6	3.7	3.7	2.9	3.5	7.2	270	123	67	21
21	13	12	5.1	3.6	3.7	2.9	3.7	8.5	247	162	59	18
22	13	11	5.5	3.5	3.7	3.2	3.7	9.5	235	155	53	17
23	13	10	5.0	3.3	3.8	2.9	4.1	13	231	123	51	16
24	13	7.5	4.5	3.3	3.9	2.9	5.6	21	275	106	47	16
25	13	9.9	4.0	3.5	3.9	2.9	6.4	29	260	97	48	15
26	13	8.8	3.5	3.7	3.9	2.9	6.0	42	223	93	48	15
27	13	8.8	3.0	3.9	3.7	2.7	5.5	61	197	91	47	14
28	10	11	2.8	3.9	3.7	2.7	4.9	75	185	83	43	14
29	11	9.9	2.7	4.0	---	2.7	4.6	77	182	76	45	14
30	12	8.5	2.7	4.0	---	2.7	4.6	79	180	79	51	14
31	11	---	2.7	3.9	---	2.7	---	64	---	117	46	---
TOTAL	517	300.1	161.7	107.9	104.8	96.5	106.8	634.1	4531	4402	2303	719
MEAN	16.7	10.0	5.22	3.48	3.74	3.11	3.56	20.5	151	142	74.3	24.0
MAX	26	14	7.8	4.0	4.0	3.7	6.4	79	275	219	152	42
MIN	10	7.2	2.7	2.8	3.0	2.7	2.6	4.4	59	76	43	14
AC-FT	1030	595	321	214	208	191	212	1260	8990	8730	4570	1430

CAL YR 1982 TOTAL 11471.5 MEAN 31.4 MAX 162 MIN 2.7 AC-FT 22750  
WTR YR 1983 TOTAL 13983.9 MEAN 38.3 MAX 275 MIN 2.6 AC-FT 27740

NOTE.--NO GAGE-HEIGHT RECORD DEC. 23 TO FEB. 24.

## ARKANSAS RIVER BASIN

07083000 HALFMOON CREEK NEAR MALTA, CO--Continued  
(Hydrologic bench-mark station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- November 1966 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: May 1967 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 26.0°C Aug. 16, 1980; minimum, 0.0°C on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DATE	TIME								
OCT 26...	1730	13	90	80	7.2	6.0	8.5	<1	<1
MAY 04...	1030	4.6	--	95	7.1	2.5	9.8	<1	<1
17...	1415	8.1	--	95	7.1	6.5	11.9	K1	K2
JUL 20...	1330	104	<50	52	7.4	9.0	10.0	K5	K9
AUG 25...	0940	46	83	80	7.7	7.0	10.0	K2	K4

K BASED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

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07083000 HALFMOON CREEK NEAR MALTA, CO--Continued

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT					JUL				
26...	1730	13	0	.00	20...	1330	104	8	2.2
MAY					AUG				
04...	1030	4.6	9	.11	25...	0940	46	24	3.0
17...	1415	8.1	5	.11					
JUN									
20...	1430	206	36	20					

## ARKANSAS RIVER BASIN

07083700 ARKANSAS RIVER NEAR MALTA, CO

LOCATION.--Lat 39°10'08", long 106°19'23", in NE¼NW¼ sec.22, T.10 S., R.80 W., Lake County, Hydrologic Unit 11020001, on left bank 40 ft downstream and 30 ft shoreward of left end of bridge on U.S. Highway 24, 3.5 mi downstream from Lake Fork, 4.4 mi southeast of Malta, and 5.7 mi south of Leadville.

DRAINAGE AREA.--228 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to September 1967, October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 9,300 ft, from topographic map.

REMARKS.--Records good except those for winter period and those for periods of no gage-height record, which are poor. Flow regulated by Turquoise Lake (station 07082400) on Lake Fork 8 mi upstream. Transmountain diversions from Colorado River basin to Arkansas River basin enter upstream from this station (see elsewhere in this report). Diversions for irrigation of about 5,600 acres above station. Diversions from Colorado River basin to Lake Creek basin above station through Homestake tunnel began in May 1967 and through Charles H. Boustead tunnel in May 1972; since June 1981, this imported water has been diverted from Turquoise Lake through Mt. Elbert conduit, bypassing this station. Most of the natural flow of Lake Fork and Halfmoon Creek has also been diverted through Mt. Elbert conduit since June 1981, and returned to the river below this station.

AVERAGE DISCHARGE.--9 years (water years 1975-83), 241 ft<sup>3</sup>/s; 174,600 acre-ft/yr, subsequent to enlarging Turquoise Lake in 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 2,200 ft<sup>3</sup>/s May 12, 1980, gage height, about 5.4 ft, from rating curve extended above 1,900 ft<sup>3</sup>/s; minimum daily, 40 ft<sup>3</sup>/s Oct. 11, 12, 16-20, 1974, Dec. 7-12, Dec. 25, 1976, to Jan. 15, 1977, Jan. 25 to Feb. 7, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,760 ft<sup>3</sup>/s June 24, gage height, 4.86 ft; minimum daily, 60 ft<sup>3</sup>/s Dec. 27-Jan. 1.

CORRECTIONS.--The date of occurrence for the maximum discharge for water year 1980 was published in error. The correct date is June 12. This date supersedes that published in WDR-CO-80-1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	100	80	60	69	70	70	82	280	1320	1140	233
2	130	100	72	64	66	70	70	82	430	1380	1080	210
3	129	98	70	68	66	70	68	82	280	1360	1080	199
4	129	102	74	71	66	70	66	84	290	1310	1030	219
5	127	102	74	71	66	70	66	93	360	1290	953	194
6	131	109	74	72	66	70	68	91	290	1320	1230	173
7	129	109	74	72	66	70	68	90	270	1350	1060	169
8	127	100	74	70	70	70	70	90	330	1390	1000	165
9	127	100	72	66	70	70	70	90	400	1440	1070	160
10	124	100	70	64	70	70	70	90	460	1440	1030	155
11	125	98	74	66	70	70	70	92	550	1420	991	151
12	127	98	74	70	70	70	70	92	630	1330	903	143
13	125	96	74	70	70	70	70	92	550	1290	708	137
14	125	96	74	70	70	70	70	92	400	1270	618	139
15	127	98	74	70	70	70	70	92	470	1230	338	151
16	126	100	74	70	70	69	69	92	540	1190	323	136
17	126	100	74	70	70	69	69	91	620	1160	276	129
18	124	100	74	70	70	69	69	92	800	1140	277	124
19	123	100	74	70	70	69	69	96	1100	1160	292	127
20	124	96	74	70	70	69	74	110	1350	1210	300	134
21	122	96	74	68	70	71	76	100	1550	1290	259	122
22	123	93	74	68	70	74	82	115	1500	1340	234	120
23	124	90	72	68	70	75	82	130	1600	1210	232	123
24	124	94	68	68	70	73	82	140	1680	1100	233	124
25	122	90	64	68	70	70	82	150	1670	922	224	118
26	123	86	62	70	70	70	82	160	1630	787	240	113
27	123	86	60	76	70	70	82	220	1530	735	245	108
28	123	82	60	80	70	70	82	250	1450	793	250	105
29	111	80	60	78	---	70	82	280	1400	910	247	106
30	102	81	60	74	---	70	82	310	1300	1050	301	108
31	102	---	60	70	---	70	---	290	---	1080	301	---
TOTAL	3834	2880	2188	2162	1935	2178	2200	3960	25710	37217	18465	4395
MEAN	124	96.0	70.6	69.7	69.1	70.3	73.3	128	857	1201	596	147
MAX	131	109	80	80	70	75	82	310	1680	1440	1230	233
MIN	102	80	60	60	66	69	66	82	270	735	224	105
AC-FT	7600	5710	4340	4290	3840	4320	4360	7850	51000	73820	36630	8720
CAL YR 1982 TOTAL	55469											
WTR YR 1983 TOTAL	107124											
MEAN 152												
MAX 1680												
MIN 60												
AC-FT 110000												
AC-FT 212500												

NOTE.--NO GAGE-HEIGHT RECORD NOV. 22 TO JAN. 4, JAN. 13 TO APR. 20, MAY 6 TO JUNE 21.

## ARKANSAS RIVER BASIN

199

07083700 ARKANSAS RIVER NEAR MALTA, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1983 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	
DATE	TIME								
OCT 26...	1100	123	200	193	7.4	5.0	--	82	
FEB 01...	1145	69	210	218	7.5	.0	--	89	
APR 21...	0915	76	216	226	7.6	2.0	--	96	
MAY 17...	1030	91	190	207	8.2	2.0	--	87	
JUL 20...	1145	1210	--	64	7.2	11.0	11.2	26	
DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 26...	20	7.7	3.7	.2	1.0	54	39	2.2	.30
FEB 01...	22	8.2	4.6	.2	1.0	55	44	2.6	.20
APR 21...	24	8.8	4.7	.2	1.7	57	45	2.9	.20
MAY 17...	21	8.3	4.0	.2	1.1	51	46	2.3	.20
JUL 20...	6.8	2.2	1.4	.1	.60	23	10	.50	.20
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	
OCT 26...	7.8	110	.16	38	.130	.010	84	370	
FEB 01...	8.3	120	.17	23	.430	.020	240	460	
APR 21...	9.1	130	.18	27	.210	.010	240	500	
MAY 17...	8.6	120	.17	30	.170	.020	350	700	
JUL 20...	4.4	40	.05	132	<.100	.030	300	89	

## ARKANSAS RIVER BASIN

07084500 LAKE CREEK ABOVE TWIN LAKES RESERVOIR, CO

LOCATION.--Lat 39°03'47", long 106°24'26", Lake County, Hydrologic Unit 11020001, on left bank 1.2 mi upstream from water line of Twin Lakes Reservoir at elevation 9,200 ft and 1.9 mi southwest of village of Twin Lakes.

DRAINAGE AREA.--75 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1946 to September 1962, October 1963 to current year. Monthly discharge only for some periods, published in WSP 1241, 1311, and 1731.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1711: 1951(M), 1952.

GAGE.--Water-stage recorder. Altitude of gage is 9,310 ft, from topographic map. Prior to May 20, 1950, at site 190 ft downstream, at different datum. May 20, 1950, to Apr. 7, 1953, at site 10 ft upstream, at present datum.

REMARKS.--Records good except those for period of no gage-height record, which are poor. No diversion above station. Records include inflow from Roaring Fork River in Colorado River basin through Twin Lakes tunnel (see elsewhere in this report).

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--35 years (water years 1947-62, 1964-82), 167 ft<sup>3</sup>/s; 121,000 acre-ft/yr: 36 years, (water years 1947-62), 168 ft<sup>3</sup>/s; 121,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,270 ft<sup>3</sup>/s June 15, 1978, gage height, 5.08 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s; minimum not determined.

EXTREMES FOR 1982 WATER YEAR.--Maximum discharge, 1,450 ft<sup>3</sup>/s at 2200 June 27, gage height, 4.00 ft; minimum daily, 9.0 ft<sup>3</sup>/s Feb. 6.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft<sup>3</sup>/s at 2030 June 20, gage height, 4.81 ft; minimum daily, 6.0 ft<sup>3</sup>/s Mar. 17, 18, 25-27, Apr. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	38	18	21	19	15	20	66	748	1220	357	105
2	71	58	18	16	15	17	20	90	770	1130	334	96
3	74	57	18	17	13	20	18	131	755	1040	318	89
4	68	58	20	17	13	17	21	196	740	973	268	85
5	44	54	20	18	11	13	23	190	822	854	184	96
6	42	44	22	18	9.0	13	22	196	830	762	239	102
7	40	30	22	13	12	15	23	182	778	673	239	89
8	40	28	22	15	13	15	21	165	878	631	215	81
9	44	24	21	18	13	15	23	160	910	710	202	77
10	51	22	21	20	15	17	22	163	1030	680	193	74
11	50	22	21	20	13	17	26	165	1010	702	176	82
12	44	22	21	18	13	17	30	135	1090	688	184	142
13	51	23	21	16	15	15	28	142	1080	673	199	128
14	54	23	20	16	18	17	28	126	973	631	212	88
15	65	23	22	18	18	17	28	117	955	617	196	90
16	40	24	22	18	16	14	28	115	991	545	184	124
17	67	26	21	20	16	14	26	115	1170	527	168	126
18	65	23	18	20	14	16	26	120	1230	509	171	150
19	37	18	21	20	14	16	25	124	982	485	163	145
20	33	16	24	20	14	14	24	128	886	473	165	126
21	36	19	24	18	16	12	23	128	1000	455	174	104
22	52	21	22	16	20	12	24	163	1080	415	184	113
23	35	23	19	16	20	15	25	326	1130	366	206	124
24	67	21	16	18	18	15	26	467	1190	380	184	117
25	66	24	19	20	18	18	27	405	1200	380	174	115
26	52	21	21	22	15	20	29	380	1170	385	182	115
27	35	19	21	24	15	18	32	503	1210	366	165	111
28	33	17	21	21	18	20	33	578	1270	455	152	109
29	34	20	21	19	---	23	42	702	1300	617	140	104
30	33	20	23	17	---	20	51	740	1230	533	126	117
31	32	---	23	19	---	17	---	710	---	385	117	---
TOTAL	1530	838	643	569	424.0	504	794	7928	30408	19260	6171	3224
MEAN	49.4	27.9	20.7	18.4	15.1	16.3	26.5	256	1014	621	199	107
MAX	75	58	24	24	20	23	51	740	1300	1220	357	150
MIN	32	16	16	13	9.0	12	18	66	740	366	117	74
AC-FT	3030	1660	1280	1130	841	1000	1570	15730	60310	38200	12240	6390
CAL YR 1981	TOTAL	42084.0	MEAN	115	MAX	1140	MIN	6.5	AC-FT	83470		
WTR YR 1982	TOTAL	72293.0	MEAN	198	MAX	1300	MIN	9.0	AC-FT	143400		

NOTE.--NO GAGE-HEIGHT RECORD NOV. 18 TO APR. 23.

## ARKANSAS RIVER BASIN

201

07084500 LAKE CREEK ABOVE TWIN LAKES RESERVOIR, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	58	22	16	11	12	8.0	18	467	1280	461	135
2	105	82	21	16	10	12	7.0	19	503	1230	479	105
3	120	75	21	15	10	12	8.0	20	467	1170	473	102
4	94	65	22	14	10	11	6.5	20	571	1060	485	120
5	89	53	22	15	10	11	6.0	22	584	1050	431	140
6	77	57	22	15	10	10	6.5	26	604	1040	503	128
7	90	54	21	15	10	9.0	6.5	30	624	1040	503	115
8	84	50	21	15	11	9.0	7.0	34	645	1000	431	100
9	68	32	21	14	10	9.0	7.0	36	666	973	352	76
10	98	42	22	13	10	10	7.0	36	688	1180	314	75
11	80	41	22	14	10	10	7.5	37	710	1040	314	73
12	60	40	21	14	11	9.0	8.0	37	732	815	334	71
13	69	40	21	14	12	9.0	8.0	37	755	652	330	69
14	85	39	20	14	11	9.0	10	37	778	673	310	64
15	80	35	20	14	11	9.0	10	37	792	638	302	59
16	88	35	21	13	11	7.0	10	35	808	590	253	65
17	84	34	22	13	11	6.0	10	32	973	558	212	74
18	65	33	21	13	12	6.0	11	28	1330	539	215	71
19	74	30	20	12	12	6.5	11	26	1480	552	239	60
20	70	28	19	12	11	7.0	11	25	1940	578	236	54
21	75	26	19	11	12	8.0	11	26	1800	604	212	50
22	79	23	19	11	12	6.5	11	35	1610	578	196	48
23	67	21	19	11	12	6.5	12	46	1650	552	182	48
24	71	18	18	12	12	6.5	12	65	1770	473	174	88
25	74	20	15	12	12	6.0	14	102	1790	405	179	79
26	73	21	14	13	11	6.0	14	176	1620	405	182	55
27	80	20	14	13	11	6.0	14	242	1520	390	174	40
28	75	21	15	13	11	6.5	16	370	1400	375	163	38
29	70	20	16	13	---	7.0	16	443	1370	348	165	38
30	50	22	16	12	---	8.0	16	539	1300	344	176	42
31	48	---	16	11	---	8.0	---	485	---	390	163	---
TOTAL	2459	1135	603	413	307	258.5	302.0	3121	31947	22522	9143	2282
MEAN	79.3	37.8	19.5	13.3	11.0	8.34	10.1	101	1065	727	295	76.1
MAX	120	82	22	16	12	12	16	539	1940	1280	503	140
MIN	48	18	14	11	10	6.0	6.0	18	467	344	163	38
AC-FT	4880	2250	1200	819	609	513	599	6190	63370	44670	18140	4530
CAL YR 1982	TOTAL	73479.0	MEAN	201	MAX	1300	MIN	9.0	AC-FT	145700		
WTR YR 1983	TOTAL	74492.5	MEAN	204	MAX	1940	MIN	6.0	AC-FT	147800		

NOTE.--NO GAGE-HEIGHT RECORD NOV. 12 TO MAR. 12.

## ARKANSAS RIVER BASIN

07086000 ARKANSAS RIVER AT GRANITE, CO

LOCATION.--Lat 39°02'34", long 106°15'55", in SE¼SW¼ sec.31, T.11 S., R.79 W., Chaffee County, Hydrologic Unit 11020001, on right bank at Granite, 100 ft east of U.S. Highway 24, 100 ft downstream from county bridge, and 200 ft upstream from Cache Creek.

DRAINAGE AREA.--427 mi<sup>2</sup>.

PERIOD OF RECORD.--April to October 1895, May to December 1897, August to September 1898, March to October 1899, April to May 1901 (gage heights and discharge measurements only in 1895, 1899, and 1901), April 1910 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1711: 1952, 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 8,914.86 ft, National Geodetic Vertical Datum of 1929, supplementary adjustment of 1960. Prior to Apr. 6, 1910, nonrecording gages near present site at different datums. Apr. 6, 1910, to Oct. 25, 1917, water-stage recorder or nonrecording gage at site 832 ft upstream, at different datum. Oct. 26, 1917, to Oct. 26, 1960, water-stage recorder at site 168 ft downstream, at present datum.

REMARKS.--Records good. Diversions above station for irrigation of about 6,700 acres. Turquoise Lake and Twin Lakes Reservoir, on tributaries above station, have a combined capacity of 269,700 acre-ft. Transmountain diversions from Colorado River basin to Arkansas River basin enter above this station (see elsewhere in this report).

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--72 years (water years 1911-82), 374 ft<sup>3</sup>/s; 271,000 acre-ft/yr: 73 years (water years 1911-83), 378 ft<sup>3</sup>/s; 273,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft<sup>3</sup>/s June 28, 1957, gage height, 7.20 ft; minimum not determined.

EXTREMES FOR 1982 WATER YEAR.--Maximum discharge, 1,830 ft<sup>3</sup>/s at 1600 June 18, gage height, 4.59 ft; minimum daily, 165 ft<sup>3</sup>/s Dec. 3.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,600 ft<sup>3</sup>/s at 1700 June 25, gage height, 5.74 ft; minimum daily, 98 ft<sup>3</sup>/s Apr 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	238	168	202	305	375	211	310	1100	1740	876	360
2	241	235	168	196	300	408	211	350	1200	1700	831	330
3	244	226	165	196	305	396	217	432	1140	1630	777	325
4	247	235	214	211	310	390	214	559	768	1380	660	325
5	247	235	262	223	305	385	211	620	732	1260	524	345
6	247	223	262	223	290	380	205	545	1120	1240	620	370
7	247	226	262	220	295	380	202	486	1100	1120	822	340
8	250	223	254	229	295	385	202	426	1150	1060	804	350
9	226	220	241	232	320	396	202	396	1230	1050	795	360
10	220	220	241	229	360	390	202	408	1380	1010	831	350
11	220	223	250	229	350	390	208	432	1420	966	858	355
12	220	217	254	229	350	396	217	438	1480	948	849	438
13	229	202	250	229	345	390	217	438	1570	957	849	420
14	235	190	247	274	350	390	226	444	1580	957	867	450
15	254	182	258	315	350	402	244	408	1490	957	831	438
16	278	176	250	315	355	414	235	365	1430	939	822	420
17	262	173	247	315	360	408	226	350	1580	921	795	396
18	258	173	244	315	355	402	226	340	1770	867	786	390
19	250	168	247	315	355	408	226	340	1750	795	786	396
20	244	170	250	315	360	414	217	350	1640	741	813	402
21	220	179	250	315	365	410	211	365	1600	705	813	396
22	220	179	250	315	365	405	208	420	1640	660	804	385
23	220	193	244	305	365	270	238	566	1660	620	849	380
24	223	199	244	300	365	190	258	669	1700	612	705	380
25	223	176	241	305	365	190	258	705	1740	612	538	375
26	232	168	241	310	355	195	266	696	1720	628	524	375
27	238	168	244	310	360	195	235	768	1670	612	468	360
28	235	170	229	295	360	195	220	894	1740	705	456	340
29	238	168	199	305	---	200	254	1000	1770	894	438	320
30	241	170	199	295	---	200	274	1070	1770	1060	414	320
31	241	---	199	300	---	208	---	1060	---	939	390	---
TOTAL	7412	5925	7274	8367	9515	10557	6741	16650	43640	30285	22195	11191
MEAN	239	198	235	270	340	341	225	537	1455	977	716	373
MAX	278	238	262	315	365	414	274	1070	1770	1740	876	450
MIN	220	168	165	196	290	190	202	310	732	612	390	320
AC-FT	14700	11750	14430	16600	18870	20940	13370	33030	86560	60070	44020	22200
CAL YR 1981	TOTAL	124068	MEAN	340	MAX	1590	MIN	109	AC-FT	246100		
WTR YR 1982	TOTAL	179752	MEAN	492	MAX	1770	MIN	165	AC-FT	356500		



## ARKANSAS RIVER BASIN

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07086000 ARKANSAS RIVER AT GRANITE, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	211	474	426	380	396	250	165	723	2580	1240	438
2	365	208	468	414	375	305	250	165	903	2590	1040	420
3	355	196	468	426	375	250	250	162	669	2530	1030	408
4	345	196	456	432	375	250	160	170	652	2480	1020	426
5	355	196	456	450	380	250	109	176	714	2370	939	402
6	355	196	456	444	375	250	102	182	588	2290	1340	380
7	330	196	456	444	375	247	102	170	468	2400	1240	375
8	325	199	456	444	375	247	103	187	636	2530	1180	370
9	330	205	450	432	375	247	98	220	768	2700	1250	370
10	330	202	456	432	380	247	102	258	831	2680	1210	365
11	340	205	456	432	380	250	102	262	939	2730	1170	360
12	325	205	444	426	375	250	102	232	1050	2700	1110	266
13	315	202	444	432	375	250	105	217	984	2590	948	223
14	290	205	444	432	375	258	102	205	822	2560	876	229
15	300	347	444	432	385	266	102	205	1050	2510	538	238
16	300	480	456	426	385	254	103	202	1550	2460	524	226
17	295	468	456	426	385	254	107	196	1740	2420	474	220
18	315	468	450	426	380	258	129	205	2020	2340	468	217
19	335	468	444	420	390	254	127	202	2450	2300	486	217
20	320	468	444	402	385	254	129	208	2730	2320	498	223
21	305	462	444	408	380	250	129	220	3010	2510	462	214
22	300	456	444	396	385	258	134	229	2850	2780	426	211
23	300	462	450	390	385	254	148	232	2880	2610	426	211
24	300	450	444	396	395	250	176	262	3100	2480	426	217
25	300	456	438	402	402	254	187	330	3320	2260	426	211
26	286	456	432	396	402	250	176	438	3370	2090	462	205
27	282	456	444	396	396	250	160	612	3220	2000	462	199
28	278	450	438	402	396	247	165	510	3100	1910	462	193
29	266	474	450	414	---	247	173	420	2950	1720	462	193
30	258	474	420	408	---	250	173	492	2630	1550	524	193
31	232	---	415	390	---	258	---	474	---	1400	510	---
TOTAL	9707	10117	13897	12996	10721	8005	4255	8208	52717	73390	23629	8420
MEAN	313	337	448	419	383	258	142	265	1757	2367	762	281
MAX	375	480	474	450	402	396	250	612	3370	2780	1340	438
MIN	232	196	415	390	375	247	98	162	468	1400	426	193
AC-FT	19250	20070	27560	25780	21270	15880	8440	16280	104600	145600	46870	16700
CAL YR 1982	TOTAL	192862	MEAN 528	MAX	1770	MIN 190	AC-FT 382500					
WTR YR 1983	TOTAL	236062	MEAN 647	MAX	3370	MIN 98	AC-FT 468200					

## ARKANSAS RIVER BASIN

07089000 COTTONWOOD CREEK BELOW HOT SPRINGS, NEAR BUENA VISTA, CO

LOCATION.--Lat 38°48'46", long 106°13'18", in SE¼SE¼ sec.21, T.14 S., R.79 W., Chaffee County, Hydrologic Unit 11020001, on left bank 0.2 mi downstream from Cottonwood Hot Springs, 0.9 mi downstream from confluence of Middle Cottonwood and South Cottonwood Creeks, 2.9 mi upstream from North Cottonwood Creek, and 5.5 mi southwest of Buena Vista.

DRAINAGE AREA.--65.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1910 to September 1923, August 1949 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1177: 1915, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 8,532 ft, from river-profile survey. Prior to Oct. 1, 1923, nonrecording gage near present site at different datum.

REMARKS.--Records good. Several small diversions above station for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--47 years (water years 1911-23, 1950-83), 55.3 ft<sup>3</sup>/s; 40,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,180 ft<sup>3</sup>/s July 1, 1957, gage height, 4.52 ft, from floodmarks, from rating curve extended above 690 ft<sup>3</sup>/s; minimum observed, 10 ft<sup>3</sup>/s Mar. 20-23, 25, Apr. 9, 19, 1914.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 21	0130	463	2.95	June 24	0230	*493	3.01

Minimum daily discharge, 15 ft<sup>3</sup>/s May 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	36	26	24	21	19	18	18	74	248	114	47
2	66	33	26	23	21	19	18	19	82	227	109	45
3	62	30	26	23	21	19	18	18	77	214	106	48
4	60	33	26	23	21	19	18	20	89	224	120	46
5	57	34	26	23	21	19	18	21	98	205	102	44
6	52	34	26	23	21	19	18	22	82	188	98	43
7	50	33	25	23	21	19	18	20	92	180	89	41
8	51	34	25	23	21	19	17	21	102	179	100	39
9	48	34	26	23	21	19	17	16	116	171	84	38
10	46	33	26	23	21	19	17	15	121	204	77	39
11	48	32	25	23	20	19	17	21	144	209	74	38
12	45	30	25	23	20	19	17	26	186	183	76	36
13	47	31	25	23	20	19	17	28	128	166	81	36
14	44	29	25	22	20	19	17	26	98	155	82	36
15	44	29	25	22	20	19	17	24	115	147	77	40
16	43	30	26	22	20	18	17	23	147	131	78	41
17	41	29	26	22	20	19	17	22	171	131	68	39
18	40	29	26	22	20	19	18	22	225	127	66	35
19	38	29	25	22	19	18	19	22	304	123	64	39
20	37	28	26	22	19	18	18	22	355	117	61	47
21	37	27	26	22	19	18	18	20	423	115	52	42
22	39	26	26	22	19	18	18	25	390	131	53	42
23	39	26	26	22	19	18	19	30	406	112	54	52
24	40	25	26	22	20	18	21	37	428	96	61	57
25	40	26	25	22	19	18	24	43	401	82	61	44
26	40	26	25	22	19	18	24	48	375	82	63	43
27	40	26	25	22	19	18	21	63	345	91	61	42
28	36	26	24	21	19	18	20	83	310	89	54	41
29	34	26	24	21	---	18	19	94	276	85	52	40
30	38	26	24	21	---	18	19	100	243	108	51	44
31	38	---	23	21	---	19	---	94	---	95	50	---
TOTAL	1413	890	786	692	561	576	554	1063	6403	4615	2338	1264
MEAN	45.6	29.7	25.4	22.3	20.0	18.6	18.5	34.3	213	149	75.4	42.1
MAX	73	36	26	24	21	19	24	100	428	248	120	57
MIN	34	25	23	21	19	18	17	15	74	82	50	35
AC-FT	2800	1770	1560	1370	1110	1140	1100	2110	12700	9150	4640	2510

CAL YR 1982	TOTAL	18965	MEAN 52.0	MAX 212	MIN 13	AC-FT 37620
WTR YR 1983	TOTAL	21155	MEAN 58.0	MAX 428	MIN 15	AC-FT 41960

ARKANSAS RIVER BASIN

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07093700 ARKANSAS RIVER NEAR WELLSVILLE, CO

LOCATION.--Lat 38°30'10", long 105°56'21", in SW¼NE¼ sec.14, T.49 N., R.9 E., Chaffee County, Hydrologic Unit 11020001, on right bank 50 ft upstream from Chaffee-Fremont County line, 2.0 mi northwest of Wellsville, 2.8 mi downstream from South Arkansas River, and 3.5 mi southeast of Salida.

DRAINAGE AREA.--1,485 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,883.4 ft, National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Records good except those for period of no gage-height record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions for irrigation of about 26,000 acres, and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey).

AVERAGE DISCHARGE.--22 years, 702 ft<sup>3</sup>/s; 508,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,240 ft<sup>3</sup>/s June 12, 1980, gage height, 8.02 ft; minimum daily, 110 ft<sup>3</sup>/s Jan. 12, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown; minimum daily, 208 ft<sup>3</sup>/s Apr. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	728	494	710	565	565	565	404	258	997	3750	2100	872
2	770	490	698	555	565	555	383	240	1400	3660	1860	818
3	734	467	670	575	545	431	395	236	1100	3620	1850	806
4	704	449	675	585	550	426	404	236	1020	3560	1920	794
5	675	472	675	620	550	418	331	240	1090	3460	1960	788
6	640	467	675	605	560	404	233	247	1120	3350	2320	734
7	665	462	686	600	555	408	226	247	962	3350	2490	722
8	698	472	675	605	560	400	219	240	1050	3450	2120	692
9	698	467	680	605	560	395	208	250	1280	3530	1920	675
10	710	462	680	580	560	400	216	283	1340	3500	1810	670
11	716	467	670	585	570	391	216	315	1740	3530	1710	650
12	698	467	655	575	585	387	216	295	2270	3560	1650	635
13	698	458	645	580	585	387	222	444	2110	3400	1640	521
14	655	458	640	585	580	383	226	472	1750	3290	1650	503
15	595	458	630	585	580	408	222	467	1570	3140	1440	494
16	595	675	635	575	580	404	222	295	2360	2970	1270	503
17	585	704	635	575	575	395	222	264	2760	2830	1190	655
18	580	704	645	575	575	395	222	250	3350	2760	1140	585
19	600	704	615	575	595	395	230	254	4110	2710	1140	467
20	575	704	625	565	585	395	230	299	4400	2700	1160	454
21	545	710	620	565	555	387	236	299	4800	2800	1120	454
22	540	698	620	565	550	400	240	275	4900	3130	1020	408
23	540	692	625	565	555	395	240	275	4500	3080	890	391
24	526	665	625	560	555	387	258	311	5000	2970	872	391
25	526	686	595	555	580	391	307	375	5200	2710	890	391
26	530	692	600	570	590	391	323	570	5400	2630	872	391
27	530	692	600	565	575	387	287	776	5150	2560	890	379
28	516	686	570	565	565	395	261	1020	4850	2480	878	367
29	494	692	550	560	---	387	261	812	4500	2320	866	363
30	512	722	550	560	---	391	268	976	3960	2220	890	592
31	503	---	550	560	---	404	---	1110	---	2020	908	---
TOTAL	19081	17436	19724	17860	15905	12657	7928	12631	86039	95040	44436	17165
MEAN	616	581	636	576	568	408	264	407	2868	3066	1433	572
MAX	770	722	710	620	595	565	404	1110	5400	3750	2490	872
MIN	494	449	550	555	545	383	208	236	962	2020	866	363
AC-FT	37850	34580	39120	35430	31550	25110	15730	25050	170700	188500	88140	34050
CAL YR 1982	TOTAL	293759	MEAN	805	MAX	2800	MIN	202	AC-FT	582700		
WTR YR 1983	TOTAL	365902	MEAN	1002	MAX	5400	MIN	208	AC-FT	725800		

NOTE.--NO GAGE-HEIGHT RECORD JUNE 23-29.

## ARKANSAS RIVER BASIN

07093740 BADGER CREEK, UPPER STATION, NEAR HOWARD, CO

LOCATION.--Lat 38°39'25", long 105°48'45", in SE¼NE¼ sec.24, T.51 N.(corrected), R.10 E., Fremont County, Hydrologic Unit 11020001, on left bank 0.4 mi downstream from County Road 2, 0.7 mi upstream from Steer Creek, 14.0 mi north of Howard, and 14.3 mi upstream from mouth.

DRAINAGE AREA.--106 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 8,780 ft, from topographic map.

REMARKS.--Records good except those between 20 ft<sup>3</sup>/s and 250 ft<sup>3</sup>/s, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,360 ft<sup>3</sup>/s Aug. 14, 1983, gage height, 8.22 ft, result of indirect determination of peak flow; minimum daily, 3.1 ft<sup>3</sup>/s Oct. 5, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 10	1730	46	5.34	May 9	1915	49	5.38
Apr. 18	1945	109	5.94	Aug. 4	1600	200	6.41
Apr. 20	1945	108	5.93	Aug. 14	1700	a* 1360	8.22
Apr. 24	2115	110	5.95				

Minimum daily discharge, 3.1 ft<sup>3</sup>/s Oct. 5.a-From rating curve extended above 7.7 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow.DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	4.3	5.6	3.8	4.6	4.8	4.3	9.7	7.3	3.7	14	4.3
2	4.2	4.3	5.3	3.7	4.7	4.8	4.4	8.9	6.7	3.6	6.8	4.0
3	3.4	4.4	5.1	3.7	4.8	4.8	4.1	8.4	5.8	3.6	6.3	4.2
4	3.2	4.4	4.9	3.7	4.9	4.8	3.7	10	5.3	3.6	23	4.2
5	3.1	4.5	4.9	3.7	4.8	4.9	3.8	15	5.3	3.6	13	4.0
6	3.2	4.5	4.9	3.7	4.7	4.9	3.9	14	5.7	3.6	6.4	4.0
7	3.4	4.6	4.9	3.8	4.6	4.9	4.1	12	6.0	3.7	5.2	4.0
8	3.5	4.6	4.8	3.8	4.6	4.9	4.2	21	5.8	3.7	4.5	4.0
9	3.6	4.6	4.8	3.9	4.5	4.9	4.6	24	5.4	3.6	4.1	4.0
10	3.6	4.7	4.7	3.8	4.5	4.9	12	17	5.2	3.6	3.9	4.0
11	3.5	4.8	4.7	3.6	4.5	4.9	8.0	12	5.0	3.6	3.7	4.0
12	3.5	4.8	4.6	3.6	4.6	4.9	7.2	9.1	5.0	3.7	3.7	4.0
13	3.5	4.8	4.6	3.6	4.7	4.9	6.1	8.3	4.8	3.7	3.7	4.0
14	3.5	4.9	4.6	3.6	4.7	4.9	5.1	8.6	4.8	3.7	65	4.2
15	3.5	4.9	4.5	3.6	4.8	5.5	5.2	8.8	4.6	3.7	5.4	4.3
16	3.5	5.0	4.5	3.7	4.7	6.0	5.2	9.2	4.4	3.8	3.9	4.4
17	3.5	5.0	4.4	3.7	4.7	5.5	7.4	9.5	4.4	3.7	3.6	4.4
18	3.6	5.1	4.4	3.7	4.7	5.0	27	8.5	4.2	3.7	3.6	4.4
19	3.5	5.1	4.3	3.8	4.9	5.0	31	9.0	4.2	3.6	3.6	4.4
20	3.6	5.2	4.3	3.8	5.0	5.0	33	9.0	4.1	3.7	3.8	4.4
21	3.7	5.2	4.2	3.8	4.9	5.0	21	8.9	4.0	3.9	3.8	4.5
22	3.8	5.3	4.2	3.8	4.9	5.0	14	10	3.9	3.9	3.7	4.5
23	3.8	5.3	4.2	3.9	4.8	5.0	12	8.3	3.9	3.9	3.7	4.5
24	3.8	5.4	4.1	4.0	4.8	5.0	32	7.2	3.9	3.9	3.7	4.5
25	3.9	5.4	4.1	4.1	4.8	5.2	37	6.4	3.8	3.9	3.7	4.5
26	3.9	5.5	4.0	4.1	4.8	5.1	24	6.2	4.0	5.5	4.8	4.5
27	4.0	5.5	4.0	4.2	4.8	5.0	15	5.8	4.5	4.9	5.2	4.5
28	4.0	5.6	3.9	4.3	4.8	4.7	12	5.5	5.1	4.5	4.3	4.5
29	4.1	5.6	3.9	4.3	---	4.4	12	6.0	4.4	4.4	4.0	4.5
30	4.2	5.6	3.8	4.4	---	4.7	14	6.4	3.9	4.1	3.9	4.5
31	4.2	---	3.8	4.4	---	5.7	---	7.3	---	4.4	4.0	---
TOTAL	114.2	148.9	139.0	119.6	132.6	155.0	377.3	310.0	145.4	120.5	232.0	128.2
MEAN	3.68	4.96	4.48	3.86	4.74	5.00	12.6	10.0	4.85	3.89	7.48	4.27
MAX	4.4	5.6	5.6	4.4	5.0	6.0	37	24	7.3	5.5	65	4.5
MIN	3.1	4.3	3.8	3.6	4.5	4.4	3.7	5.5	3.8	3.6	3.6	4.0
AC-FT	227	295	276	237	263	307	748	615	288	239	460	254

CAL YR 1982 TOTAL 1740.7 MEAN 4.77 MAX 38 MIN 3.1 AC-FT 3450  
WTR YR 1983 TOTAL 2122.7 MEAN 5.82 MAX 65 MIN 3.1 AC-FT 4210

NOTE.--NO GAGE-HEIGHT RECORD FEB. 25 TO MAR. 27.

07093740 BADGER CREEK, UPPER STATION, NEAR HOWARD, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1981 to current year (seasonal record only).

PERIOD OF DAILY RECORD.--Suspended sediment discharge June 1981 to current year (seasonal only).

INSTRUMENTATION.--Pumping sediment sampler since June 1981, set to collect sample every twelve hours.

REMARKS.--In addition to automatic sampler, EWI samples are collected by local observer who also exchanges bottles in sampler on a predetermined interval. Sediment data for 1983 is considered fair.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 25,800 mg/L Aug. 20, 1982; minimum daily, 5 mg/L July 12, 1983.

SEDIMENT LOADS: Maximum daily, 15,600 tons Aug. 14, 1983; minimum daily, 0.05 ton Sept. 20-22, 1981, July 12, 1983.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 17,000 mg/L Aug. 14; minimum daily, 5 mg/L July 12, 1983.

SEDIMENT LOADS: Maximum daily, 15,600 tons, Aug. 14; minimum daily, 0.05 ton July 12, 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 27...	1215	3.9	1500	1430	7.3	14.5	8.6	>600	>1000
APR 21...	1300	14	618	575	7.3	6.0	11.8	--	--
JUL 21...	1300	3.9	1580	1460	7.3	16.0	9.8	--	--
AUG 23...	1200	3.7	1390	1400	7.6	16.0	7.0	--	--

DATE	HARD- NESS (MG/L AS CAO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 27...	290	74	25	170	5	12	211	88	270
APR 21...	160	45	11	54	2	6.6	130	37	82
JUL 21...	290	72	26	180	5	11	177	86	280
AUG 23...	290	75	25	170	4	12	212	84	270

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 27...	.50	23	790	1.1	8.3	.440	.010	4	5
APR 21...	.30	17	330	.45	13	.250	.100	93	33
JUL 21...	.50	22	780	1.1	8.3	.400	.020	11	3
AUG 23...	.50	23	790	1.1	7.9	.400	.010	6	8

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PEN- DED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PEN- DED (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PEN- DED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PEN- DED (T/DAY)
APR 21...	1245	14	735	28	JUN 22...	1115	4.0	22	.24
27...	1830	12	140	4.5	JUL 21...	1215	3.9	12	.13
28...	1210	11	56	1.7	SEP 14...	1245	4.3	14	.16
MAY 25...	1330	6.0	61	.99					

## ARKANSAS RIVER BASIN

07093740 BADGER CREEK, UPPER STATION, NEAR HOWARD, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	MEAN		MEAN		CONCEN- TRATION (MG/L)	MEAN	
			SEDIMENT DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	SEDIMENT DISCHARGE (TONS/DAY)	DISCHARGE (CFS)		SEDIMENT DISCHARGE (TONS/DAY)	DISCHARGE (CFS)
			APRIL		MAY			JUNE	
1	4.3	---	---	9.7	---	2.6	7.3	84	1.7
2	4.4	---	---	8.9	75	1.8	6.7	85	1.5
3	4.1	---	---	8.4	80	1.8	5.8	47	.74
4	3.7	---	---	10	379	12	5.3	57	.82
5	3.8	---	---	15	1500	88	5.3	50	.72
6	3.9	---	---	14	1410	62	5.7	60	.92
7	4.1	---	---	12	934	54	6.0	75	1.2
8	4.2	---	---	21	2400	223	5.8	76	1.2
9	4.6	---	---	24	4210	332	5.4	---	---
10	12	---	---	17	2150	114	5.2	---	---
11	8.0	---	---	12	800	26	5.0	---	---
12	7.2	---	---	9.1	108	2.7	5.0	---	---
13	6.1	---	---	8.3	50	1.1	4.8	---	---
14	5.1	---	---	8.6	112	2.7	4.8	---	---
15	5.2	---	---	8.8	52	1.2	4.6	---	---
16	5.2	---	---	9.2	115	2.9	4.4	---	---
17	7.4	---	---	9.5	150	3.8	4.4	---	.36
18	27	---	---	8.5	110	2.5	4.2	---	.30
19	31	---	---	9.0	113	2.7	4.2	---	.20
20	33	---	---	9.0	100	2.4	4.1	---	.20
21	21	1860	126	8.9	98	2.4	4.0	---	.20
22	14	500	19	10	184	5.7	3.9	21	.22
23	12	---	35	8.3	112	2.5	3.9	22	.23
24	32	---	640	7.2	99	2.0	3.9	21	.22
25	37	---	488	6.4	83	1.4	3.8	16	.16
26	24	---	137	6.2	80	1.3	4.0	46	.50
27	15	577	27	5.8	77	1.2	4.5	108	1.3
28	12	150	4.9	5.5	83	1.2	5.1	55	.76
29	12	---	21	6.0	60	.97	4.4	45	.53
30	14	---	26	6.4	112	1.9	3.9	35	.37
31	---	---	---	7.3	100	2.0	---	---	---
TOTAL	377.3	---	1523.9	310.0	---	961.77	145.4	---	14.35
JULY									
1	3.7	22	.22	14	5380	781	4.3	11	.13
2	3.6	18	.17	6.8	301	6.2	4.0	10	.11
3	3.6	---	.12	6.3	170	2.9	4.2	12	.14
4	3.6	19	.18	23	5110	1640	4.2	---	.10
5	3.6	14	.14	13	2770	135	4.0	---	.13
6	3.6	10	.10	6.4	---	2.1	4.0	17	.18
7	3.7	45	.45	5.2	75	1.1	4.0	16	.17
8	3.7	23	.23	4.5	54	.66	4.0	22	.24
9	3.6	11	.11	4.1	26	.29	4.0	18	.19
10	3.6	14	.14	3.9	28	.29	4.0	16	.17
11	3.6	6	.06	3.7	---	.30	4.0	6	.06
12	3.7	5	.05	3.7	27	.27	4.0	---	.10
13	3.7	9	.09	3.7	---	.30	4.0	---	.10
14	3.7	7	.07	65	17000	15600	4.2	14	.16
15	3.7	10	.10	5.4	2380	38	4.3	14	.16
16	3.8	15	.15	3.9	---	2.6	4.4	---	.10
17	3.7	14	.14	3.6	---	.70	4.4	---	.10
18	3.7	14	.14	3.6	---	.30	4.4	---	.20
19	3.6	12	.12	3.6	21	.20	4.4	---	.20
20	3.7	10	.10	3.8	22	.23	4.4	---	.20
21	3.9	12	.13	3.8	9	.09	4.5	---	.20
22	3.9	13	.14	3.7	16	.16	4.5	---	.20
23	3.9	13	.14	3.7	24	.24	4.5	---	.20
24	3.9	---	.10	3.7	21	.21	4.5	---	.20
25	3.9	16	.17	3.7	---	.20	4.5	---	.20
26	5.5	658	26	4.8	618	11	4.5	---	.20
27	4.9	504	9.2	5.2	415	6.3	4.5	---	.20
28	4.5	64	.79	4.3	80	.93	4.5	---	.20
29	4.4	110	1.3	4.0	10	.11	4.5	---	.20
30	4.1	50	.55	3.9	12	.13	4.5	---	.20
31	4.4	---	8.6	4.0	16	.17	---	---	---
TOTAL	120.5	---	50.00	232.0	---	18231.98	128.2	---	4.94
YEAR	2122.7		20786.94						

07093775 BADGER CREEK, LOWER STATION NEAR HOWARD, CO

LOCATION (REVISED).--Lat 38°28'02", long 105°51'34", in SW¼SW¼ sec.27, T.49 N., R.10 E., Fremont County, Hydrologic Unit 11020001, on left bank 660 ft upstream from Denver and Rio Grande Railroad bridge, 960 ft upstream from mouth, and 1.9 mi northwest of Howard.

DRAINAGE AREA.--211 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,780 ft, from topographic map. Prior to May 19, 1983, at site 360 ft downstream at datum 5.07 ft, lower.

REMARKS.--Records good except those between 260 ft<sup>3</sup>/s and 1,950 ft<sup>3</sup>/s and those for winter period, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,950 ft<sup>3</sup>/s Aug. 14, 1983, gage height, 7.75 ft, (from floodmark) present datum, result of indirect determination of peak flow; minimum daily, 0.56 ft<sup>3</sup>/s Feb. 4, 5, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft<sup>3</sup>/s, revised, and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 18	about 2200	about 90	unknown	May 9	0045	80	4.30
Apr. 20	2200	134	4.91	July 27	1600	52	4.66
Apr. 25	0100	116	4.67	Aug. 1	2345	65	4.75
Apr. 26	0100	104	4.57	Aug. 4	1630	176	5.35
Apr. 30	0415	50	3.75	Aug. 14	1930	* 1,950	a 7.75
May 6	0200	56	4.05				

Minimum daily discharge, 2.1 ft<sup>3</sup>/s Aug. 17.

a-From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	7.5	5.5	4.5	4.8	4.7	9.4	24	30	9.4	17	3.6
2	17	8.0	5.2	5.0	4.6	5.0	10	19	25	8.6	27	3.4
3	15	7.6	5.2	5.5	4.5	5.7	11	15	22	8.0	18	3.4
4	13	7.9	4.7	5.5	4.2	7.3	10	26	20	8.3	45	4.1
5	11	8.1	4.4	5.5	4.0	5.9	10	37	20	8.0	29	3.8
6	10	7.9	4.0	5.8	4.0	5.0	10	51	23	7.5	24	4.1
7	9.4	8.6	3.8	5.6	4.5	5.2	11	24	26	8.1	16	4.4
8	8.5	8.0	3.7	5.3	5.5	5.2	10	44	21	7.7	11	3.8
9	8.0	8.1	3.8	5.2	5.3	5.1	9.4	69	22	7.2	9.5	3.6
10	7.5	8.2	3.9	4.5	5.0	5.1	15	50	21	7.3	8.6	3.6
11	7.0	8.6	3.3	4.0	4.8	5.1	20	31	21	7.9	8.2	3.6
12	7.0	8.0	3.6	4.8	4.8	6.0	15	16	19	8.7	8.6	3.4
13	6.8	7.7	3.7	5.3	4.6	6.7	18	15	18	8.1	8.2	3.6
14	6.6	7.5	3.2	5.6	4.6	7.0	13	16	17	7.4	108	4.1
15	6.3	7.5	3.5	5.7	4.7	7.2	13	15	16	7.2	17	4.1
16	6.0	8.1	2.9	5.6	4.4	7.6	15	17	16	6.4	3.5	3.8
17	5.8	8.8	3.3	5.0	4.3	7.6	18	17	14	6.7	2.1	3.6
18	5.7	7.1	3.2	5.2	4.6	7.2	41	16	13	7.0	2.8	3.4
19	5.6	6.2	2.8	5.9	4.6	7.5	38	15	11	7.2	3.2	3.4
20	5.5	6.2	2.9	4.9	3.9	7.7	46	16	11	7.1	3.3	3.4
21	5.5	6.0	3.6	5.0	4.6	7.9	57	16	11	8.7	3.2	2.8
22	5.6	6.5	3.3	5.7	3.9	7.6	47	23	11	10	3.3	4.1
23	5.6	5.9	3.0	5.0	4.1	7.7	38	19	10	9.6	2.3	4.1
24	5.0	5.6	2.7	5.0	4.4	6.9	52	19	11	9.0	2.4	4.1
25	5.8	6.2	2.7	5.0	4.4	7.7	65	19	11	8.3	3.0	4.8
26	5.5	5.6	2.5	4.8	4.6	7.1	53	19	15	8.6	3.6	4.7
27	5.8	5.2	2.5	4.6	4.8	6.6	34	20	16	14	6.3	4.7
28	6.8	5.4	2.5	4.6	4.4	6.4	33	18	16	12	4.1	5.1
29	6.9	5.8	2.6	5.0	---	5.8	28	20	12	12	3.8	4.9
30	7.3	5.3	2.9	5.2	---	5.8	33	22	11	10	3.4	4.6
31	7.7	---	3.6	5.0	---	8.8	---	29	---	8.9	3.4	---
TOTAL	248.2	213.1	108.5	159.3	126.9	202.1	782.8	757	510	264.9	408.8	118.1
MEAN	8.01	7.10	3.50	5.14	4.53	6.52	26.1	24.4	17.0	8.55	13.2	3.94
MAX	18	8.8	5.5	5.9	5.5	8.8	65	69	30	14	108	5.1
MIN	5.5	5.2	2.5	4.0	3.9	4.7	9.4	15	10	6.4	2.1	2.8
AC-FT	492	423	215	316	252	401	1550	1500	1010	525	811	234
CAL YR 1982	TOTAL	2100.12	MEAN	5.75	MAX	27	MIN	.56	AC-FT	4170		
WTR YR 1983	TOTAL	3899.70	MEAN	10.7	MAX	108	MIN	2.1	AC-FT	7740		

## ARKANSAS RIVER BASIN

07093775 BADGER CREEK, LOWER STATION, NEAR HOWARD, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1981 to current year (seasonal record only).

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: May 1981 to current year (seasonal record only).

INSTRUMENTATION.--Pumping sediment sampler since May 1981.

REMARKS.--In addition to pumping sediment sampler, samples are collected by local observer who also exchanges sediment bottles in sampler on a prescribed interval. Sediment discharge record is considered fair at normal flow and poor on rises.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 15,400 mg/L (estimated) Aug. 21, 1982; minimum daily, 1 mg/L, Sept. 22, 1981.

SEDIMENT LOADS: Maximum daily, 29,100 tons (estimated) Aug. 14, 1983; minimum daily, no load Sept. 12-30, 1981.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 10,300 mg/L (estimated) Aug. 14; minimum daily, 5 mg/L July 23, Aug. 13.

SEDIMENT LOADS: Maximum daily, 29,100 tons (estimated) Aug. 14; minimum daily, 0.10 ton July 2-3.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 25...	1515	6.3	--	1050	8.2	14.5	9.4	>600	>1000
APR 20...	1130	29	610	601	8.1	9.5	--	--	--
JUL 19...	1530	7.3	926	846	8.6	25.5	7.5	--	--
AUG 24...	1400	2.6	871	857	8.4	26.0	6.4	--	--

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 25...	260	69	21	110	3	8.7	196	93	170
APR 20...	170	47	12	56	2	6.3	128	46	88
JUL 19...	220	59	18	97	3	7.4	185	80	120
AUG 24...	240	65	19	91	3	8.4	188	100	110

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 25...	.60	24	610	.83	10	<.100	.090	8	8
APR 20...	.40	19	350	.48	28	.290	.110	53	15
JUL 19...	.60	25	520	.70	10	<.100	.060	34	5
AUG 24...	.70	26	530	.72	3.7	<.100	.030	170	19



## ARKANSAS RIVER BASIN

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07093775 BADGER CREEK, LOWER STATION, NEAR HOWARD, CO--Continued

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
APR					JUL				
20...	1300	26	2120	149	19...	1445	7.8	13	.27
MAY					AUG				
04...	1515	4.6	28	.35	14...	1445	6.2	70	1.1
23...	1515	18	20	.97	17...	1230	1.8	28	.14
JUN					24...	1400	2.6	28	.20
22...	1630	11	27	.80					
27...	1530	19	144	7.4					

## ARKANSAS RIVER BASIN

07093775 BADGER CREEK, LOWER STATION, NEAR HOWARD, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	9.4	---	1.0	24	207	---	30	60	
2	10	---	1.0	19	---	5.0	25	36	
3	11	---	1.0	15	---	2.0	22	32	
4	10	---	1.0	26	60	---	20	22	
5	10	---	1.0	37	40	---	20	22	
6	10	---	1.0	51	4580	739	23	35	
7	11	---	1.0	24	450	---	26	41	
8	10	---	1.0	44	2370	374	21	25	
9	9.4	---	1.0	69	3390	845	22	22	
10	15	---	1.0	50	2680	537	21	18	
11	20	---	2.0	31	2120	223	21	16	
12	15	---	1.0	16	450	---	19	16	
13	18	---	2.0	15	600	---	18	19	
14	13	---	1.0	16	1000	---	17	16	
15	13	---	1.0	15	1100	---	16	16	
16	15	---	1.0	17	550	---	16	20	
17	18	---	2.0	17	---	25	14	17	
18	41	---	1600	16	---	15	13	21	
19	38	---	1400	15	---	5.0	11	24	
20	46	7850	1870	16	---	2.0	11	27	
21	57	7910	1520	16	---	2.0	11	29	
22	47	720	---	23	---	2.0	11	34	
23	38	1800	---	19	20	---	10	31	
24	52	3020	589	19	30	---	11	49	
25	65	6950	1290	19	28	---	11	43	
26	53	5740	1000	19	39	---	15	60	
27	34	2700	---	20	29	---	16	55	
28	33	2880	---	18	34	---	16	44	
29	28	630	---	20	36	---	12	57	
30	33	342	---	22	31	---	11	24	
31	---	---	---	29	58	---	---	---	
TOTAL	782.8	---	9289.0	757	---	2776.0	510	---	
JULY			AUGUST			SEPTEMBER			
1	9.4	21	---	17	1270	168	3.6	18	
2	8.6	15	---	27	1540	166	3.4	29	
3	8.0	12	---	18	400	---	3.4	67	
4	8.3	41	---	45	2930	987	4.1	156	
5	8.0	---	1.0	29	423	141	3.8	148	
6	7.5	---	1.0	24	---	5.0	4.1	130	
7	8.1	---	1.0	16	59	---	4.4	96	
8	7.7	---	1.0	11	6	---	3.8	110	
9	7.2	---	.50	9.5	11	---	3.6	64	
10	7.3	---	.50	8.6	10	---	3.6	160	
11	7.9	---	1.0	8.2	9	---	3.6	132	
12	8.7	---	1.0	8.6	7	---	3.4	20	
13	8.1	---	.50	8.2	5	---	3.6	86	
14	7.4	---	.30	108	10300	29100	4.1	380	
15	7.2	---	.20	17	---	110	4.1	330	
16	6.4	---	.20	3.5	---	2.0	3.8	82	
17	6.7	---	.20	2.1	---	.30	3.6	76	
18	7.0	---	.20	2.8	---	.30	3.4	72	
19	7.2	13	---	3.2	---	.30	3.4	52	
20	7.1	12	---	3.3	---	.30	3.4	36	
21	8.7	9	---	3.2	---	.30	2.8	48	
22	10	8	---	3.3	---	.30	4.1	120	
23	9.6	5	---	2.3	---	.10	4.1	31	
24	9.0	9	---	2.4	---	.10	4.1	11	
25	8.3	9	---	3.0	17	---	4.8	18	
26	8.6	21	---	3.6	41	---	4.7	10	
27	14	338	24	6.3	260	---	4.7	12	
28	12	---	1.0	4.1	50	---	5.1	15	
29	12	---	1.0	3.8	46	---	4.9	18	
30	10	32	---	3.4	27	---	4.6	14	
31	8.9	---	.50	3.4	31	---	---	---	
TOTAL	264.9	---	35.10	408.8	---	30681.00	118.1	---	
YEAR	3899.7		42781.10						

## ARKANSAS RIVER BASIN

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## 07094500 ARKANSAS RIVER AT PARKDALE, CO

LOCATION.--Lat 38°29'14", long 105°22'23", in NE¼NW¼ sec.18, T.18 S., R.71 W., Fremont County, Hydrologic Unit 11020001, on left bank at Parkdale, 100 ft upstream from Bumback Gulch, 300 ft upstream from bridge on U.S. Highway 50, and 0.9 mi upstream from Copper Gulch.

DRAINAGE AREA.--2,548 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to September 1955, October 1964 to current year. Monthly discharge only for October 1945 to May 1946, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,720 ft, from topographic map. Prior to Oct. 1, 1964, at site 600 ft downstream at different datum.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, diversions for irrigation of about 35,000 acres above station, and return flow from irrigated areas.

AVERAGE DISCHARGE.--29 years (water years 1946-55, 1965-83), 784 ft<sup>3</sup>/s; 568,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,310 ft<sup>3</sup>/s, June 26, 1983, gage height, 7.76 ft; maximum gage height, 9.02 ft, June 22, 1947, site and datum then in use; minimum daily discharge, 200 ft<sup>3</sup>/s Jan. 5-7, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,310 ft<sup>3</sup>/s at 1130 June 26, gage height, 7.76 ft; minimum daily, 272 ft<sup>3</sup>/s May 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	608	818	652	585	613	524	328	1400	4970	2450	1060
2	964	594	796	656	586	611	483	307	1470	4870	2520	957
3	883	586	766	663	560	554	488	296	1550	4810	2390	919
4	849	560	784	681	581	494	492	281	1300	4740	2470	898
5	805	582	785	725	585	507	453	285	1290	4610	2560	877
6	782	585	778	731	577	488	329	288	1440	4460	2810	818
7	765	578	776	728	573	474	323	285	1350	4390	3230	782
8	789	580	765	675	585	472	320	272	1280	4440	2840	758
9	838	588	779	653	582	469	309	293	1530	4490	2460	737
10	839	585	781	627	584	465	311	316	1650	4600	2390	723
11	845	589	778	638	592	465	331	339	2060	4550	2250	707
12	865	586	762	635	607	461	329	366	2770	4560	2200	685
13	847	555	750	630	611	460	327	404	2830	4380	2260	621
14	841	558	745	630	614	458	319	561	2360	4180	2260	536
15	813	554	710	623	619	485	315	575	2020	4070	2180	529
16	737	664	730	621	627	492	310	516	2670	3770	1700	539
17	718	818	756	620	617	482	303	388	3320	3570	1600	598
18	704	827	746	617	614	482	309	359	4070	3450	1500	791
19	705	841	710	617	635	484	353	339	5000	3380	1440	517
20	712	838	707	606	623	483	385	413	5460	3300	1480	481
21	685	830	715	613	603	476	385	431	5590	3400	1440	499
22	659	824	716	606	596	488	361	386	5590	3790	1350	481
23	653	816	722	600	602	493	327	374	5390	3910	1130	442
24	646	802	729	590	605	487	322	363	5550	3730	1060	444
25	639	787	696	592	608	490	430	417	5810	3400	1070	447
26	644	799	660	598	622	482	467	594	6110	3270	1040	442
27	651	794	706	593	624	474	403	845	6100	3180	1100	434
28	641	785	704	587	618	481	357	1080	5720	3110	1110	420
29	611	786	640	582	---	481	331	1220	5520	2910	1050	413
30	605	804	649	589	---	484	332	1110	5230	2720	1030	512
31	615	---	638	590	---	513	---	1380	---	2580	1090	---
TOTAL	23420	20703	22797	19568	16835	15248	11028	15411	103430	121590	57460	19067
MEAN	755	690	735	631	601	492	368	497	3448	3922	1854	636
MAX	1070	841	818	731	635	613	524	1380	6110	4970	3230	1060
MIN	605	554	638	582	560	458	303	272	1280	2580	1030	413
AC-FT	46450	41060	45220	38810	33390	30240	21870	30570	205200	241200	114000	37820
CAL YR 1982	TOTAL	334682	MEAN	917	MAX	3160	MIN	234	AC-FT	663800		
WTR YR 1983	TOTAL	446557	MEAN	1223	MAX	6110	MIN	272	AC-FT	885700		

## ARKANSAS RIVER BASIN

07096500 FOURMILE CREEK NEAR CANON CITY, CO

LOCATION.--Lat 38°26'11", long 105°11'27", in NE¼SW¼ sec.35, T.18 S., R.70 W., Fremont County, Hydrologic Unit 11020002, on right bank 1,000 ft downstream from railroad bridge, 0.6 mi upstream from mouth, and 2.8 mi east of courthouse in Canon City.

DRAINAGE AREA.--434 mi<sup>2</sup>.

PERIOD OF RECORD.--April to October 1910 (gage heights and discharge measurements only), October 1948 to September 1953, November 1970 to current year. Published as "Oil or Fourmile Creek" in 1910 and as Oil Creek near Canon City, 1948-53.

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1974. Altitude of gage is 5,254 ft, from topographic map. April to October 1910, nonrecording gage at site 1,200 ft upstream at different datum. October 1948 to September 1953, water-stage recorder at site 0.6 mi upstream at different datum.

REMARKS.--Records good. Diversions for irrigation of about 500 acres above station. Water imported to basin from Arkansas River for irrigation of a few small orchards above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--17 years (water years 1949-53, 1972-83), 23.8 ft<sup>3</sup>/s; 17,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,260 ft<sup>3</sup>/s July 11, 1951, gage height, 9.25 ft, from floodmarks, site and datum then in use, from rating curve extended above 96 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Sept. 3-10, 1950, Sept. 23, 1951.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 31	2230	356	3.99	Aug. 27	2100	a * 1,350	4.89
Aug. 4	1900	1,040	4.72				

Minimum daily discharge, 17 ft<sup>3</sup>/s Dec. 30-Jan. 1.

a-From rating curve extended on the basis of two slope-area measurements of peak flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	71	37	17	30	24	52	98	257	154	52	95
2	105	61	35	18	41	25	51	104	244	150	47	89
3	99	55	32	18	52	33	53	109	234	138	51	86
4	91	56	31	19	53	32	46	108	167	134	106	78
5	85	54	33	19	47	30	48	106	150	128	121	74
6	83	55	34	20	39	30	51	120	185	115	147	70
7	87	59	34	20	38	28	51	110	199	109	129	66
8	93	61	30	20	39	26	53	106	239	106	67	63
9	99	59	31	21	39	21	52	108	263	105	59	62
10	92	51	32	20	38	21	53	112	264	105	52	58
11	88	43	31	21	38	23	63	113	261	112	55	58
12	84	40	29	22	36	25	66	136	260	101	52	54
13	88	42	30	23	38	24	81	155	252	70	52	54
14	86	40	28	25	37	24	68	178	263	54	76	55
15	86	39	30	25	36	32	72	182	256	48	86	47
16	86	39	32	25	36	29	73	171	247	40	60	45
17	82	41	32	25	36	31	73	163	239	36	52	39
18	80	42	31	24	36	33	88	165	228	34	46	40
19	80	40	27	24	37	32	111	168	209	38	58	40
20	79	36	27	23	35	30	120	202	193	32	83	40
21	75	36	26	22	31	30	131	205	163	30	75	42
22	73	34	27	22	34	31	129	199	132	45	65	40
23	68	35	28	23	33	31	123	193	158	55	60	43
24	66	35	29	24	30	34	145	182	142	58	55	58
25	68	35	28	25	30	36	172	169	133	45	54	47
26	64	36	24	25	26	37	136	167	169	42	60	37
27	62	35	23	26	24	37	109	167	169	42	138	32
28	73	36	20	26	25	37	100	178	183	43	111	30
29	68	35	18	26	---	42	92	186	175	41	98	29
30	68	35	17	27	---	43	101	223	165	40	95	28
31	71	---	17	27	---	50	---	252	---	60	101	---
TOTAL	2542	1336	883	702	1014	961	2563	4835	6199	2310	2363	1599
MEAN	82.0	44.5	28.5	22.6	36.2	31.0	85.4	156	207	74.5	76.2	53.3
MAX	113	71	37	27	53	50	172	252	264	154	147	95
MIN	62	34	17	17	24	21	46	98	132	30	46	28
AC-FT	5040	2650	1750	1390	2010	1910	5080	9590	12300	4580	4690	3170
CAL YR 1982	TOTAL	16688.9	MEAN	45.7	MAX	190	MIN	5.5	AC-FT	33100		
WTR YR 1983	TOTAL	27307.0	MEAN	74.8	MAX	264	MIN	17	AC-FT	54160		

## ARKANSAS RIVER BASIN

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## 07097000 ARKANSAS RIVER AT PORTLAND, CO

LOCATION.--Lat 38°23'18", long 105°00'56", in NE¼NE¼ sec.20, T.19 S., R.68 W., Fremont County, Hydrologic Unit 11020002, on right bank at bridge on State Highway 120 at Portland and 1 mi downstream from Hardscrabble Creek.

## WATER-DISCHARGE RECORDS

DRAINAGE AREA.--4,024 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1939 to September 1952, October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,021.59 ft, National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1974, at site 400 ft downstream at datum 0.03 ft, lower.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions above station for irrigation of about 60,000 acres and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--22 years (water years 1940-52, 1975-83), 745 ft<sup>3</sup>/s; 539,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft<sup>3</sup>/s June 5, 1949, gage height, 12.12 ft, from rating curve extended above 5,300 ft<sup>3</sup>/s; minimum daily, 71 ft<sup>3</sup>/s Apr. 2, 1945.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,300 ft<sup>3</sup>/s at 1730 June 26, gage height, 8.55 ft; minimum daily, 329 ft<sup>3</sup>/s Apr. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	560	765	615	614	642	525	470	1870	5220	2250	1050
2	1100	550	747	620	609	636	500	465	1950	4980	2420	925
3	1010	550	717	614	560	620	500	447	1970	4770	2230	880
4	958	525	729	614	576	535	510	438	1630	4580	2370	854
5	918	535	723	648	592	555	480	429	1580	4380	2540	834
6	886	545	723	670	582	525	380	447	1850	4180	3090	771
7	873	535	729	681	570	500	348	412	1920	4020	3320	741
8	880	535	717	664	598	490	340	400	1850	3950	2920	705
9	977	545	735	653	592	456	329	408	1980	3980	2380	687
10	932	540	741	626	592	412	336	442	2110	4110	2260	658
11	938	555	735	636	598	404	360	456	2300	4140	2090	664
12	964	550	711	642	614	404	456	495	2860	4250	2010	631
13	932	520	705	631	620	396	545	500	3140	4120	1980	609
14	892	530	705	626	620	392	456	705	2760	3930	2330	495
15	821	515	675	614	620	447	420	771	2390	3750	2260	485
16	729	555	675	626	631	465	400	771	2680	3400	1700	470
17	681	777	717	620	620	447	424	631	3300	3220	1560	456
18	664	783	705	620	614	452	460	560	3900	3090	1420	717
19	653	795	670	626	631	452	520	500	5100	3020	1390	485
20	670	795	670	614	626	452	560	681	6100	2960	1440	447
21	636	777	681	626	598	452	570	753	6350	3000	1380	495
22	614	783	675	609	582	460	614	828	6450	3330	1210	485
23	592	765	693	614	587	460	565	753	6190	3520	1060	434
24	582	759	699	604	592	460	555	664	6270	3390	990	412
25	592	735	658	614	604	470	729	670	6480	3120	958	404
26	570	753	626	620	717	460	771	771	6890	2990	1100	392
27	565	759	648	614	711	456	642	1020	7140	2920	1120	372
28	565	747	664	609	681	452	550	1290	6730	2840	1220	356
29	535	741	626	604	---	442	505	1420	6320	2700	1050	356
30	525	753	610	614	---	447	500	1430	5700	2450	1030	364
31	560	---	615	626	---	480	---	1810	---	2410	1070	---
TOTAL	23994	19367	21489	19414	17151	14721	14850	21837	117760	112720	56148	17634
MEAN	774	646	693	626	613	475	495	704	3925	3636	1811	588
MAX	1180	795	765	681	717	642	771	1810	7140	5220	3320	1050
MIN	525	515	610	604	560	392	329	400	1580	2410	958	356
AC-FT	47590	38410	42620	38510	34020	29200	29450	43310	233600	223600	111400	34980
CAL YR 1982	TOTAL	321188	MEAN	880	MAX	3080	MIN	111	AC-FT	637100		
WTR YR 1983	TOTAL	457085	MEAN	1252	MAX	7140	MIN	329	AC-FT	906600		

## ARKANSAS RIVER BASIN

07097000 ARKANSAS RIVER AT PORTLAND, CO  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1979 to current year.

WATER TEMPERATURE: October 1979 to current year.

INSTRUMENTATION.--Water-quality monitor since November 1982.

REMARKS.--Daily maximum and minimum specific conductance data available in district office. There was no record for the period October 1 to November 11 and August 18 to September 30.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily observed, 1,380 micromhos Sept. 30, 1981; minimum daily, 171 micromhos June 25, 1983.

WATER TEMPERATURES: Maximum daily observed, 21.5°C Aug. 8, 1982; minimum daily, 0.0°C many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily recorded, 804 micromhos May 29; minimum daily, 171 micromhos June 25.

WATER TEMPERATURES: Maximum daily recorded, 21.0°C May 24, Aug. 3-4, 8-11, 14; minimum daily, 2.0°C Dec. 29-31.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
NOV 24...	1245	259	398	360	7.4	5.0	4.5	11.4	>240	>400
FEB 02...	1315	592	347	352	8.1	4.0	3.7	--	>120	>200
JUL 29...	1030	2570	--	194	--	17.5	20	7.6	>600	>1000
SEP 30...	1100	380	--	517	9.4	16.0	2.3	11.7	>1200	>2000

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 24...	150	40	11	17	.6	1.8	103	73	6.6	.50
FEB 02...	140	36	11	16	.6	1.6	92	77	6.0	.50
JUL 29...	81	23	5.6	7.4	.4	1.4	63	31	2.9	.30
SEP 30...	220	59	17	26	.8	2.7	150	120	9.4	.60

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV 24...	10	228	220	.31	159	.230	.070	1.0	.080	.040
FEB 02...	9.1	238	210	.32	380	.300	.090	.50	.060	.050
JUL 29...	7.8	107	120	.15	742	.110	.070	1.5	.190	.030
SEP 30...	12	342	340	.47	351	.210	.060	.60	.050	.050

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 24...	1245	1	48	<0	2	<1	<3	7	53
JUL 29...	1030	1	41	0	2	<1	<3	4	51
SEP 30...	1100	<1	72	<0	<1	<1	<3	5	17

## ARKANSAS RIVER BASIN

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS HI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 24...	<1	22	.1	<10	3	2	<1	<6	46
JUL 29...	2	22	<.1	<10	1	<1	<1	<6	33
SEP 30...	1	39	<.1	<10	4	2	<1	<6	18

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
FEB 02...	1315	592	45	72	61	JUL 29...	1030	2570	231	1600	20

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	377	360	344	333	421	607	605	191	242	
2		---	360	350	349	339	420	620	450	190	252	
3		---	351	357	349	336	423	632	342	187	259	
4		---	362	358	344	370	418	636	372	185	289	
5		---	370	363	338	401	425	606	380	186	293	
6		---	372	357	337	390	438	535	386	184	327	
7		---	370	355	345	391	---	623	371	185	255	
8		---	371	355	357	395	---	605	383	182	265	
9		---	378	357	348	448	---	601	362	178	286	
10		---	372	342	344	444	---	582	335	177	261	
11		---	356	352	336	526	---	569	309	176	258	
12		476	350	353	337	583	---	556	263	179	247	
13		476	362	347	331	607	---	547	243	173	260	
14		460	367	343	331	616	---	529	259	174	317	
15		450	352	338	328	604	---	501	294	176	337	
16		440	346	341	328	589	---	495	280	175	---	
17		398	344	341	329	468	---	511	239	177	322	
18		394	338	344	330	421	---	531	212	187	---	
19		399	339	347	329	438	---	551	188	190	---	
20		397	346	351	329	439	---	582	182	190	---	
21		408	348	354	327	428	---	566	176	196	---	
22		404	349	359	332	423	---	527	181	201	---	
23		399	351	357	339	473	---	543	180	194	---	
24		397	356	353	345	530	---	553	175	199	---	
25		395	357	353	348	486	---	543	171	196	---	
26		409	341	350	338	437	---	511	176	209	---	
27		411	345	348	321	423	---	481	177	208	---	
28		399	342	352	328	422	580	769	179	212	---	
29		395	342	346	---	425	585	804	183	215	---	
30		392	360	339	---	426	596	755	192	220	---	
31		---	362	338	---	420	---	643	---	228	---	
MEAN		416	356	350	337	453	478	584	275	191	279	
WTR YR 1983	MEAN		367	MAX	804	MIN		171				

07097000 ARKANSAS RIVER AT PORTLAND, CO

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1		---	---	7.0	5.0	2.5	2.5	6.0	4.0	11.0	7.5	
2			---	6.0	4.0	2.5	2.5	6.0	3.0	11.5	8.0	
3			---	5.5	3.5	3.0	2.5	4.5	3.0	11.5	8.0	
4			---	6.0	3.5	3.0	2.5	4.5	2.5	8.5	7.5	
5			---	6.5	4.0	4.5	2.5	5.0	2.5	8.5	7.0	
6			---	---	6.5	3.5	6.0	2.5	6.0	2.5	9.5	6.0
7			---	---	4.0	3.0	5.0	2.5	6.0	2.5	10.5	6.0
8			---	---	4.5	2.5	6.0	3.0	5.0	3.0	10.0	6.5
9			---	---	5.0	3.0	5.0	2.5	6.0	3.5	11.5	6.0
10			---	---	5.0	4.0	5.0	2.5	8.0	4.0	12.5	7.0
11			---	---	5.5	3.5	6.0	3.0	8.0	5.0	13.0	8.0
12			8.5	5.0	6.0	3.0	6.0	3.5	8.0	4.5	12.5	9.0
13			8.0	4.5	6.5	4.0	6.5	3.0	8.0	5.0	14.0	8.5
14			7.0	4.5	5.5	3.0	5.5	3.0	8.5	5.5	11.5	9.0
15			7.5	3.5	5.0	2.5	5.5	2.5	8.5	5.5	10.0	7.5
16			7.0	4.0	5.5	3.0	5.5	2.5	9.0	5.5	10.0	7.0
17			7.5	4.5	7.0	3.5	5.0	2.5	9.5	6.0	7.0	5.0
18			8.5	5.0	6.5	4.0	6.0	3.5	8.5	6.5	5.5	4.0
19			9.0	6.5	6.0	3.0	6.0	4.0	7.0	5.5	6.5	3.5
20			7.5	6.0	5.5	3.0	4.5	3.5	8.0	4.5	8.0	3.0
21			7.5	5.5	6.5	3.5	4.5	3.0	9.0	5.0	9.0	3.5
22			7.0	4.5	7.0	4.0	5.5	3.0	9.5	5.5	7.0	5.0
23			5.5	5.0	6.5	5.0	6.0	3.5	10.5	6.0	9.5	5.0
24			6.0	4.0	6.0	3.5	6.0	3.5	10.0	6.5	11.0	6.0
25			7.0	4.0	4.5	2.5	6.0	4.0	10.5	7.0	11.5	7.0
26			7.0	4.5	2.5	2.5	6.5	4.0	11.0	J	10.5	6.5
27			6.5	5.0	3.0	2.5	6.0	4.0	10.5	7.5	11.0	5.5
28			6.5	4.0	3.5	2.5	7.0	4.5	11.0	7.0	11.0	6.0
29			6.0	4.5	2.5	2.0	6.0	4.0	---	---	11.5	8.0
30			7.0	4.5	2.5	2.0	5.5	3.5	---	---	13.5	7.0
31			---	---	2.5	2.0	6.0	4.5	---	---	13.5	9.0
MONTH			9.0	3.5	7.0	2.0	7.0	2.5	11.0	2.5	14.0	3.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	11.0	8.5	16.5	9.0	16.0	10.5	17.0	14.5	20.5	18.5		
2	12.0	7.0	14.0	10.0	17.0	12.5	17.5	14.5	20.0	18.5		
3	9.0	6.0	16.5	9.0	17.5	13.0	18.0	15.0	21.0	18.0		
4	6.0	4.0	18.5	10.5	18.5	13.5	17.0	15.0	21.0	18.5		
5	7.5	3.0	18.5	11.0	17.5	14.0	18.0	15.0	20.0	18.0		
6	5.0	4.5	17.0	11.0	17.0	13.0	18.5	16.0	20.0	18.5		
7	---	---	18.0	9.5	18.0	13.0	19.0	16.5	20.5	17.5		
8	---	---	17.5	10.5	17.5	14.0	19.0	17.0	21.0	18.5		
9	---	---	18.5	11.0	17.0	14.0	19.0	17.0	21.0	19.0		
10	---	---	19.5	11.5	17.0	13.5	19.0	17.0	21.0	18.5		
11	---	---	19.0	11.5	18.0	14.0	18.0	16.5	21.0	18.5		
12	---	---	17.5	10.0	17.0	14.5	18.5	16.0	20.5	18.0		
13	---	---	13.5	10.0	14.0	12.5	19.0	16.0	20.5	18.5		
14	---	---	10.5	8.5	16.0	12.0	18.5	16.5	21.0	18.0		
15	---	---	15.0	9.0	17.5	13.5	19.0	16.5	20.5	18.0		
16	---	---	14.5	10.0	16.5	14.0	19.0	16.5	19.0	9.0		
17	---	---	11.5	9.5	16.5	14.0	19.5	17.5	20.5	20.0		
18	---	---	16.0	9.0	17.5	15.0	20.0	17.5	---	---		
19	---	---	14.0	11.0	17.0	14.5	20.0	17.5	---	---		
20	---	---	12.5	10.5	17.0	14.5	20.0	18.0	---	---		
21	---	---	17.5	9.5	16.5	14.0	20.5	18.5	---	---		
22	---	---	16.5	12.5	16.5	14.5	20.0	18.0	---	---		
23	---	---	19.5	12.0	17.5	14.5	20.0	18.0	---	---		
24	---	---	21.0	13.5	17.0	14.5	20.0	17.5	---	---		
25	---	---	20.5	14.0	16.5	14.5	20.5	18.0	---	---		
26	---	---	20.5	14.0	15.0	14.0	20.0	17.5	---	---		
27	---	---	18.5	14.5	15.0	13.5	19.5	17.5	---	---		
28	17.0	13.0	18.0	14.5	16.0	14.0	19.0	17.0	---	---		
29	16.5	11.5	18.5	14.0	17.0	14.5	20.0	17.0	---	---		
30	16.0	11.5	16.0	12.0	16.0	14.0	20.5	18.0	---	---		
31	---	---	12.0	11.5	---	---	20.5	18.0	---	---		
MONTH	17.0	3.0	21.0	8.5	18.5	10.5	20.5	14.5	21.0	9.0		
YEAR	21.0	2.0										



## ARKANSAS RIVER BASIN

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07099215 TURKEY CREEK NEAR FOUNTAIN, CO

LOCATION.--Lat 38°36'42", long 104°53'39", in NW¼SE¼ sec.33, T.16 S., R.67 W., El Paso County, Hydrologic Unit 1120002, on Fort Carson Military Reservation, on right bank 100 ft downstream from State Highway 115 bridge, 0.7 m downstream from Turkey Canyon, 0.8 mi upstream from Turkey Creek Ranch, and 9.4 mi southwest of Fountain.

DRAINAGE AREA.--13.0 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-Quality data available, May 1978 to September 1982.

REVISED RECORDS.--WDR CO-80-1: 1978(M), 1979(M).

GAGE.--Water-stage recorder. Altitude of gage is 6,420 ft, from topographic map.

REMARKS.--Records good, except those for winter period which are fair.

AVERAGE DISCHARGE.--5 years, 2.13 ft<sup>3</sup>/s; 1,540 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,020 ft<sup>3</sup>/s July 28, 1982, gage height, 4.70 ft, from rating curve extended above 140 ft<sup>3</sup>/s; no flow many days some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 6	0015	18	2.64	June 5	2130	27	2.81
May 11	0145	17	2.63	Aug. 1	1330	121	3.22
June 1	0945	20	2.69	Aug. 6	1815	* 352	3.72

Minimum daily discharge, 0.03 ft<sup>3</sup>/s Sept. 17-19, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	1.5	1.1	.30	.37	.37	1.8	1.8	11	2.3	3.9	.40
2	3.7	1.3	1.1	.30	.31	.41	1.1	3.0	12	2.2	1.7	.35
3	3.3	1.2	1.3	.28	.27	.46	.96	4.4	11	2.1	1.4	.28
4	3.0	1.4	1.4	.26	.37	.52	1.1	6.5	11	2.0	1.3	.23
5	2.7	1.5	1.4	.24	.37	.56	1.2	9.4	13	1.9	1.1	.20
6	2.8	1.6	1.4	.22	.37	.47	1.0	9.6	16	1.8	4.9	.18
7	2.7	1.4	1.4	.21	.43	.61	.91	7.8	19	1.7	7.1	.12
8	2.8	1.4	1.4	.27	.43	.81	1.4	5.8	17	1.6	3.1	.15
9	2.9	1.4	1.4	.25	.43	.73	1.0	7.3	18	1.4	2.0	.10
10	2.9	1.6	1.1	.27	.44	.76	.44	9.6	17	1.2	2.0	.09
11	2.8	1.7	1.0	.32	.43	.37	.51	12	17	1.1	1.8	.09
12	2.7	1.7	1.2	.47	.40	.37	.29	6.0	15	1.1	1.5	.06
13	2.6	1.5	.96	.43	.32	.43	.28	4.7	15	1.0	1.0	.07
14	2.6	1.4	.70	.47	.29	.47	.27	5.1	14	.90	.80	.09
15	2.6	1.4	.70	.55	.32	.66	.32	5.1	13	.90	.60	.07
16	2.4	1.6	.70	.55	.43	.51	.23	5.5	12	.80	.55	.05
17	2.2	1.6	.67	.55	.46	.61	.25	5.0	11	.70	.50	.03
18	2.3	1.7	.62	.55	.37	.56	.27	4.5	9.1	.55	.45	.03
19	2.2	1.7	.62	.55	.37	.58	.29	4.0	7.5	.49	.50	.03
20	2.2	1.6	.88	.47	.38	.62	.31	4.0	6.2	.43	.50	.04
21	2.1	1.6	.80	.47	.32	.79	.31	4.5	5.5	.43	.45	.09
22	2.0	1.3	.80	.43	.32	1.2	.31	5.6	5.1	1.8	.40	.10
23	1.8	1.4	.70	.47	.32	.94	.40	7.4	3.6	1.2	.38	.08
24	1.6	1.1	.50	.47	.43	.73	.59	6.6	3.5	1.1	.35	.04
25	1.4	1.1	.40	.37	.49	.97	.78	6.8	4.7	.96	.35	.03
26	1.5	1.3	.35	.43	.36	1.0	1.1	7.1	4.9	1.2	.40	.14
27	1.5	1.1	.30	.43	.59	.82	1.6	6.8	3.8	1.8	.40	.11
28	1.5	1.0	.25	.37	.37	.80	2.2	6.4	2.8	1.4	.35	.04
29	1.5	1.3	.24	.37	---	.78	2.1	6.0	2.6	1.2	.33	.05
30	1.5	1.1	.25	.37	---	.76	1.9	7.4	2.5	1.0	.50	.07
31	1.5	---	.27	.37	---	.81	---	9.4	---	.97	.45	---
TOTAL	72.7	42.5	25.91	12.06	10.76	20.48	25.22	195.1	303.8	39.23	41.06	3.41
MEAN	2.35	1.42	.84	.39	.38	.66	.84	6.29	10.1	1.27	1.32	.11
MAX	3.7	1.7	1.4	.55	.59	1.2	2.2	12	19	2.3	7.1	.40
MIN	1.4	1.0	.24	.21	.27	.37	.23	1.8	2.5	.43	.33	.03
AC-FT	144	84	51	24	21	41	50	387	603	78	81	6.8
CAL YR 1982 TOTAL	1192.78			MEAN 3.27	MAX 45	MIN .00	AC-FT 2370					
WTR YR 1983 TOTAL	792.23			MEAN 2.17	MAX 19	MIN .03	AC-FT 1570					

## ARKANSAS RIVER BASIN

07099220 LITTLE TURKEY CREEK NEAR FOUNTAIN, CO

LOCATION.--Lat 38°37'37", long 104°51'55", in SW¼NW¼ sec.26, T.16 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on Fort Carson Military Reservation, at right upstream end of bridge on military road No. 11, 1.0 mi downstream from State Highway 115, 2.8 mi upstream from mouth, and 9.1 mi southwest of Fountain.

DRAINAGE AREA.--9.59 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-Quality data available, May to June 1979, August 1981 to September 1982

GAGE.--Water-stage recorder. Altitude of gage is 6,395 ft, from topographic map.

REMARKS.--Records good except those above 100 ft<sup>3</sup>/s and those for periods of no gage-height record, which are poor. Several observations of water temperature and specific conductance were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226 ft<sup>3</sup>/s July 28, 1982; gage height, 4.57 ft; no flow most of time each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 9	2115	10	1.15	June 9	1645	* 15	1.24
May 29	1800	13	1.21	June 13	1100	14	1.23
June 5	2145	* 15	1.24				

No flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.0	.00	.00	.00	.00	.47	.95	11	1.5	.80	.00
2	1.5	1.0	.00	.00	.00	.00	.40	.95	12	1.3	.70	.00
3	1.4	.90	.00	.00	.00	.00	.35	1.0	11	1.2	.55	.00
4	1.3	.80	.00	.00	.00	.00	.33	3.0	11	1.1	.61	.00
5	1.2	.75	.00	.00	.00	.00	.40	5.6	12	.95	.47	.00
6	1.1	.70	.00	.00	.00	.00	.45	7.2	11	.85	1.4	.00
7	1.1	.70	.00	.00	.00	.00	.40	7.5	11	.76	.61	.00
8	1.1	.65	.00	.00	.00	.00	.45	7.1	12	.61	.05	.00
9	1.1	.55	.00	.00	.00	.00	.50	8.7	13	.47	.01	.00
10	1.1	.47	.00	.00	.00	.00	.45	8.6	13	.17	.00	.00
11	1.0	.47	.00	.00	.00	.00	.35	8.4	13	.03	.00	.00
12	1.0	.32	.00	.00	.00	.00	.25	7.7	12	.00	.00	.00
13	.90	.24	.00	.00	.00	.00	.23	7.4	12	.00	.00	.00
14	.85	.09	.00	.00	.00	.00	.20	6.6	11	.00	.00	.00
15	.80	.05	.00	.00	.00	.00	.15	5.9	9.7	.00	.00	.00
16	.70	.04	.00	.00	.00	.00	.10	5.5	8.8	.00	.00	.00
17	.60	.03	.00	.00	.00	.00	.10	4.9	7.6	.00	.00	.00
18	.55	.03	.00	.00	.00	.00	.08	4.1	6.6	.00	.00	.00
19	.50	.03	.00	.00	.00	.00	.06	3.9	5.0	.00	.00	.00
20	.45	.03	.00	.00	.00	.00	.05	5.2	4.3	.00	.00	.00
21	.35	.03	.00	.00	.00	.00	.05	4.6	3.8	.00	.00	.00
22	.25	.02	.00	.00	.00	.00	.05	6.4	3.2	.03	.00	.00
23	.20	.02	.00	.00	.00	.00	.05	7.5	3.0	.17	.00	.00
24	.10	.00	.00	.00	.00	.02	.10	8.8	2.5	.14	.00	.00
25	.05	.00	.00	.00	.00	.10	.30	9.8	2.1	.12	.00	.00
26	.02	.00	.00	.00	.00	.20	1.0	11	1.8	.10	.00	.00
27	.00	.00	.00	.00	.00	.22	1.2	11	2.5	.50	.00	.00
28	.00	.00	.00	.00	.00	.22	1.1	11	3.0	.40	.00	.00
29	.00	.00	.00	.00	---	.25	1.1	11	2.5	.35	.00	.00
30	.10	.00	.00	.00	---	.30	1.0	11	2.0	.30	.00	.00
31	.70	---	.00	.00	---	.35	---	11	---	.30	.00	---
TOTAL	21.62	8.92	.00	.00	.00	1.66	11.72	213.30	233.4	11.35	5.20	.00
MEAN	.70	.30	.000	.000	.000	.054	.39	6.88	7.78	.37	.17	.000
MAX	1.6	1.0	.00	.00	.00	.35	1.2	11	13	1.5	1.4	.00
MIN	.00	.00	.00	.00	.00	.00	.05	.95	1.8	.00	.00	.00
AC-FT	43	18	.00	.00	.00	3.3	23	423	463	23	10	.00

CAL YR 1982 TOTAL 797.93 MEAN 2.19 MAX 25 MIN .00 AC-FT 1580  
WTR YR 1983 TOTAL 507.17 MEAN 1.39 MAX 13 MIN .00 AC-FT 1010

NOTE.--NO GAGE-HEIGHT RECORD OCT. 2 TO NOV. 10, FEB. 10 TO MAR. 30, APR. 2 TO MAY 4.

## 07099230 TURKEY CREEK ABOVE TELLER RESERVOIR NEAR STONE CITY, CO

LOCATION.--Lat 38°27'37", long 104°49'19", in NW¼NE¼ sec.30, T.18 S., R.66 W., Pueblo County, Hydrologic Unit 11020002, on Fort Carson Military Reservation, on left bank, 0.5 mi west of intersection of military roads 9 and 1, 1.6 mi upstream from Teller Reservoir Dam and 2.4 mi northeast of Stone City.

DRAINAGE AREA.--62.5 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-quality data available, May 1978 to September 1981.

GAGE.--Water-stage recorder. Altitude of gage is 5,520 ft from topographic map.

REMARKS.--Records good except those for winter period which are fair. Diversions above gage for irrigation, amount unknown.

AVERAGE DISCHARGE.--5 years, 4.88 ft<sup>3</sup>/s; 3,540 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft<sup>3</sup>/s Aug. 20, 1982, gage height, 11.51 ft, from rating curve extended above 100 ft<sup>3</sup>/s on the basis of slope-area measurements at gage heights 8.04 ft and 11.27 ft; no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 5	1715	b* 1,880	10.25	Aug. 6	0145	234	7.86
June 14	1445	70	6.95	Aug. 14	0130	118	7.64
June 27	0830	34	7.18				

b-From rating curve extended above 100 ft<sup>3</sup>/s on basis of slope area measurements at gage heights 8.04 ft and 11.27 ft.

Minimum daily discharge, 0.70 ft<sup>3</sup>/s Sept. 16-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	6.5	3.2	2.2	2.0	1.7	1.2	3.5	28	17	1.5	1.0
2	12	6.4	3.2	2.3	1.9	1.7	1.2	3.9	30	15	4.6	1.0
3	11	6.0	3.3	2.4	1.9	1.7	1.2	3.5	29	13	3.2	1.0
4	9.9	5.4	3.3	2.5	1.9	1.8	1.2	3.7	31	12	2.4	.93
5	9.4	4.8	3.3	2.6	1.9	1.8	1.2	3.9	182	11	4.4	.87
6	9.2	4.3	3.3	2.6	2.0	1.7	1.2	5.2	44	9.6	24	.75
7	8.5	4.1	3.5	2.6	2.0	1.6	1.1	6.0	36	8.5	7.6	.70
8	8.0	4.1	3.2	2.5	1.9	1.6	1.1	6.3	35	7.3	3.5	.87
9	7.6	4.1	3.2	2.4	1.9	1.6	1.1	6.6	38	6.2	3.0	1.0
10	7.3	3.2	3.3	2.4	1.9	1.6	1.1	7.6	42	5.4	2.6	1.1
11	6.6	4.0	3.2	2.3	1.8	1.5	1.0	7.6	45	4.6	2.4	.93
12	6.2	3.7	3.0	2.3	1.8	1.6	1.0	6.9	46	4.1	2.4	.93
13	6.1	3.7	2.8	2.3	1.8	1.6	1.0	6.9	50	3.4	2.6	.87
14	5.5	3.5	2.7	2.2	1.9	1.6	.93	6.6	52	2.8	7.6	.87
15	5.4	3.3	2.6	2.0	1.8	1.7	.93	7.2	49	2.2	2.7	.75
16	5.0	3.3	2.6	2.0	1.8	1.5	.93	7.2	47	1.7	2.3	.70
17	5.0	3.0	2.6	1.9	1.8	1.5	.93	7.9	45	1.4	1.8	.70
18	4.7	3.0	2.6	1.9	1.8	1.5	1.0	6.9	41	1.2	1.6	.70
19	4.4	3.0	2.6	2.1	1.8	1.5	1.0	6.6	38	1.1	1.6	.70
20	4.1	3.2	2.6	2.0	1.7	1.4	1.1	11	35	1.2	1.8	.70
21	4.4	3.1	2.7	1.9	1.7	1.3	1.1	9.4	32	1.5	1.5	.81
22	4.8	3.1	2.9	2.2	1.7	1.3	1.2	11	29	2.0	1.4	.81
23	5.2	3.2	2.9	2.0	1.8	1.2	1.1	13	28	1.4	1.4	.87
24	5.4	3.2	2.9	1.9	1.8	1.2	1.0	14	25	1.5	1.3	.93
25	5.3	2.2	2.8	1.9	1.8	1.2	1.8	18	23	1.6	1.2	.87
26	5.4	3.1	2.4	1.9	1.8	1.2	4.7	20	26	1.6	1.4	.87
27	5.5	3.2	2.4	1.9	1.8	1.2	5.0	23	29	1.6	1.6	.93
28	5.6	2.8	2.3	1.9	1.7	1.2	4.3	24	28	1.5	1.2	.93
29	5.9	3.3	2.2	2.0	---	1.2	3.9	25	25	1.5	1.1	.93
30	6.4	3.2	2.2	2.0	---	1.2	3.7	29	20	1.6	1.0	.93
31	6.6	---	2.2	2.0	---	1.2	---	29	---	1.7	1.0	---
TOTAL	209.4	113.0	88.0	67.1	51.4	45.6	49.22	340.4	1208	146.2	97.7	25.95
MEAN	6.75	3.77	2.84	2.16	1.84	1.47	1.64	11.0	40.3	4.72	3.15	.87
MAX	13	6.5	3.5	2.6	2.0	1.8	5.0	29	182	17	24	1.1
MIN	4.1	2.2	2.2	1.9	1.7	1.2	.93	3.5	20	1.1	1.0	.70
AC-FT	415	224	175	133	102	90	98	675	2400	290	194	51
CAL YR 1982	TOTAL	3156.97	MEAN 8.65	MAX 353	MIN .35	AC-FT 6260						
WTR YR 1983	TOTAL	2441.97	MEAN 6.69	MAX 182	MIN .70	AC-FT 4840						

## ARKANSAS RIVER BASIN

## 07099233 TELLER RESERVOIR NEAR STONE CITY, CO

LOCATION.--Lat 38°26'33", long 104°49'31", in SE¼NW¼ sec.31, T.18 S., R.66W., in Pueblo County, Hydrologic Unit 11020002, at left upstream end of dam on Turkey Creek on Fort Carson Military Reservation, 1.4 mi upstream from Booth Gulch, and 2.0 mi east of Stone City.

DRAINAGE AREA.--71.5 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,453 ft, from topographic map.

REMARKS.--Records good except those for October to February, which are fair. Reservoir is formed by an earthfill dam completed in about 1908. Maximum capacity of reservoir is 1,780 acre-ft at an uncontrolled spillway elevation of about 88 ft, 1980 survey. There is no controlled outlet from reservoir, however, considerable leakage occurs. Reservoir is used for recreation and for amphibious training for Fort Carson.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,210 acre-ft June 21, 1980, elevation, 90.15 ft, from capacity curve extended above 88 ft; no contents May 1 to June 5, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,930 acre-ft at 2000 June 5, elevation, 88.73 ft; minimum contents, 1,290 acre-ft Sept. 30, elevation, 85.02 ft.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1780	1730	1710	1680	1650	1610	1600	1680	1770	1710	1540	1440
2	1780	1730	1710	1680	1650	1610	1600	1690	1760	1700	1540	1440
3	1780	1730	1710	1680	1650	1610	1600	1690	1760	1700	1540	1430
4	1760	1730	1710	1680	1650	1610	1600	1690	1760	1690	1540	1430
5	1750	1730	1710	1680	1650	1610	1600	1690	1910	1690	1530	1420
6	1740	1730	1710	1670	1640	1610	1600	1700	1790	1690	1550	1420
7	1750	1730	1710	1670	1640	1610	1600	1710	1780	1680	1560	1420
8	1740	1730	1710	1680	1640	1610	1600	1710	1780	1680	1560	1410
9	1740	1730	1710	1670	1640	1610	1600	1710	1770	1670	1560	1410
10	1740	1730	1700	1670	1640	1610	1600	1720	1770	1660	1550	1400
11	1740	1730	1700	1660	1630	1610	1600	1720	1760	1660	1540	1390
12	1730	1730	1700	1660	1630	1610	1600	1720	1760	1660	1530	1380
13	1730	1730	1700	1660	1640	1610	1600	1720	1760	1650	1530	1380
14	1740	1730	1700	1660	1630	1610	1600	1720	1750	1640	1550	1380
15	1740	1720	1700	1660	1630	1610	1600	1720	1750	1640	1540	1370
16	1740	1720	1700	1660	1630	1610	1600	1720	1740	1630	1540	1360
17	1730	1720	1700	1660	1630	1610	1600	1720	1740	1620	1530	1360
18	1740	1720	1700	1660	1630	1610	1600	1720	1740	1610	1520	1350
19	1740	1720	1700	1660	1630	1610	1600	1720	1730	1610	1520	1340
20	1740	1720	1700	1660	1620	1610	1600	1750	1730	1590	1510	1330
21	1740	1720	1700	1660	1620	1600	1600	1750	1720	1600	1500	1330
22	1740	1720	1700	1660	1620	1600	1600	1750	1720	1600	1490	1320
23	1740	1720	1700	1660	1620	1600	1600	1760	1710	1600	1490	1320
24	1740	1720	1700	1660	1620	1600	1600	1760	1710	1590	1480	1320
25	1740	1720	1690	1660	1620	1600	1610	1760	1710	1580	1480	1310
26	1740	1720	1690	1650	1610	1600	1650	1760	1720	1580	1470	1310
27	1740	1710	1690	1660	1610	1600	1670	1760	1720	1570	1470	1300
28	1740	1710	1680	1650	1610	1600	1670	1760	1720	1560	1470	1300
29	1730	1710	1680	1650	---	1600	1670	1760	1720	1560	1460	1290
30	1730	1710	1680	1650	---	1600	1670	1760	1710	1550	1450	1290
31	1730	---	1680	1650	---	1600	---	1760	---	1550	1450	---
MAX	1780	1730	1710	1680	1650	1610	1670	1760	1910	1710	1560	1440
MIN	1730	1710	1680	1650	1610	1600	1600	1680	1710	1550	1450	1290

WTR YR 1983 MAX 1910 MIN 1290

NOTE.--NO GAGE-HEIGHT RECORD MAR. 12 TO MAY 23.

## 07099235 TURKEY CREEK NEAR STONE CITY, CO

LOCATION.--Lat 38°26'27", long 104°49'31", in SE¼NW¼ sec.31, T.18 S., R.66 W., Pueblo County, Hydrologic Unit 11020002, on Fort Carson Military Reservation, on left bank, 0.1 mi downstream from Teller Reservoir Dam, 1 mi upstream from Military road No. 11, and 2.1 mi southeast of Stone City.

DRAINAGE AREA.--71.5 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1978 to current year.

REVISED RECORDS.--WDR CO-80-1: 1979(M).

GAGE.--Water-stage recorder and concrete control. Altitude of gage 5,400 ft, from topographic map.

REMARKS.--Records good, except those for period of no gage-height record, which are poor. Flow regulated by Teller Reservoir 0.1 mi upstream. Gage records seepage from reservoir. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 0.66 ft<sup>3</sup>/s; 478 acre-ft/year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3.8 ft<sup>3</sup>/s June 3, 1981, gage height, 0.80 ft; minimum daily, 0.01 ft<sup>3</sup>/s on many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.3 ft<sup>3</sup>/s at 1900 July 21, gage height, 0.63 ft; minimum daily, 0.79 ft<sup>3</sup>/s Apr. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.7	1.6	1.5	1.5	1.6	.97	1.1	1.7	1.7	1.6	1.5
2	1.5	1.7	1.6	1.5	1.5	1.6	.97	1.2	1.7	1.7	1.5	1.5
3	1.5	1.7	1.6	1.5	1.5	1.6	.85	1.2	1.6	1.7	1.5	1.5
4	1.5	1.6	1.5	1.4	1.5	1.6	.85	1.3	1.6	1.7	1.4	1.5
5	1.5	1.6	1.5	1.4	1.5	1.6	.85	1.3	1.7	1.7	1.5	1.5
6	1.6	1.6	1.5	1.4	1.5	1.6	.90	1.4	1.7	1.6	1.5	1.5
7	1.6	1.6	1.5	1.5	1.5	1.6	.97	1.4	1.8	1.6	1.5	1.5
8	1.6	1.6	1.4	1.5	1.5	1.6	.85	1.5	1.9	1.6	1.6	1.5
9	1.6	1.6	1.4	1.5	1.5	1.5	.85	1.5	1.9	1.6	1.6	1.5
10	1.6	1.6	1.4	1.5	1.5	1.5	.85	1.6	2.0	1.6	1.6	1.4
11	1.6	1.6	1.4	1.5	1.5	1.5	.85	1.4	2.0	1.6	1.6	1.4
12	1.6	1.6	1.4	1.5	1.5	1.5	.80	1.5	2.0	1.6	1.6	1.4
13	1.6	1.6	1.4	1.5	1.5	1.5	.85	1.6	2.0	1.6	1.7	1.4
14	1.6	1.6	1.4	1.5	1.5	1.4	.85	1.6	2.0	1.6	1.7	1.4
15	1.7	1.5	1.4	1.5	1.5	1.4	.85	1.6	1.9	1.6	1.6	1.4
16	1.7	1.5	1.4	1.5	1.5	1.4	.79	1.5	1.9	1.6	1.5	1.3
17	1.7	1.5	1.4	1.5	1.5	1.4	.85	1.5	1.9	1.6	1.5	1.3
18	1.7	1.5	1.4	1.5	1.6	1.3	.96	1.5	1.8	1.6	1.7	1.3
19	1.7	1.5	1.4	1.5	1.6	1.3	.97	1.5	1.8	1.6	1.7	1.3
20	1.7	1.5	1.5	1.5	1.6	1.3	.85	1.6	1.8	1.6	1.7	1.3
21	1.7	1.5	1.5	1.5	1.6	1.3	.87	1.6	1.8	1.7	1.6	1.3
22	1.7	1.5	1.5	1.5	1.6	1.2	.97	1.6	1.8	1.7	1.6	1.2
23	1.7	1.5	1.5	1.5	1.6	1.2	.97	1.6	1.8	1.7	1.5	1.2
24	1.7	1.5	1.5	1.5	1.6	1.2	.90	1.6	1.7	1.7	1.5	1.2
25	1.7	1.5	1.5	1.5	1.6	1.2	.97	1.6	1.7	1.7	1.5	1.2
26	1.7	1.5	1.5	1.5	1.6	1.1	.96	1.7	1.7	1.7	1.5	1.2
27	1.7	1.6	1.5	1.5	1.6	1.1	1.0	1.7	1.7	1.7	1.5	1.2
28	1.7	1.6	1.5	1.5	1.6	1.1	1.1	1.7	1.7	1.7	1.4	1.1
29	1.7	1.6	1.5	1.5	---	1.1	1.1	1.7	1.7	1.6	1.4	1.1
30	1.7	1.6	1.5	1.5	---	.85	1.1	1.7	1.7	1.6	1.5	1.1
31	1.7	---	1.5	1.5	---	.91	---	1.7	---	1.6	1.5	---
TOTAL	50.8	47.1	45.6	46.2	43.1	42.06	27.47	47.0	54.0	50.9	48.1	40.2
MEAN	1.64	1.57	1.47	1.49	1.54	1.36	.92	1.52	1.80	1.64	1.55	1.34
MAX	1.7	1.7	1.6	1.5	1.6	1.6	1.1	1.7	2.0	1.7	1.7	1.5
MIN	1.5	1.5	1.4	1.4	1.5	.85	.79	1.1	1.6	1.6	1.4	1.1
AC-FT	101	93	90	92	85	83	54	93	107	101	95	80

CAL YR 1982 TOTAL 316.64 MEAN .87 MAX 1.7 MIN .09 AC-FT 628  
WTR YR 1983 TOTAL 542.53 MEAN 1.49 MAX 2.0 MIN .79 AC-FT 1080

NOTE.--NO GAGE-HEIGHT RECORD JUNE 5 TO JULY 17.

## ARKANSAS RIVER BASIN

## 07099350 PUEBLO RESERVOIR NEAR PUEBLO, CO

LOCATION.--Lat 38°16'15", long 104°43'30", in NE¼ sec.36, T.20 S., R.66 W., Pueblo County, Hydrologic Unit 11020002, at dam on Arkansas River 7 mi west of Pueblo.

DRAINAGE AREA.--4,669 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1974 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929, (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by concrete and earthfill dam. Storage began Jan. 9, 1974; dam completed in August 1975. Capacity, 357,700 acre-ft at elevation 4,898.70 ft, crest of spillway. Dead storage, 3,730 acre-ft, below elevation 4,764.00 ft, invert of river outlet. Reservoir is terminal reservoir of the Fryingpan-Arkansas project and is used to provide flood control, municipal and industrial supplies, and to fulfill irrigation requirements in the Arkansas River valley. Figures given are total contents.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 262,480 acre-ft, Aug. 2, 1983, elevation, 4,880.06 ft; minimum since appreciable storage was attained, 22,680 acre-ft, Nov. 13, 1974, elevation, 4,790.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 262,480 acre-ft, Aug. 2, elevation, 4,880.06 ft; minimum, 61,240 acre-ft, Oct. 1, elevation, 4,816.16 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

	Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept.	30. . . . .	4,816.01	60,950	-
Oct.	31. . . . .	4,819.96	68,730	+7,780
Nov.	30. . . . .	4,831.59	95,120	+26,390
Dec.	31. . . . .	4,845.94	134,420	+39,300
CAL YR 1982 . . . . .				+62,970
Jan.	31. . . . .	4,856.70	168,780	+34,360
Feb.	28. . . . .	4,865.26	199,930	+31,150
Mar.	31. . . . .	4,869.71	217,510	+17,580
Apr.	30. . . . .	4,868.73	213,560	-3,950
May	31. . . . .	4,867.85	210,050	-3,510
June	30. . . . .	4,878.03	253,200	+43,150
July	31. . . . .	4,879.65	260,590	+7,390
Aug.	31. . . . .	4,874.61	238,050	-22,540
Sept.	30. . . . .	4,870.61	221,180	-16,870
WTR YR 1983 . . . . .				+160,230

## ARKANSAS RIVER BASIN

225

07099400 ARKANSAS RIVER ABOVE PUEBLO, CO

LOCATION.--Lat 38°16'17", long 104°43'06", in NE¼NE¼ sec.36, T.20 S., R.66 W., Pueblo County, Hydrologic Unit 11020002, on left bank 450 ft downstream from headgate of West Pueblo ditch, 0.4 mi downstream from Pueblo Dam, and 7 mi west of Pueblo.

DRAINAGE AREA.--4,670 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, October 1965 to current year. Water-quality data available, October 1965 to September 1970. Sediment data available October 1965 to September 1970.

GAGE.--Water-stage recorder. Altitude of gage is 4,740 ft, from topographic map. Prior to Mar. 23, 1967, at site 730 ft upstream at datum 1.23 ft, higher. May 24, 1974, to Feb. 24, 1975, at site 2,000 ft downstream at different datum.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions above station for irrigation of about 88,000 acres and return flow from irrigated areas. Flow completely regulated by Pueblo Reservoir (station 07099350) since Jan. 9, 1974.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--8 years (water years 1966-73), 643 ft<sup>3</sup>/s; 465,900 acre-ft/yr, prior to completion of Pueblo Dam; 9 years (1975-83), 630 ft<sup>3</sup>/s; 456,400 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft<sup>3</sup>/s Aug. 1, 1966, gage height, 9.4 ft, from floodmarks, present site and datum, from rating curve extended above 1,600 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 28 ft<sup>3</sup>/s May 11, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,770 ft<sup>3</sup>/s at 0930 July 8, gage height, 7.42 ft; minimum daily, 76 ft<sup>3</sup>/s Dec. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	274	79	84	94	99	205	432	1680	4960	1360	1360
2	1100	282	76	87	92	97	226	422	1560	5040	2000	1190
3	1030	302	78	87	92	96	313	422	1630	5260	2490	1030
4	943	299	78	89	94	99	324	580	1440	5230	2090	1240
5	841	302	78	87	94	101	352	540	1270	5320	1910	1360
6	835	302	79	87	94	99	388	476	1440	5470	3410	1300
7	805	302	81	84	94	99	404	468	1650	5550	2920	1310
8	800	302	79	86	94	99	392	495	1790	5640	2900	1060
9	794	306	81	86	94	99	356	530	2020	5640	2440	750
10	783	328	82	84	94	99	313	595	2260	4630	2170	712
11	734	328	82	84	96	101	316	728	2470	3120	2070	728
12	722	450	82	84	96	99	392	853	2750	3290	1990	744
13	794	472	81	82	96	99	409	919	3430	3420	1840	783
14	829	472	82	86	94	131	472	871	3300	3280	1950	686
15	728	115	84	86	96	324	486	706	2390	2220	2080	380
16	555	86	84	86	97	296	445	717	2160	1820	1920	380
17	540	86	84	86	97	302	414	620	2510	1590	1950	380
18	486	86	86	86	94	302	436	510	3130	1350	2100	385
19	445	86	87	89	96	324	458	490	3690	1300	2110	430
20	392	86	87	89	96	344	630	560	4350	1560	1650	445
21	360	89	86	90	96	344	1160	520	5020	2210	1600	454
22	360	89	87	90	94	376	1020	580	4960	2670	1660	450
23	332	89	82	89	94	388	783	690	3930	3160	1570	472
24	320	89	79	89	97	352	630	750	304	2980	1450	427
25	324	89	82	90	96	336	625	700	4340	1960	1450	388
26	302	89	82	90	94	352	662	651	5260	1860	1410	332
27	288	89	82	90	97	324	712	823	5110	1960	1310	292
28	292	89	82	90	97	218	783	1060	5000	1990	1470	299
29	252	89	82	89	---	178	728	1480	4900	1870	1540	288
30	296	89	86	90	---	205	630	1320	5000	1560	1620	274
31	299	---	86	94	---	220	---	1510	---	1400	1440	---
TOTAL	18631	6156	2546	2710	2659	6602	15464	22018	90744	99310	59870	20329
MEAN	601	205	82.1	87.4	95.0	213	515	710	3025	3204	1931	678
MAX	1100	472	87	94	97	388	1160	1510	5260	5640	3410	1360
MIN	288	86	76	82	92	96	205	422	304	1300	1310	274
AC-FT	36950	12210	5050	5380	5270	13100	30670	43670	180000	197000	118800	40320
CAL YR 1982	TOTAL	274002	MEAN	751	MAX	4690	MIN	58	AC-FT	543500		
WTR YR 1983	TOTAL	347039	MEAN	951	MAX	5640	MIN	76	AC-FT	688400		

## ARKANSAS RIVER BASIN

07103700 FOUNTAIN CREEK NEAR COLORADO SPRINGS, CO

LOCATION.--Lat 38°51'17", long 104°52'39", in SE¼SW¼ sec.3, T.14 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on left bank 200 ft upstream from diversion to city of Colorado Springs, 0.5 mi east of bridge on U.S. Highway 24 near west city limits of Colorado Springs, and 1.0 mi downstream from Sutherland Creek.

DRAINAGE AREA.--103 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year.

GAGE.--Water-stage recorder and Parshall flume with overflow weirs. Altitude of gage is 6,110 ft, from topographic map.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation and municipal use, and at times, transbasin diversion from Beaver Creek drainage and transmountain diversions from Colorado River basin.

AVERAGE DISCHARGE.--25 years, 13.7 ft<sup>3</sup>/s; 9,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,630 ft<sup>3</sup>/s Aug. 4, 1964, gage height, 5.27 ft, from rating curve extended above 190 ft<sup>3</sup>/s, on basis of slope-area measurements at gage heights 3.87, 4.52, and 5.27 ft; minimum daily, 2.0 ft<sup>3</sup>/s Jan. 24, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 286 ft<sup>3</sup>/s at 1930 May 31, gage height, 3.59 ft; minimum daily, 5.7 ft<sup>3</sup>/s Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	9.3	13	8.5	8.5	15	13	55	158	132	63	43
2	20	9.3	12	9.0	8.4	13	13	62	138	125	53	42
3	15	8.9	12	9.0	5.7	12	13	65	116	121	51	43
4	14	9.9	13	9.0	7.3	13	13	62	107	123	50	44
5	14	9.9	13	9.5	9.6	13	13	60	123	129	45	44
6	13	10	12	9.5	8.3	11	14	58	127	153	48	45
7	13	10	12	9.5	9.3	11	13	55	146	154	45	39
8	16	13	10	9.5	10	12	13	57	144	141	43	38
9	13	13	15	9.6	9.6	12	13	60	147	130	39	37
10	13	11	14	9.8	10	12	13	65	146	111	36	36
11	23	14	10	11	10	11	13	71	141	142	36	37
12	41	13	10	10	9.7	10	14	69	132	152	35	35
13	34	13	11	10	10	9.9	13	67	137	128	35	35
14	28	12	10	10	11	11	13	64	134	104	34	34
15	31	13	9.3	10	11	12	13	57	129	82	33	34
16	31	13	11	10	11	12	14	49	119	84	30	33
17	28	13	11	10	11	12	14	50	117	97	30	32
18	19	11	10	10	11	13	14	46	121	88	29	31
19	17	9.3	10	9.7	11	13	18	45	122	81	29	30
20	13	9.0	11	9.3	11	11	22	54	120	76	34	30
21	13	8.8	11	9.6	10	10	26	50	117	73	32	30
22	13	9.5	11	9.6	11	11	29	60	125	83	30	30
23	11	9.2	11	8.8	11	11	28	64	123	72	31	29
24	8.9	6.7	9.2	8.7	11	11	27	69	109	65	33	29
25	8.8	8.7	7.9	8.7	11	12	35	78	94	66	33	29
26	9.1	8.6	7.5	8.5	11	11	45	76	120	65	34	28
27	9.6	8.5	7.0	8.8	11	11	50	105	127	68	38	27
28	9.2	8.5	7.0	8.7	12	11	50	101	123	72	38	26
29	8.8	8.2	7.5	8.6	---	12	48	134	130	67	37	26
30	9.0	8.7	8.0	8.2	---	12	45	139	124	58	40	25
31	9.1	---	8.0	8.6	---	15	---	157	---	57	44	---
TOTAL	534.5	310.0	324.4	289.7	281.4	365.9	662	2204	3816	3099	1188	1021
MEAN	17.2	10.3	10.5	9.35	10.1	11.8	22.1	71.1	127	100	38.3	34.0
MAX	41	14	15	11	12	15	50	157	158	154	63	45
MIN	8.8	6.7	7.0	8.2	5.7	9.9	13	45	94	57	29	25
AC-FT	1060	615	643	575	558	726	1310	4370	7570	6150	2360	2030
CAL YR 1982	TOTAL	4886.4	MEAN	13.4	MAX	42	MIN	6.6	AC-FT	9690		
WTR YR 1983	TOTAL	14095.9	MEAN	38.6	MAX	158	MIN	5.7	AC-FT	27960		



07103700 FOUNTAIN CREEK NEAR COLORADO SPRINGS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1974 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT										
19...	1340	18	--	217	7.8	6.0	11.1	E5.1	82	--
NOV										
16...	1225	15	--	258	7.6	3.0	12.2	.8	96	--
DEC										
14...	1240	10	--	295	7.9	2.0	11.6	.8	109	--
JAN										
11...	1300	11	287	310	8.0	3.0	12.4	E1.3	111	20
FEB										
15...	1230	11	276	298	8.1	4.0	E11.0	E.9	108	19
MAR										
16...	1315	14	342	363	7.8	3.0	13.5	3.0	101	16
APR										
11...	1340	13	315	324	8.1	7.5	10.9	<.8	115	18
MAY										
12...	1230	55	157	168	7.7	7.5	11.7	2.0	53	14
JUN										
15...	1235	124	100	112	7.5	9.5	9.8	.9	33	10
JUL										
13...	1350	126	100	107	7.1	13.0	8.4	<1.5	35	8.9
AUG										
16...	1430	29	156	158	7.5	16.5	6.9	<.9	54	11
SEP										
07...	1145	39	145	167	7.6	12.5	8.9	1.0	50	9.2

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT										
19...	--	3	.480	.020	.500	<.060	--	.70	1.1	<.01
NOV										
16...	--	41	.700	<.020	.700	<.060	--	1.0	1.7	<.01
DEC										
14...	--	2	.800	<.020	.800	<.060	--	.50	1.3	<.01
JAN										
11...	13	3	1.00	--	1.00	.080	1.0	1.1	2.1	<.01
FEB										
15...	14	<1	.800	--	.800	.170	.53	.70	1.5	<.01
MAR										
16...	36	172	.800	--	.800	.140	.96	1.1	1.9	<.01
APR										
11...	15	40	1.10	--	1.10	.080	.72	.80	1.9	<.01
MAY										
12...	5.4	780	.400	--	.400	.080	17	17	17	<.01
JUN										
15...	2.8	54	.200	--	.200	.280	.12	.40	.60	<.01
JUL										
13...	2.6	50	.300	--	.300	.030	.47	.50	.80	<.01
AUG										
16...	4.8	55	.400	--	.400	.030	.67	.70	1.1	<.01
SEP										
07...	4.7	51	.400	--	.400	.050	.35	.40	.80	<.01

E ESTIMATED.

## ARKANSAS RIVER BASIN

07103700 FOUNTAIN CREEK NEAR COLORADO SPRINGS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT							
19...	<1	<10	<1	2	800	--	5
NOV							
16...	<1	<10	<1	3	1300	--	5
DEC							
14...	2	<10	<1	3	400	--	1
JAN							
11...	1	<10	--	2	630	50	3
FEB							
15...	<1	<10	--	3	700	50	1
MAR							
16...	1	<10	--	11	6100	30	29
APR							
11...	<1	<10	--	6	1500	50	7
MAY							
12...	<1	<10	--	12	16000	70	32
JUN							
15...	<1	<10	--	3	3500	50	8
JUL							
13...	<1	<10	--	5	3000	70	<1
AUG							
16...	17	<10	--	12	3300	30	10
SEP							
07...	<1	<10	--	7	2000	60	11

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT							
19...	90	--	<.1	<1	<1	<0	30
NOV							
16...	100	--	.1	4	<1	<0	30
DEC							
14...	80	--	.1	22	1	<0	20
JAN							
11...	90	60	--	--	--	--	40
FEB							
15...	120	60	--	--	--	--	30
MAR							
16...	290	60	--	--	--	--	70
APR							
11...	150	60	--	--	--	--	50
MAY							
12...	630	20	--	--	--	--	120
JUN							
15...	170	20	--	--	--	--	40
JUL							
13...	170	20	--	--	--	--	40
AUG							
16...	140	40	--	--	--	--	60
SEP							
07...	130	40	--	--	--	--	50

## ARKANSAS RIVER BASIN

229

07103747 MONUMENT CREEK AT PALMER LAKE, CO

LOCATION.--Lat 39°06'07", long 104°53'27", in SE¼SE¼ sec.9, T.11 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on right bank 0.9 mi upstream from Monument Lake, 1.5 mi downstream from North Monument Creek, and 1.9 mi southeast of town of Palmer Lake.

DRAINAGE AREA.--25.9 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, February 1977 to current year. Water-quality data available, April 1977 to September 1980.

GAGE.--Water-stage recorder. Altitude of gage is 6,950 ft, from topographic map. Record not equivalent to former downstream site.

REMARKS.--Records good except those December through April which are fair. Storage and diversions above station for municipal supply of Palmer Lake.

AVERAGE DISCHARGE.--6 years (water years 1978-83), 6.54 ft<sup>3</sup>/s; 4,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 216 ft<sup>3</sup>/s Aug. 2, 1981, from rating curve extended above 130 ft<sup>3</sup>/s, gage height, 2.07 ft, from floodmark; minimum daily, 0.10 ft<sup>3</sup>/s, many days in 1978-79.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 180 ft<sup>3</sup>/s at 0515 Aug. 4, gage height, 1.76 ft; minimum daily, 1.3 ft<sup>3</sup>/s Dec. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.8	2.5	1.5	1.8	3.6	18	42	75	28	9.5	11
2	2.5	3.0	2.4	1.5	1.7	3.8	17	37	69	25	9.0	10
3	2.4	2.7	2.2	1.6	1.7	3.0	14	29	64	24	18	10
4	2.3	2.6	2.2	1.7	1.7	2.7	11	27	69	22	109	10
5	2.1	2.6	2.0	1.8	1.7	2.5	10	28	67	20	84	9.6
6	2.2	2.7	1.9	1.8	1.8	2.7	10	31	68	18	79	8.7
7	2.1	2.8	2.0	1.8	2.0	2.8	11	32	61	17	71	7.5
8	2.3	2.7	2.0	1.8	1.9	2.8	12	37	63	16	56	6.9
9	2.6	2.5	2.2	1.8	1.8	3.0	13	48	62	15	47	6.5
10	2.4	2.6	1.9	1.8	1.9	4.0	14	94	56	14	40	7.3
11	2.2	2.7	1.9	1.8	1.8	5.0	16	136	55	21	34	8.1
12	2.3	2.7	2.0	1.8	2.1	7.0	16	120	52	17	33	7.3
13	2.2	2.7	1.8	1.8	1.9	8.0	17	105	49	15	48	6.9
14	2.4	2.6	1.8	1.7	1.8	8.0	14	90	46	14	46	6.9
15	2.5	2.5	1.9	1.7	1.8	7.5	13	75	43	13	38	7.3
16	2.5	2.7	1.7	1.7	1.9	7.0	14	67	38	11	33	6.5
17	2.6	3.1	1.6	1.9	1.9	6.0	15	62	37	11	30	5.8
18	2.5	3.1	1.6	1.9	1.9	5.0	17	61	34	9.9	28	5.5
19	2.4	3.2	1.6	1.8	2.0	4.0	24	61	32	9.6	25	5.5
20	2.4	3.2	1.6	1.7	2.3	3.1	33	62	29	9.2	25	5.5
21	2.3	3.1	1.5	1.7	2.1	2.9	46	61	25	9.0	21	5.8
22	2.3	2.8	1.5	1.8	2.1	2.6	60	74	21	8.8	19	5.8
23	2.4	2.8	1.5	1.9	2.1	2.5	64	84	37	8.6	20	5.8
24	2.4	2.7	1.5	1.8	2.2	2.9	79	99	26	8.6	17	5.8
25	2.3	2.8	1.4	1.8	2.2	5.6	59	112	23	30	16	5.8
26	2.2	2.7	1.4	2.0	2.5	8.0	50	116	30	60	18	5.8
27	2.5	2.7	1.3	1.9	3.1	9.0	45	110	38	35	15	5.5
28	2.9	2.6	1.3	1.9	3.4	8.5	41	101	35	20	14	5.5
29	2.8	2.6	1.3	1.9	---	9.6	36	96	34	16	15	5.2
30	2.7	2.6	1.3	1.8	---	11	39	91	32	12	14	5.5
31	2.7	---	1.4	1.8	---	16	---	86	---	10	12	---
TOTAL	75.1	82.9	54.2	55.2	57.1	170.1	828	2274	1370	547.7	1043.5	209.3
MEAN	2.42	2.76	1.75	1.78	2.04	5.49	27.6	73.4	45.7	17.7	33.7	6.98
MAX	2.9	3.2	2.5	2.0	3.4	16	79	136	75	60	109	11
MIN	2.1	2.5	1.3	1.5	1.7	2.5	10	27	21	8.6	9.0	5.2
AC-FT	149	164	108	109	113	337	1640	4510	2720	1090	2070	415
CAL YR 1982	TOTAL	1408.63	MEAN	3.86	MAX	26	MIN	.70	AC-FT	2790		
WTR YR 1983	TOTAL	6767.10	MEAN	18.5	MAX	136	MIN	1.3	AC-FT	13420		

## ARKANSAS RIVER BASIN

07103800 WEST MONUMENT CREEK AT U.S. AIR FORCE ACADEMY, CO

LOCATION.--Lat 38°58'14", long 104°54'08", in SW¼SW¼ sec.28, T.12 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on left bank 500 ft upstream from diversion to city of Colorado Springs water-treatment plant, 2.7 mi south of U.S. Air Force Academy chapel, and 4.4 mi upstream from mouth.

DRAINAGE AREA.--14.9 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1970 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 7,180 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain diversions from Colorado River basin, storage reservoirs, and operation of water-supply system. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--13 years, 2.21 ft<sup>3</sup>/s; 1,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80 ft<sup>3</sup>/s May 8, 1980, gage height, 2.73 ft, from rating curve extended above 34 ft<sup>3</sup>/s; maximum gage height, 3.31 ft, Dec. 22, 1976 (backwater from ice); no flow on many days in 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11 ft<sup>3</sup>/s at 2330 May 25, gage height, 1.79 ft, at 2200 June 27, gage height, 1.80 ft; maximum gage height, 2.54 ft, at 0230 Apr. 15 (backwater from ice); minimum daily discharge, 0.10 ft<sup>3</sup>/s, Dec. 24-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	.40	.28	.15	.16	.25	1.1	7.9	7.8	4.5	1.0	.39
2	.89	.40	.28	.15	.14	.26	1.1	8.0	7.2	4.6	.97	.50
3	.78	.35	.27	.15	.16	.27	1.0	7.6	6.5	4.4	1.1	.48
4	.75	.34	.26	.14	.17	.28	1.1	7.3	5.8	4.2	1.9	.45
5	.70	.35	.23	.14	.17	.29	1.1	7.2	5.7	4.3	1.3	.40
6	.70	.34	.23	.14	.17	.29	.97	7.0	5.4	4.0	1.3	.35
7	.66	.36	.24	.14	.17	.27	.77	6.9	5.2	5.7	1.1	.31
8	.72	.35	.24	.13	.17	.27	.70	7.4	4.8	5.6	.98	.27
9	.69	.31	.24	.13	.17	.30	.72	7.8	4.5	3.4	.87	.26
10	.68	.31	.24	.13	.17	.34	.79	8.1	4.2	3.2	.80	.31
11	.65	.28	.23	.14	.17	.44	.92	8.8	4.0	3.1	.76	.33
12	.64	.28	.24	.14	.18	.53	1.0	8.8	3.7	3.0	.68	.30
13	.58	.28	.23	.15	.17	.51	1.2	8.7	3.8	2.7	.76	.30
14	.57	.27	.22	.15	.15	.52	1.5	7.9	5.0	2.5	.73	.32
15	.57	.26	.22	.15	.15	.50	1.7	7.4	5.3	2.3	.61	.29
16	.57	.23	.23	.14	.16	.56	1.4	7.0	3.2	2.1	.57	.27
17	.53	.23	.19	.14	.15	.60	1.1	6.5	3.1	2.0	.65	.24
18	.51	.26	.17	.14	.16	.60	1.4	6.2	2.9	1.8	.55	.26
19	.49	.24	.16	.15	.15	.62	1.8	5.8	2.6	1.7	.52	.25
20	.45	.21	.15	.15	.17	.61	2.4	6.0	2.5	1.6	.71	.29
21	.44	.20	.17	.15	.19	.57	3.2	6.3	2.4	1.7	.55	.32
22	.46	.24	.17	.14	.18	.51	3.5	7.3	2.4	2.1	.54	.31
23	.45	.25	.14	.14	.18	.50	3.7	8.4	3.3	1.8	.53	.32
24	.46	.25	.10	.14	.20	.51	4.8	9.6	2.3	1.7	.49	.31
25	.44	.25	.10	.14	.21	.56	6.4	10	2.3	1.5	.47	.36
26	.44	.31	.11	.14	.22	.57	7.1	11	3.4	1.5	.53	.38
27	.44	.31	.13	.15	.21	.59	7.5	10	8.9	1.6	.54	.35
28	.46	.31	.14	.15	.24	.56	7.5	9.8	10	1.3	.44	.33
29	.42	.31	.15	.14	---	.55	7.6	9.6	8.6	1.2	.46	.35
30	.41	.27	.15	.14	---	.72	7.9	9.2	6.9	1.1	.45	.37
31	.40	---	.15	.15	---	.99	---	8.4	---	1.0	.48	---
TOTAL	17.92	8.75	6.06	4.43	4.89	14.94	82.97	247.9	143.7	83.2	23.34	9.97
MEAN	.58	.29	.20	.14	.17	.48	2.77	8.00	4.79	2.68	.75	.33
MAX	.97	.40	.28	.15	.24	.99	7.9	11	10	5.7	1.9	.50
MIN	.40	.20	.10	.13	.14	.25	.70	5.8	2.3	1.0	.44	.24
AC-FT	36	17	12	8.8	9.7	30	165	492	285	165	46	20
CAL YR 1982	TOTAL	283.43	MEAN	.78	MAX	4.2	MIN	.10	AC-FT	562		
WTR YR 1983	TOTAL	648.07	MEAN	1.78	MAX	11	MIN	.10	AC-FT	1290		

## 07103950 KETTLE CREEK NEAR BLACK FOREST, CO

LOCATION.--Lat 39°00'14", long 104°44'21", in NE¼SE¼ sec.14, T.12 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on right bank 13 ft downstream from bridge on Milan Rd., 1.2 mi downstream from Burgess Creek, and 2.2 mi southwest of Black Forest.

DRAINAGE AREA.--9.01 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,980 ft, from topographic map. May 1976 to Mar. 17, 1983 at datum 3.0 ft, lower.

REMARKS.--Records good except those for winter period, which are fair, and those for period of no gage-height record, which are poor. No known diversion above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--7 years, 0.98 ft<sup>3</sup>/s; 710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,300 ft<sup>3</sup>/s Aug. 5, 1981, gage height, 4.41 ft, from floodmark, from rating curve extended above 20 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 5	0445	9.0	* 3.92	Aug. 3	1815	13	3.45
Apr. 21	1730	9.5	3.70	Aug. 4	0145	* 20	3.61
May 21	1645	18	3.54	Aug. 5	1645	11	3.37
June 5	2000	8.1	3.32	Aug. 6	2015	11	3.34

Minimum daily discharge, 0.12 ft<sup>3</sup>/s Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	.24	.30	.23	.14	.54	3.0	5.1	6.2	2.5	1.6	.75
2	.50	.22	.31	.21	.14	.90	3.4	6.5	6.6	2.5	1.5	1.0
3	.48	.33	.38	.21	.14	.96	4.0	6.4	5.9	2.5	2.1	.85
4	.45	.26	.21	.20	.14	1.2	5.9	6.6	5.2	2.5	3.7	.75
5	.40	.31	.47	.20	.14	.82	5.8	7.0	6.2	2.5	3.7	.75
6	.37	.35	.38	.22	.14	2.4	3.6	7.0	6.0	2.5	4.0	.75
7	.33	.23	.29	.23	.12	2.9	3.6	7.0	5.8	2.5	3.3	.70
8	.35	.17	.28	.23	.14	1.8	3.5	7.0	6.4	2.2	2.7	.70
9	.26	.17	.25	.23	.15	1.5	3.3	7.0	6.0	2.5	2.5	.65
10	.34	.17	.29	.21	.15	1.3	3.8	7.0	6.3	2.5	2.0	.65
11	.27	.13	.26	.20	.15	1.6	4.3	7.7	5.8	3.0	2.0	.65
12	.22	.13	.19	.20	.20	1.7	4.2	7.7	5.7	3.0	3.7	.65
13	.29	.14	.18	.19	.20	2.2	3.7	7.2	6.4	2.5	2.8	.65
14	.37	.20	.15	.17	.20	2.4	3.6	8.3	7.2	2.5	3.4	.65
15	.36	.23	.15	.18	.18	1.5	3.6	7.9	7.3	2.5	2.5	.65
16	.45	.27	.20	.17	.20	1.8	3.9	7.5	7.3	2.0	2.5	.65
17	.37	.18	.22	.17	.17	1.5	4.3	7.2	6.7	2.0	2.0	.65
18	.23	.21	.18	.17	.20	1.4	5.1	7.7	6.7	2.0	1.5	.65
19	.36	.18	.19	.17	.17	1.3	5.9	8.4	6.5	2.0	2.0	.65
20	.33	.14	.20	.14	.20	1.2	6.6	11	7.1	2.0	1.5	.60
21	.33	.17	.21	.14	.17	1.2	6.3	11	6.4	2.5	1.0	.60
22	.29	.23	.20	.14	.20	1.1	5.1	7.9	5.1	2.0	1.0	.60
23	.27	.24	.20	.14	.20	1.3	5.2	6.8	4.4	2.0	1.5	.60
24	.28	.16	.60	.14	.31	1.4	5.6	7.2	3.6	2.0	1.0	.60
25	.31	.17	.45	.14	.42	1.7	5.1	7.4	3.5	2.0	1.0	.60
26	.33	.23	.37	.14	.40	1.7	3.7	7.6	3.5	2.5	.90	.60
27	.26	.34	.28	.14	.54	2.0	3.5	7.3	3.4	2.3	2.0	.60
28	.32	.31	.27	.14	.53	1.9	3.7	7.4	3.3	2.5	1.0	.60
29	.27	.29	.27	.14	---	1.8	4.3	7.0	3.1	1.6	.90	.60
30	.27	.36	.26	.14	---	2.1	4.6	6.7	2.5	2.0	.90	.60
31	.31	---	.23	.14	---	2.7	---	6.9	---	1.9	.80	---
TOTAL	10.45	6.76	8.42	5.47	6.04	49.82	132.2	230.4	166.1	71.5	63.00	20.00
MEAN	.34	.23	.27	.18	.22	1.61	4.41	7.43	5.54	2.31	2.03	.67
MAX	.50	.36	.60	.23	.54	2.9	6.6	11	7.3	3.0	4.0	1.0
MIN	.22	.13	.15	.14	.12	.54	3.0	5.1	2.5	1.6	.80	.60
AC-FT	21	13	17	11	12	99	262	457	329	142	125	40

CAL YR 1982 TOTAL 141.70 MEAN .39 MAX 3.6 MIN .10 AC-FT 281  
WTR YR 1983 TOTAL 770.16 MEAN 2.11 MAX 11 MIN .12 AC-FT 1530

NOTE.--NO GAGE-HEIGHT RECORD AUG. 9 TO SEPT. 30.

## ARKANSAS RIVER BASIN

07104000 MONUMENT CREEK AT PIKEVIEW, CO

LOCATION.--Lat 38°55'04", long 104°49'05", in NW¼SE¼ sec.18, T.13 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on right bank at downstream side of abandoned bridge at northeast edge of Pikeview, 600 ft upstream from unnamed tributary, 1,200 ft upstream from bridge on U.S. Interstate Highway I-25, and 0.7 mi downstream from Dry Creek.

DRAINAGE AREA.--204 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to September 1949, January 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,203.26 ft, National Geodetic Vertical Datum of 1929. September 1938 to October 1949, nonrecording gage at present site at datum 0.10 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, municipal use and return flow from irrigation, and sewage-effluent discharge.

AVERAGE DISCHARGE.--18 years (water years 1939-49, 1977-83), 25.6 ft<sup>3</sup>/s; 18,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,750 ft<sup>3</sup>/s Aug. 5, 1981, gage height, 7.48 ft, from rating curve extended above 100 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow July 24, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1935, reached a stage of about 14 ft, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 ft<sup>3</sup>/s at 1730 July 26, gage height, 5.40 ft, from rating curve extended above 250 ft<sup>3</sup>/s, on basis of slope-area measurements of peak flow; minimum daily, 6.7 ft<sup>3</sup>/s Jan. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	17	12	16	31	58	190	214	85	42	33
2	14	14	11	12	15	33	53	210	210	86	35	31
3	14	14	11	16	7.2	35	54	238	190	81	34	31
4	15	14	12	16	7.8	39	47	262	167	79	135	28
5	15	14	11	18	12	56	47	260	182	78	129	27
6	19	15	10	19	15	47	45	257	203	76	109	26
7	16	14	11	15	14	45	48	238	186	73	119	24
8	18	14	13	15	14	43	52	247	154	72	109	24
9	15	15	17	13	12	42	57	267	117	66	105	24
10	14	15	17	12	13	41	59	259	111	66	101	26
11	13	15	14	17	13	41	65	255	111	67	97	25
12	13	15	12	15	13	41	67	238	109	66	101	25
13	17	15	12	14	14	40	71	206	114	61	141	25
14	16	16	9.0	11	17	50	74	174	119	59	158	25
15	15	18	16	13	17	68	75	156	120	66	145	25
16	16	17	15	12	16	59	72	138	116	69	95	25
17	17	16	14	11	16	49	61	129	113	71	84	29
18	17	16	12	8.9	15	40	64	126	114	68	72	36
19	17	17	13	6.7	15	43	60	177	111	65	67	34
20	14	18	14	6.7	19	40	63	245	102	60	51	33
21	12	17	15	11	20	43	69	208	84	78	49	32
22	12	17	14	15	20	40	56	201	107	61	49	30
23	12	15	14	18	21	40	51	199	123	62	49	32
24	12	17	9.8	17	25	51	58	208	99	55	49	33
25	12	17	8.0	18	26	48	75	225	87	41	50	32
26	12	16	8.0	14	28	48	103	232	84	137	45	32
27	12	15	9.8	14	28	52	134	240	96	66	40	28
28	13	16	9.5	16	28	53	120	237	94	49	36	25
29	13	15	9.2	15	---	51	155	242	93	48	35	28
30	13	17	9.8	15	---	53	170	259	89	64	40	25
31	14	---	11	17	---	59	---	235	---	48	35	---
TOTAL	447	468	379.1	433.3	477.0	1421	2183	6758	3819	2123	2406	853
MEAN	14.4	15.6	12.2	14.0	17.0	45.8	72.8	218	127	68.5	77.6	28.4
MAX	19	18	17	19	28	68	170	267	214	137	158	36
MIN	12	14	8.0	6.7	7.2	31	45	126	84	41	34	24
AC-FT	887	928	752	859	946	2820	4330	13400	7570	4210	4770	1690
CAL YR 1982	TOTAL	6896.2	MEAN 18.9	MAX 136	MIN 5.5	AC-FT 13680						
WTR YR 1983	TOTAL	21767.4	MEAN 59.6	MAX 267	MIN 6.7	AC-FT 43180						

07104000 MONUMENT CREEK AT PIKEVIEW, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT										
19...	0945	18	330	357	7.6	4.0	12.0	E2.9	98	--
NOV										
16...	1000	18	388	435	8.4	.5	13.6	.9	119	--
DEC										
14...	1015	12	373	403	8.0	.0	11.1	3.3	107	--
JAN										
11...	1000	17	367	398	8.1	.0	11.4	E3.6	102	63
FEB										
15...	0945	16	371	398	8.0	1.5	E11.3	E6.0	101	68
MAR										
16...	1020	62	293	305	7.8	1.5	10.6	11	77	45
APR										
11...	1030	64	288	298	7.8	7.0	11.2	<3.3	72	48
MAY										
12...	0920	237	115	129	7.1	5.5	12.1	5.7	32	18
JUN										
15...	1005	118	175	184	7.9	11.5	9.2	1.7	54	26
JUL										
13...	1120	60	200	214	7.7	20.0	7.5	<1.8	61	26
AUG										
16...	1000	77	196	212	7.0	21.5	7.2	<16	62	24
SEP										
07...	0900	25	308	309	7.8	14.0	8.2	2.2	88	44

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT										
19...	--	24	1.76	.040	1.80	.130	1.5	1.6	3.4	<.01
NOV										
16...	--	189	1.90	<.020	1.90	.060	1.7	1.8	3.7	<.01
DEC										
14...	--	<1	1.85	.050	1.90	.150	.95	1.1	3.0	<.01
JAN										
11...	14	123	2.00	--	2.00	.270	2.0	2.3	4.3	<.01
FEB										
15...	13	450	1.90	--	1.90	.260	1.4	1.7	3.6	<.01
MAR										
16...	13	294	1.40	--	1.40	.840	1.3	2.1	3.5	<.01
APR										
11...	13	724	.900	--	.900	.190	6.4	6.6	7.5	<.01
MAY										
12...	4.1	646	.200	--	.200	.250	2.9	3.1	3.3	<.01
JUN										
15...	5.9	9	.400	--	.400	.270	.83	1.1	1.5	<.01
JUL										
13...	6.1	155	.600	--	.600	.080	.62	.70	1.3	<.01
AUG										
16...	6.6	151	.600	--	.600	.160	1.8	2.0	2.6	<.01
SEP										
07...	9.3	186	1.20	--	1.20	.020	.88	.90	2.1	<.01

E ESTIMATED.

## ARKANSAS RIVER BASIN

07104000 MONUMENT CREEK AT PIKEVIEW, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 19...	<1	<10	<1	4	1600	--	2
NOV 16...	<1	<10	<1	7	4200	--	6
DEC 14...	1	<10	<1	9	7200	--	16
JAN 11...	1	10	--	5	2800	20	6
FEB 15...	1	<10	--	21	13000	20	21
MAR 16...	4	<10	--	23	15000	60	18
APR 11...	<1	<10	--	23	13000	30	22
MAY 12...	1	<10	--	27	20000	120	29
JUN 15...	<1	<10	--	7	6400	40	13
JUL 13...	1	<10	--	6	3400	20	<1
AUG 16...	4	<10	--	18	8200	80	11
SEP 07...	1	<10	--	11	5100	20	13

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 19...	70	--	1.0	1	2	<0	60
NOV 16...	180	--	.1	3	2	<0	60
DEC 14...	190	--	.1	7	2	<0	110
JAN 11...	100	40	--	--	--	--	40
FEB 15...	360	50	--	--	--	--	110
MAR 16...	500	20	--	--	--	--	100
APR 11...	380	20	--	--	--	--	140
MAY 12...	570	20	--	--	--	--	140
JUN 15...	220	20	--	--	--	--	60
JUL 13...	120	10	--	--	--	--	80
AUG 16...	210	10	--	--	--	--	110
SEP 07...	120	10	--	--	--	--	80



07104905 MONUMENT CREEK AT BIJOU STREET AT COLORADO SPRINGS, CO

LOCATION.--Lat 38°50'14", long 104°49'44", in NW¼NW¼ sec.18, T.14 S., R.66 W., El Paso County, Hydrologic Unit 11020003 at bridge on Bijou Street in Colorado Springs.

PERIOD OF RECORD.--December 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT										
19...	1120	19	465	493	7.6	6.5	11.3	E6.4	126	--
NOV										
16...	1040	17	460	503	8.3	2.0	12.9	2.1	126	--
DEC										
14...	1140	15	537	561	8.0	.0	12.0	4.5	138	--
JAN										
11...	1200	17	530	564	8.2	.0	13.1	E3.0	130	120
FEB										
15...	1345	14	514	534	8.1	8.0	10.3	E4.2	126	110
MAR										
16...	1215	52	517	515	7.9	4.0	13.2	13	83	65
APR										
11...	1140	65	343	346	7.9	10.0	9.9	<3.2	84	65
MAY										
12...	1035	237	130	142	7.5	7.0	11.1	6.6	34	22
JUN										
15...	1130	123	205	216	7.8	15.5	8.8	1.5	73	34
JUL										
13...	1245	62	240	263	7.7	25.0	5.7	<1.5	72	42
AUG										
16...	1315	76	250	252	8.0	25.5	5.3	<1.4	71	37
SEP										
07...	1030	24	425	414	7.9	18.5	7.6	5.2	107	76

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT										
19...	--	260	1.88	.020	1.90	.080	1.8	1.9	3.8	<.01
NOV										
16...	--	353	1.40	<.020	1.40	<.060	--	1.4	2.8	<.01
DEC										
14...	--	336	2.20	<.020	2.20	.160	1.1	1.3	3.5	<.01
JAN										
11...	17	93	2.60	--	2.60	.180	1.4	1.6	4.2	<.01
FEB										
15...	16	384	2.00	--	2.00	.200	.80	1.0	3.0	<.01
MAR										
16...	61	398	1.50	--	1.50	.590	1.5	2.1	3.6	<.01
APR										
11...	15	982	1.00	--	1.00	.160	2.8	3.0	4.0	<.01
MAY										
12...	3.7	852	.300	--	.300	.090	1.8	1.9	2.2	<.01
JUN										
15...	6.7	230	.500	--	.500	<.060	--	1.0	1.5	<.01
JUL										
13...	7.4	119	.700	--	.700	.100	.70	.80	1.5	<.01
AUG										
16...	6.6	133	.600	--	.600	.050	1.1	1.1	1.8	<.01
SEP										
07...	11	2820	1.30	--	1.30	.450	3.8	4.2	5.5	<.01

E ESTIMATED.

## ARKANSAS RIVER BASIN

07104905 MONUMENT CREEK AT BIJOU STREET AT COLORADO SPRINGS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 19...	<1	<10	<1	9	5700	--	7
NOV 16...	1	<10	<1	41	7800	--	9
DEC 14...	1	280	79	18	11000	--	19
JAN 11...	1	<10	--	7	2100	20	7
FEB 15...	1	<10	--	16	7900	10	21
MAR 16...	2	<10	--	30	20000	30	42
APR 11...	<1	<10	--	28	19000	10	35
MAY 12...	<1	<10	--	21	25000	70	34
JUN 15...	<1	<10	--	150	6800	60	24
JUL 13...	<1	<10	--	6	4200	40	<1
AUG 16...	2	<10	--	18	15000	20	30
SEP 07...	<1	<10	--	110	82000	30	91

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 19...	160	--	.1	5	3	0	70
NOV 16...	230	--	.2	8	3	<0	90
DEC 14...	270	--	.1	10	5	0	100
JAN 11...	60	20	--	--	--	--	40
FEB 15...	190	10	--	--	--	--	70
MAR 16...	540	10	--	--	--	--	140
APR 11...	520	10	--	--	--	--	120
MAY 12...	680	10	--	--	--	--	180
JUN 15...	200	10	--	--	--	--	220
JUL 13...	130	10	--	--	--	--	50
AUG 16...	350	<10	--	--	--	--	100
SEP 07...	1600	20	--	--	--	--	500

LOCATION.--Lat 38°48'59", long 104°49'20", in NE¼SW¼ sec.19, T.14 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on left bank 31 ft upstream from bridge on Nevada Ave. in Colorado Springs, 100 ft downstream from mouth of Cheyenne Creek, and 1.3 mi downstream from Monument Creek.

WATER-DISCHARGE RECORDS

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation and municipal use, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft<sup>3</sup>/s July 29, 1978, gage height, 7.15 ft, from rating curve extended above 2,400 ft<sup>3</sup>/s; minimum daily, 2.0 ft<sup>3</sup>/s Aug. 19, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,440 ft<sup>3</sup>/s at 1845 July 26, gage height, 6.19 ft; from rating curve extended on basis of slope-area measurement of peak flow; minimum daily, 13 ft<sup>3</sup>/s Dec. 25-26, Feb. 3.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	31	36	25	31	46	115	326	412	340	158	110
2	61	31	30	30	30	47	90	383	397	319	140	107
3	49	28	29	28	13	50	85	315	374	310	150	115
4	47	31	34	26	14	76	70	268	360	297	326	103
5	46	31	37	28	25	125	86	259	396	277	278	94
6	44	32	36	30	31	77	79	274	403	258	264	89
7	33	33	31	33	28	73	81	264	394	237	254	87
8	56	40	17	32	30	72	72	274	377	228	213	83
9	51	40	35	31	24	65	70	308	373	219	175	73
10	47	33	43	30	26	62	75	343	375	216	153	67
11	51	37	28	32	25	62	89	350	366	198	132	86
12	83	33	24	32	25	61	87	340	351	183	130	76
13	99	33	34	32	28	60	90	321	367	195	240	76
14	78	31	28	32	32	73	89	300	346	189	246	81
15	86	39	27	32	31	124	87	279	335	189	191	80
16	84	38	38	34	33	99	84	246	309	172	148	66
17	81	38	37	32	33	70	73	244	297	147	126	56
18	69	38	32	34	33	57	73	233	292	140	108	57
19	63	36	30	32	32	59	88	316	290	135	163	55
20	51	34	33	25	35	53	109	464	279	126	170	58
21	45	31	35	23	33	45	190	378	248	270	126	64
22	38	32	31	28	38	49	224	376	312	264	114	66
23	39	35	26	30	38	43	213	376	333	235	121	64
24	35	27	18	25	37	50	205	391	290	239	130	57
25	35	31	13	31	38	71	280	421	280	281	138	61
26	35	33	13	26	40	50	337	443	430	353	133	56
27	38	31	18	27	40	50	316	454	408	230	146	51
28	39	31	16	32	40	54	298	438	375	190	123	46
29	32	31	15	30	---	56	289	464	369	169	116	50
30	31	27	17	31	---	56	294	451	363	247	124	56
31	31	---	20	35	---	89	---	429	---	189	127	---
TOTAL	1646	996	861	928	863	2027	4338	10728	10501	7042	5163	2190
MEAN	53.1	33.2	27.8	29.9	30.8	65.4	145	346	350	227	167	73.0
MAX	99	40	43	35	40	125	337	464	430	353	326	115
MIN	31	27	13	23	13	43	70	233	248	126	108	46
AC-FT	3260	1980	1710	1840	1710	4020	8600	21280	20830	13970	10240	4340
CAL YR 1982	TOTAL	1985	3.2	MEAN	54.4	MAX	426	MIN	8.2	AC-FT	39380	
WTR YR 1983	TOTAL	4728	3.0	MEAN	130	MAX	464	MIN	13	AC-FT	93790	

07105500 FOUNTAIN CREEK AT COLORADO SPRINGS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RINE, TOTAL RESI- DUAL (MG/L)
OCT 21...	0915	77	393	375	7.9	4.5	12.1	E2.4	104	--	<.01
NOV 18...	0915	45	434	453	7.8	3.5	12.2	4.2	109	--	--
DEC 15...	0845	8.2	592	650	7.5	1.5	13.5	E10	130	--	<.01
JAN 12...	0910	33	537	552	7.9	1.0	11.3	E29	120	120	--
FEB 16...	0915	26	550	569	8.0	2.5	E10.5	E4.0	125	130	<.01
MAR 18...	0920	48	382	408	8.0	.5	13.5	3.9	94	79	<.01
APR 12...	0915	87	358	365	7.9	3.5	10.6	6.8	84	68	<.01
MAY 13...	0930	324	152	160	7.6	6.5	12.1	4.5	39	24	<.01
JUN 16...	1000	210	164	174	7.6	13.5	8.8	2.7	42	25	<.01
JUL 14...	0945	183	190	206	7.5	16.0	8.4	1.1	54	29	.01
AUG 17...	0930	134	270	234	7.2	18.0	9.1	.7	63	36	.01
SEP 08...	0850	82	270	281	7.7	13.5	9.6	2.7	67	54	<.01

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT 21...	--	54	1.07	.030	1.10	.080	1.0	1.1	2.2	<.01
NOV 18...	--	67	1.40	<.020	1.40	.060	.64	.70	2.1	<.01
DEC 15...	--	1	1.90	<.020	1.90	.100	.60	.70	2.6	<.01
JAN 12...	18	10	2.20	--	2.20	.090	.91	1.0	3.2	<.01
FEB 16...	19	156	1.80	--	1.80	.200	.80	1.0	2.8	<.01
MAR 18...	16	39	1.40	--	1.40	.620	.78	1.4	2.8	<.01
APR 12...	13	760	1.00	--	1.00	.150	2.9	3.0	4.0	<.01
MAY 13...	4.1	588	.300	--	.300	.080	1.4	1.5	1.8	<.01
JUN 16...	4.6	94	.400	--	.400	.250	.35	.60	1.0	<.01
JUL 14...	4.9	135	.500	--	.500	.110	.59	.70	1.1	<.01
AUG 17...	6.2	205	.600	--	.600	.040	.86	.90	1.5	<.01
SEP 08...	7.3	84	.800	--	.800	.070	.33	.40	1.1	<.01

E ESTIMATED.

07105500 FOUNTAIN CREEK AT COLORADO SPRINGS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT							
21...	1	<10	<1	5	1700	--	3
NOV							
18...	<1	<10	<1	5	1800	--	2
DEC							
15...	1	<10	<1	4	450	--	3
JAN							
12...	1	<10	--	5	740	20	5
FEB							
16...	<1	<10	--	6	3400	260	4
MAR							
18...	1	<10	--	14	5700	40	3
APR							
12...	1	<10	--	22	17000	20	25
MAY							
13...	1	<10	--	15	20000	100	41
JUN							
16...	<1	<10	--	4	4500	30	10
JUL							
14...	<1	<10	--	7	3800	40	<1
AUG							
17...	1	<10	--	10	8400	2500	12
SEP							
08...	<1	<10	--	9	3000	90	11

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT							
21...	120	--	.1	1	2	<0	80
NOV							
18...	130	--	.1	4	2	0	50
DEC							
15...	210	--	.1	3	3	0	50
JAN							
12...	100	100	.2	--	--	--	50
FEB							
16...	170	100	.2	--	--	--	50
MAR							
18...	190	50	.2	--	--	--	60
APR							
12...	400	30	.2	--	--	--	100
MAY							
13...	600	10	.2	--	--	--	160
JUN							
16...	160	20	.1	--	--	--	50
JUL							
14...	160	20	.1	--	--	--	60
AUG							
17...	260	130	.2	--	--	--	70
SEP							
08...	120	60	.1	--	--	--	60

## ARKANSAS RIVER BASIN

07105530 FOUNTAIN CREEK BELOW JANITELL ROAD BELOW COLORADO SPRINGS, CO

LOCATION.--Lat 38°48'11", long 104°47'43", in NE¼SE¼ sec.29, T.14 S., R.66 W., El Paso County, Hydrologic Unit 11020003, approximately 200 ft downstream from Janitell Road below Colorado Springs.

PERIOD OF RECORD.--April 1975 to June 1976, May 1979 to September 1979, December 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 21...	1100	95	677	630	6.9	11.0	8.8	E20	170	43	15
NOV 18...	1140	78	746	737	7.3	10.5	9.2	9.0	190	48	17
DEC 15...	1030	86	813	856	7.1	8.5	10.1	<33	190	47	18
JAN 12...	1120	105	781	794	7.6	7.5	10.2	E30	200	51	17
FEB 16...	1100	89	780	753	7.5	9.5	E8.8	E15	190	50	16
MAR 21...	1100	101	728	696	7.6	6.5	12.2	4.0	180	48	15
APR 12...	1105	133	634	630	7.6	9.0	10.3	12	170	45	13
MAY 13...	1045	385	240	246	7.6	6.0	12.2	5.6	73	21	4.9
JUN 16...	1245	325	313	316	7.4	14.5	8.8	4.2	84	23	6.4
JUL 14...	1100	197	370	378	7.5	17.0	8.0	7.6	100	28	8.2
AUG 17...	1120	161	460	436	7.4	20.0	8.3	7.5	120	32	8.9
SEP 08...	1100	121	565	522	7.7	18.0	7.7	9.9	140	37	12

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO3)	CHLO- RINE, TOTAL RESI- DUAL (MG/L)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT 21...	67	2	6.7	135	.01	29	2.6	15	438	400	.54
NOV 18...	70	2	7.2	99	--	36	2.3	15	478	430	.58
DEC 15...	89	3	8.6	178	.02	44	2.4	14	521	510	.69
JAN 12...	72	2	8.0	166	--	38	2.0	15	508	470	.64
FEB 16...	75	2	8.0	83	<.01	41	2.0	15	472	430	.58
MAR 21...	69	2	7.2	150	.02	42	1.8	15	441	440	.60
APR 12...	58	2	6.4	81	<.01	32	1.8	17	356	350	.48
MAY 13...	17	.9	3.1	53	<.01	8.2	1.8	16	159	150	.20
JUN 16...	24	1	3.2	67	<.01	12	2.4	15	186	190	.25
JUL 14...	32	1	4.0	60	.01	16	2.2	15	234	220	.30
AUG 17...	37	2	4.5	96	.01	16	2.3	16	267	260	.35
SEP 08...	48	2	5.1	73	.01	23	2.1	15	439	310	.42

E ESTIMATED.

## ARKANSAS RIVER BASIN

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07105530 FOUNTAIN CREEK BELOW JANITELL ROAD BELOW COLORADO SPRINGS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT 21...	102	40	1.05	.950	2.00	5.30	4.2	9.5	12	<.01
NOV 18...	90	38	1.30	<.020	1.30	9.80	.20	10	11	<.01
DEC 15...	118	17	1.07	.130	1.20	13.0	2.0	15	16	<.01
JAN 12...	134	37	1.70	--	1.70	9.50	1.5	11	13	--
FEB 16...	103	94	1.20	--	1.20	11.0	.00	10	11	--
MAR 21...	119	12	1.20	--	1.20	8.40	4.6	13	14	--
APR 12...	126	564	1.20	--	1.20	5.60	3.2	8.8	10	--
MAY 13...	154	341	.400	--	.400	1.70	.70	2.4	2.8	--
JUN 16...	163	14	.500	--	.500	3.10	.50	3.6	4.1	--
JUL 14...	117	116	.600	--	.600	3.50	3.1	6.6	7.2	--
AUG 17...	112	191	.600	--	.600	4.80	2.2	7.0	7.6	--
SEP 08...	100	76	.900	--	.900	6.00	3.0	9.0	9.9	--

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 21...	1	10	<1	12	1000	42	7
NOV 18...	<1	<10	<1	9	1000	71	3
DEC 15...	<1	<10	<1	10	860	47	3
JAN 12...	--	--	--	--	--	50	--
FEB 16...	--	--	--	--	--	55	--
MAR 21...	--	--	--	--	--	29	--
APR 12...	--	--	--	--	--	140	--
MAY 13...	--	--	--	--	--	160	--
JUN 16...	--	--	--	--	--	45	--
JUL 14...	--	--	--	--	--	41	--
AUG 17...	--	--	--	--	--	140	--
SEP 08...	--	--	--	--	--	9	--

## ARKANSAS RIVER BASIN

07105530 FOUNTAIN CREEK BELOW JANITELL ROAD BELOW COLORADO SPRINGS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT							
21...	130	100	<.1	28	5	0	80
NOV							
18...	140	110	.1	18	5	0	70
DEC							
15...	160	140	.1	25	7	1	80
JAN							
12...	--	110	--	--	--	--	--
FEB							
16...	--	120	--	--	--	--	--
MAR							
21...	--	100	--	--	--	--	--
APR							
12...	--	71	--	--	--	--	--
MAY							
13...	--	21	--	--	--	--	--
JUN							
16...	--	36	--	--	--	--	--
JUL							
14...	--	45	--	--	--	--	--
AUG							
17...	--	39	--	--	--	--	--
SEP							
08...	--	6	--	--	--	--	--



07105780 B.DITCH DRAIN NEAR SECURITY, CO

LOCATION.--Lat 38°45'09", long 104°45'43", in SW¼SE¼ sec.10, T. 15 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on left bank, on Fort Carson Military Reservation, 800 ft upstream from Interstate 25, 0.7 mi upstream from mouth, and 1.0 mi southwest of Security.

DRAINAGE AREA.--Undetermined.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,724 ft, from topographic map.

REMARKS.--Records good except those for winter period and those above 2 ft<sup>3</sup>/s. Unknown amounts of flow are introduced to the stream from activities in the cantonment area of Fort Carson, upstream. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,700 ft<sup>3</sup>/s Aug. 15, 1981, gage height, 13.78 ft, result of slope-area measurement of peak flow; minimum daily, 0.02 ft<sup>3</sup>/s Oct. 4, Dec. 28, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft<sup>3</sup>/s at 1500 June 5, gage height, 11.70 ft, from floodmark, from rating curve extended above 1.3 ft<sup>3</sup>/s, on basis of slope area measurements of peak flow; minimum daily, 0.09 ft<sup>3</sup>/s, Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.27	.34	.20	.29	.23	.21	.22	.25	.31	.36	.28
2	.34	.23	.35	.20	.30	.24	.20	4.2	.23	.25	.49	.28
3	.34	.22	.34	.25	.23	.25	.27	.39	.21	.23	.40	.25
4	.34	.22	.44	.25	.22	.53	.24	.34	.21	.23	1.1	.21
5	.28	.25	.48	.30	.23	.61	.51	.34	139	.19	.32	.19
6	.25	.25	.32	.40	.23	.28	.41	.30	1.5	.21	.35	.15
7	.28	.24	.39	.45	.29	.25	.24	.26	1.2	.20	.29	.13
8	.67	.23	.37	.50	.24	.23	.26	.27	.91	.19	.30	.17
9	.25	.27	.35	.50	.26	.25	.22	.28	.86	.18	.25	.15
10	.25	.28	.35	.59	.32	.25	.20	.28	.83	.21	.25	.13
11	.25	.25	.35	.59	.31	.28	.21	.29	.78	.22	.20	.12
12	.25	.23	.36	.49	.29	.28	.23	.26	.73	.19	.30	.13
13	.37	.28	.35	.43	.30	.28	.17	.27	.84	.18	.80	.12
14	.28	.31	.33	.32	.29	.31	.19	.31	.71	.18	.30	.15
15	.28	.31	.31	.32	.27	2.0	.17	.34	.69	.19	.25	.15
16	.28	.39	.35	.34	.28	2.2	.16	.34	.74	.17	.21	.12
17	.25	.33	.35	.36	.27	.54	.16	.37	.67	.18	.21	.11
18	.25	.24	.34	.34	.26	.40	.17	28	.63	.18	.21	.11
19	.23	.23	.30	.31	.25	.54	.16	4.4	.59	.17	.20	.10
20	.23	.23	.30	.31	.38	.58	.16	31	.55	.22	1.0	.09
21	.25	.23	.30	.30	.27	.74	1.1	.40	.54	18	.50	.10
22	.25	.23	.28	.54	.26	.60	.56	.54	.59	.85	.40	.11
23	.25	.24	.26	.49	.28	.39	.16	.34	.69	1.7	.35	.11
24	.25	.30	.21	.32	.26	1.2	.15	.31	.54	.43	.29	.12
25	.25	.30	.17	.30	.28	.75	.15	.31	.49	.59	.62	.12
26	.28	.39	.15	.29	.27	.26	.25	.28	5.1	.35	1.8	.11
27	.35	.33	.15	.33	.26	.26	.19	.28	.69	.46	1.0	.11
28	.31	.39	.15	.34	.26	.25	.23	.28	3.5	.37	.49	.12
29	.23	.40	.15	.31	---	.26	.65	.64	.49	.32	.48	.11
30	.23	.47	.18	.31	---	.27	.21	.49	.34	3.6	1.7	.12
31	.26	---	.20	.44	---	.27	---	.37	---	.69	.40	---
TOTAL	8.95	8.54	9.27	11.42	7.65	15.78	8.19	76.70	165.10	31.44	15.82	4.27
MEAN	.29	.28	.30	.37	.27	.51	.27	2.47	5.50	1.01	.51	.14
MAX	.67	.47	.48	.59	.38	2.2	1.1	31	139	.18	1.8	.28
MIN	.23	.22	.15	.20	.22	.23	.15	.22	.21	.17	.20	.09
AC-FT	18	17	18	23	15	31	16	152	327	62	31	8.5

CAL YR 1982 TOTAL 1041.44 MEAN 2.85 MAX 163 MIN .04 AC-FT 2070  
WTR YR 1983 TOTAL 363.13 MEAN .99 MAX 139 MIN .09 AC-FT 720

## ARKANSAS RIVER BASIN

07105780 B DITCH DRAIN NEAR SECURITY, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT											
16...	1340	.36	5500	--	--	13.0	--	--	--	--	--
21...	1415	E.31	4000	3970	7.8	14.0	10.4	E6.6	--	--	--
NOV											
18...	1325	.31	3400	3520	8.3	8.0	14.5	2.4	--	--	--
DEC											
15...	1300	.40	4560	4730	8.0	.0	--	E2.8	--	--	--
JAN											
12...	1245	.49	3410	3630	8.2	.5	12.7	E16	950	150	140
FEB											
16...	1230	.31	3380	3540	8.0	7.5	E10.1	E2.1	--	--	--
MAR											
21...	1230	.49	4000	4040	7.9	7.5	9.7	1.6	--	--	--
APR											
12...	1300	.24	4920	4950	8.2	12.5	11.5	2.0	1300	200	200
MAY											
13...	1310	.25	5050	5060	8.1	8.5	14.0	2.6	--	--	--
JUN											
16...	1430	.74	4590	4670	8.1	19.5	11.2	1.7	--	--	--
JUL											
14...	1305	.21	4800	4750	8.2	27.5	6.7	2.5	1300	230	170
AUG											
17...	1315	.21	3790	3820	8.1	30.0	10.8	.9	--	--	--
SEP											
08...	1205	.17	5000	4710	8.4	23.0	12.8	2.9	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT											
16...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	58	--	--	3520	--	--
NOV											
18...	--	--	--	--	--	63	--	--	3010	--	--
DEC											
15...	--	--	--	--	--	95	--	--	4270	--	--
JAN											
12...	560	8	5.8	302	1700	53	1.1	12	3000	2800	3.8
FEB											
16...	--	--	--	--	--	--	--	--	2890	--	--
MAR											
21...	--	--	--	--	--	--	--	--	3400	--	--
APR											
12...	800	10	7.7	348	2500	82	1.1	5.6	4350	4000	5.4
MAY											
13...	--	--	--	--	--	--	--	--	4500	--	--
JUN											
16...	--	--	--	--	--	--	--	--	4080	--	--
JUL											
14...	800	10	9.2	342	2500	72	1.3	5.1	4270	4000	5.4
AUG											
17...	--	--	--	--	--	--	--	--	3280	--	--
SEP											
08...	--	--	--	--	--	--	--	--	4260	--	--

E ESTIMATED.

07105780 B DITCH DRAIN NEAR SECURITY, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT										
16...	--	--	--	--	--	--	--	--	--	--
21...	--	10.8	.200	11.0	.090	1.7	1.8	13	--	--
NOV										
18...	--	9.88	.120	10.0	.100	1.5	1.6	12	--	--
DEC										
15...	--	14.8	.240	15.0	.060	.74	.80	16	--	--
JAN										
12...	12	9.30	--	9.30	.060	1.7	1.8	11	20	370
FEB										
16...	25	9.00	--	9.00	.130	.57	.70	9.7	--	--
MAR										
21...	8	6.00	--	6.00	.240	1.6	1.8	7.8	--	--
APR										
12...	19	13.0	--	13.0	.160	1.3	1.5	15	20	230
MAY										
13...	22	12.0	--	12.0	.220	1.8	2.0	14	--	--
JUN										
16...	40	9.10	--	9.10	.220	1.3	1.5	11	--	--
JUL										
14...	47	11.0	--	11.0	.090	1.5	1.6	13	30	20
AUG										
17...	23	7.70	--	7.70	.060	1.1	1.1	8.9	--	--
SEP										
08...	5	17.0	--	17.0	.070	1.7	1.8	19	--	--

## ARKANSAS RIVER BASIN

## 07105800 FOUNTAIN CREEK AT SECURITY, CO

LOCATION (REVISED).--Lat 38°43'46", long 104°44'00", in SW¼ sec.24, T.15 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on left bank on upstream side of Carson Road bridge, 0.9 mi southwest of South Security School, 3.5 mi northeast of Fountain, and 5.5 mi upstream from Jimmy Camp Creek.

DRAINAGE AREA.--495 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,640 ft, from topographic map. Prior to Oct. 26, 1966, at site 1,040 ft upstream at datum 6.00 ft, higher. Oct. 26, 1966, to July 18, 1972, at site 980 ft upstream at datum 6.00 ft, higher, July 19, 1972, to Feb. 20 1980, at site 980 ft downstream at datum 6.00 ft, lower.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation of about 5,100 acres and municipal use, and return flow from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--19 years, 71.3 ft<sup>3</sup>/s; 51,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft<sup>3</sup>/s July 24, 1965, gage height, 11.30 ft, site and datum then in use, from floodmarks, from rating curve extended above 2,900 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 1.9 ft<sup>3</sup>/s Mar. 1, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,290 ft<sup>3</sup>/s at 2230 July 30, gage height, 3.46 ft, from rating curve based on slope-area measurement of peak flow; minimum daily, 67 ft<sup>3</sup>/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	78	92	93	97	124	152	430	498	408	208	170
2	153	82	89	96	94	130	127	514	466	374	166	149
3	135	82	92	103	87	121	139	387	443	362	152	142
4	130	79	94	104	89	144	127	350	429	350	340	139
5	123	76	92	107	98	210	145	332	726	326	267	124
6	113	81	89	121	100	136	127	338	513	305	240	118
7	92	84	87	115	96	124	130	332	490	285	225	121
8	126	89	82	112	96	127	139	332	466	270	204	115
9	122	92	80	112	94	118	145	368	498	270	170	110
10	114	92	97	102	93	121	145	394	522	285	152	99
11	111	90	92	105	88	130	163	401	506	305	142	121
12	132	78	89	99	87	130	163	408	482	285	149	124
13	142	82	92	99	90	133	152	387	506	255	355	121
14	132	77	87	96	97	145	136	356	482	240	355	130
15	123	80	82	102	90	241	136	350	443	265	245	142
16	121	82	85	102	88	197	121	326	401	275	220	110
17	114	88	89	101	88	136	102	310	394	275	220	89
18	107	79	87	115	100	133	92	300	380	275	204	87
19	102	81	82	107	102	136	99	392	374	245	427	92
20	100	83	87	105	108	133	99	806	368	200	475	97
21	98	86	97	99	107	136	152	429	338	410	250	97
22	88	92	92	94	106	142	188	443	386	504	216	102
23	85	94	87	102	108	124	250	474	469	301	204	97
24	82	97	85	97	121	133	280	514	362	317	220	80
25	89	94	78	97	115	166	350	550	338	418	238	87
26	86	94	90	94	114	127	408	570	693	420	246	80
27	88	92	93	92	117	124	422	574	531	362	215	78
28	95	89	88	99	120	133	394	550	443	240	170	69
29	86	92	83	94	---	133	362	595	450	204	180	67
30	86	89	88	97	---	136	356	522	436	494	196	74
31	86	---	92	94	---	145	---	522	---	317	192	---
TOTAL	3419	2574	2739	3155	2790	4368	5801	13556	13833	9842	7243	3231
MEAN	110	85.8	88.4	102	99.6	141	193	437	461	317	234	108
MAX	158	97	97	121	121	241	422	806	726	504	475	170
MIN	82	76	78	92	87	118	92	300	338	200	142	67
AC-FT	6780	5110	5430	6260	5530	8660	11510	26890	27440	19520	14370	6410
CAL YR 1982	TOTAL	40057	MEAN 110	MAX 974	MIN 22	AC-FT	79450					
WTR YR 1983	TOTAL	72551	MEAN 199	MAX 806	MIN 67	AC-FT	143900					

## ARKANSAS RIVER BASIN

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07105820 CLOVER DITCH DRAIN NEAR WIDFIELD, CO

LOCATION.--Lat 38°43'07", long 104°43'43", in SW¼NE¼ sec.25, T.15 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on left bank 200 ft downstream from Fort Carson Military Road No. 1, 500 ft upstream from bridge on Interstate 25, 0.2 mi upstream from mouth, and 1.2 mi south of Widefield.

DRAINAGE AREA.--Not determined.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,620 ft, from topographic map.

REMARKS.--Records good except those Oct. 1 - Dec. 17 which are fair and those above 50 ft<sup>3</sup>/s, which are poor. This station is operated primarily to monitor low flows downstream from Fort Carson sewage-treatment plant.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft<sup>3</sup>/s July 28, 1982, gage height, 9.64 ft, from rating curve extended above 50 ft<sup>3</sup>/s; no flow Oct. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft<sup>3</sup>/s at 1600 June 5, gage height, 9.40 ft, from rating curve extended above 50 ft<sup>3</sup>/s; minimum daily, 2.4 ft<sup>3</sup>/s, Nov. 13, Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	6.1	4.3	3.9	3.4	5.4	4.0	3.5	4.1	5.1	5.4	4.6
2	5.9	5.1	3.9	3.9	3.0	5.5	3.8	8.1	4.0	4.2	5.9	5.6
3	5.9	4.3	3.9	4.4	3.0	5.9	5.1	4.0	4.9	3.7	4.7	5.2
4	5.9	4.3	4.3	4.2	3.5	6.1	5.4	4.3	5.1	3.6	5.4	5.2
5	5.4	4.3	3.9	4.3	4.0	5.6	6.2	4.3	153	4.0	4.7	4.6
6	4.1	3.7	4.3	4.2	3.9	5.1	5.0	4.1	14	4.3	5.4	4.0
7	3.5	3.7	3.3	3.9	3.9	6.1	4.4	3.9	7.8	4.3	4.3	4.4
8	8.8	3.9	4.1	4.2	3.6	6.3	3.9	3.3	7.1	4.3	3.5	4.9
9	6.8	3.9	3.1	3.4	3.7	6.3	4.6	3.3	7.2	4.1	3.5	5.0
10	5.9	3.5	4.1	3.7	4.4	6.1	4.3	3.5	6.1	4.0	3.5	4.7
11	5.1	2.9	3.5	3.6	4.2	4.5	4.9	3.1	5.4	4.0	3.1	4.4
12	4.7	2.7	4.7	3.5	4.1	4.7	3.8	3.5	5.9	4.2	3.3	3.8
13	4.9	2.4	3.7	3.0	4.4	6.1	3.4	3.5	6.2	4.9	3.9	4.4
14	4.1	2.5	3.3	3.0	4.8	6.6	4.3	3.5	5.7	4.9	3.9	5.1
15	3.9	3.1	3.5	3.0	4.9	9.3	3.3	3.9	6.1	4.9	3.7	5.1
16	3.1	3.1	4.1	3.5	5.5	8.5	3.1	3.9	6.2	4.7	3.5	5.1
17	3.1	3.3	4.7	3.0	5.6	6.3	2.9	3.9	5.1	4.5	2.9	4.5
18	3.3	3.3	4.9	2.5	5.4	5.6	3.7	3.7	4.5	4.6	2.4	3.9
19	3.3	4.9	4.0	2.5	4.5	4.9	3.9	3.7	4.9	4.9	73	4.7
20	4.5	2.7	3.8	2.5	4.3	4.3	3.5	12	4.6	4.7	5.7	5.0
21	6.1	3.3	4.4	3.0	4.5	5.2	3.5	4.9	4.5	18	5.6	4.9
22	8.8	4.3	4.6	4.0	4.9	5.2	4.7	5.1	5.4	5.9	5.1	4.9
23	6.3	4.7	4.4	4.6	4.9	4.1	3.0	3.9	5.0	5.5	4.0	4.4
24	5.9	5.1	3.8	4.6	4.3	5.7	2.8	3.7	4.9	4.0	3.3	3.5
25	5.6	5.6	3.4	3.8	4.5	5.5	4.0	4.5	4.1	4.4	4.0	4.3
26	4.9	5.1	4.4	3.5	4.3	3.8	4.2	4.9	12	4.0	6.3	4.9
27	4.7	5.1	4.3	4.1	4.7	3.3	3.8	4.5	6.6	4.2	6.2	5.2
28	3.5	5.9	4.0	3.8	5.1	3.6	3.9	3.9	6.9	3.8	5.4	4.2
29	4.1	4.9	3.7	4.3	---	4.1	6.4	4.5	5.4	3.6	5.7	4.0
30	5.1	4.1	4.0	5.6	---	4.6	4.3	5.1	5.4	5.6	5.1	4.8
31	5.6	---	4.0	4.9	---	4.8	---	4.9	---	5.7	4.0	---
TOTAL	159.1	121.8	124.4	116.4	121.3	169.1	124.1	136.9	328.1	152.6	206.4	139.3
MEAN	5.13	4.06	4.01	3.75	4.33	5.45	4.14	4.42	10.9	4.92	6.66	4.64
MAX	8.8	6.1	4.9	5.6	5.6	9.3	6.4	12	153	18	73	5.6
MIN	3.1	2.4	3.1	2.5	3.0	3.3	2.8	3.1	4.0	3.6	2.4	3.5
AC-FT	316	242	247	231	241	335	246	272	651	303	409	276
CAL YR 1982	TOTAL	1982.18	MEAN	5.43	MAX	158	MIN	.40	AC-FT	3930		
WTR YR 1983	TOTAL	1899.50	MEAN	5.20	MAX	153	MIN	2.4	AC-FT	3770		

## ARKANSAS RIVER BASIN

07105820 CLOVER DITCH DRAIN NEAR WIDEFIELD, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 21...	1710	4.2	--	1420	7.7	15.0	7.4	--	--	--	--
NOV 18...	1405	3.3	1550	1560	7.9	12.5	9.5	19	--	--	--
DEC 15...	1345	1.0	1420	1470	7.5	8.5	11.0	E27	--	--	--
JAN 12...	1400	3.5	1500	1580	8.1	10.0	10.6	--	430	100	44
FEB 16...	1315	5.1	1270	1290	7.7	12.0	E11.0	--	--	--	--
MAR 21...	1315	4.9	1330	1400	7.8	12.0	8.7	14	--	--	--
APR 12...	1345	4.2	1490	1510	8.0	12.0	10.4	23	400	89	42
MAY 13...	1430	3.7	1440	1480	8.2	12.0	12.2	16	--	--	--
JUN 16...	1510	6.2	1310	1350	8.1	20.5	9.0	14	--	--	--
JUL 14...	1405	4.1	1450	1380	8.2	27.0	7.2	15	390	86	42
AUG 17...	1400	2.3	1550	1570	7.9	28.5	7.3	8.7	--	--	--
SEP 08...	1250	4.7	1650	1550	8.4	23.5	9.5	14	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT 21...	--	--	--	181	--	--	--	--	--	--	--
NOV 18...	--	--	--	154	--	--	--	--	--	--	--
DEC 15...	--	--	--	211	--	--	--	--	--	--	--
JAN 12...	160	3	7.7	241	520	39	1.3	12	1090	1000	1.4
FEB 16...	--	--	--	--	--	--	--	--	862	--	--
MAR 21...	--	--	--	--	--	--	--	--	931	--	--
APR 12...	170	4	8.1	156	500	42	1.9	12	1030	960	1.3
MAY 13...	--	--	--	--	--	--	--	--	1010	--	--
JUN 16...	--	--	--	--	--	--	--	--	911	--	--
JUL 14...	160	4	6.7	183	490	35	1.3	11	1000	940	1.3
AUG 17...	--	--	--	--	--	--	--	--	1190	--	--
SEP 08...	--	--	--	--	--	--	--	--	1110	--	--

E ESTIMATED.

07105820 CLOVER DITCH DRAIN NEAR WIDEFIELD, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT 21...	--	6	1.60	.500	2.10	2.20	15	17	19	<.01
NOV 18...	--	2	2.50	.800	3.30	11.0	3.0	14	17	<.01
DEC 15...	--	6	2.26	.640	2.90	9.80	4.2	14	17	<.01
JAN 12...	9.7	13	3.50	--	3.50	11.0	.00	3.7	7.2	--
FEB 16...	--	21	2.00	--	2.00	11.0	6.0	17	19	--
MAR 21...	--	192	3.20	--	3.20	8.00	1.3	9.3	13	--
APR 12...	11	73	3.10	--	3.10	8.00	6.0	14	17	--
MAY 13...	--	14	2.30	--	2.30	10.0	7.0	17	19	--
JUN 16...	--	231	2.60	--	2.60	6.70	5.3	12	15	--
JUL 14...	10	26	4.40	--	4.40	2.70	5.3	8.0	12	--
AUG 17...	--	19	4.80	--	4.80	1.20	1.7	2.9	7.7	--
SEP 08...	--	13	4.10	--	4.10	4.40	4.6	9.0	13	--

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 21...	<1	<10	<1	5	230	--	1
NOV 18...	<1	<10	<1	7	180	--	1
DEC 15...	1	<10	<1	6	430	--	1
JAN 12...	--	--	--	--	--	60	--
APR 12...	--	--	--	--	--	43	--
JUL 14...	--	--	--	--	--	21	--

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 21...	130	--	.2	4	8	2	40
NOV 18...	110	--	.1	5	10	1	40
DEC 15...	120	--	.2	16	8	1	40
JAN 12...	--	110	--	--	--	--	--
APR 12...	--	100	--	--	--	--	--
JUL 14...	--	52	--	--	--	--	--

## ARKANSAS RIVER BASIN

07105825 FOUNTAIN CREEK BELOW WIDEFIELD, CO

LOCATION.--Lat 38°43'00", long 104°43'24", in SE¼NE¼ sec.25, T.15 S., R.66 W., El Paso County, Hydrologic Unit 11020003, approximately 200 ft downstream from the City of Widefield waste-water treatment facility below Widefield.

PERIOD OF RECORD.--December 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT											
21...	1510	103	800	740	7.1	15.0	6.8	E22	210	54	19
NOV											
18...	1600	90	878	872	7.7	11.0	7.7	35	230	58	20
DEC											
15...	1445	103	942	944	7.0	6.5	9.9	<54	240	61	22
JAN											
12...	1515	108	872	880	8.0	9.0	9.3	--	220	56	19
FEB											
16...	1530	107	892	855	7.9	11.5	E8.1	E25	210	53	19
MAR											
21...	1500	143	827	801	7.8	10.0	9.2	11	200	52	18
APR											
12...	1445	141	708	696	7.9	12.0	9.5	39	190	50	15
MAY											
13...	1500	390	316	318	7.8	7.5	10.2	14	85	24	6.1
JUN											
16...	1540	349	381	385	7.4	17.0	6.6	19	110	30	8.3
JUL											
14...	1545	208	460	455	7.4	23.0	3.7	6.9	130	34	10
AUG											
17...	1515	186	510	501	7.2	27.0	5.3	21	120	33	9.0
SEP											
08...	1325	127	637	603	7.7	22.5	6.0	8.5	170	45	13

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RINE, TOTAL RESI- DUAL (MG/L)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT											
21...	84	3	6.7	139	200	<.01	37	2.4	15	529	500
NOV											
18...	87	3	7.0	117	210	--	48	.20	15	550	520
DEC											
15...	99	3	7.9	183	210	<.01	51	2.2	15	630	580
JAN											
12...	87	3	8.2	170	190	--	47	2.0	16	541	530
FEB											
16...	89	3	7.8	103	200	<.01	49	2.0	15	550	500
MAR											
21...	82	3	7.2	98	190	.01	48	1.8	16	530	470
APR											
12...	66	2	6.2	100	160	<.01	34	2.0	17	446	410
MAY											
13...	25	1	3.3	59	60	<.01	14	1.8	15	208	180
JUN											
16...	33	1	3.5	67	79	<.01	25	2.5	16	240	240
JUL											
14...	41	2	4.5	71	100	<.01	22	2.2	15	299	270
AUG											
17...	38	2	3.9	83	110	<.01	22	2.2	14	327	280
SEP											
08...	57	2	4.6	100	130	<.01	32	2.1	15	398	360

E ESTIMATED.



07105825 FOUNTAIN CREEK BELOW WIDEFIELD, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT 21...	.68	140	158	3.09	.510	3.60	4.60	2.2	6.8	10	<.01
NOV 18...	.70	125	47	3.05	.150	3.20	6.80	1.9	8.7	12	<.01
DEC 15...	.79	161	47	2.56	.140	2.70	9.50	4.5	14	17	<.01
JAN 12...	.72	154	125	2.50	--	2.50	8.50	.00	8.0	11	--
FEB 16...	.68	144	85	1.80	--	1.80	10.0	6.0	16	18	--
MAR 21...	.64	183	296	1.90	--	1.90	7.60	4.4	12	14	--
APR 12...	.56	156	526	2.00	--	2.00	4.80	6.2	11	13	--
MAY 13...	.25	194	718	.800	--	.800	1.70	2.1	3.8	4.6	--
JUN 16...	.32	224	100	1.80	--	1.80	1.60	1.0	2.6	4.4	--
JUL 14...	.37	152	151	3.50	--	3.50	.880	1.1	2.1	5.6	--
AUG 17...	.38	142	263	3.40	--	3.40	1.00	1.6	2.6	6.0	--
SEP 08...	.49	123	130	3.80	--	3.80	.670	.93	1.6	5.4	--

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 21...	<1	10	<1	13	3500	24	6
NOV 18...	<1	<10	<1	10	2200	37	4
DEC 15...	1	<10	<1	13	2000	37	5
JAN 12...	--	--	--	--	--	39	--
FEB 16...	--	--	--	--	--	35	--
MAR 21...	--	--	--	--	--	210	--
APR 12...	--	--	--	--	--	31	--
MAY 13...	--	--	--	--	--	27	--
JUN 16...	--	--	--	--	--	37	--
JUL 14...	--	--	--	--	--	19	--
AUG 17...	--	--	--	--	--	42	--
SEP 08...	--	--	--	--	--	16	--

## ARKANSAS RIVER BASIN

07105825 FOUNTAIN CREEK BELOW WIDEFIELD, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT							
21...	260	160	.5	33	5	0	80
NOV							
18...	250	160	.1	25	5	0	70
DEC							
15...	260	200	.1	37	6	1	70
JAN							
12...	--	160	--	--	--	--	--
FEB							
16...	--	160	--	--	--	--	--
MAR							
21...	--	140	--	--	--	--	--
APR							
12...	--	76	--	--	--	--	--
MAY							
13...	--	23	--	--	--	--	--
JUN							
16...	--	28	--	--	--	--	--
JUL							
14...	--	51	--	--	--	--	--
AUG							
17...	--	21	--	--	--	--	--
SEP							
08...	--	73	--	--	--	--	--

## 07105900 JIMMY CAMP CREEK AT FOUNTAIN, CO

LOCATION.--Lat 38°41'04", long 104°41'17", in NW¼SE¼ sec.5, T.10 S., R.65 W., El Paso County, Hydrologic Unit 11020003, on right bank at downstream side of bridge on county road, 1,000 ft east of Fountain, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--65.6 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,530 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are fair, and those for period of no gage-height record, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--7 years, 2.39 ft<sup>3</sup>/s; 1,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,920 ft<sup>3</sup>/s Aug. 20, 1982, from rating curve extended above 2,000 ft<sup>3</sup>/s, gage height, 4.61 ft, from floodmark; minimum daily, 0.20 ft<sup>3</sup>/s July 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 88 ft<sup>3</sup>/s at 1130 May 19; minimum daily, 0.27 ft<sup>3</sup>/s Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.0	1.3	1.6	1.8	2.0	1.6	2.0	2.6	1.8	1.7	.90
2	2.9	2.0	1.5	1.6	1.7	2.1	1.7	2.4	2.5	1.6	1.6	1.0
3	2.7	2.0	1.5	1.7	1.7	2.0	1.8	2.1	2.4	1.4	1.4	1.2
4	2.9	2.2	1.6	1.9	1.6	1.7	1.8	1.9	2.4	1.5	1.3	1.1
5	3.8	2.2	1.5	2.0	1.6	1.6	1.8	1.7	3.4	1.5	1.5	1.0
6	4.7	2.4	1.5	2.0	1.7	1.7	1.7	1.7	2.8	1.5	2.0	1.0
7	3.9	2.4	1.5	2.0	2.0	1.8	1.6	1.6	2.5	1.4	1.6	.95
8	3.5	2.4	1.6	2.0	2.1	1.9	1.5	1.6	2.4	1.2	1.5	.90
9	3.0	2.4	1.7	1.8	2.1	2.0	1.5	1.6	2.4	1.1	1.4	.81
10	2.5	2.6	1.9	1.8	2.0	2.1	1.4	1.6	2.4	.86	1.4	.72
11	2.6	2.6	1.9	1.9	1.9	2.2	1.2	1.6	2.2	.81	1.4	.82
12	2.6	2.6	1.8	2.0	1.9	2.0	1.3	1.7	2.0	.87	1.4	.64
13	3.2	2.8	1.7	2.0	1.8	1.8	1.4	1.8	2.0	.76	4.8	.75
14	3.0	2.6	1.7	2.1	1.7	1.7	1.4	2.3	1.9	.75	2.1	.89
15	3.1	2.7	1.7	2.1	1.6	1.5	1.5	2.3	1.8	.94	1.6	.82
16	2.9	2.7	1.7	2.1	1.6	1.5	1.6	2.4	1.9	1.1	1.3	.73
17	2.9	2.8	2.0	2.1	1.6	1.5	1.6	2.6	1.9	1.2	.93	.70
18	2.8	2.6	2.0	2.1	1.6	1.5	1.5	3.1	1.9	1.2	.62	.70
19	3.1	2.3	2.0	2.0	1.6	1.6	1.6	5.6	1.7	.99	.52	.62
20	2.5	2.0	2.0	1.9	1.5	1.7	1.5	3.9	1.8	1.1	.38	.52
21	2.6	1.9	2.0	1.8	1.7	1.7	1.6	2.6	1.7	1.2	.31	.73
22	2.6	1.8	2.1	1.8	1.7	1.7	2.1	2.4	1.7	1.1	.30	.98
23	2.8	1.7	2.1	2.0	1.9	1.7	1.7	2.4	1.8	1.0	.30	1.9
24	2.6	1.6	1.9	2.2	2.0	1.7	1.7	2.3	2.1	1.7	.27	2.4
25	2.8	1.7	1.8	2.3	2.0	1.7	1.7	2.4	2.0	1.4	.70	2.4
26	3.4	1.6	1.7	2.3	1.9	1.8	1.7	2.3	4.3	1.1	.58	2.2
27	3.9	1.6	1.6	2.2	1.8	1.9	1.7	2.3	3.1	.87	1.0	2.3
28	2.4	1.7	1.5	2.1	1.9	1.8	1.6	2.4	2.6	.87	.90	2.2
29	2.2	1.5	1.5	2.3	---	1.7	1.6	2.6	2.2	.76	.90	2.3
30	1.9	1.6	1.5	2.2	---	1.6	1.7	2.7	2.0	.92	1.0	2.0
31	1.9	---	1.5	2.1	---	1.5	---	2.7	---	1.2	.95	---
TOTAL	90.4	65.0	53.3	62.0	50.0	54.7	48.1	72.6	68.4	35.70	37.66	36.18
MEAN	2.92	2.17	1.72	2.00	1.79	1.76	1.60	2.34	2.28	1.15	1.21	1.21
MAX	4.7	2.8	2.1	2.3	2.1	2.2	2.1	5.6	4.3	1.8	4.8	2.4
MIN	1.9	1.5	1.3	1.6	1.5	1.5	1.2	1.6	1.7	.75	.27	.52
AC-FT	179	129	106	123	99	108	95	144	136	71	75	72

CAL YR 1982 TOTAL 1225.80 MEAN 3.36 MAX 131 MIN 1.3 AC-FT 2430  
WTR YR 1983 TOTAL 674.04 MEAN 1.85 MAX 5.6 MIN .27 AC-FT 1340

NOTE.--NO GAGE-HEIGHT RECORD FEB. 23 TO MAR. 25.

## ARKANSAS RIVER BASIN

07105905 FOUNTAIN CREEK ABOVE LITTLE FOUNTAIN CREEK BELOW FOUNTAIN, CO

LOCATION.--Lat 38°37'50", long 104°40'50", in SW¼NW¼ sec.28, T.16 S., R.65 W., El Paso County, Hydrologic Unit 11020003, approximately 1 mi upstream from mouth of Little Fountain Creek below Fountain.

PERIOD OF RECORD.--April 1975 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LITY LAB (MG/L AS CACO3)
OCT									
19...	1450	127	893	908	7.1	13.5	8.1	E20	148
NOV									
16...	1335	46	1230	1210	7.1	9.5	9.5	7.8	185
DEC									
14...	1440	84	1140	1150	7.5	7.0	8.5	26	175
JAN									
11...	1430	90	1080	1060	7.8	8.0	9.6	E28	--
FEB									
15...	1530	97	1050	1080	7.6	9.5	E8.8	E30	--
MAR									
21...	1655	131	870	935	7.6	8.5	9.4	21	--
APR									
11...	1510	170	797	752	7.5	13.0	6.8	<26	--
MAY									
12...	1345	370	353	398	7.3	13.5	9.7	17	--
JUN									
15...	1425	365	430	397	7.5	19.0	7.3	7.2	--
JUL									
14...	1730	129	580	584	7.8	25.0	5.8	7.8	--
AUG									
16...	1615	186	570	562	7.6	27.5	5.5	5.4	--
SEP									
07...	1325	71	858	803	7.8	24.5	6.7	4.0	--

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CH)
OCT									
19...	129	3.72	.180	3.90	.850	3.1	3.9	7.8	<.01
NOV									
16...	50	4.00	<.020	4.00	2.20	2.4	4.6	8.6	<.01
DEC									
14...	100	3.79	.110	3.90	3.80	2.5	6.3	10	<.01
JAN									
11...	77	2.60	--	2.60	4.80	1.1	6.0	8.6	--
FEB									
15...	153	3.40	--	3.40	4.50	6.5	11	14	--
MAR									
21...	472	3.50	--	3.50	3.20	6.3	9.5	13	--
APR									
11...	792	3.90	--	3.90	1.50	3.1	4.6	8.5	--
MAY									
12...	772	1.40	--	1.40	.360	20	20	21	--
JUN									
15...	242	2.00	--	2.00	.150	1.1	1.3	3.3	--
JUL									
14...	197	3.20	--	3.20	.040	1.6	1.6	4.8	--
AUG									
16...	464	2.60	--	2.60	.040	.86	.90	3.5	--
SEP									
07...	78	3.60	--	3.60	<.010	--	1.5	5.1	--

E ESTIMATED.

## ARKANSAS RIVER BASIN

255

07105905 FOUNTAIN CREEK ABOVE LITTLE FOUNTAIN CREEK BELOW FOUNTAIN, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT												
19...	<1	<10	<1	8	3400	6	310	.1	18	4	0	70
NOV												
16...	<1	<10	<1	4	1800	1	280	.1	10	7	0	50
DEC												
14...	1	<10	<1	10	4200	7	370	.1	31	7	0	70
JAN												
11...	--	--	--	--	--	--	--	.2	--	--	--	--
APR												
11...	--	--	--	--	--	--	--	.1	--	--	--	--
MAY												
12...	--	--	--	--	--	--	--	.1	--	--	--	--
JUN												
15...	--	--	--	--	--	--	--	.2	--	--	--	--
JUL												
14...	--	--	--	--	--	--	--	.1	--	--	--	--
AUG												
16...	--	--	--	--	--	--	--	.1	--	--	--	--
SEP												
07...	--	--	--	--	--	--	--	.1	--	--	--	--

## ARKANSAS RIVER BASIN

07105920 LITTLE FOUNTAIN CREEK ABOVE KEATON RESERVOIR NEAR FORT CARSON, CO

LOCATION.--Lat 38°40'54", long 104°51'29", in NE¼SW¼ sec.2, T.16 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on right bank 100 ft above Keaton Reservoir, upstream from State Highway 115, and 4.8 mi southwest of Fort Carson.

DRAINAGE AREA.--11.0 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1978 to current year. Water-quality data available, May 1978 to September 1982.

REVISED RECORDS.--WDR CO-80-1: 1979.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 6,430 ft, from topographic map.

REMARKS.--Records good except those for winter period and those for periods of no gage-height record, which are poor. No diversions above station.

AVERAGE DISCHARGE.--5 years, 5.69 ft<sup>3</sup>/s; 4,120 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 513 ft<sup>3</sup>/s June 3, 1981, gage height, 3.72 ft, from floodmark, from rating curve extended above 70 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Aug. 22-28, Sept. 8-24, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 06	1715	21	1.38	June 10	1400	* 33	1.67
May 11	2100	22	1.43				

Minimum daily discharge, 1.2 ft<sup>3</sup>/s, Mar. 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	2.8	2.1	1.8	1.4	1.9	2.5	16	26	11	11	7.0
2	7.2	2.8	2.1	1.8	1.3	1.8	2.7	16	27	11	12	6.4
3	6.7	2.8	2.5	1.8	1.3	1.7	2.9	15	25	10	12	5.9
4	6.3	2.7	2.0	1.8	1.3	1.6	2.4	15	24	9.5	11	5.3
5	5.9	2.7	1.9	1.8	1.4	1.5	2.9	17	22	8.9	11	4.9
6	5.6	2.7	2.0	1.8	1.5	1.4	3.1	19	23	8.5	9.9	4.5
7	5.2	2.7	2.0	1.8	1.6	1.4	2.8	19	24	7.9	8.8	4.2
8	5.3	2.7	1.8	1.7	1.7	1.3	2.5	19	25	7.4	8.0	3.8
9	5.1	2.6	1.7	1.6	1.7	1.3	2.3	19	26	6.9	7.3	3.6
10	4.8	2.6	1.9	1.6	1.8	1.3	2.3	21	28	6.5	6.6	3.3
11	4.6	2.6	2.0	1.7	1.9	1.4	2.4	22	30	6.5	6.0	3.2
12	4.5	2.6	2.2	1.8	1.9	1.7	2.5	21	30	6.3	5.6	2.9
13	4.4	2.6	2.4	1.9	2.0	1.7	2.6	20	28	6.0	5.4	2.9
14	4.4	2.5	2.4	1.9	2.0	2.0	2.6	18	26	5.5	5.4	2.7
15	4.1	2.8	2.2	1.7	2.0	1.9	2.6	16	23	5.3	4.8	2.6
16	4.0	2.6	2.2	1.7	2.0	1.4	2.6	15	20	4.9	4.6	2.4
17	3.9	2.5	2.4	1.7	1.9	1.3	2.6	13	17	4.6	4.4	2.3
18	3.7	2.4	2.4	1.6	1.8	1.3	3.4	12	15	4.5	3.9	2.2
19	3.7	2.4	2.2	1.5	1.8	1.2	5.0	11	13	4.1	3.9	2.0
20	3.8	2.2	2.2	1.5	1.8	1.2	7.6	12	12	3.5	6.5	2.0
21	3.7	2.2	2.2	1.6	1.9	1.2	10	12	11	4.3	5.1	2.1
22	3.4	2.3	2.2	1.7	1.9	1.3	13	13	10	10	4.7	2.0
23	3.3	1.8	1.9	1.9	2.0	1.4	14	16	9.3	7.2	4.8	2.0
24	3.3	2.1	1.7	2.0	2.0	1.5	15	18	8.7	7.0	5.2	1.9
25	3.2	2.7	1.5	2.2	2.0	1.6	17	21	8.0	8.7	4.9	2.3
26	3.1	2.4	1.5	2.2	2.0	1.6	18	23	10	7.7	5.6	2.1
27	2.9	2.1	1.6	2.1	2.0	1.9	17	24	11	7.7	9.0	1.9
28	2.9	2.2	1.7	2.0	2.0	2.1	16	23	11	7.4	8.3	1.7
29	2.9	2.1	1.8	1.9	---	2.4	17	24	12	6.7	8.1	1.8
30	2.8	2.1	1.8	1.7	---	2.6	16	25	11	6.2	8.0	1.7
31	2.8	---	1.8	1.5	---	2.7	---	26	---	6.1	7.6	---
TOTAL	135.2	74.3	62.3	55.3	49.9	50.6	213.3	561	566.0	217.8	219.4	93.6
MEAN	4.36	2.48	2.01	1.78	1.78	1.63	7.11	18.1	18.9	7.03	7.08	3.12
MAX	7.7	2.8	2.5	2.2	2.0	2.7	18	26	30	11	12	7.0
MIN	2.8	1.8	1.5	1.5	1.3	1.2	2.3	11	8.0	3.5	3.9	1.7
AC-FT	268	147	124	110	99	100	423	1110	1120	432	435	186

CAL YR 1982 TOTAL 2734.70 MEAN 7.49 MAX 74 MIN .80 AC-FT 5420  
WTR YR 1983 TOTAL 2298.70 MEAN 6.30 MAX 30 MIN 1.2 AC-FT 4560

NOTE.--NO GAGE-HEIGHT RECORD MAR. 17 TO MAY 4.

## ARKANSAS RIVER BASIN

257

## 07105924 WOMACK DITCH NEAR FORT CARSON, CO

LOCATION.--Lat 38°40'52", long 104°51'20", in NW¼SE¼ sec.2, T.16 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on left side of diversion pipe, 300 ft downstream from Keaton Reservoir, 0.5 mi upstream from State Highway 115, and 4.7 mi southwest of Fort Carson.

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 6,400 ft, from topographic map.

REMARKS.--Records good, except for those periods during October and November when possible backwater occurred, which are fair. Gage is on controlled pipe diversion from Keaton Reservoir, which delivers appropriated water rights to Fort Carson and the City of Fountain. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 1.22 ft<sup>3</sup>/s; 884 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4.8 ft<sup>3</sup>/s June 3, 4, 9-15, 1979; no flow Mar. 21-24, Sept. 7, 8, 1980, Dec. 18-31, 1981, Jan. 8, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3.3 ft<sup>3</sup>/s Nov. 18; minimum daily discharge, 0.22 ft<sup>3</sup>/s Jan. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.5	3.2	1.7	.29	.29	2.1	.41	.44	.31	.38	.35
2	2.0	2.3	3.0	1.7	.30	.29	2.1	.41	.44	.31	.38	.35
3	2.0	2.3	3.0	1.7	.29	.71	2.0	.41	.42	.32	.38	.36
4	2.0	2.4	3.0	1.7	.30	1.4	2.0	.41	.43	.32	.38	.37
5	2.1	2.6	2.2	1.6	.31	1.4	2.0	.43	.44	.34	.38	.38
6	2.1	2.7	2.0	1.6	.31	1.4	2.0	.41	.44	.35	.38	.38
7	2.2	3.2	2.0	1.6	.31	1.4	2.0	.41	.44	.37	.38	.38
8	2.3	3.2	2.0	1.6	.31	1.4	2.0	.41	.44	.37	.38	.36
9	2.2	3.2	2.0	1.6	.31	1.4	2.0	.41	.44	.37	.38	.35
10	2.0	3.2	2.0	1.5	.31	1.3	2.0	.41	.44	.37	.38	.35
11	2.0	3.2	2.0	1.5	.31	1.3	2.0	.41	.44	.36	.38	.35
12	2.0	3.2	1.9	1.5	.30	1.3	2.0	.41	.41	.36	.38	.35
13	2.2	3.1	1.9	1.5	.30	1.3	2.0	.41	.41	.36	.38	.35
14	2.0	2.5	1.9	1.5	.31	1.4	2.0	.41	.41	.40	.38	.35
15	2.1	3.1	1.9	1.5	.29	1.4	2.0	.41	.41	.41	.38	.35
16	2.3	3.2	1.8	1.5	.29	1.3	2.0	.41	.41	.40	.38	.35
17	2.7	3.2	1.8	1.5	.29	1.4	2.0	.41	.41	.39	.38	.35
18	2.2	3.3	1.9	1.5	.29	1.4	2.0	.41	.41	.39	.38	.35
19	2.0	3.2	1.8	1.5	.29	1.3	1.9	.41	.41	.39	.38	.35
20	2.1	2.9	1.8	1.0	.29	1.3	1.9	.41	.41	.38	.38	.35
21	2.0	2.9	1.8	.22	.29	1.3	1.9	.41	.41	.38	.34	.33
22	2.0	3.0	1.8	.22	.29	1.4	.85	.41	.38	.38	.32	.32
23	2.0	2.0	1.8	.22	.29	1.3	.41	.41	.38	.38	.32	.32
24	2.1	2.0	1.7	.24	.29	1.4	.41	.43	.38	.37	.32	.32
25	2.5	2.0	1.7	.24	.29	1.4	.42	.44	.38	.36	.35	.32
26	2.7	2.7	1.7	.24	.29	1.4	.42	.44	.38	.37	.35	.32
27	2.8	3.2	1.7	.28	.29	1.4	.42	.44	.38	.36	.35	.32
28	2.6	3.1	1.7	.29	.29	1.0	.41	.44	.38	.38	.35	.32
29	2.8	3.2	1.7	.29	---	.38	.41	.44	.38	.38	.35	.32
30	2.7	3.2	1.7	.29	---	.38	.41	.44	.31	.38	.35	.32
31	2.5	---	1.7	.29	---	1.2	---	.43	---	.38	.35	---
TOTAL	69.2	85.8	62.1	33.62	8.32	36.95	46.06	12.95	12.26	11.39	11.35	10.34
MEAN	2.23	2.86	2.00	1.08	.30	1.19	1.54	.42	.41	.37	.37	.34
MAX	2.8	3.3	3.2	1.7	.31	1.4	2.1	.44	.44	.41	.38	.38
MIN	2.0	2.0	1.7	.22	.29	.29	.41	.41	.31	.31	.32	.32
AC-FT	137	170	123	67	17	73	91	26	24	23	23	21

CAL YR 1982 TOTAL 577.19 MEAN 1.58 MAX 3.3 MIN .00 AC-FT 1140  
WTR YR 1983 TOTAL 400.34 MEAN 1.10 MAX 3.3 MIN .22 AC-FT 794

## ARKANSAS RIVER BASIN

07105928 LITTLE FOUNTAIN CREEK NEAR FORT CARSON, CO

LOCATION.--Lat 38°40'49", long 104°51'08", in SW¼SE¼ sec.2, T.16 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on right bank 0.3 mi downstream from Keaton Reservoir, 0.4 mi upstream from State Highway 115, 1.2 mi upstream from Deadman Canyon and 4.8 mi southwest of Fort Carson.

DRAINAGE AREA.--11.8 km<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-quality data available, May to September 1978.

REVISED RECORDS.--WDR CO-80-1: 1979.

GAGE.--Water-stage recorder. Altitude of gage is 6,360 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Womack Ditch diverts about 5 ft<sup>3</sup>/s from Keaton Reservoir upstream.

AVERAGE DISCHARGE.--5 years, 4.60 ft<sup>3</sup>/s; 3,330 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 157 ft<sup>3</sup>/s May 8, 1980, gage height, 4.46 ft, from rating curve extended above 70 ft<sup>3</sup>/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37 ft<sup>3</sup>/s at 1515 June 10, gage height, 3.05 ft; no flow Jan. 7-Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	1.0	.27	.02	.00	1.9	2.8	19	32	11	11	7.3
2	5.8	1.1	.27	.02	.00	2.0	3.0	19	31	11	13	6.5
3	5.2	.87	.27	.02	.00	1.7	3.3	17	30	10	13	5.8
4	4.4	.89	.24	.01	.15	.87	2.6	16	29	9.5	12	5.1
5	4.1	.90	.24	.01	.54	.75	3.3	18	28	8.9	11	4.7
6	3.8	.89	.21	.01	.73	.69	3.5	20	30	8.5	10	4.1
7	3.6	.81	.21	.00	.89	.75	3.1	21	30	8.1	9.1	3.9
8	3.5	.70	.21	.00	.97	.80	2.8	20	30	7.4	8.2	3.5
9	3.5	.66	.21	.00	1.1	1.0	2.5	20	31	6.9	7.7	3.3
10	3.2	.60	.19	.00	1.4	1.2	2.4	22	34	6.4	7.3	2.9
11	3.0	1.1	.19	.00	1.5	1.4	2.7	23	36	6.4	6.5	2.8
12	2.9	.46	.19	.00	1.6	1.5	2.8	23	35	6.3	6.1	2.6
13	2.8	.42	.18	.00	1.7	1.5	2.9	22	33	5.9	5.8	2.6
14	2.6	.42	.18	.00	1.9	1.4	2.9	19	30	5.4	5.9	2.4
15	2.4	.42	.18	.00	1.9	1.4	2.9	17	26	5.1	5.2	2.3
16	2.3	.50	.16	.00	1.7	1.3	2.9	16	23	4.8	4.8	2.1
17	2.1	.50	.14	.00	1.6	1.2	2.9	14	20	4.5	4.8	1.9
18	2.0	.50	.14	.00	1.6	1.2	3.5	13	18	4.3	4.2	1.8
19	1.8	.46	.12	.00	1.6	1.1	5.1	12	16	4.1	4.1	1.5
20	1.8	.42	.12	.00	1.5	1.1	7.1	13	14	3.4	6.8	1.5
21	1.6	.39	.10	.00	1.5	1.0	11	13	13	4.0	5.5	1.6
22	1.5	.36	.08	.00	1.6	1.1	14	15	11	10	5.1	1.6
23	1.3	.36	.08	.00	1.6	1.4	15	18	11	7.2	5.0	1.5
24	1.3	.33	.06	.00	1.6	2.0	15	21	9.8	7.0	5.8	1.4
25	1.2	.30	.06	.00	1.7	2.4	19	24	9.1	8.0	5.2	1.4
26	1.1	.30	.05	.00	1.7	2.7	21	25	11	7.6	6.0	1.8
27	1.1	.30	.04	.00	1.8	2.7	20	26	12	7.5	9.4	1.4
28	1.2	.27	.04	.00	1.8	2.7	19	25	12	7.4	8.6	.95
29	1.1	.27	.04	.00	---	2.8	20	26	13	6.9	8.4	1.1
30	1.0	.27	.03	.00	---	3.1	19	27	12	6.6	8.1	1.2
31	.99	---	.02	.00	---	3.3	---	28	---	6.5	7.9	---
TOTAL	80.69	16.77	4.52	.09	35.68	49.96	238.0	612	669.9	216.6	231.5	82.55
MEAN	2.60	.56	.15	.003	1.27	1.61	7.93	19.7	22.3	6.99	7.47	2.75
MAX	6.5	1.1	.27	.02	1.9	3.3	21	28	36	11	13	7.3
MIN	.99	.27	.02	.00	.00	.69	2.4	12	9.1	3.4	4.1	.95
AC-FT	160	33	9.0	.2	71	99	472	1210	1330	430	459	164

CAL YR 1982 TOTAL 2235.24 MEAN 6.12 MAX 79 MIN .00 AC-FT 4430  
WTR YR 1983 TOTAL 2238.26 MEAN 6.13 MAX 36 MIN .00 AC-FT 4440

NOTE.--NO GAGE-HEIGHT RECORD DEC. 13 TO JAN. 13.



## ARKANSAS RIVER BASIN

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07105940 LITTLE FOUNTAIN CREEK NEAR FOUNTAIN, CO

LOCATION.--Lat 38°38'33", long 104°44'49", in NE¼SW¼ sec.23, T.16 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on Fort Carson Military Reservation, on right bank 300 ft downstream from Military Road No. 1, 0.4 mi upstream from mouth of Rock Creek, 3.8 mi southwest of Fountain.

DRAINAGE AREA.--26.9 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,560 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Diversions above station for irrigation, recreation, and municipal use, amount unknown.

AVERAGE DISCHARGE.--5 years, 5.26 ft<sup>3</sup>/s; 3,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft<sup>3</sup>/s May 8, 1980, gage height, 7.55 ft, from rating curve extended above 260 ft<sup>3</sup>/s; no flow many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 84 ft<sup>3</sup>/s at 1945 Aug. 13, gage height, 4.24 ft; maximum gage height, 5.66 ft, at 0730 Dec. 31 (backwater from ice); minimum daily discharge, 0.16 ft<sup>3</sup>/s Mar. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	7.4	1.3	.65	.47	.37	.56	13	30	10	7.0	6.0
2	7.7	7.6	1.3	.65	.58	.40	.66	16	30	9.0	11	5.5
3	7.6	7.1	1.4	.65	.62	.43	.76	17	28	8.5	9.7	5.0
4	7.4	7.0	1.2	.65	.59	.45	.86	21	27	8.0	10	5.0
5	6.6	7.4	1.1	.70	.65	.40	1.3	22	37	7.5	8.3	4.0
6	7.0	7.0	1.2	.71	.57	.40	1.1	24	26	7.0	14	3.5
7	6.6	7.0	1.1	.64	.64	.41	.76	24	27	6.1	8.3	2.5
8	7.4	6.6	1.0	.69	.80	.32	.80	24	27	4.5	6.2	1.7
9	7.4	6.6	1.0	.66	.73	.21	.80	25	29	4.0	5.0	1.6
10	7.0	6.6	.96	.63	.63	.21	.66	25	38	3.2	4.3	1.4
11	7.0	7.0	.96	.55	.53	.21	.76	25	38	3.3	3.2	1.1
12	7.0	7.0	.95	.55	.56	.21	.66	24	32	3.3	3.7	.76
13	7.0	6.6	.95	.58	.52	.16	.83	22	28	2.9	9.0	.86
14	7.0	7.4	.96	.56	.55	.21	1.3	21	25	2.2	6.0	.76
15	7.0	8.3	.95	.60	.51	.40	.73	19	22	2.0	5.0	.76
16	7.4	6.6	1.0	.75	.64	.66	.75	20	19	1.7	4.0	.76
17	7.0	6.6	1.0	.76	.66	.40	.81	18	16	1.4	3.5	.66
18	7.4	6.2	1.2	.76	.69	.54	.86	16	13	1.3	3.5	.66
19	7.4	5.9	1.3	.76	.69	.56	.92	15	10	1.1	3.0	.66
20	7.6	5.5	1.6	.68	.97	.40	1.3	15	9.0	.96	5.0	.66
21	7.4	5.0	1.6	.76	1.0	.40	1.6	15	8.0	1.9	4.0	.76
22	7.0	4.6	.95	.68	.59	.32	4.0	17	7.5	10	3.5	.76
23	7.4	4.3	.85	.70	.56	3.4	5.0	19	7.5	6.2	3.5	.76
24	7.6	4.3	.80	.63	.53	.84	4.6	20	7.0	5.9	4.0	.66
25	7.6	4.3	.70	.49	.66	.76	6.2	23	7.0	12	3.5	.66
26	7.6	3.7	.60	.63	.56	.79	8.6	26	18	7.0	4.0	.56
27	7.6	3.7	.60	.66	.56	.96	9.0	29	16	6.6	10	.48
28	8.3	4.0	.60	.49	.48	.76	6.2	32	14	6.6	8.0	.40
29	8.0	3.4	.60	.48	---	.76	7.0	31	12	5.5	7.5	.48
30	8.0	2.2	.60	.52	---	.76	9.3	28	11	4.6	7.0	.48
31	7.6	---	.60	.53	---	.64	---	28	---	4.6	7.0	---
TOTAL	229.6	176.9	30.93	19.75	17.54	17.74	78.68	674	619.0	158.86	191.7	49.84
MEAN	7.41	5.90	1.00	.64	.63	.57	2.62	21.7	20.6	5.12	6.18	1.66
MAX	9.0	8.3	1.6	.76	1.0	3.4	9.3	32	38	12	14	6.0
MIN	6.6	2.2	.60	.48	.47	.16	.56	13	7.0	.96	3.0	.40
AC-FT	455	351	61	39	35	35	156	1340	1230	315	380	99
CAL YR 1982 TOTAL	3371.81			MEAN 9.24	MAX 156	MIN .05	AC-FT 6690					
WTR YR 1983 TOTAL	2264.54			MEAN 6.20	MAX 38	MIN .16	AC-FT 4490					

## ARKANSAS RIVER BASIN

07105945 ROCK CREEK ABOVE FORT CARSON RESERVATION, CO

LOCATION.--Lat 38°42'27", long 104°50'46", in NW¼NW¼ sec.36, T.15 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on right bank 20 ft upstream from county road bridge, 0.6 mi northwest of Rock Creek Park, 1.2 mi upstream from State Highway 115, and 3.2 mi southwest of Fort Carson.

DRAINAGE AREA.--6.79 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-quality data available, May to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 6,390 ft, from topographic map.

REMARKS.--Records good except those above 30 ft<sup>3</sup>/s, and those for period of no gage-height record, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 2.85 ft<sup>3</sup>/s; 2,060 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 250 ft<sup>3</sup>/s July 28, 1982, gage height, 4.73 ft, from rating curve extended above 30 ft<sup>3</sup>/s; no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 25	2045	16	2.07	June 5	2030	18	2.08
May 25	2145	18	2.09	July 21	2145	* 32	2.37

Minimum daily discharge, 0.43 ft<sup>3</sup>/s Sept. 28-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	1.7	.85	.80	.75	.82	2.9	13	13	5.7	4.4	2.0
2	3.9	1.6	.95	.90	.75	.83	2.7	13	12	5.3	4.4	1.9
3	3.8	1.6	.90	1.1	.91	.90	2.5	12	11	4.9	4.3	1.8
4	3.4	1.5	.90	1.2	.74	.93	2.1	12	9.8	4.4	4.5	1.7
5	3.2	1.4	.85	1.2	.68	.90	2.3	13	12	4.2	4.3	1.5
6	3.0	1.4	.85	1.2	.67	.80	2.9	14	14	3.5	4.4	1.4
7	2.9	1.4	.80	1.2	.68	.85	2.4	13	13	3.0	4.1	1.4
8	3.0	1.3	.90	1.1	.65	.90	2.1	12	13	2.7	3.9	1.2
9	2.9	1.3	.85	1.1	.61	1.0	2.0	12	12	2.6	3.7	1.1
10	2.8	1.3	.80	1.0	.66	1.1	2.2	13	12	2.5	3.6	1.1
11	2.7	1.3	.80	1.0	.64	1.2	2.8	13	11	2.7	3.4	1.0
12	2.6	1.2	.75	.95	.73	1.3	2.9	12	10	2.4	3.3	.93
13	2.5	1.2	.75	.95	.72	1.4	2.9	12	9.9	2.2	3.2	.91
14	2.5	1.2	.70	.90	.70	1.3	2.7	10	8.9	2.1	3.4	.90
15	2.4	1.2	.70	.90	.68	1.2	2.6	8.9	8.1	2.0	3.1	.85
16	2.3	1.2	.70	.91	.68	1.1	2.5	8.1	7.7	1.8	2.9	.76
17	2.2	1.2	.70	.87	.68	1.0	2.9	7.4	7.1	1.7	2.8	.65
18	2.1	1.1	.70	.86	.68	1.0	3.4	6.7	6.6	1.5	2.7	.59
19	2.0	1.1	.70	.87	.63	.95	4.2	6.4	6.1	1.5	2.9	.53
20	2.0	1.1	.70	.84	.67	.90	5.3	7.6	5.8	1.3	3.6	.57
21	1.9	1.0	.70	.90	.66	.90	8.1	8.0	5.5	4.2	2.8	.70
22	1.8	.95	.70	.98	.68	.90	12	10	5.5	11	2.4	.70
23	1.8	.90	.70	.85	.68	1.0	11	13	5.4	7.1	2.3	.65
24	1.7	1.0	.70	.95	.69	1.1	11	16	5.0	6.5	2.3	.61
25	1.7	1.1	.70	.70	.69	1.3	15	17	4.7	6.4	2.3	.59
26	1.9	1.0	.70	.77	.75	1.3	16	18	6.6	5.8	2.7	.62
27	2.4	1.0	.70	.70	.75	1.2	15	17	6.6	5.6	3.4	.48
28	2.3	.95	.70	.72	.76	1.3	13	15	6.8	5.3	2.6	.43
29	2.1	.90	.70	.69	---	1.4	14	15	6.9	4.7	2.3	.43
30	1.9	.85	.70	.71	---	1.6	14	14	6.1	4.4	2.3	.48
31	1.8	---	.70	.73	---	2.4	---	14	---	4.4	2.2	---
TOTAL	78.0	35.95	23.55	28.55	19.57	34.78	185.4	376.1	262.1	123.4	100.5	28.48
MEAN	2.52	1.20	.76	.92	.70	1.12	6.18	12.1	8.74	3.98	3.24	.95
MAX	4.5	1.7	.95	1.2	.91	2.4	16	18	14	11	4.5	2.0
MIN	1.7	.85	.70	.69	.61	.80	2.0	6.4	4.7	1.3	2.2	.43
AC-FT	155	71	47	57	39	69	368	746	520	245	199	56

CAL YR 1982 TOTAL 1388.10 MEAN 3.80 MAX 68 MIN .12 AC-FT 2750  
WTR YR 1983 TOTAL 1296.38 MEAN 3.55 MAX 18 MIN .43 AC-FT 2570

NOTE.--NO GAGE-HEIGHT RECORD OCT. 19 TO JAN. 15.

## ARKANSAS RIVER BASIN

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07105950 ROCK CREEK NEAR FORT CARSON, CO

LOCATION.--Lat 38°41'49", long 104°49'39", in SW¼SW¼ sec.31, T.15 S., R.66 W., Hydrologic Unit 11020003, on left bank at Fort Carson Girl Scout Camp, 0.2 mi downstream from bridge on State Highway 115 and 2.9 mi southwest of Fort Carson.

DRAINAGE AREA.--7.79 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water quality data available, May 1978 to September 1981.

GAGE.--Water-stage recorder. Altitude of gage is 6,150 ft from topographic map.

REMARKS.--Records good except those for winter period which are fair at those for period of no gage height record, which are poor. Some diversions above station for irrigation and other uses, amounts unknown.

AVERAGE DISCHARGE.--5 years, 2.28 ft<sup>3</sup>/s; 1,650 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 353 ft<sup>3</sup>/s July 28, 1982, gage height, 6.09 ft, from floodmark, from rating curve extended above 50 ft<sup>3</sup>/s; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 16 ft<sup>3</sup>/s at 1845 Apr. 25, gage height, 3.67 ft, but may have been higher during period of no gage-height record, May 13-June 5; no flow Sept. 12-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	.70	.40	.26	.06	.10	.07	9.2	9.5	2.2	.65	.30
2	3.0	.65	.44	.30	.12	.10	.07	8.8	9.0	1.9	1.3	.28
3	2.4	.65	.40	.30	.08	.10	.08	8.0	8.0	1.7	1.3	.25
4	2.0	.60	.40	.27	.06	.09	.09	8.2	8.0	1.5	3.0	.22
5	1.9	.60	.36	.26	.06	.07	.09	8.4	9.0	1.3	2.3	.20
6	1.7	.55	.35	.22	.05	.05	.09	8.9	10	1.2	2.6	.15
7	1.5	.55	.31	.26	.05	.05	.34	8.8	10	1.0	1.9	.10
8	1.6	.55	.34	.23	.05	.06	.80	9.2	9.9	.85	1.3	.06
9	1.7	.50	.31	.23	.05	.08	1.2	9.0	9.5	.70	.91	.04
10	1.5	.50	.30	.22	.05	.09	1.4	9.3	9.4	.62	.74	.02
11	1.4	.45	.30	.21	.05	.10	1.6	9.2	8.9	.53	.52	.01
12	1.4	.45	.26	.19	.05	.10	1.6	9.2	7.8	.51	.43	.00
13	1.3	.45	.26	.21	.06	.10	1.5	9.0	7.5	.51	.37	.00
14	1.2	.40	.26	.18	.06	.10	1.5	8.5	6.6	.45	.30	.00
15	1.3	.40	.22	.16	.06	.09	1.4	7.5	5.8	.40	.26	.00
16	1.3	.40	.19	.12	.06	.08	1.5	7.0	5.2	.37	.25	.00
17	1.3	.40	.19	.10	.05	.07	1.5	6.0	4.7	.33	.21	.00
18	1.2	.40	.19	.08	.05	.06	1.6	5.5	4.1	.28	.17	.00
19	1.2	.40	.19	.08	.05	.06	1.6	5.0	3.6	.22	.19	.00
20	1.2	.35	.21	.07	.05	.06	2.6	5.5	3.2	.16	.20	.00
21	1.2	.35	.19	.06	.05	.05	7.4	6.0	2.9	.74	.19	.00
22	1.1	.35	.19	.05	.06	.05	11	8.0	2.3	4.2	.18	.00
23	.95	.40	.19	.05	.06	.05	11	12	2.1	1.4	.14	.00
24	.86	.45	.18	.04	.06	.05	12	14	1.6	.99	.12	.00
25	.77	.44	.19	.05	.07	.05	14	15	1.4	1.5	.10	.00
26	.70	.45	.20	.05	.07	.06	14	16	2.5	.86	.25	.00
27	.82	.43	.20	.04	.08	.06	12	15	3.0	.50	.40	.00
28	.90	.40	.19	.04	.09	.07	11	14	3.2	.47	.38	.00
29	.85	.40	.18	.04	---	.07	10	13	3.3	.43	.35	.00
30	.80	.40	.19	.04	---	.07	9.6	12	2.6	.37	.30	.00
31	.75	---	.20	.04	---	.07	---	11	---	.53	.30	---
TOTAL	43.00	14.02	7.98	4.45	1.71	2.26	132.63	296.2	174.6	28.72	21.61	1.63
MEAN	1.39	.47	.26	.14	.061	.073	4.42	9.55	5.82	.93	.70	.054
MAX	3.2	.70	.44	.30	.12	.10	14	16	10	4.2	3.0	.30
MIN	.70	.35	.18	.04	.05	.05	.07	5.0	1.4	.16	.10	.00
AC-FT	85	28	16	8.8	3.4	4.5	263	588	346	57	43	3.2

CAL YR 1982 TOTAL 1288.39 MEAN 3.53 MAX 73 MIN .00 AC-FT 2560  
WTR YR 1983 TOTAL 728.81 MEAN 2.00 MAX 16 MIN .00 AC-FT 1450

NOTE.--NO GAGE-HEIGHT RECORD FEB. 20 TO MAR. 28, MAY 13 TO JUNE 5.

## ARKANSAS RIVER BASIN

07105960 ROCK CREEK NEAR FOUNTAIN, CO

LOCATION.--Lat 38°39'16", long 104°44'48", in NE¼SW¼ sec.14, T.16 S., R.66 W., El Paso County, Hydrologic Unit 11020003, on left bank at edge of Military Road No. 1 on Fort Carson Military Reservation, 1.1 mi upstream from mouth at Little Fountain Creek and 3.2 mi southwest of Fountain.

DRAINAGE AREA.--16.9 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1978 to current year. Water-quality data available, May 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 5,600 ft, from topographic map.

REMARKS.--Records good except those periods of no gage-height record, which are poor. Diversions above this station for irrigation and recreation, amounts unknown. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 2.45 ft<sup>3</sup>/s; 1,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 139 ft<sup>3</sup>/s July 29, 1982, gage height, 4.19 ft, from rating curve extended above 50 ft<sup>3</sup>/s; minimum daily, 0.01 ft<sup>3</sup>/s Aug. 31 to Sept. 12, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 121 ft<sup>3</sup>/s at 2215 June 5, gage height, 2.15 ft; minimum daily, 0.50 ft<sup>3</sup>/s Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.4	4.5	2.8	1.4	1.3	1.3	15	13	3.9	.70	.66
2	5.4	5.0	4.4	2.9	1.3	1.3	1.3	11	10	3.0	.70	.64
3	5.0	5.0	4.3	3.0	1.3	1.3	1.3	11	9.1	2.8	.67	.63
4	4.8	5.0	4.2	3.0	1.3	1.3	1.4	11	8.2	2.4	.66	.64
5	4.8	5.0	4.2	3.0	1.3	1.3	1.4	12	12	1.8	.69	.65
6	5.0	5.0	4.0	3.0	1.4	1.3	1.3	11	16	1.5	.95	.64
7	5.0	5.0	3.8	2.8	1.5	1.3	1.4	11	15	1.3	.79	.66
8	5.9	5.0	3.5	2.8	1.6	1.3	1.5	8.4	14	1.1	.66	.68
9	5.6	5.0	3.5	2.7	1.6	1.3	1.5	8.6	13	.93	.64	.68
10	5.3	5.0	3.6	2.6	1.6	1.2	1.5	9.0	11	.85	.58	.63
11	5.2	5.0	3.8	2.5	1.6	1.2	1.5	9.4	10	.77	.55	.66
12	5.1	5.0	4.0	2.4	1.5	1.2	1.4	9.1	9.1	.76	.60	.64
13	5.0	4.9	4.0	2.4	1.5	1.2	1.3	8.9	8.8	.73	.59	.70
14	5.0	4.8	4.0	2.4	1.5	1.2	1.3	8.3	8.4	.70	.61	.75
15	5.1	4.7	4.0	2.4	1.5	1.4	1.4	7.4	7.7	.61	.58	.70
16	5.2	4.7	3.9	2.3	1.5	1.4	1.3	6.9	7.2	.60	.55	.67
17	5.2	4.6	3.9	2.3	1.4	1.4	1.3	6.4	6.5	.63	.52	.63
18	5.6	4.5	3.8	2.2	1.4	1.4	1.3	5.8	5.8	.63	.50	.64
19	6.0	4.5	3.8	2.1	1.4	1.4	1.2	4.9	5.2	.58	.65	.64
20	6.3	4.5	3.7	2.0	1.4	1.4	1.2	10	4.6	.56	1.1	.74
21	6.0	4.4	3.6	2.0	1.4	1.4	6.3	8.1	3.8	.57	.77	.77
22	5.9	4.0	3.6	2.0	1.4	1.5	9.6	9.4	3.2	5.9	.77	.73
23	5.7	3.5	3.5	2.2	1.4	1.5	11	12	2.6	2.5	.77	.76
24	5.7	3.5	3.3	2.2	1.4	1.6	15	14	2.1	1.5	.71	.71
25	5.6	3.8	3.1	2.2	1.4	1.7	16	16	1.7	2.2	.71	.71
26	5.6	4.0	2.8	2.2	1.4	1.6	16	18	4.0	2.0	.65	.72
27	6.4	4.2	2.6	2.2	1.4	1.6	15	16	5.5	1.3	.68	.69
28	6.1	4.4	2.5	2.1	1.4	1.6	15	14	5.7	.89	.66	.70
29	6.1	4.5	2.5	1.9	---	1.6	14	13	6.2	.79	.65	.69
30	6.0	4.5	2.5	1.7	---	1.5	14	16	5.1	.71	.65	.68
31	5.7	---	2.6	1.5	---	1.4	---	16	---	.71	.64	---
TOTAL	170.9	138.4	111.5	73.8	40.2	43.1	159.0	337.6	234.5	45.22	20.95	20.44
MEAN	5.51	4.61	3.60	2.38	1.44	1.39	5.30	10.9	7.82	1.46	.68	.68
MAX	6.4	5.4	4.5	3.0	1.6	1.7	16	18	16	5.9	1.1	.77
MIN	4.8	3.5	2.5	1.5	1.3	1.2	1.2	4.9	1.7	.56	.50	.63
AC-FT	339	275	221	146	80	85	315	670	465	90	42	41

CAL YR 1982 TOTAL 1607.79 MEAN 4.40 MAX 87 MIN .14 AC-FT 3190  
WTR YR 1983 TOTAL 1395.61 MEAN 3.82 MAX 18 MIN .50 AC-FT 2770

NOTE.--NO GAGE-HEIGHT RECORD OCT. 31 TO DEC. 21, DEC. 24 TO FEB. 26.

## 07106300 FOUNTAIN CREEK NEAR PINON, CO

LOCATION.--Lat 38°26'50", long 104°35'28", in NE¼NE¼ sec.31, T.18 S., R.64 W., Pueblo County, Hydrologic Unit 11020002, near left bank on downstream side of county road bridge, 1.2 mi northeast of Pinon, and 3.2 mi upstream from Steele Hollow Creek.

DRAINAGE AREA.--849 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1973 to current year.

REVISED RECORDS.--WDR CO-80-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,005 ft, from topographic map. Prior to Apr. 23, 1976, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by storage reservoirs, power developments, transbasin and transmountain diversions municipal use, diversions above station for irrigation of about 10,000 acres and municipal use, and return flow from irrigated areas.

AVERAGE DISCHARGE.--10 years, 80.8 ft<sup>3</sup>/s; 58,540 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft<sup>3</sup>/s May 8, 1980, gage height, 7.05 ft, from rating curve extended above 7,300 ft<sup>3</sup>/s; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,020 ft<sup>3</sup>/s at 0315 Aug. 20, gage height, 4.55 ft; minimum daily, 11 ft<sup>3</sup>/s, Sept. 25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	80	97	100	129	110	143	332	311	322	139	140
2	152	80	107	95	126	118	139	468	278	255	138	130
3	143	76	99	110	130	112	129	308	251	234	104	140
4	133	76	113	120	116	124	131	266	246	234	297	130
5	128	72	120	130	111	238	114	236	495	199	423	87
6	120	80	120	123	119	257	149	212	719	173	448	80
7	106	85	117	137	114	111	104	215	496	161	418	96
8	97	80	107	125	116	96	97	208	434	130	360	87
9	135	79	90	124	115	107	112	229	410	114	333	96
10	117	85	124	105	116	96	113	259	407	107	274	72
11	104	85	110	112	120	87	134	284	393	122	234	64
12	120	90	106	122	118	80	152	282	359	96	197	72
13	148	72	110	123	121	87	150	253	384	87	215	57
14	148	67	105	123	116	114	146	252	410	87	685	57
15	137	64	91	123	119	265	156	235	406	72	269	64
16	141	76	94	129	112	246	153	201	342	80	192	50
17	138	71	104	142	114	263	155	177	309	80	130	30
18	133	73	108	142	106	159	136	240	300	64	114	28
19	124	74	101	135	107	152	128	251	294	45	84	30
20	117	96	105	142	110	163	141	840	287	34	639	25
21	111	86	114	142	116	140	215	431	242	64	268	34
22	117	87	116	142	112	173	324	348	198	495	107	30
23	111	90	113	149	111	168	300	352	432	220	96	26
24	100	96	109	149	110	136	300	320	349	348	107	22
25	95	87	82	142	106	212	338	320	317	444	122	11
26	100	104	78	142	107	172	379	327	644	272	268	19
27	105	105	76	135	105	130	404	334	534	508	323	16
28	95	100	75	142	109	140	387	318	420	267	122	15
29	85	104	78	129	---	140	380	314	463	192	130	13
30	80	101	85	129	---	120	338	375	433	146	147	11
31	85	---	90	135	---	133	---	351	---	585	147	---
TOTAL	3655	2521	3144	3998	3211	4649	6047	9538	11563	6237	7530	1732
MEAN	118	84.0	101	129	115	150	202	308	385	201	243	57.7
MAX	152	105	124	149	130	265	404	840	719	585	685	140
MIN	80	64	75	95	105	80	97	177	198	34	84	11
AC-FT	7250	5000	6240	7930	6370	9220	11990	18920	22940	12370	14940	3440
CAL YR 1982	TOTAL	50387.91	MEAN 138	MAX 3130	MIN .00	AC-FT 99940						
WTR YR 1983	TOTAL	63825.00	MEAN 175	MAX 840	MIN 11	AC-FT 126600						

## ARKANSAS RIVER BASIN

07106300 FOUNTAIN CREEK NEAR PINON, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1976 to September 1979.

WATER TEMPERATURE: October 1976 to September 1979.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 5,070 micromhos July 24, 1979; minimum, 204 micromhos several days in October and November, 1978.

WATER TEMPERATURES: Maximum, 34.5°C July 24, 1977; minimum, freezing point on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LITY LAB (MG/L AS CACO3)
OCT									
19...	1735	105	1080	1100	7.8	12.0	9.1	E9.3	175
NOV									
16...	1630	85	1260	1260	7.9	7.0	10.4	9.6	201
DEC									
14...	1545	105	1170	1160	7.8	5.5	9.7	28	183
JAN									
11...	1520	123	1140	1150	8.0	6.5	10.7	E31	--
FEB									
17...	0925	114	1120	1130	8.2	4.0	E9.5	E27	--
MAR									
18...	1400	167	958	984	7.9	4.0	13.1	32	--
APR									
11...	1620	155	835	--	8.2	15.5	7.7	<11	--
MAY									
12...	1530	262	478	497	7.8	17.5	9.2	19	--
JUN									
15...	1510	406	540	547	7.8	22.0	7.6	7.2	--
JUL									
13...	1510	114	700	693	8.1	29.0	5.9	3.0	--
AUG									
17...	1700	107	810	809	8.4	30.5	6.2	2.8	--
SEP									
07...	1430	107	950	929	8.1	26.5	7.0	2.7	--

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CYANIDE TOTAL (MG/L AS CN)
OCT									
19...	100	3.96	.040	4.00	.250	2.7	2.9	6.9	<.01
NOV									
16...	127	3.50	<.020	3.50	.710	2.4	3.1	6.6	<.01
DEC									
14...	35	3.98	.120	4.10	2.50	2.1	4.6	8.7	<.01
JAN									
11...	203	2.80	--	2.80	3.40	1.1	4.5	7.3	--
FEB									
17...	233	4.40	--	4.40	2.70	1.1	3.9	8.3	--
MAR									
18...	422	3.40	--	3.40	2.70	2.9	5.6	9.0	--
APR									
11...	504	5.90	--	5.90	.160	3.5	3.7	9.6	--
MAY									
12...	470	1.90	--	1.90	.260	6.7	7.0	8.9	--
JUN									
15...	331	2.30	--	2.30	.130	.97	1.1	3.4	--
JUL									
13...	134	2.80	--	2.80	.150	.95	1.1	3.9	--
AUG									
17...	338	2.70	--	2.70	.020	1.6	1.6	4.3	--
SEP									
07...	111	2.80	--	2.80	.040	1.5	1.5	4.3	--

E ESTIMATED.

## ARKANSAS RIVER BASIN

265

07106300 FOUNTAIN CREEK NEAR PINON, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 19...	<1	<10	<1	8	4800	8	180	.1	15	5	0	60
NOV 16...	1	<10	<1	11	5100	9	210	.1	14	5	0	70
DEC 14...	1	<10	<1	13	6100	9	310	.1	25	7	0	60

## ARKANSAS RIVER BASIN

07106500 FOUNTAIN CREEK AT PUEBLO, CO

LOCATION.--Lat 38°17'16", long 104°36'02", in SE¼SW¼ sec.19, T.20 S., R.64 W., Pueblo County, Hydrologic Unit 11020003, on left bank at upstream side of bridge on U.S. Highway 50 at Pueblo and 2.6 mi upstream from mouth.

DRAINAGE AREA.--926 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1922 to September 1925, October 1940 to September 1965, February 1971 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WDR CO-79-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,705 ft, from topographic map. See WSP 1711 or 1731 for history of changes prior to Oct. 1, 1940, and WSP 1921 for changes prior to Sept. 30, 1965. Feb. 1, 1971, to Sept. 30, 1976, water-stage recorder at site 1.4 mi upstream at datum 4,725.30 ft, National Geodetic Vertical Datum of 1929 (unadjusted).

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by storage reservoirs, power developments, transbasin and transmountain diversions for municipal use, diversions for irrigation of about 14,000 acres above station and municipal use, and return flow from irrigated areas.

AVERAGE DISCHARGE.--40 years (water years 1923-25, 1941-65, 1972-83), 62.1 ft<sup>3</sup>/s; 45,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,000 ft<sup>3</sup>/s June 17, 1965, gage height, 19.0 ft, from floodmarks, site and datum then in use, from rating curve extended above 400 ft<sup>3</sup>/s, on basis of contracted-opening measurement of peak flow; no flow at times many years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1903, that of June 17, 1965. Flood of June 4, 1921, reached a discharge of 34,000 ft<sup>3</sup>/s, by slope-area measurement. Flood of May 30, 1935, reached a discharge of 35,000 ft<sup>3</sup>/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,940 ft<sup>3</sup>/s at 2230 Aug. 13, gage height, 4.85 ft; minimum daily, 12 ft<sup>3</sup>/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	95	128	130	137	106	160	400	580	340	232	157
2	156	90	127	130	137	112	150	522	500	256	235	137
3	148	85	112	135	138	106	140	358	480	249	158	143
4	149	83	128	140	131	112	150	302	440	244	334	127
5	141	82	151	145	114	148	130	288	638	217	418	92
6	126	90	153	148	129	200	200	240	860	186	342	83
7	118	90	155	157	131	130	190	260	460	167	344	98
8	109	84	157	152	131	100	180	260	440	138	364	94
9	132	87	150	152	132	118	180	274	500	148	305	99
10	132	97	160	154	131	100	190	316	500	117	260	74
11	125	97	160	160	134	96	190	358	500	125	233	68
12	129	100	159	140	128	93	220	358	420	95	217	71
13	145	81	158	141	124	96	200	344	460	91	402	58
14	156	65	158	140	121	118	190	358	426	91	743	60
15	143	80	160	141	124	274	190	330	413	72	181	66
16	148	86	148	145	128	250	190	316	414	70	225	56
17	140	71	150	143	131	288	210	250	330	61	165	34
18	142	76	146	142	128	154	200	344	338	63	135	28
19	140	81	159	142	124	140	200	330	320	52	110	30
20	136	99	155	143	115	170	180	920	235	38	720	29
21	125	84	159	144	116	150	240	460	250	53	182	39
22	130	90	159	141	114	180	386	372	222	294	108	41
23	128	101	158	145	107	170	288	358	452	327	126	39
24	116	105	157	138	93	140	302	400	276	203	112	34
25	110	93	159	141	88	230	316	460	257	367	125	19
26	115	115	150	140	78	180	372	560	587	189	318	30
27	118	113	130	140	96	140	386	560	650	436	217	26
28	112	113	120	138	94	160	372	600	547	198	132	22
29	96	103	120	138	---	160	400	560	499	195	134	17
30	91	122	120	138	---	130	372	730	386	301	171	12
31	96	---	120	137	---	150	---	678	---	730	170	---
TOTAL	4000	2758	4526	4420	3354	4701	7074	12866	13380	6113	7918	1883
MEAN	129	91.9	146	143	120	152	236	415	446	197	255	62.8
MAX	156	122	160	160	138	288	400	920	860	730	743	157
MIN	91	65	112	130	78	93	130	240	222	38	108	12
AC-FT	7930	5470	8980	8770	6650	9320	14030	25520	26540	12130	15710	3730
CAL YR 1982	TOTAL	58990.90	MEAN	162	MAX	4420	MIN	.12	AC-FT	117000		
WTR YR 1983	TOTAL	72993.00	MEAN	200	MAX	920	MIN	12	AC-FT	144800		



07106500 FOUNTAIN CREEK AT PUEBLO, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	ALKA- LINITY LAB (MG/L AS CACO3)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)
OCT 19...	1835	148	1300	1230	8.0	11.0	9.6	E8.0	189	215
NOV 16...	1730	89	1490	1470	8.0	6.5	11.0	6.6	220	249
DEC 14...	1645	200	1350	1270	8.1	4.0	10.6	19	198	170
JAN 11...	1600	200	1310	1290	8.2	6.0	11.3	E29	--	438
FEB 17...	1010	124	1360	1280	8.1	5.0	E12.0	E20	--	310
MAR 18...	1500	183	1150	1120	7.9	3.5	11.9	14	--	632
APR 12...	1615	230	1180	1070	8.1	11.0	10.2	7.2	--	662
MAY 18...	1500	358	734	676	7.9	18.0	7.9	<16	--	828
JUN 15...	1550	417	680	637	8.0	23.5	7.8	7.2	--	472
JUL 13...	1600	78	810	789	8.3	29.0	6.1	3.0	--	154
AUG 17...	1830	165	890	809	8.1	28.5	6.7	2.4	--	456
SEP 07...	1520	89	1080	1040	8.2	25.5	6.6	2.1	--	204

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CYANIDE TOTAL (MG/L AS CN)
OCT 19...	--	<.020	<.100	.060	2.2	2.3	--	--	<.01
NOV 16...	4.00	<.020	4.00	.240	2.7	2.9	6.9	--	<.01
DEC 14...	4.49	.110	4.60	1.40	2.1	3.5	8.1	--	<.01
JAN 11...	3.60	--	3.60	2.00	1.6	3.6	7.2	--	--
FEB 17...	5.60	--	5.60	.450	1.5	1.9	7.5	--	--
MAR 18...	4.30	--	4.30	.980	2.5	3.5	7.8	--	--
APR 12...	5.70	--	5.70	.090	6.1	6.2	12	--	--
MAY 18...	2.60	--	2.60	.160	2.0	2.2	4.8	1.10	--
JUN 15...	2.60	--	2.60	.070	1.5	1.6	4.2	--	--
JUL 13...	2.80	--	2.80	.070	1.1	1.1	4.0	--	--
AUG 17...	2.70	--	2.70	.040	1.6	1.6	4.3	--	--
SEP 07...	3.00	--	3.00	.010	.89	.90	3.9	--	--

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, HEXA- VALENT, DIS- (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT 19...	<1	<10	<1	11	8000	8	250	.1	14	15	0	90
NOV 16...	<1	<10	<1	15	8400	13	310	.1	18	20	0	90
DEC 14...	2	<10	<1	17	11000	10	320	.1	15	14	0	130

E ESTIMATED.

## ARKANSAS RIVER BASIN

07108900 ST. CHARLES RIVER AT VINELAND, CO

LOCATION.--Lat 38°14'44", long 104°29'09", in NE¼SW¼ sec.6, T.21 S., R.63 W., Pueblo County, Hydrologic Unit 11020002, on right bank at right downstream end of downstream bridge on U.S. Highway 50C, 1.6 mi west of Vineland, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--474 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,581.58 ft, (Colorado Division of Highways benchmark).

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by diversions above station for irrigation of about 8,500 acres, and for industrial uses, and return flow from land irrigated by Bessemer Ditch. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 44.9 ft<sup>3</sup>/s; 32,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,560 ft<sup>3</sup>/s Aug. 11, 1982, gage height, 12.70 ft, from rating curve extended above 1,800 ft<sup>3</sup>/s; minimum daily, 0.25 ft<sup>3</sup>/s Apr. 25, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1901, 56,000 ft<sup>3</sup>/s at a site 5.0 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft<sup>3</sup>/s, at 1030 June 6, gage height, 5.71 ft; minimum daily, 13 ft<sup>3</sup>/s Jan. 22, 24, Feb. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	41	26	15	18	25	70	290	513	215	54	18
2	51	41	20	16	17	25	114	288	503	201	42	18
3	50	42	21	17	16	26	105	266	409	184	44	18
4	48	39	23	18	14	28	104	221	357	144	48	17
5	46	39	27	16	14	42	85	211	387	139	79	19
6	40	40	22	19	16	71	82	217	666	124	45	17
7	37	41	22	20	17	57	83	231	667	82	41	16
8	39	38	21	18	18	44	82	230	601	67	42	15
9	43	38	24	20	17	41	85	227	503	63	24	15
10	38	35	26	17	20	31	86	235	452	58	21	15
11	36	36	25	17	18	24	93	244	408	55	21	15
12	41	33	24	16	17	23	107	250	382	58	19	15
13	40	32	21	18	18	26	107	253	382	54	19	15
14	39	30	26	16	18	25	105	252	341	45	28	15
15	37	29	24	15	17	38	96	236	294	47	21	16
16	38	28	22	16	17	61	96	220	271	39	16	16
17	41	32	26	17	17	35	99	196	249	35	16	16
18	34	26	26	17	17	30	101	185	238	40	14	17
19	36	27	20	15	15	28	111	161	244	39	16	17
20	36	27	23	17	14	29	136	234	245	39	15	18
21	37	24	27	14	13	27	205	289	222	37	15	18
22	36	25	25	13	16	28	245	259	197	39	14	19
23	35	28	27	14	15	29	287	264	250	39	14	19
24	34	24	27	13	19	24	266	261	328	45	22	20
25	38	25	27	18	22	26	277	273	271	47	19	20
26	36	27	18	16	24	31	299	299	255	47	17	21
27	36	29	16	16	25	55	295	313	285	49	16	21
28	35	24	15	17	26	45	279	314	318	46	16	20
29	36	26	15	18	---	41	287	329	275	42	16	19
30	37	27	14	16	---	38	300	383	240	42	15	20
31	40	---	14	18	---	44	---	483	---	46	17	---
TOTAL	1225	953	694	513	495	1097	4687	8114	10753	2207	806	525
MEAN	39.5	31.8	22.4	16.5	17.7	35.4	156	262	358	71.2	26.0	17.5
MAX	55	42	27	20	26	71	300	483	667	215	79	21
MIN	34	24	14	13	13	23	70	161	197	35	14	15
AC-FT	2430	1890	1380	1020	982	2180	9300	16090	21330	4380	1600	1040
CAL YR 1982 TOTAL	18905.6		MEAN 51.8	MAX 1060	MIN 2.5	AC-FT 37500						
WTR YR 1983 TOTAL	32069.0		MEAN 87.9	MAX 667	MIN 13	AC-FT 63610						

## 07109500 ARKANSAS RIVER NEAR AVONDALE, CO

LOCATION.--Lat 38°14'53", long 104°23'55", in NE¼SW¼ sec.1, T.21 S., R.63 W., Pueblo County, Hydrologic Unit 11020002, on right bank 15 ft downstream from bridge on Sixmile Rd., 0.3 mi upstream from Sixmile Creek, and 2.6 mi west of Avondale.

DRAINAGE AREA.--6,327 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May 1939 to September 1951, February 1965 to current year. Water-quality data available, April to October 1976, April 1979 to September 1980.

REVISED RECORDS.--WSP 1087: 1942. WSP 1311: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,509.53 ft, National Geodetic Vertical Datum of 1929. Prior to February 1965, at site 550 ft downstream at datum 1.37 ft, lower.

REMARKS.--Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation of about 123,000 acres and municipal use, and return flow from irrigated areas. Flow partly regulated by Pueblo Reservoir (station 07099350) since Jan. 9, 1974. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--20 years (water years 1940-51, 1966-73), 867 ft<sup>3</sup>/s; 628,100 acre-ft/yr, prior to completion of Pueblo Dam; 9 years (water years 1975-83), 835 ft<sup>3</sup>/s; 605,000 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 50,000 ft<sup>3</sup>/s June 18, 1965, gage height, 9.77 ft, from rating curve extended above 6,700 ft<sup>3</sup>/s, on basis of records for station near Pueblo and indirect measurements of peak flow on Fountain Creek at Pueblo, Chico Creek near North Avondale, and Arkansas River near North Avondale; minimum daily, 50 ft<sup>3</sup>/s Apr. 2, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,820 ft<sup>3</sup>/s at 0200 June 27, gage height, 5.14 ft; minimum daily, 282 ft<sup>3</sup>/s Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	521	363	345	369	352	555	1240	2750	5980	1960	1710
2	1470	502	365	356	360	356	602	1320	2590	5760	2110	1690
3	1410	532	355	347	354	348	624	1240	2520	5900	3030	1410
4	1290	528	354	349	342	358	718	1140	2290	6040	2410	1500
5	1140	520	358	344	347	445	691	1250	2260	6020	2340	1710
6	1110	529	340	353	351	489	736	1040	3110	6120	3220	1640
7	1060	540	360	360	352	450	750	1080	2840	6160	3520	1570
8	1040	542	354	356	355	421	743	1060	2770	6080	3360	1470
9	1040	552	345	351	362	407	726	1100	2900	6040	2800	1010
10	1030	563	350	341	348	366	685	1180	3430	5690	2420	804
11	990	568	360	344	341	332	651	1350	5260	3640	2200	808
12	937	632	337	349	364	355	718	1550	4300	3730	2110	794
13	1020	664	342	341	347	366	782	1640	4110	3800	2040	835
14	1100	670	349	340	362	350	819	1720	4130	3760	2640	866
15	1070	489	336	337	375	669	886	1400	3470	2960	2480	550
16	850	391	329	335	377	772	858	1320	2810	2340	2230	560
17	800	380	344	344	365	704	815	1190	2870	2100	2140	540
18	782	366	342	353	359	663	798	1140	3410	1830	2260	540
19	715	337	340	364	358	662	842	952	3960	1650	2340	550
20	704	334	339	376	351	688	884	1730	4590	1720	2380	540
21	647	350	345	375	353	679	1620	1480	5620	2270	1960	580
22	641	351	346	372	365	713	1930	1280	5510	3040	2050	580
23	631	358	346	365	361	747	1640	1380	5000	3420	2050	600
24	592	362	348	374	360	720	1440	1470	1690	3690	1840	550
25	581	359	315	367	362	684	1350	1480	4130	2700	1830	490
26	578	362	282	365	357	704	1490	1400	6120	2480	1850	450
27	547	370	310	347	346	693	1510	1560	6540	2560	1950	370
28	537	367	300	340	344	642	1640	1840	6240	2540	1840	365
29	530	370	300	357	---	528	1560	2280	6060	2320	1940	361
30	524	372	320	357	---	514	1510	2350	5950	2090	2040	363
31	520	---	330	362	---	573	---	2470	---	2480	2050	---
TOTAL	27146	13781	10504	10966	9987	16750	30573	44632	119230	116910	71390	25806
MEAN	876	459	339	354	357	540	1019	1440	3974	3771	2303	860
MAX	1470	670	365	376	377	772	1930	2470	6540	6160	3520	1710
MIN	520	334	282	335	341	332	555	952	1690	1650	1830	361
AC-FT	53840	27330	20830	21750	19810	33220	60640	88530	236500	231900	141600	51190
CAL YR 1982	TOTAL	385800	MEAN	1057	MAX	6880	MIN	255	AC-FT	765200		
WTR YR 1983	TOTAL	497675	MEAN	1363	MAX	6540	MIN	282	AC-FT	987100		

## ARKANSAS RIVER BASIN

07116500 HUERFANO RIVER NEAR BOONE, CO

LOCATION.--Lat 38°13'30", long 104°15'37", in NE¼NE¼ sec.18, T.21 S., R.61W., Pueblo County, Hydrologic Unit 11020006, at right upstream end of bridge on U.S. Highway 50, 0.8 mi upstream from mouth, and 1.6 mi south of Boone.

DRAINAGE AREA.--1,875 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1922 to September 1925 (monthly and annual discharge only, published in WSP 1311 as near Nepesta), October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,443.75 ft, National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period which are poor. Natural flow of stream affected by diversions for irrigation of about 48,000 acres, and return flow from irrigated areas. Several observations of water temperature and specific conductance were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--7 years (water years 1923-25, 1980-83), 42.4 ft<sup>3</sup>/s; 30,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,400 ft<sup>3</sup>/s Aug. 1, 1923, gage height, 9.4 ft, datum then in use, from rating curve extended above 1,200 ft<sup>3</sup>/s, on the basis of slope-area measurement of peak flow; no flow many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft<sup>3</sup>/s at 1015 May 30, gage height, 8.64 ft; maximum gage height, 9.22 ft, at about 2145 June 29, due to shifting of channel; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	21	5.1	9.8	29	7.5	14	18	962	822	.00	.00
2	22	16	5.8	10	29	7.0	12	19	866	836	.00	.00
3	17	23	12	11	23	7.0	8.8	21	1140	686	.00	.00
4	7.8	28	6.3	12	20	7.5	17	18	962	320	.00	.00
5	2.9	34	1.7	13	18	22	28	15	914	163	17	.00
6	1.6	29	1.6	15	20	29	27	14	476	127	33	.00
7	5.0	28	1.7	17	21	17	30	10	328	100	25	.00
8	11	29	5.0	20	22	8.4	23	13	335	78	37	.00
9	9.5	25	8.1	30	24	6.5	12	13	404	62	29	.00
10	8.6	21	5.5	40	25	5.2	7.3	51	380	48	7.0	.00
11	10	19	2.9	50	24	4.4	6.7	172	440	36	2.6	.00
12	17	15	9.4	70	23	4.5	7.8	281	449	25	3.3	7.4
13	14	13	8.0	100	22	4.4	15	395	590	17	8.3	2.8
14	12	10	5.7	50	21	3.9	19	516	752	5.0	25	.61
15	14	8.3	10	40	20	14	14	580	752	2.4	6.0	.16
16	14	5.8	16	43	21	23	11	548	1100	.44	.76	1.1
17	13	3.8	12	40	20	16	6.8	395	946	.00	.00	.63
18	12	4.0	5.9	35	17	23	5.6	467	1010	.07	.00	.00
19	18	2.8	7.0	30	15	18	5.3	449	674	.00	.00	.00
20	21	2.6	8.5	30	13	20	4.7	506	350	.00	.00	.00
21	11	1.2	8.3	30	11	30	5.8	558	328	.00	.00	.00
22	8.5	1.2	7.2	35	10	23	14	527	413	.00	.00	.00
23	3.7	.79	15	40	9.3	22	26	580	548	.00	.00	.23
24	.97	11	13	37	7.8	19	23	569	626	17	.00	.81
25	.81	7.0	11	37	9.6	20	16	558	506	31	.00	20
26	.99	11	10	37	8.1	20	20	538	516	14	.00	4.8
27	.85	15	9.5	42	8.0	25	26	538	650	10	.00	3.6
28	5.9	11	9.0	50	7.7	18	21	558	794	4.4	.00	3.2
29	14	16	9.0	42	---	20	19	626	946	1.8	.00	3.7
30	18	16	9.0	30	---	16	19	674	866	.00	.00	3.5
31	20	---	9.5	32	---	16	---	738	---	.00	.00	---
TOTAL	335.12	428.49	248.7	1077.8	498.5	477.3	464.8	10965	20023	3406.11	193.96	52.54
MEAN	10.8	14.3	8.02	34.8	17.8	15.4	15.5	354	667	110	6.26	1.75
MAX	22	34	16	100	29	30	30	738	1140	836	37	20
MIN	.81	.79	1.6	9.8	7.7	3.9	4.7	10	328	.00	.00	.00
AC-FT	665	850	493	2140	989	947	922	21750	39720	6760	385	104
CAL YR 1982	TOTAL	9222.81	MEAN	25.3	MAX	1660	MIN	.00	AC-FT	18290		
WTR YR 1983	TOTAL	38171.32	MEAN	105	MAX	1140	MIN	.00	AC-FT	75710		

## 07119500 APISHAPA RIVER NEAR FOWLER, CO

LOCATION.--Lat 38°05'28", long 103°58'52", in SE¼NW¼ sec.35, T.22 S., R.59 W., Otero County, Hydrologic Unit 11020007, near right bank on downstream side of county highway bridge, 3.5 mi southeast of Fowler, and 5.4 mi upstream from mouth.

DRAINAGE AREA.--1,125 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, April 1922 to September 1925, May 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Water-quality data available, November 1963 to September 1967, January to April 1969.

REVISED RECORDS.--WSP 957: 1939, 1941. WSP 1117: Drainage area. WSP 1241: 1923(M). WRD Colo. 1974: 1973(M).

GAGE.--Water-stage recorder. Datum of gage is 4,317.05 ft, National Geodetic Vertical Datum of 1929. Prior to Aug. 29, 1923, at site 3 mi downstream at different datum. Aug. 29, 1923, to Sept. 30, 1925, at present site at different datum.

REMARKS.--Records good. Waste water from Oxford Farmers Co. and Rocky Ford Highline canals enters river above station. Diversions above station for irrigation of about 4,700 acres. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--47 years, 29.8 ft<sup>3</sup>/s; 21,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 83,000 ft<sup>3</sup>/s Aug. 22, 1923, by slope-area measurement 2 mi upstream from present site, caused by failure of Apishapa Dam 31 mi upstream; no flow Feb. 5, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 356 ft<sup>3</sup>/s at 1430 May 20, gage height, 2.55 ft, no peak above base of 3,000 ft<sup>3</sup>/s; minimum daily, 2.9 ft<sup>3</sup>/s Feb. 10, 15, 17, 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	10	4.4	3.7	3.2	3.5	28	77	257	91	19	13
2	85	16	4.3	3.7	3.2	3.1	15	86	278	70	17	16
3	67	15	4.2	3.7	3.2	3.7	24	110	264	61	13	16
4	69	14	4.2	3.7	3.2	3.8	99	100	211	45	16	22
5	49	14	4.2	3.8	3.2	3.7	98	82	143	35	16	19
6	35	16	4.2	3.8	3.2	3.7	43	87	198	33	16	18
7	45	22	4.9	3.8	3.2	3.4	61	71	235	27	20	20
8	60	22	5.7	3.8	3.2	3.4	32	89	169	25	22	20
9	58	21	5.4	3.7	3.2	3.6	17	55	173	21	19	21
10	59	22	5.4	3.2	2.9	3.5	22	50	186	19	18	20
11	61	19	5.4	3.2	3.0	3.6	19	41	211	21	13	25
12	63	21	5.1	3.2	3.0	3.8	18	50	282	21	17	22
13	55	12	5.0	3.2	3.0	4.2	49	101	267	23	18	17
14	39	9.3	4.8	3.1	3.1	3.8	35	204	279	22	21	20
15	28	11	4.8	3.0	2.9	22	19	216	274	26	21	19
16	39	9.5	4.8	3.1	3.3	132	18	153	180	24	23	17
17	44	6.0	4.7	3.2	2.9	92	25	122	151	16	20	17
18	42	5.6	4.7	3.2	3.0	89	23	132	141	14	15	18
19	51	5.3	4.7	3.2	3.2	57	23	106	114	14	16	19
20	20	5.2	4.7	3.2	3.2	30	29	254	147	17	23	20
21	17	5.2	4.7	3.0	3.3	34	28	94	129	16	23	22
22	16	5.1	4.7	3.0	3.1	44	93	36	94	12	19	22
23	13	5.1	4.7	3.2	3.2	56	92	150	70	12	13	8.7
24	12	5.1	4.8	3.2	2.9	58	12	151	49	18	12	8.0
25	12	5.1	4.7	3.2	2.9	43	17	145	44	19	16	27
26	11	4.8	4.7	3.4	3.1	15	18	99	55	24	17	24
27	15	4.7	4.7	3.0	3.6	22	15	102	60	21	8.7	17
28	16	4.7	4.6	3.0	3.1	10	19	120	114	21	6.2	15
29	15	4.7	3.7	3.2	---	20	60	151	115	17	11	14
30	9.9	4.6	3.7	3.2	---	14	84	233	117	16	16	16
31	7.6	---	3.5	3.2	---	18	---	229	---	11	14	---
TOTAL	1145.5	325.0	144.1	103.1	87.5	806.8	1135	3696	5007	812	518.9	552.7
MEAN	37.0	10.8	4.65	3.33	3.13	26.0	37.8	119	167	26.2	16.7	18.4
MAX	85	22	5.7	3.8	3.6	132	99	254	282	91	23	27
MIN	7.6	4.6	3.5	3.0	2.9	3.1	12	36	44	11	6.2	8.0
AC-FT	2270	645	286	204	174	1600	2250	7330	9930	1610	1030	1100
CAL YR 1982	TOTAL	7931.8	MEAN	21.7	MAX	702	MIN	2.1	AC-FT	15730		
WTR YR 1983	TOTAL	14333.6	MEAN	39.3	MAX	282	MIN	2.9	AC-FT	28430		

## ARKANSAS RIVER BASIN

07121500 TIMPAS CREEK AT MOUTH, NEAR SWINK, CO

LOCATION.--Lat 38°00'11", long 103°39'20", in NW¼SW¼ sec.35, T.23 S., R.56 W., Otero County, Hydrologic Unit 11020005, on left bank 40 ft shoreward, 125 ft upstream from left end of 20th Rd. Bridge, 1.7 mi southwest of Swink, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--496 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1922 to September 1925, March 1968 to current year.

REVISED RECORDS.--WDR CO 76-1: 1975.

GAGE.--Water-stage recorder. Altitude of gage is 4,120 ft, from topographic map. Prior to May 29, 1975, at site 140 ft downstream at datum 0.13 ft, lower.

REMARKS.--Records good except those for Oct. 27 to Mar. 20, which are poor. Natural flow of stream affected by minor diversions above station for irrigation, water imported from Arkansas River and Crooked Arroyo for irrigation above station, and return flow from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--18 years (water years 1923-25, 1969-83), 62.7 ft<sup>3</sup>/s; 45,430 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,300 ft<sup>3</sup>/s July 10, 1978, gage height, 21.11 ft, from floodmark, from rating curve extended above 250 ft<sup>3</sup>/s, on basis of contracted-opening measurement of peak flow; minimum daily, 3.3 ft<sup>3</sup>/s Aug. 7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1922, 21,400 ft<sup>3</sup>/s June 17, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,790 ft<sup>3</sup>/s at 1900 Apr. 22, gage height, 10.66 ft, from rating curve extended above 250 ft<sup>3</sup>/s on the basis of contracted-opening measurement of peak flow; minimum daily, 12 ft<sup>3</sup>/s Jan. 6-9, 25-28, Feb. 2-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	150	38	13	13	46	77	107	174	92	94	69
2	120	145	39	13	12	31	66	114	167	95	80	78
3	100	145	40	13	12	28	66	114	128	96	84	68
4	100	145	40	13	13	38	137	107	146	96	87	39
5	104	145	40	13	13	44	166	87	152	88	76	41
6	118	150	39	12	13	52	112	75	171	80	91	55
7	138	155	38	12	13	48	119	90	130	75	77	58
8	130	157	38	12	13	38	128	74	148	75	106	64
9	142	161	39	12	13	26	102	108	140	76	100	75
10	165	157	41	15	13	22	78	84	124	78	96	67
11	174	149	48	15	17	20	60	70	138	78	95	63
12	173	184	49	15	20	20	58	72	135	78	96	69
13	167	150	46	15	19	22	121	86	131	74	102	68
14	151	130	44	15	19	24	153	142	107	80	76	62
15	138	125	45	14	21	25	73	145	98	72	101	61
16	149	114	44	14	21	120	49	164	87	72	102	61
17	141	50	45	14	19	158	49	144	97	105	95	57
18	182	42	47	14	19	181	57	166	102	58	87	59
19	178	37	49	14	19	220	46	138	71	58	97	63
20	193	34	50	14	17	180	40	204	106	58	96	84
21	172	34	49	13	21	137	38	112	89	59	96	92
22	167	35	46	14	25	122	730	59	65	66	94	92
23	158	36	46	14	31	74	150	82	70	63	94	86
24	172	36	46	14	46	55	130	110	70	60	99	71
25	179	37	20	12	65	49	110	166	68	94	88	40
26	210	37	20	12	66	42	114	140	68	88	76	77
27	216	37	19	12	65	42	96	113	64	82	72	67
28	250	37	19	12	63	70	100	104	72	98	56	53
29	180	38	19	13	---	75	94	123	85	98	83	56
30	160	38	15	13	---	56	92	147	85	95	73	56
31	150	---	13	13	---	43	---	184	---	67	69	---
TOTAL	4927	2890	1171	414	701	2108	3411	3631	3288	2454	2738	1951
MEAN	159	96.3	37.8	13.4	25.0	68.0	114	117	110	79.2	88.3	65.0
MAX	250	184	50	15	66	220	730	204	174	105	106	92
MIN	100	34	13	12	12	20	38	59	64	58	56	39
AC-FT	9770	5730	2320	821	1390	4180	6770	7200	6520	4870	5430	3870
CAL YR 1982	TOTAL	24488.1	MEAN	67.1	MAX	954	MIN	4.1	AC-FT	48570		
WTR YR 1983	TOTAL	29684.0	MEAN	81.3	MAX	730	MIN	12	AC-FT	58880		

## ARKANSAS RIVER BASIN

273

07122400 CROOKED ARROYO NEAR SWINK, CO

LOCATION.--Lat 37°58'56", long 103°35'52", in SW¼SW¼ sec.5, T.24 S., R.55 W., Otero County, Hydrologic Unit 11020005, on right bank 54 ft downstream from bridge on State Highway 10, 2.0 mi upstream from mouth, and 2.8 mi southeast of Swink.

DRAINAGE AREA.--108 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1968 to current year.

REVISED RECORDS.--WDR CO 76-1: 1975.

GAGE.--Water-stage recorder. Altitude of gage is 4,100 ft, from topographic map.

REMARKS.--Records good except those above 80 ft<sup>3</sup>/s, which are fair. Natural flow of stream affected by minor diversions above station for irrigation, water exported above station to Timpas Creek, water imported from Arkansas River for irrigation above station, and return flow from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--15 years, 11.0 ft<sup>3</sup>/s; 7,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,200 ft<sup>3</sup>/s Aug. 7, 1971, gage height, 7.91 ft, from rating curve extended above 87 ft<sup>3</sup>/s; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 199 ft<sup>3</sup>/s at 1300 April 22, gage height, 4.09 ft, from rating curve extended above 40 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 0.55 ft<sup>3</sup>/s Mar. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	17	2.6	2.5	1.6	1.2	13	24	41	60	42	23
2	24	14	2.7	2.4	1.6	1.2	14	21	36	66	30	18
3	21	14	2.7	2.3	1.5	1.3	8.1	29	34	70	29	16
4	19	16	2.7	2.1	1.5	1.8	4.9	26	57	70	23	7.8
5	24	12	2.7	2.1	1.5	1.4	1.2	19	80	62	30	6.0
6	29	17	2.8	2.0	1.5	1.2	10	17	70	36	31	10
7	21	15	2.8	2.0	1.5	1.3	6.9	20	22	35	30	14
8	19	14	2.7	2.0	1.6	1.7	3.5	30	23	34	32	7.2
9	23	14	2.8	1.9	1.5	1.3	5.7	27	45	25	25	4.3
10	18	11	2.9	1.9	1.4	1.2	3.1	11	63	47	18	5.7
11	19	22	2.7	2.0	1.4	1.2	3.3	7.2	55	46	16	6.3
12	18	48	2.7	2.0	1.4	1.2	7.2	13	52	39	17	6.3
13	13	44	2.7	1.8	1.3	1.4	6.6	14	62	41	18	6.3
14	16	33	2.6	1.7	1.3	1.4	1.6	16	78	43	27	6.6
15	19	25	2.5	1.6	1.2	1.6	3.9	23	52	39	32	8.0
16	19	4.9	2.5	1.7	1.3	1.6	7.5	18	44	39	32	10
17	9.5	3.5	2.6	1.7	1.2	2.8	16	19	50	58	29	18
18	7.6	3.3	2.6	1.7	1.2	5.1	9.2	25	68	46	32	23
19	13	3.1	2.6	1.7	1.2	3.1	2.9	19	81	27	29	25
20	12	2.8	2.7	1.7	1.2	1.9	1.9	43	52	23	27	30
21	11	2.9	2.7	1.7	1.2	1.2	9.2	41	32	17	26	24
22	9.5	2.6	2.7	1.7	1.2	9.2	118	27	20	18	28	24
23	11	2.7	2.8	1.6	1.2	3.9	24	5.1	34	27	27	23
24	12	2.7	2.8	1.5	1.2	.85	9.7	10	35	33	27	28
25	13	2.5	2.9	1.6	1.2	.65	5.5	19	30	37	24	34
26	11	2.4	2.7	1.6	1.2	.65	4.7	23	31	34	19	29
27	14	2.4	2.9	1.5	1.2	.65	12	32	26	32	19	24
28	18	2.5	2.5	1.5	1.2	.55	25	32	31	28	21	25
29	11	2.5	2.5	1.6	---	8.1	37	47	54	24	26	28
30	15	2.6	2.6	1.6	---	17	28	79	59	28	30	28
31	15	---	2.5	1.5	---	7.5	---	75	---	72	29	---
TOTAL	510.6	359.4	83.2	56.2	37.5	85.15	403.6	811.3	1417	1256	825	518.5
MEAN	16.5	12.0	2.68	1.81	1.34	2.75	13.5	26.2	47.2	40.5	26.6	17.3
MAX	29	48	2.9	2.5	1.6	17	118	79	81	72	42	34
MIN	7.6	2.4	2.5	1.5	1.2	.55	1.2	5.1	20	17	16	4.3
AC-FT	1010	713	165	111	74	169	801	1610	2810	2490	1640	1030
CAL YR 1982	TOTAL	3611.56	MEAN	9.89	MAX	74	MIN	.16	AC-FT	7160		
WTR YR 1983	TOTAL	6363.45	MEAN	17.4	MAX	118	MIN	.55	AC-FT	12620		

## ARKANSAS RIVER BASIN

07123000 ARKANSAS RIVER AT LA JUNTA, CO

LOCATION.--Lat 37°59'26", long 103°31'55", in SE¼NE¼ sec.2, T.24 S., R.55 W., Otero County, Hydrologic Unit 11020005, on right bank at upstream side of bridge on State Highway 109 in La Junta, 450 ft upstream from King Arroyo.

DRAINAGE AREA.--12,210 mi<sup>2</sup>, of which 115 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--May to August 1889, September 1893 to December 1895 (gage heights, discharge measurements, and flood data only), April to October 1903, June to November 1908 (gage heights and discharge measurements only), April 1912 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as "near La Junta" in 1903.

REVISED RECORDS.--WSP 1341: Drainage area. WSP 1731: 1922.

GAGE.--Water-stage recorder and nonrecording gage read twice daily. Datum of gage is 4,039.60 ft National Geodetic Vertical Datum of 1929. See WSP 1711 or 1731 for history of changes prior to June 13, 1940. June 13, 1940, to June 6, 1967, water-stage recorder at site 300 ft upstream at present datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 400,000 acres, and return flow from irrigated areas. Flow partly regulated by Pueblo Reservoir (station 07099350) since Jan. 9, 1974. Several observations of water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--61 Years (water years 1913-73), 244 ft<sup>3</sup>/s; 176,800 acre-ft/yr, prior to completion of Pueblo Dam; 9 years (water years: 1975-83), 204 ft<sup>3</sup>/s; 148,800 acre-ft/yr, subsequent to completion of Pueblo Dam.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 200,000 ft<sup>3</sup>/s June 4, 1921, gage height, 18.4 ft, site and datum then in use, from rating curve extended above 15,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Jan. 20-23, Mar. 20-22, 1915.

EXTREMES FOR 1982 WATER YEAR.--Maximum discharge, 10,000 ft<sup>3</sup>/s at 1000 Aug. 22, gage height, 10.17 ft; minimum daily, 8.4 ft<sup>3</sup>/s Oct. 13.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,690 ft<sup>3</sup>/s at 1400 July 3, gage height, 9.61 ft; minium daily, 24 ft<sup>3</sup>/s Mar. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	35	136	100	110	68	13	25	528	514	514	658
2	40	55	152	105	110	77	12	47	393	570	116	642
3	42	57	143	120	82	82	55	38	728	602	92	634
4	42	45	110	120	65	82	28	14	532	634	105	618
5	33	60	110	125	65	84	25	12	252	650	57	586
6	31	64	113	127	90	89	30	14	435	676	130	535
7	12	60	113	102	90	87	20	14	399	618	113	448
8	10	64	105	84	90	77	17	44	375	642	374	487
9	12	60	110	80	80	127	20	105	435	563	610	602
10	12	64	116	92	90	94	23	84	423	542	487	594
11	10	60	116	80	100	84	30	68	454	563	1400	610
12	9.6	64	110	75	100	80	31	68	535	578	196	618
13	8.4	57	110	85	162	84	21	102	542	578	330	524
14	9.6	49	105	80	210	77	18	136	556	556	586	354
15	39	49	105	85	214	17	16	203	610	542	570	468
16	40	89	105	80	170	12	15	176	528	506	500	305
17	36	127	105	85	146	9.0	16	146	549	594	494	239
18	35	49	94	120	140	10	15	84	586	586	542	423
19	42	42	99	110	136	55	17	161	323	634	528	494
20	68	42	105	105	136	51	16	187	520	602	578	461
21	84	42	108	99	127	21	16	124	390	626	1900	514
22	105	45	110	97	121	23	16	80	435	521	5750	454
23	108	45	70	113	121	33	15	72	448	358	1600	381
24	84	44	50	121	113	44	15	166	999	331	753	266
25	82	49	70	113	113	35	15	152	500	342	203	206
26	80	51	70	110	118	17	14	118	757	331	203	214
27	66	53	80	108	89	48	13	282	708	252	214	230
28	62	55	100	110	82	77	14	387	447	602	159	331
29	57	55	90	110	---	70	13	411	634	986	159	474
30	66	70	70	108	---	78	14	448	610	3280	501	535
31	62	---	70	108	---	31	---	514	---	880	626	---
TOTAL	1436.6	1701	3150	3157	3270	1823.0	583	4482	15631	20259	20390	13905
MEAN	46.3	56.7	102	102	117	58.8	19.4	145	521	654	658	464
MAX	108	127	152	127	214	127	55	514	999	3280	5750	658
MIN	8.4	35	50	75	65	9.0	12	12	252	252	57	206
AC-FT	2850	3370	6250	6260	6490	3620	1160	8890	31000	40180	40440	27580
CAL YR 1981	TOTAL	36044.5	MEAN	98.8	MAX	1430	MIN	5.9	AC-FT	71490		
WTR YR 1982	TOTAL	89787.6	MEAN	246	MAX	5750	MIN	8.4	AC-FT	178100		



## ARKANSAS RIVER BASIN

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071230000 ARKANSAS RIVER AT LA JUNTA, CO

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	461	146	130	130	124	149	35	84	890	3700	324	195
2	222	66	127	110	121	149	51	99	1000	3270	127	173
3	226	55	130	90	118	149	51	92	670	4810	80	99
4	275	60	130	100	118	146	51	118	618	3650	127	110
5	270	53	130	240	118	146	51	102	634	3070	108	92
6	266	57	130	275	118	156	49	80	941	3340	99	89
7	244	51	118	295	116	162	53	75	1760	2240	166	89
8	275	47	133	285	118	162	51	77	1610	2170	248	82
9	285	53	127	270	118	159	51	75	1580	2780	113	102
10	315	44	136	270	118	156	49	66	1500	2710	84	173
11	364	44	140	248	118	156	47	68	1200	1800	113	113
12	320	80	140	230	118	159	49	82	1400	886	152	72
13	235	87	136	218	118	159	62	77	1400	626	173	55
14	206	77	136	206	121	159	82	92	1300	1050	187	49
15	275	64	136	180	124	127	72	72	1200	773	230	49
16	295	38	136	173	118	133	51	70	781	468	222	53
17	315	27	140	162	118	374	64	66	310	305	399	55
18	300	148	140	162	118	342	62	64	320	320	405	62
19	270	218	133	152	116	244	51	62	970	156	320	68
20	405	191	140	152	110	173	51	70	920	118	315	72
21	461	173	143	140	105	130	53	140	773	87	326	75
22	468	173	133	136	108	66	248	102	1140	84	320	94
23	468	156	121	130	108	94	376	124	1610	149	315	116
24	442	146	113	133	113	42	121	113	2000	399	315	136
25	387	146	80	133	121	24	94	94	363	563	315	184
26	364	143	140	133	130	24	92	99	1540	248	290	214
27	358	140	270	133	136	72	110	118	2570	102	270	187
28	381	136	300	133	146	33	156	298	2880	92	315	170
29	331	133	130	133	---	27	105	480	3450	94	295	133
30	256	130	130	127	---	44	92	628	3700	97	248	118
31	173	---	140	127	---	33	---	952	---	116	166	---
TOTAL	9913	3082	4368	5406	3333	4149	2530	4739	41030	40273	7167	3279
MEAN	320	103	141	174	119	134	84.3	153	1368	1299	231	109
MAX	468	218	300	295	146	374	376	952	3700	4810	405	214
MIN	173	27	80	90	105	24	35	62	310	84	80	49
AC-FT	19660	6110	8660	10720	6610	8230	5020	9400	81380	79880	14220	6500
CAL YR 1982	TOTAL	100863.0	MEAN	276	MAX	5750	MIN	9.0	AC-FT	200100		
WTR YR 1983	TOTAL	129269.0	MEAN	354	MAX	4810	MIN	24	AC-FT	256400		

## ARKANSAS RIVER BASIN

07123675 HORSE CREEK NEAR LAS ANIMAS, CO

LOCATION.--Lat 38°05'06", long 103°21'12", in SE1SW1/4 sec.33, T.22 S., R.53 W., Bent County, Hydrologic Unit 11020008, 15 ft right of right upstream end of box culverts on State Highway 194, 3.2 mi upstream of mouth, 3.4 mi downstream from Fort Lyon Canal Aqueduct, and 7.5 mi west of Las Animas.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,975 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, and those above about 150 ft<sup>3</sup>/s, which are poor. Natural flow of stream affected by seepage and sluicing from Fort Lyon Canal. There is some irrigation upstream, however, amounts are unknown. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 345 ft<sup>3</sup>/s June 7, 1983, gage height, 4.39 ft; from rating curve extended above 130 ft<sup>3</sup>/s; no flow many days in 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 345 ft<sup>3</sup>/s at 0800 June 7, gage height, 4.39 ft, from rating curve extended above 130 ft<sup>3</sup>/s; minimum daily, 4.0 ft<sup>3</sup>/s May 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	7.5	7.2	5.7	12	13	16	9.1	22	81	25	31
2	18	7.5	7.2	5.6	11	12	15	10	12	86	23	30
3	28	11	7.2	5.6	10	13	22	12	47	70	16	27
4	30	10	7.2	5.6	9.3	14	26	9.5	63	68	14	30
5	25	8.8	7.2	5.6	8.6	16	61	7.5	63	71	16	23
6	23	8.5	7.2	5.6	8.5	20	75	7.5	76	49	16	13
7	28	8.0	7.2	5.6	8.5	20	49	7.5	164	32	16	8.2
8	23	8.0	7.2	6.5	8.5	19	19	6.4	101	32	18	7.5
9	21	8.0	7.1	7.1	8.5	18	19	5.4	80	34	20	11
10	28	8.0	6.9	7.2	8.5	17	16	5.5	62	44	16	13
11	26	8.0	6.9	7.2	8.7	15	16	4.9	53	43	15	9.5
12	28	8.0	6.9	7.2	8.8	13	15	4.0	32	49	15	7.9
13	24	8.0	6.9	7.2	8.8	11	13	4.8	26	47	20	7.2
14	23	8.0	6.9	7.2	8.8	9.9	17	5.5	31	37	28	7.4
15	30	7.8	6.9	7.2	8.8	7.7	15	6.3	32	32	28	5.9
16	27	7.6	6.6	7.2	8.8	54	16	9.6	33	26	24	6.3
17	23	7.5	6.6	7.5	8.8	106	16	14	34	25	22	5.5
18	25	7.5	6.8	7.8	8.8	22	13	14	34	25	25	6.7
19	25	7.5	6.9	8.0	9.2	16	12	24	37	20	27	6.1
20	20	7.5	6.9	8.1	13	14	10	40	38	17	34	5.1
21	14	7.4	6.9	8.1	15	13	8.7	54	44	13	42	5.9
22	9.3	7.4	6.9	8.1	17	12	62	33	47	12	45	5.6
23	8.2	7.4	6.9	8.4	15	12	26	30	40	14	37	5.1
24	7.8	7.3	6.9	8.8	14	11	14	29	35	19	32	5.1
25	7.6	7.3	6.4	9.1	16	14	11	30	37	29	35	5.0
26	7.6	7.3	6.4	9.3	14	30	11	17	53	27	33	4.8
27	7.4	7.3	6.4	11	16	62	9.6	8.7	54	28	31	4.8
28	7.7	7.3	6.4	13	14	54	8.4	8.3	52	29	25	4.7
29	7.6	7.2	6.3	16	---	42	14	8.0	76	26	20	7.6
30	8.1	7.2	6.3	13	---	22	12	7.5	75	21	22	9.7
31	7.8	---	6.0	12	---	17	---	28	---	16	26	---
TOTAL	596.1	235.8	211.7	251.5	306.9	719.6	637.7	461.0	1553	1122	766	319.6
MEAN	19.2	7.86	6.83	8.11	11.0	23.2	21.3	14.9	51.8	36.2	24.7	10.7
MAX	30	11	7.2	16	17	106	75	54	164	86	45	31
MIN	7.4	7.2	6.0	5.6	8.5	7.7	8.4	4.0	12	12	14	4.7
AC-FT	1180	468	420	499	609	1430	1260	914	3080	2230	1520	634
CAL YR 1982	TOTAL	2452.06	MEAN	6.72	MAX	38	MIN	.02	AC-FT	4860		
WTR YR 1983	TOTAL	7180.90	MEAN	19.7	MAX	164	MIN	4.0	AC-FT	14240		

NOTE.--NO GAGE-HEIGHT RECORD NOV. 6 TO DEC. 8.

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LOCATION.--Lat 38°04'51", long 103°13'09", in SE¼NE¼ sec.3, T.23 S., R.52 W., Bent County, Hydrologic Unit 11020009, on right bank at upstream side of bridge on U.S. Highway 50, 1.1 mi north of courthouse in Las Animas, and 4.2 mi upstream from Purgatoire River.

PERIOD OF RECORD.--Streamflow records, May to November 1898 (gage heights only), August to November 1909 (gage heights and discharge measurements only), May 1939 to current year. Water-quality data available, November 1963 to September 1966.

GAGE.--Water-stage recorder. Datum of gage is 3,883.97 ft, National Geodetic Vertical Datum of 1929. May 13 to Nov. 12, 1898, and Aug. 1 to Nov. 10, 1909, nonrecording gages near present site at different datums. May 23, 1939, to Apr. 27, 1967, water-stage recorder at site 0.4 mi downstream at datum 9.00 ft lower.

AVERAGE DISCHARGE.--34 years (water years 1940-73), 203 ft<sup>3</sup>/s; 147,100 acre-ft/yr, prior to completion of Pueblo Dam; 9 years (water years 1975-83), 180 ft<sup>3</sup>/s; 130,400 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,850 ft<sup>3</sup>/s at 0530 July 5, gage height, 6.30 ft; minimum daily, 17 ft<sup>3</sup>/s Apr. 21.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	511	137	172	188	144	163	42	38	779	4000	83	115
2	269	121	154	228	142	162	40	34	806	3840	246	218
3	186	88	144	228	144	161	53	40	479	4450	33	71
4	228	73	154	240	136	165	62	55	513	4590	25	72
5	259	60	166	240	128	158	70	53	682	5220	65	73
6	244	56	167	252	134	193	102	36	900	4820	42	61
7	256	52	159	246	131	188	90	27	1960	4150	45	53
8	253	48	144	252	128	174	60	23	1820	3290	346	47
9	253	49	148	240	124	162	52	21	1850	4150	106	46
10	275	52	150	222	121	153	42	22	1540	3780	80	126
11	318	56	155	216	129	166	40	21	1180	3750	50	129
12	367	55	157	178	135	173	39	21	1240	1540	61	57
13	330	63	156	178	133	167	40	22	1370	711	86	38
14	250	65	151	177	137	156	53	32	1430	1110	144	36
15	268	99	149	154	145	155	61	36	1410	951	137	37
16	274	97	152	145	142	170	50	21	1100	552	112	37
17	237	86	145	139	135	395	42	47	530	319	224	37
18	267	73	145	151	136	327	39	49	488	182	333	34
19	225	205	147	140	136	344	40	52	934	267	239	31
20	381	220	150	140	141	189	37	74	1150	52	246	29
21	492	209	151	150	141	154	17	241	966	36	317	36
22	450	191	148	144	148	115	304	168	1240	25	361	45
23	436	185	147	145	149	86	1110	140	1660	22	310	67
24	445	171	152	132	145	96	129	142	2020	153	309	65
25	398	172	162	127	158	78	60	135	980	414	270	106
26	370	173	154	130	166	60	48	139	1120	295	273	169
27	360	173	162	131	165	97	33	110	2300	72	253	154
28	337	173	192	133	172	108	41	164	3290	36	333	104
29	357	180	196	144	---	80	63	506	3600	32	341	72
30	291	187	188	144	---	74	52	567	3810	26	240	70
31	207	---	183	142	---	55	---	609	---	25	156	---
TOTAL	9794	3569	4900	5476	3945	4924	2911	3645	43147	52860	5866	2235
MEAN	316	119	158	177	141	159	97.0	118	1438	1705	189	74.5
MAX	511	220	196	252	172	395	1110	609	3810	5220	361	218
MIN	186	48	144	127	121	55	17	21	479	22	25	29
AC-FT	19430	7080	9720	10860	7820	9770	5770	7230	85580	104800	11640	4430
CAL YR 1982	TOTAL	93379	MEAN	256	MAX	3910	MIN	16	AC-FT	185200		
WTR YR 1983	TOTAL	143272	MEAN	393	MAX	5220	MIN	17	AC-FT	284200		

## ARKANSAS RIVER BASIN

07124200 PURGATOIRE RIVER AT MADRID, CO

LOCATION.--Lat 37°07'46", long 104°38'20", in SW¼NE¼ sec.35, T.33 S., R.65 W., Las Animas County, Hydrologic Unit 11020010, on left bank 70 ft downstream from county bridge, 0.3 mi northeast of Madrid, and 1.0 mi downstream from Burro Canyon.

DRAINAGE AREA.--505 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,261.61 ft, National Geodetic Vertical Datum of 1929 (U.S. Army, Corps of Engineers bench mark).

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 6,000 acres above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--11 years, 66.6 ft<sup>3</sup>/s; 48,250 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft<sup>3</sup>/s July 20, 1976, gage height, 12.80 ft, from floodmarks, from rating curve extended above 300 ft<sup>3</sup>/s, on basis of drift-timed measurement of peak flow; minimum daily, 3.0 ft<sup>3</sup>/s Feb. 23 to Mar. 2, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,730 ft<sup>3</sup>/s at 1645 Aug. 13, gage height 5.23 ft; only peak above base of 1,000 ft<sup>3</sup>/s; minimum daily 7.0 ft<sup>3</sup>/s Jan 29-Feb. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	41	34	25	7.0	41	78	230	527	504	275	98
2	136	45	33	25	7.0	44	72	225	561	451	271	100
3	130	41	35	24	7.0	38	76	197	599	400	250	86
4	119	43	34	24	7.0	35	57	186	587	382	250	84
5	113	50	33	24	7.0	35	45	184	607	382	231	80
6	109	42	31	25	7.5	32	40	192	580	369	244	80
7	106	41	30	30	8.0	24	40	188	618	390	242	80
8	97	39	31	29	10	28	50	179	612	389	201	75
9	95	43	34	24	20	26	64	184	600	378	182	72
10	88	42	36	16	35	26	69	211	599	398	173	70
11	86	44	35	22	46	32	77	226	593	379	168	70
12	90	35	33	23	49	39	78	237	598	380	170	70
13	85	38	32	20	63	39	87	235	631	326	341	68
14	83	39	30	19	68	42	78	229	633	299	148	65
15	80	35	30	17	68	37	77	212	544	282	142	60
16	78	41	30	17	66	32	87	190	497	262	129	60
17	73	40	30	16	58	30	105	168	488	268	124	60
18	66	36	30	14	53	30	124	166	498	276	117	60
19	63	33	29	13	43	28	155	156	510	268	113	58
20	62	35	29	12	48	27	174	168	593	246	122	56
21	57	32	28	11	41	27	178	157	614	239	107	54
22	53	33	28	10	60	27	184	176	607	229	104	52
23	53	33	29	9.0	60	29	170	199	662	223	114	50
24	52	35	29	8.5	48	30	175	202	668	236	117	50
25	51	36	29	8.2	39	32	221	246	655	270	172	48
26	49	35	28	8.0	39	31	237	315	655	268	97	46
27	43	33	27	7.5	39	26	220	444	620	258	102	45
28	46	31	26	7.4	39	33	194	484	606	261	110	44
29	41	29	25	7.0	---	31	207	490	565	231	116	42
30	42	30	25	7.0	---	27	220	519	531	215	139	42
31	43	---	25	7.0	---	33	---	584	---	254	100	---
TOTAL	2435	1130	938	509.6	1042.5	996	3639	7779	17658	9713	5171	1925
MEAN	78.5	37.7	30.3	16.4	37.2	32.1	121	251	589	313	167	64.2
MAX	146	50	36	30	68	44	237	584	668	504	341	100
MIN	41	29	25	7.0	7.0	24	40	156	488	215	97	42
AC-FT	4830	2240	1860	1010	2070	1980	7220	15430	35020	19270	10260	3820
CAL YR 1982	TOTAL	34257.0	MEAN	93.9	MAX 645	MIN 15	AC-FT	67950				
WTR YR 1983	TOTAL	52936.1	MEAN	145	MAX 668	MIN 7.0	AC-FT	105000				

ARKANSAS RIVER BASIN

279

07124300 LONG CANYON CREEK NEAR MADRID, CO

LOCATION.--Lat 37°06'53", long 104°36'17", in SE¼NW¼ sec.6, T.34 S., R.64 W., Las Animas County, Hydrologic Unit 11020010, on left bank 700 ft upstream from private bridge, 1.4 mi upstream from Oso Canyon, 2.2 mi southeast of Madrid, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--100 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 6,259.09 ft, National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those October through February, which are fair. No diversion above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--11 years, 3.63 ft<sup>3</sup>/s; 2,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,140 ft<sup>3</sup>/s July 17, 1979, gage height, 7.37 ft, from floodmarks, from rating curve extended above 1,000 ft<sup>3</sup>/s, on basis of slope-area measurements at gage heights 6.88 ft, and 7.37 ft; no flow Feb. 22 to May 22, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 7	0230	297	3.98	Aug. 13	1630	349	4.10
July 24	1630	* 535	4.45	Aug. 29	1615	273	3.93

Minimum daily discharge, 0.48 ft<sup>3</sup>/s Sept. 12-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1.2	1.2	.90	.94	1.9	49	14	18	7.0	14	1.8
2	6.8	1.2	1.2	.92	.94	3.1	54	12	12	6.3	4.8	3.2
3	5.2	1.2	1.2	.93	.94	4.9	65	12	5.8	5.9	7.1	2.2
4	4.3	1.2	1.2	.93	.94	7.7	32	11	5.0	4.8	3.1	1.7
5	3.8	1.3	1.2	.93	.94	7.8	35	9.5	5.0	4.2	2.2	.90
6	3.4	1.3	1.2	.93	.94	6.1	42	8.4	108	4.0	4.8	.70
7	2.9	1.2	1.2	.93	.94	5.0	46	7.8	155	3.9	3.6	.60
8	2.6	1.2	1.2	.77	.94	5.2	40	7.1	74	3.4	2.1	.56
9	2.3	1.2	1.2	.80	.94	5.9	34	7.7	42	3.0	1.5	.54
10	2.2	1.2	1.2	.80	.93	7.1	44	7.0	31	2.9	1.2	.53
11	1.8	1.2	1.2	.80	.93	13	69	6.3	32	3.6	1.5	.51
12	1.5	1.2	1.1	.80	.93	18	72	6.0	20	4.8	2.2	.48
13	1.4	1.2	1.1	.80	.93	17	56	5.7	17	4.0	18	.48
14	1.3	1.2	1.1	.80	.93	18	46	7.3	19	4.0	6.6	.48
15	1.3	1.2	1.1	.80	.93	18	43	8.3	14	4.6	2.9	.48
16	1.3	1.2	1.1	.85	.92	12	47	8.0	12	3.8	2.0	.48
17	1.3	1.2	1.1	.90	.90	14	61	7.5	11	3.0	1.5	.49
18	1.3	1.2	1.0	1.0	.90	13	72	7.5	9.6	2.9	1.3	.70
19	1.2	1.2	1.0	.90	.96	13	92	14	8.5	2.8	1.2	.88
20	1.2	1.2	1.0	.90	2.0	10	132	26	7.9	2.3	1.3	.90
21	1.2	1.2	1.0	.92	1.5	10	118	24	7.1	2.3	1.6	.92
22	1.2	1.2	1.0	.92	1.4	8.6	65	22	5.9	2.2	1.7	.93
23	1.2	1.2	1.0	.92	1.5	8.1	52	23	14	3.9	1.3	.92
24	1.2	1.2	1.0	.92	1.5	9.9	45	14	11	32	1.4	1.2
25	1.2	1.2	.95	.92	2.4	13	40	8.3	9.3	10	5.7	1.2
26	1.2	1.2	.93	.92	2.6	14	33	7.8	9.9	7.3	5.2	1.2
27	1.2	1.2	.93	.92	2.1	11	25	7.2	18	5.3	3.2	.81
28	1.2	1.3	.90	.92	1.9	11	23	6.6	14	5.3	2.6	.90
29	1.3	1.3	.90	.93	---	11	19	6.0	10	4.6	12	.68
30	1.3	1.3	.90	.93	---	12	15	7.2	8.6	3.5	6.6	.93
31	1.2	---	.90	.93	---	29	---	19	---	3.1	2.5	---
TOTAL	71.5	36.5	33.21	27.54	34.62	338.3	1566	338.2	714.6	160.7	126.7	28.30
MEAN	2.31	1.22	1.07	.89	1.24	10.9	52.2	10.9	23.8	5.18	4.09	.94
MAX	11	1.3	1.2	1.0	2.6	29	132	26	155	32	18	3.2
MIN	1.2	1.2	.90	.77	.90	1.9	15	5.7	5.0	2.2	1.2	.48
AC-FT	142	72	66	55	69	671	3110	671	1420	319	251	56
CAL YR 1982	TOTAL	1469.87	MEAN	4.03	MAX	188	MIN	.11	AC-FT	2920		
WTR YR 1983	TOTAL	3476.17	MEAN	9.52	MAX	155	MIN	.48	AC-FT	6890		

07124400 TRINIDAD LAKE NEAR TRINIDAD. CO

LOCATION.--Lat 37°08'27", long 104°33'03", in NE¼SW¼ sec.27, T.33 S., R.64 W., Las Animas County, Hydrologic Unit 11020010, in valve house near center of dam on Purgatoire River and 3.2 mi southwest of courthouse in Trinidad.

DRAINAGE AREA.--672 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1977 to current year.

REVISÉD RECORDS.--WDR-CO-78-1: 1977(M).

GAGE.--Water-stage recorder. Datum of gage is 6,073.64 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Army, Corps of Engineers).

REMARKS.--Reservoir is formed by a rock and earthfill dam completed in 1977. Storage began Aug. 19, 1977. Total capacity, 166,700 acre-ft, at elevation 6,279.99 ft. Elevation of high crest of spillway, 6,258 ft, with capacity of 119,900 acre-ft. Elevation of notch crest in spillway is 6,243.0 ft, capacity, 91,900 acre-ft. Permanent pool is 4,500 acre-ft at elevation 6,142.7 ft. Elevation of outlet invert is 6,095.0 ft. Reservoir is used for flood control, storage for irrigation, and to help control sedimentation. Figures given are total contents.

COOPERATION.--Capacity tables were furnished by U.S. Army, Corps of Engineers.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 61,800 acre-ft Apr.26, 1983, elevation, 6,222.66 ft;  
no contents prior to Aug. 19, 1977.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 61,800 acre-ft Apr. 26, elevation, 6,222.66 ft; minimum contents, 41,200 acre-ft, Sept.30.

REVISIONS.--Contents, in acre-feet, for water years 1981-82 were published in error when a new area-capacity table was put into use. The correct figures are given below, these figures supersede those published in WDR-CO-81-1 and WDR-CO-82-1.

Capacity table (elevation, in feet, and contents, in acre-feet)

6,175.0	18,100	6,200.0	36,800	6,220.0	58,400
6,180.0	21,200	6,210.0	46,800	6,230.0	71,800
6,190.0	28,300				

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40200	39800	40600	41400	42000	42500	43400	39100	31700	29800	30600	46900
2	40200	39800	40700	41500	42000	42600	43400	38800	31800	29700	30600	46900
3	40100	39900	40700	41500	42100	42600	43400	38500	31800	30600	30600	47000
4	40000	39900	40700	41500	42100	42600	43400	38200	31800	31000	30600	47100
5	39900	40000	40700	41500	42100	42700	43500	37900	31800	31100	30500	47100
6	39900	40000	40700	41600	42100	42700	43500	37600	31900	31200	30600	47000
7	39800	40000	40700	41600	42100	42700	43500	37300	31900	31300	31300	49900
8	39700	40100	40800	41600	42200	42700	43500	37000	32000	31400	32300	50000
9	39600	40100	40800	41600	42200	42800	43500	36700	31800	31400	33600	49600
10	39500	40100	40800	41600	42100	42800	43600	36400	31500	31500	37200	48900
11	39400	40200	40800	41700	42100	42900	43600	36100	31300	31600	40700	48600
12	39400	40200	40800	41700	42200	42900	43600	35800	31000	31900	43700	47700
13	39400	40200	40900	41700	42200	43000	43600	35500	30900	31900	43400	46500
14	39300	40200	40900	41700	42200	43000	43600	35200	30600	31800	42500	46100
15	39300	40100	41000	41700	42300	43000	43500	34900	30400	31600	41400	46000
16	39400	40100	41000	41700	42300	43100	43300	34600	30100	31400	40800	46000
17	39400	40100	41000	41800	42300	43100	43200	34400	29800	31300	40900	45900
18	39400	40100	41100	41800	42300	43100	43000	34100	29600	31800	41500	45900
19	39400	40200	41100	41800	42300	43100	42800	33800	29300	31600	41900	45900
20	39500	40200	41100	41800	42400	43200	42600	33500	29000	31400	42300	45900
21	39500	40200	41100	41800	42400	43200	42300	33200	28800	31200	42700	45900
22	39500	40300	41200	41900	42400	43200	42000	32900	28500	31000	43200	46000
23	39500	40300	41200	41900	42400	43200	41700	32600	28300	30800	43500	46000
24	39600	40300	41200	41900	42400	43300	41300	32400	28000	30600	43700	46000
25	39600	40400	41300	41900	42500	43300	41000	32100	27800	30400	43900	45900
26	39600	40400	41300	41900	42500	43300	40700	31900	27500	31600	44200	45900
27	39600	40400	41300	42000	42500	43300	40400	31600	27400	31900	45300	45800
28	39700	40500	41300	42000	42500	43300	40000	31400	27300	32200	46100	45700
29	39700	40600	41400	42000	---	43400	39700	31400	27100	31700	46500	45700
30	39800	40600	41400	42000	---	43400	39400	31500	26900	30800	46900	45700
31	39800	---	41400	42000	---	43400	---	31600	---	30700	46900	

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RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45700	47200	49000	50200	51300	52400	53500	49300	45100	46500	41000	43600
2	45800	47200	49100	50100	51300	52500	53400	49100	45000	46500	41200	43600
3	45800	47300	49100	50100	51300	52500	53500	48800	45000	46300	41300	43600
4	45900	47400	49200	50200	51300	52500	53500	48600	45100	46100	41100	43600
5	45900	47500	49200	50200	51400	52500	53500	48400	45300	46000	41200	43700
6	45800	47500	49300	50200	51400	52600	53500	48300	45300	45800	41200	43600
7	45800	47600	49400	50200	51500	52600	53400	48100	45200	45700	41200	43600
8	45700	47700	49400	50200	51500	52700	53400	48000	45100	45600	41200	43600
9	45700	47800	49500	50300	51600	52700	53400	47800	45000	45300	41200	43500
10	45700	47800	49500	50300	51600	52800	53400	47500	44900	45100	41000	43400
11	45700	47900	49600	50400	51700	52800	53400	47300	44800	44800	40900	43500
12	45700	48000	49600	50400	51800	52800	53400	47100	44800	44500	41000	43600
13	45700	48000	49700	50500	51800	52900	53300	47000	44800	44200	41200	43600
14	45600	48100	49800	50500	51800	52900	53200	46800	45100	44000	41300	43500
15	45700	48200	49800	50600	51900	53000	53100	46600	44800	43700	42100	43400
16	45900	48200	49800	50600	52000	53000	52900	46500	44700	43400	42200	43500
17	45900	48300	49700	50600	52100	53000	52700	46300	44700	43100	42100	43500
18	46000	48300	49700	50700	52200	53100	52400	46100	45000	42800	41900	43600
19	46100	48400	49700	50800	52200	53100	52100	46000	45600	42400	41700	43900
20	46200	48400	49800	50800	52200	53100	51800	45700	46100	42200	41200	44400
21	46300	48500	49800	50800	52200	53100	51600	45600	46500	41900	41500	44100
22	46400	48600	49900	50800	52200	53200	51400	45400	46700	41500	41700	43600
23	46400	48600	49900	50900	52200	53200	51200	45400	46700	41200	42100	43500
24	46500	48700	49900	50900	52200	53200	51000	45300	46800	40700	42300	43500
25	46600	48700	49900	51000	52200	53200	50700	45400	46800	40300	42800	43500
26	46700	48800	49900	51100	52200	53200	50500	45300	46800	39900	43000	43400
27	46800	48800	50000	51100	52300	53300	50200	45300	46900	39700	43200	43300
28	46900	48900	50000	51100	52300	53400	50000	45300	46800	39700	43500	43300
29	47000	48900	50000	51200	---	53400	49800	45300	46600	39800	43700	43300
30	47000	49000	50100	51200	---	53400	49500	45300	46500	40300	43900	43400
31	47100	---	50100	51200	---	53400	---	45200	---	40700	43800	---
MAX	47100	49000	50100	51200	52300	53400	53500	49300	46900	46500	43900	44400
MIN	45600	47200	49000	50100	51300	52400	49500	45200	44700	39700	40900	43300
WTR	YR 1982	MAX 53500	MIN 39700									

## ARKANSAS RIVER BASIN

07124400 TRINIDAD LAKE NEAR TRINIDAD, CO--Continued

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43400	45200	47100	48600	50100	51800	55000	61700	59800	58700	57600	53300
2	43300	45300	47100	48600	50100	51900	55200	61600	59800	58900	57600	52900
3	43200	45400	47200	48700	50100	52000	55400	61500	59800	59100	57500	52500
4	43200	45400	47200	48700	50200	52000	55600	61400	59700	59200	57500	52100
5	43200	45500	47300	48800	50200	52100	55700	61400	59700	59200	57300	51600
6	43200	45600	47300	48900	50300	52200	55900	61500	60000	59100	57500	51100
7	43200	45700	47400	48900	50300	52300	56100	61500	60200	59000	57500	50800
8	43100	45800	47400	49000	50400	52400	56300	61400	59700	58900	57300	50400
9	43100	45900	47500	49000	50400	52500	56500	61400	59600	58900	57200	50000
10	43100	46000	47500	49100	50500	52500	56700	61400	59700	58900	57200	49600
11	43100	46000	47600	49100	50500	52600	56900	61300	59900	58900	57100	49300
12	43100	46100	47700	49200	50500	52700	57200	61300	60000	58900	57000	48900
13	43200	46200	47800	49200	50600	52800	57500	61300	60100	58700	57400	48600
14	43200	46300	47800	49300	50600	52900	57700	61200	59900	58500	57400	48300
15	43400	46300	47800	49300	50700	53100	57900	61100	59600	58400	57400	48000
16	43500	46400	47900	49400	50700	53200	58200	60900	59400	58400	57100	47600
17	43700	46500	48000	49400	50800	53300	58500	60800	59500	58400	56800	47300
18	43800	46500	48000	49400	50800	53400	58900	60700	59700	58400	56500	46900
19	43900	46600	48100	49500	50900	53500	59300	60600	59900	58500	56200	46300
20	44000	46700	48100	49500	51000	53600	59800	60400	60000	58500	56000	45800
21	44100	46700	48200	49500	51000	53700	60200	60200	59700	58500	55600	45300
22	44200	46800	48200	49600	51100	53800	60700	60100	59300	58400	55300	44800
23	44400	46800	48300	49600	51200	54000	61200	60000	59300	58400	54900	44300
24	44500	46800	48300	49700	51300	54100	61600	60000	59400	58400	54700	43900
25	44600	46800	48300	49700	51400	54100	61800	60100	59500	58400	54700	43400
26	44700	46900	48400	49800	51500	54200	61800	60200	59600	582	54500	43000
27	44700	46900	48500	49800	51700	54300	61600	60400	59500	58100	54400	42500
28	44800	47000	48500	49900	51800	54400	61400	60300	59200	57900	54200	42100
29	44900	47000	48500	49900	---	54500	61500	60100	58800	57700	54000	41700
30	45000	47100	48500	50000	---	54600	61600	60000	58700	57600	53900	41300
31	45100	---	48500	50000	---	54800	---	60000	---	57600	53600	---
MAX	45100	47100	48500	50000	51800	54800	61800	61700	60200	59200	57600	53300
MIN	43100	45200	47100	48600	50100	51800	55000	60000	58700	57600	53600	41300
WTR YR 1983	MAX	61800	MIN	41300								



## 07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO

LOCATION.--Lat 37°08'37", long 104°32'49", in SW¼NE¼ sec.27, T.33 S., R.64 W., Las Animas County, Hydrologic Unit 11020010, on left bank at toe of dam and 3.0 mi southwest of court house in Trinidad.

DRAINAGE AREA.--672 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1976 to current year.

GAGE.--Water-stage recorder with concrete control. Datum of gage is 6,073.64 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Army, Corps of Engineers). Auxillary gage is water-stage recorder in shelter about 1,000 ft downstream.

REMARKS.--Records good. Natural flow of stream affected by diversions above station for irrigation of about 6,000 acres. Flow since Aug. 19, 1977, completely regulated by Trinidad Lake (station 07124400) immediately upstream.

AVERAGE DISCHARGE.--6 years (water years 1978-83), 79.2 ft<sup>3</sup>/s; 57,380 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 963 ft<sup>3</sup>/s Sept. 10, 1981, gage height, 7.89 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 921 ft<sup>3</sup>/s at 1600 June 7, gage height, 7.83 ft; minimum daily, 0.03 ft<sup>3</sup>/s Jan 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	.06	18	.06	.06	.18	.06	162	600	390	245	273
2	164	.06	8.3	.06	.06	.18	.06	242	551	315	252	275
3	120	.06	.06	.04	.04	.18	.04	241	522	293	254	275
4	97	.06	.06	.04	.04	.18	.06	191	522	293	239	275
5	97	.06	.06	.04	.04	.18	.06	142	522	317	227	275
6	98	10	.06	.03	.04	.18	.06	110	522	388	199	275
7	98	6.0	.06	.03	.04	.18	.06	152	711	425	222	277
8	98	.06	.06	.03	.04	.18	.06	173	914	379	236	247
9	98	.06	.06	.03	.04	.14	.06	206	680	345	171	229
10	99	.06	.06	.03	.04	23	.06	220	513	345	149	229
11	69	.06	.06	.06	13	.08	20	238	486	345	161	229
12	54	.06	.06	.08	18	.08	.06	272	512	374	167	210
13	64	.06	.04	.08	6.1	.08	.06	276	658	420	167	201
14	46	.06	.04	.08	.14	.08	.06	293	718	368	169	201
15	.36	.06	.06	.06	.14	.08	.06	293	675	291	169	201
16	.32	.06	.06	.06	.14	.08	.08	261	529	261	241	201
17	.29	.06	.06	.06	.14	.08	.08	231	398	261	259	201
18	.27	.06	.04	.06	.14	.08	.06	224	343	243	210	236
19	.15	.06	.04	7.8	.14	.08	.08	222	424	231	227	280
20	.08	.06	.04	8.5	.14	.08	.08	236	553	238	247	300
21	.08	.06	.08	8.0	.14	.11	.18	259	804	250	256	298
22	.08	.06	.08	2.7	.14	.11	.27	259	865	252	273	273
23	.08	28	.08	.08	.14	.08	.32	253	676	252	275	263
24	.08	41	.06	.08	.18	.08	.32	193	582	251	259	261
25	.07	17	.06	.08	.18	.06	144	201	582	277	229	261
26	.10	7.1	.06	.08	.18	.06	274	254	651	307	229	243
27	.08	10	.06	.08	.18	.06	373	314	718	307	208	234
28	.08	.06	12	.08	.18	.06	276	485	802	305	201	231
29	.07	12	11	.08	---	.06	157	538	795	276	208	231
30	.06	18	.06	.06	---	.06	135	538	593	245	245	231
31	.06	---	.06	.06	---	.04	---	578	---	245	263	---
TOTAL	1350.31	150.36	50.88	28.61	39.84	26.16	1381.29	8257	18421	9489	6857	7416
MEAN	43.6	5.01	1.64	.92	1.42	.84	46.0	266	614	306	221	247
MAX	164	41	18	8.5	18	23	373	578	914	425	275	300
MIN	.06	.06	.04	.03	.04	.04	.04	110	343	231	149	201
AC-FT	2680	298	101	57	79	52	2740	16380	36540	18820	13600	14710
CAL YR 1982	TOTAL	31832.60	MEAN	87.2	MAX	457	MIN	.00	AC-FT	63140		
WTR YR 1983	TOTAL	53467.45	MEAN	146	MAX	914	MIN	.03	AC-FT	106100		

## ARKANSAS RIVER BASIN

07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

PERIOD OF RECORD.--March 1977 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: March 1977 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 47,000 mg/L Aug. 1, 1979; minimum daily, no flow many days during year.

SEDIMENT LOADS: Maximum daily, 45,700 tons Aug. 12, 1981; minimum daily, no flow many days during year.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 75 mg/L Aug. 30; minimum daily, 0 mg/L estimated many days during year.

SEDIMENT LOADS: Maximum daily, 52 tons April 27; minimum daily, 0.0 ton estimated many days during year.

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
JUN					AUG				
07...	1340	792	33	71	09...	1105	145	20	7.8
JUL					SEP				
07...	1055	422	18	21	07...	1115	274	30	22

## ARKANSAS RIVER BASIN

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## 07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	146	39	15	.06		.00	18		2.0
2	164	22	9.7	.06		.00	8.3		.90
3	120	12	3.9	.06		.00	.06		.00
4	97	10	2.6	.06		.00	.06		.00
5	97	26	6.8	.06		.00	.06		.00
6	98	---	5.3	10		1.0	.06		.00
7	98	16	4.2	6.0		.20	.06		.00
8	98	9	2.4	.06		.00	.06		.00
9	98	4	1.1	.06		.00	.06		.00
10	99	12	3.2	.06		.00	.06		.00
11	69	10	1.9	.06		.00	.06		.00
12	54	14	2.0	.06		.00	.06		.00
13	64	8	1.4	.06		.00	.04		.00
14	46	3	.49	.06		.00	.04		.00
15	.36	---	.01	.06		.00	.06		.00
16	.32	---	.01	.06		.00	.06		.00
17	.29	---	.01	.06		.00	.06		.00
18	.27	---	.01	.06		.00	.04		.00
19	.15	---	.01	.06		.00	.04		.00
20	.08	---	.00	.06		.00	.04		.00
21	.08	---	.00	.06		.00	.08		.00
22	.08	---	.00	.06		.00	.08		.00
23	.08	---	.00	28		3.0	.08		.00
24	.08	---	.00	41		3.0	.06		.00
25	.07	---	.00	17		2.0	.06		.00
26	.10	---	.02	7.1		.70	.06		.00
27	.08	---	.00	10		1.0	.06		.00
28	.08	---	.00	.06		.00	12		1.0
29	.07	---	.00	12		1.0	11		1.0
30	.06	---	.00	18		2.0	.06		.00
31	.06	---	.00	---			.06		.00
TOTAL	1350.31	---	60.06	150.36		13.90	50.88		4.90
JANUARY			FEBRUARY			MARCH			
1	.06		.00	.06		.00	.18		.01
2	.06		.00	.06		.00	.18		.01
3	.04		.00	.04		.00	.18		.01
4	.04		.00	.04		.00	.18		.01
5	.04		.00	.04		.00	.18		.01
6	.03		.00	.04		.00	.18		.01
7	.03		.00	.04		.00	.18		.01
8	.03		.00	.04		.00	.18		.01
9	.03		.00	.04		.00	.14		.01
10	.03		.00	.04		.00	23		3.0
11	.06		.00	13		1.0	.08		.00
12	.08		.00	18		2.0	.08		.00
13	.08		.00	6.1		.50	.08		.00
14	.08		.00	.14		.01	.08		.00
15	.06		.00	.14		.01	.08		.00
16	.06		.00	.14		.01	.08		.00
17	.06		.00	.14		.01	.08		.00
18	.06		.00	.14		.01	.08		.00
19	7.8		1.0	.14		.01	.08		.00
20	8.5		1.0	.14		.01	.08		.00
21	8.0		1.0	.14		.01	.11		.01
22	2.7		.30	.14		.01	.11		.01
23	.08		.00	.14		.01	.08		.00
24	.08		.00	.18		.01	.08		.00
25	.08		.00	.18		.01	.06		.00
26	.08		.00	.18		.01	.06		.00
27	.08		.00	.13		.01	.06		.00
28	.08		.00	.18		.01	.06		.00
29	.08		.00	---			.06		.00
30	.06		.00	---			.06		.00
31	.06		.00	---			.04		.00
TOTAL	28.61		3.30	39.84		3.65	26.16		3.11

## 07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.06	---	.00	162	12	5.2	600	---	25
2	.06	---	.00	242	10	6.7	551	---	20
3	.04	---	.00	241	9	5.9	522	10	14
4	.06	---	.00	191	9	4.6	522	9	13
5	.06	---	.00	142	7	2.7	522	7	9.9
6	.06	---	.00	110	11	3.3	522	14	20
7	.06	---	.00	152	12	4.5	711	18	36
8	.06	---	.00	173	8	3.7	914	---	32
9	.06	---	.00	206	11	6.1	680	---	20
10	.06	---	.00	220	---	6.5	513	---	14
11	20	---	2.0	238	12	7.7	486	---	13
12	.06	---	.00	272	11	8.1	512	---	15
13	.06	---	.00	276	11	8.5	658	18	33
14	.06	---	.00	293	8	6.3	718	20	39
15	.06	---	.00	293	11	8.7	675	---	36
16	.08	---	.00	261	12	8.5	529	21	30
17	.08	---	.00	231	14	8.7	398	19	20
18	.06	---	.00	224	20	12	343	---	20
19	.08	---	.00	222	7	4.2	424	23	26
20	.08	---	.00	236	10	6.4	553	19	28
21	.18	---	.01	259	11	7.7	804	21	46
22	.27	---	.01	259	8	5.6	865	22	51
23	.32	---	.01	253	9	6.1	676	20	37
24	.32	---	.01	193	8	4.2	582	18	28
25	144	30	18	201	9	4.9	582	18	28
26	274	12	9.0	254	7	4.8	651	17	30
27	373	49	52	314	8	6.8	718	16	31
28	276	14	12	485	8	13	802	16	35
29	157	---	3.0	538	10	15	795	16	34
30	135	---	2.5	538	10	15	593	16	26
31	---	---	---	578	17	27	---	---	---
TOTAL	1381.29	---	98.54	8257	---	238.4	18421	---	809.9
JULY			AUGUST			SEPTEMBER			
1	390	18	19	245	18	12	273	55	41
2	315	16	14	252	18	12	275	36	27
3	293	---	13	254	23	16	275	---	25
4	293	17	13	239	25	16	275	30	22
5	317	18	15	227	22	13	275	28	21
6	388	16	17	199	20	11	275	28	21
7	425	15	17	222	32	19	277	30	22
8	379	10	10	236	30	19	247	36	24
9	345	---	9.0	171	22	10	229	23	14
10	345	10	9.3	149	25	10	229	---	15
11	345	10	9.3	161	26	11	229	---	15
12	374	16	16	167	25	11	210	26	15
13	420	---	25	167	---	20	201	23	12
14	368	19	19	169	52	24	201	23	12
15	291	14	11	169	60	27	201	---	10
16	261	14	9.9	241	43	28	201	16	8.7
17	261	---	10	259	36	25	201	---	10
18	243	15	9.8	210	37	21	236	17	11
19	231	18	11	227	41	25	280	11	8.3
20	238	16	10	247	38	25	300	18	15
21	250	15	10	256	---	30	298	22	18
22	252	18	12	273	42	31	273	13	9.6
23	252	---	12	275	40	30	263	14	9.9
24	251	---	12	259	41	29	261	20	14
25	277	26	19	229	44	27	261	---	15
26	307	16	13	229	40	25	243	15	9.8
27	307	18	15	208	---	25	234	18	11
28	305	17	14	201	51	28	231	16	10
29	276	20	15	208	45	25	231	---	10
30	245	---	12	245	75	50	231	16	10
31	245	---	12	263	60	43	---	---	---
TOTAL	9489	---	413.3	6857	---	698	7416	---	466.3
YEAR	53467.45		2813.36						

## 07126200 VAN BREMER ARROYO NEAR MODEL, CO

LOCATION.--Lat 37°20'45", long 103°57'27", in sec.13, T.31 S., R.59 W., Las Animas County, Hydrologic Unit 11020010, on right bank 3 mi upstream from mouth, 16 mi east of Model, and 33 mi northeast of Trinidad.

DRAINAGE AREA.--168 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 4,960 ft, from topographic map.

REMARKS.--For water year 1982, records fair. For water year 1983, records good except those for winter period, which are fair.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources, water years 1980-82, and reviewed by Geological Survey.

AVERAGE DISCHARGE.--16 years, 2.66 ft<sup>3</sup>/s; 1,930 acre-ft/yr; 17 years, 2.52 ft<sup>3</sup>/s; 1,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,240 ft<sup>3</sup>/s May 26, 1967, gage height, 9.4 ft, from floodmarks, from rating curve extended above 65 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; maximum gage height, 9.98, ft Aug. 9, 1979 from floodmark; no flow June 7-13, 1968.

EXTREMES FOR WATER YEAR 1982.--Maximum discharge, 1,330 ft<sup>3</sup>/s at 2100 June 11, gage height, 5.78 ft, only peak above base of 450 ft<sup>3</sup>/s; minimum daily, 0.06 ft<sup>3</sup>/s Oct. 28-30.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 70 ft<sup>3</sup>/s at 2100 Aug. 19, gage height, 1.66 ft; no peak above base of 450 ft<sup>3</sup>/s; minimum daily, 0.06 ft<sup>3</sup>/s many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.15	.18	.25	.40	.25	.25	.21	.21	.21	1.9	.21
2	.12	.15	.18	.25	.40	.30	.25	.21	.21	.21	.80	.21
3	.12	.18	.18	.25	.50	.30	.25	.21	.21	.18	.50	.21
4	.09	.18	.18	.25	.50	.30	.21	.21	.21	.18	.40	.21
5	.09	.15	.18	.25	.40	.30	.21	.21	.21	.21	.25	.21
6	.12	.12	.18	.25	.40	.25	.25	.21	.21	.21	.18	.21
7	.12	.12	.18	.25	.40	.25	.25	.21	.21	31	.80	.21
8	.12	.12	.18	.25	.40	.25	.21	.21	.21	99	.80	.21
9	.12	.12	.18	.25	.40	.25	.21	.21	.21	12	.50	.21
10	.15	.12	.18	.25	.40	.25	.21	.21	.21	1.9	.30	.21
11	.15	.12	.21	.25	.40	.25	.25	.21	106	.80	.21	.25
12	.15	.09	.21	.25	.40	.25	.21	.21	48	.40	.18	.21
13	.15	.09	.21	.25	.40	.25	.18	.21	1.5	.21	.21	.25
14	.15	.09	.21	.25	.40	.30	.21	.21	.80	3.9	.21	.25
15	.15	.12	.21	.25	.40	.30	.18	.21	.40	.70	.21	.21
16	.15	.12	.21	.25	.40	.30	.18	.21	.30	.40	.21	.21
17	.15	.12	.21	.25	.40	.30	.18	.21	.30	.30	.21	.21
18	.15	.15	.21	.25	.30	.30	.15	.21	.30	9.7	.21	.21
19	.15	.18	.21	.25	.30	.30	.12	.21	.30	1.1	.21	.21
20	.12	.18	.21	.25	.30	.40	.12	.21	.30	.60	.21	.21
21	.12	.18	.21	.25	.30	.30	.15	.21	.25	.40	3.1	.21
22	.12	.18	.25	.25	.30	.30	.15	.21	.21	.30	1.1	.21
23	.12	.18	.25	.25	.30	.30	.18	.21	.21	.25	.50	.18
24	.12	.18	.25	.25	.30	.25	.18	.21	.21	.21	.30	.21
25	.12	.18	.25	.25	.30	.25	.18	.25	.21	.21	.21	.21
26	.09	.18	.25	.25	.30	.30	.21	.30	.21	.18	.21	.25
27	.09	.18	.25	.25	.30	.30	.21	.30	.21	.18	.21	.21
28	.06	.18	.25	.25	.30	.30	.21	.30	.21	.50	.21	.25
29	.06	.18	.25	.25	---	.30	.21	.30	.21	42	.21	.21
30	.06	.18	.25	.30	---	.25	.21	.25	.21	50	.21	.25
31	.15	---	.25	.30	---	.25	---	.25	---	6.3	.21	---
TOTAL	3.78	4.47	6.61	7.85	10.30	8.75	5.97	6.99	162.44	263.74	14.97	6.51
MEAN	.12	.15	.21	.25	.37	.28	.20	.23	5.41	8.51	.48	.22
MAX	.15	.18	.25	.30	.50	.40	.25	.30	106	99	3.1	.25
MIN	.06	.09	.18	.25	.30	.25	.12	.21	.21	.18	.18	.18
AC-FT	7.5	8.9	13	16	20	17	12	14	322	523	30	13

CAL YR 1981 TOTAL 4480.08 MEAN 12.3 MAX 802 MIN .03 AC-FT 8890  
WTR YR 1982 TOTAL 502.38 MEAN 1.38 MAX 106 MIN .06 AC-FT 996

## ARKANSAS RIVER BASIN

07126200 VAN BREMER ARROYO NEAR MODEL, CO.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	.15	.12	.13	.15	.15	.43	.12	.12	.06	.06	.06
2	.40	.18	.12	.15	.15	.15	.30	.12	.09	.06	.06	.06
3	.30	.18	.15	.15	.15	.15	.19	.12	.09	.06	.06	.06
4	.30	.18	.15	.15	.15	.15	.18	.12	.09	.06	.06	.06
5	.25	.18	.15	.15	.15	.20	.21	.12	.15	.06	.06	.06
6	.21	.15	.15	.15	.15	.24	.21	.11	.66	.06	.06	.06
7	.21	.15	.15	.15	.15	.18	.21	.09	.17	.06	.06	.06
8	.18	.15	.15	.15	.15	.18	.19	.10	.12	.06	.06	.06
9	.18	.15	.15	.15	.15	.18	.18	.12	.09	.06	.06	.06
10	.15	.12	.15	.15	.15	.18	.18	.12	.09	.06	.06	.06
11	.12	.15	.15	.15	.15	.18	.17	.12	.09	.09	.06	.06
12	.12	.15	.18	.15	.15	.18	.15	.12	.09	.09	.09	.06
13	.12	.15	.15	.15	.15	.18	.22	.12	.12	.09	.30	.06
14	.12	.12	.15	.15	.16	.18	.25	.13	.09	.09	.21	.06
15	.12	.12	.15	.15	.18	.20	.24	.15	.09	.09	.09	.06
16	.12	.12	.12	.15	.18	.25	.21	.15	.09	.09	.09	.06
17	.12	.12	.12	.15	.18	.25	.21	.15	.09	.09	.09	.06
18	.12	.12	.12	.15	.18	.22	.17	.15	.09	.09	.09	.06
19	.12	.12	.12	.15	.18	.18	.15	.15	.09	.09	5.1	.06
20	.12	.12	.12	.15	.30	.18	.15	.54	.09	.09	12	.06
21	.12	.12	.12	.15	.25	.18	.15	.31	.09	.09	.80	.06
22	.15	.12	.12	.15	.25	.18	.82	.21	.09	.09	.21	.07
23	.15	.12	.12	.15	.21	.18	.38	.18	.09	.09	.15	.09
24	.15	.12	.12	.15	.18	.18	.20	.16	.09	.09	.09	.09
25	.15	.09	.11	.15	.18	.18	.15	.15	.09	.09	.06	.09
26	.15	.09	.11	.15	.18	.18	.15	.15	.09	.12	.06	.09
27	.15	.12	.11	.15	.15	.18	.12	.14	.06	.12	.06	.09
28	.12	.12	.11	.15	.15	.18	.12	.12	.06	.09	.06	.09
29	.12	.12	.11	.15	---	.18	.12	.09	.06	.09	.06	.09
30	.12	.12	.11	.15	---	.18	.12	.09	.06	.06	.06	.09
31	.12	---	.11	.15	---	.17	---	.09	---	.06	.06	---
TOTAL	5.38	4.02	4.07	4.63	4.86	5.73	6.53	4.61	3.38	2.49	20.39	2.05
MEAN	.17	.13	.13	.15	.17	.18	.22	.15	.11	.080	.66	.068
MAX	.50	.18	.18	.15	.30	.25	.82	.54	.66	.12	.12	.09
MIN	.12	.09	.11	.13	.15	.15	.12	.09	.06	.06	.06	.06
AC-FT	11	8.0	8.1	9.2	9.6	11	13	9.1	6.7	4.9	40	4.1

CAL YR 1982	TOTAL	500.99	MEAN	1.37	MAX	106	MIN	.09	AC-FT	994
WTR YR 1983	TOTAL	68.14	MEAN	.19	MAX	12	MIN	.06	AC-FT	135

## 07126300 PURGATOIRE RIVER NEAR THATCHER, CO

LOCATION.--Lat 37°21'30", long 103°53'44", in sec.10, T.31 S., R.58 W., Las Animas County, Hydrologic Unit 11020010, on right bank 250 ft downstream from county road bridge at gas line crossing, 1.2 mi downstream from Van Bremer Arroyo, and 18 mi southeast of Thatcher.

DRAINAGE AREA.--1,935 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,790 ft, from topographic map.

REMARKS.--1982 water year, records good except those for winter period, which are poor, 1983 water year, records good except those for winter period which are fair and those for periods of no gage-height record, which are poor. Diversions above station for irrigation of about 30,000 acres. Peak flows regulated to some extent by Trinidad Dam, 52 mi upstream, since January 1975.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources prior to October, 1982, and reviewed by Geological Survey.

AVERAGE DISCHARGE.--10 years (water years 1967-76), 37.9 ft<sup>3</sup>/s; 27,460 acre-ft/yr, prior to completion of Trinidad Dam; 6 years (water years 1977-82), 77.2 ft<sup>3</sup>/s; 66,150 acre-ft/yr; 7 years (water years 1977-83), 91.3 ft<sup>3</sup>/s; 66,510 acre-ft/yr, subsequent to completion of Trinidad Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,400 ft<sup>3</sup>/s July 3, 1981, gage height, 22.0 ft, from rating curve extended above 2,100 ft<sup>3</sup>/s; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of July 22, 1954, and May 19, 1955, reached stages of 26.7 and 25.2 ft, respectively, from floodmarks. Flood of June 8, 1965, reached a stage of 23.5 ft, from floodmarks, discharge, 47,700 ft<sup>3</sup>/s.

EXTREMES FOR WATER YEAR 1982.--Maximum discharge, 5,420 ft<sup>3</sup>/s at 0200 July 30, gage height, 9.80 ft; minimum daily, 3.6 ft<sup>3</sup>/s Apr. 18.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,710 ft<sup>3</sup>/s, at 0700 June 6, gage height, 11.20 ft; minimum daily, 16 ft<sup>3</sup>/s Dec. 29-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	44	34	38	28	28	16	5.8	121	33	90	53
2	22	46	35	40	25	26	15	6.5	90	24	93	58
3	22	45	35	45	24	26	15	7.2	51	16	232	49
4	20	43	35	35	27	27	14	6.9	36	13	101	39
5	17	43	35	30	17	28	13	7.4	28	12	180	37
6	15	39	34	39	19	31	10	10	22	15	516	124
7	15	38	34	31	21	29	9.4	18	17	36	134	79
8	17	38	33	30	22	29	6.4	24	13	147	262	48
9	20	38	33	26	22	27	5.1	18	10	90	119	92
10	17	38	32	31	23	26	4.8	15	11	42	61	121
11	18	38	31	29	24	25	5.8	13	178	32	44	123
12	19	39	30	23	26	24	6.9	14	75	52	60	589
13	17	38	32	28	27	24	6.2	16	30	79	123	788
14	16	38	32	23	29	31	5.8	44	40	37	59	245
15	17	37	32	30	36	26	5.5	47	800	28	43	207
16	22	37	28	29	44	25	4.5	34	615	24	126	173
17	38	36	29	27	50	23	4.1	27	140	22	59	145
18	37	35	28	28	44	22	3.6	23	63	25	151	143
19	35	37	25	32	38	20	6.3	19	815	19	204	196
20	35	39	29	31	33	19	10	25	213	18	211	122
21	36	41	30	32	30	19	10	21	84	16	585	89
22	36	39	31	33	32	19	14	16	57	14	378	313
23	37	38	28	33	30	19	15	15	76	13	152	426
24	38	37	21	24	28	18	15	16	109	11	67	241
25	38	37	24	33	31	18	13	524	52	14	57	186
26	40	36	29	28	31	18	11	317	48	13	46	178
27	40	36	28	29	29	18	10	154	130	15	42	192
28	36	37	31	25	29	18	9.6	132	68	326	43	187
29	34	37	27	28	---	17	7.5	110	46	157	43	151
30	32	36	29	26	---	17	6.3	95	47	2210	49	121
31	37	---	36	25	---	17	---	103	---	244	52	---
TOTAL	850	1160	950	941	819	714	278.8	1883.8	4085	3797	4382	5515
MEAN	27.4	38.7	30.6	30.4	29.3	23.0	9.29	60.8	136	122	141	184
MAX	40	46	36	45	50	31	16	524	815	2210	585	788
MIN	15	35	21	23	17	17	3.6	5.8	10	11	42	37
AC-FT	1690	2300	1880	1870	1620	1420	553	3740	8100	7530	8690	10940
CAL YR 1981	TOTAL	66791.0	MEAN	183	MAX	10000	MIN	4.2	AC-FT	132500		
WTR YR 1982	TOTAL	25375.6	MEAN	69.5	MAX	2210	MIN	3.6	AC-FT	50330		

## ARKANSAS RIVER BASIN

07126300 PURGATORIE RIVER NEAR THATCHER, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	34	31	20	34	50	174	727	600	449	56	80
2	217	33	30	23	31	40	163	625	700	256	67	68
3	198	36	29	25	31	35	162	578	630	183	77	63
4	139	41	28	28	32	42	162	452	555	128	363	64
5	77	37	30	31	30	48	113	416	442	118	260	64
6	48	36	29	32	31	100	118	412	3600	150	175	58
7	42	35	29	34	32	78	137	348	1480	200	363	56
8	52	34	26	38	34	58	143	328	1110	240	293	62
9	59	35	26	39	33	53	146	428	1140	196	205	70
10	53	31	37	40	32	49	157	477	872	149	147	80
11	39	32	31	34	33	50	230	413	702	138	64	66
12	55	46	30	37	33	88	307	359	618	158	45	63
13	45	38	31	37	33	90	266	284	614	218	40	70
14	55	32	33	37	32	71	248	288	898	202	120	68
15	51	31	30	36	34	64	246	255	808	156	97	69
16	37	31	26	34	35	108	325	264	608	101	60	70
17	46	30	33	35	36	83	368	260	452	66	52	69
18	45	30	32	36	40	80	393	188	333	48	82	66
19	40	31	29	36	34	78	452	133	293	49	58	65
20	38	31	25	36	30	69	427	131	324	42	59	55
21	37	30	31	35	33	66	505	238	364	37	39	69
22	36	32	28	35	36	59	549	178	547	38	42	82
23	35	32	28	36	40	58	790	174	640	38	43	74
24	35	31	24	33	43	57	1080	141	501	38	42	64
25	34	29	21	32	46	79	1340	126	550	55	43	70
26	34	33	19	32	51	96	1310	119	600	61	71	70
27	33	33	17	32	70	69	1010	135	700	54	117	66
28	33	32	17	31	58	55	1000	185	800	48	105	69
29	36	32	16	31	---	50	860	370	776	54	68	72
30	36	32	16	31	---	54	826	500	654	48	67	68
31	35	---	18	34	---	83	---	550	---	56	79	---
TOTAL	2070	1000	830	1030	1037	2060	14007	10082	22911	3774	3399	2030
MEAN	66.8	33.3	26.8	33.2	37.0	66.5	467	325	764	122	110	67.7
MAX	350	46	37	40	70	108	1340	727	3600	449	363	82
MIN	33	29	16	20	30	35	113	119	293	37	39	55
AC-FT	4110	1980	1650	2040	2060	4090	27780	20000	45440	7490	6740	4030
CAL YR 1982	TOTAL	26315.6	MEAN	72.1	MAX	2210	MIN	3.6	AC-FT	52200		
WTR YR 1983	TOTAL	64230.0	MEAN	176	MAX	3600	MIN	16	AC-FT	127400		

NOTE.--NO GAGE-HEIGHT RECORD JAN. 21 TO MAR. 2.



07126300 PURGATOIRE RIVER NEAR THATCHER, CO.--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1982 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)
OCT 14...	1620	53	2300	2320	8.0	11.0	9.2	1200	240
NOV 24...	1145	32	3300	3340	8.4	2.0	13.2	1900	350
JAN 11...	1215	33	3350	3470	8.4	.5	13.7	1900	340
MAR 01...	1115	49	2440	2550	8.2	7.0	11.0	1200	230
APR 26...	1420	1090	490	508	8.0	9.5	8.8	200	49
JUN 03...	1330	630	808	773	8.5	18.0	8.0	300	71
JUL 14...	1245	212	1050	1030	8.2	23.0	7.1	450	97
AUG 12...	1450	44	1600	1500	7.9	26.5	7.0	780	150
SEP 07...	1430	56	2030	1980	7.5	23.5	7.5	920	170

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 14...	150	160	2	4.4	211	1300	19	.50	7.9
NOV 24...	240	260	3	5.0	234	2000	34	.50	6.5
JAN 11...	250	260	3	5.0	270	2000	39	.50	13
MAR 01...	160	180	2	4.5	211	1400	26	.40	9.6
APR 26...	20	27	.8	2.8	87	160	4.8	.30	10
JUN 03...	31	47	1	2.8	150	250	7.5	.40	8.8
JUL 14...	50	62	1	3.2	163	400	8.5	.50	8.8
AUG 12...	98	98	2	4.4	162	800	15	.50	9.5
SEP 07...	120	130	2	4.8	161	980	16	.40	7.4

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CYANIDE TOTAL (MG/L AS CN)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 14...	2000	2.7	287	--	.160	.020	--	40	20
NOV 24...	3000	4.1	262	--	.140	.020	--	50	70
JAN 11...	3100	4.2	273	--	.510	<.010	--	50	60
MAR 01...	2100	2.9	285	--	.240	.020	--	30	50
APR 26...	330	.44	960	2220	.760	.050	<.01	250	21
JUN 03...	510	.69	865	--	.180	.010	--	31	4
JUL 14...	730	.99	417	110	.160	.040	<.01	180	10
AUG 12...	1300	1.7	151	52	.180	<.010	<.01	77	8
SEP 07...	1500	2.1	231	29	<.100	.020	<.01	64	7

## ARKANSAS RIVER BASIN

07126300 PURGATOIRE RIVER NEAR THATCHER, CO.--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
APR 26...	1	<10	290	180000	190	4200	810
JUL 14...	1	<10	12	3700	7	100	40
AUG 12...	1	<10	8	1800	4	60	30
SEP 07...	<1	<10	6	540	3	20	30

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS YT-90)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
APR 26...	440	<12	650	5.9	290	5.7	280	<.1	2.4

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 24...	1145	32	36	3.1	--	JUN 09...	1630	1070	4400	12700	51
JAN 11...	1215	33	53	4.7	--	JUL 14...	1245	212	132	76	--
MAR 01...	1115	49	468	62	--	AUG 12...	1450	44	126	15	--
APR 26...	1320	1230	12500	41500	8	SEP 07...	1430	56	47	7.1	--
JUN 03...	1330	630	3000	5100	44						

## 07126485 PURGATOIRE RIVER AT ROCK CROSSING NEAR TIMPAS, CO--Continued

LOCATION.--Lat 37°37'10'', long 103°35'32'', in NE¼SE¼ sec.8, T.28 S., R.55 W., in Las Animas County, Hydrologic Unit 11020010, at Rock Crossing, 2.1 mi upstream from Minnie Canyon, 2.4 mi downstream from Beaty Canyon, and 17 mi southeast of Timpas.

PERIOD OF RECORD.--October 1982 to September 1983.

REMARKS.--Daily record collected in 1983 will be published in a later volume.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)
OCT								
15...	1425	57	2240	2280	8.2	16.5	8.0	1100
NOV								
30...	1245	36	3230	3270	8.0	6.5	10.6	1800
JAN								
13...	1415	70	3110	3240	7.4	.5	13.0	1700
MAR								
01...	1645	64	3340	3400	8.2	11.0	10.0	1700
JUN								
02...	1045	861	905	862	8.1	15.5	8.0	340
JUL								
22...	1510	43	1650	1570	7.9	31.0	5.9	680
AUG								
11...	1630	99	1140	1040	8.1	28.0	6.0	480
SEP								
08...	1630	53	2080	2020	7.9	26.5	6.4	940

DATE	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT									
15...	220	140	160	2	4.7	186	1200	28	.50
NOV									
30...	340	230	250	3	5.1	218	2000	34	.40
JAN									
13...	310	220	240	3	4.7	244	1800	34	.50
MAR									
01...	310	230	270	3	5.3	210	2000	39	.50
JUN									
02...	79	35	52	1	3.1	141	310	7.7	.40
JUL									
22...	140	80	110	2	4.2	162	750	15	.40
AUG									
11...	110	49	62	1	4.2	151	460	8.4	.40
SEP									
08...	180	120	140	2	5.4	136	1100	18	.40

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS Fe)	MANGA- NESE, DIS- SOLVED (UG/L AS Mn)
OCT								
15...	9.0	1900	2.5	286	.110	.040	30	20
NOV								
30...	7.0	3000	4.1	291	<.100	.020	40	60
JAN								
13...	10	2800	3.8	526	.600	<.010	60	60
MAR								
01...	6.2	3000	4.1	515	.150	.020	20	40
JUN								
02...	8.8	580	.79	1350	.230	.010	23	14
JUL								
22...	8.1	1200	1.6	140	<.100	.020	13	13
AUG								
11...	9.2	790	1.1	212	.240	.010	11	6
SEP								
08...	6.9	1700	2.2	236	<.100	<.010	60	20

## ARKANASAS RIVER BASIN

07126485 PURGATOIRE RIVER AT ROCK CROSSING NEAR TIMPAS, CO

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 30...	1245	36	34	3.3	--	JUL 22...	1510	43	39	4.5	--
JAN 13...	1415	70	171	33	--	AUG 11...	1630	99	386	103	--
MAR 01...	1645	64	123	21	--	SEP 08...	1630	53	47	6.7	--
JUN 02...	1045	861	4070	9460	22						

## ARKANSAS RIVER BASIN

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## 07126500 PURGATOIRE RIVER AT NINEMILE DAM, NEAR HIGBEE, CO

LOCATION.--Lat 37°42'53", long 103°30'38", in NW¼ sec.7, T.27 S., R.54 W., Otero County, Hydrologic Unit 11020010, on left bank at Ninemile Dam, 4 mi southwest of Higbee, and 5.5 mi upstream from Smith Canyon. Prior to Apr. 21, 1978 gage located 850 ft, upstream.

DRAINAGE AREA.--2,900 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1311: 1934(M), 1936(M), 1941-42(M), 1948-49(M). WSP 1731: 1929(M).

GAGE.--Water-stage recorder. Datum of gage is 4,240.59 ft, National Geodetic Vertical Datum of 1929, supplementary adjustment of 1960. See WSP 1711 or 1731 for history of changes prior to Dec. 6, 1956. Dec. 6, 1956 to Apr. 20, 1978, at site 850 ft, upstream.

REMARKS.--Records fair. Diversions for irrigation of about 32,000 acres above station. Discharge computed by combining discharge of river below Ninemile Dam and Ninemile canal. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--52 years (water years 1925-76), 94.5 ft<sup>3</sup>/s; 68,470 acre-ft/yr, prior to completion of Trinidad Dam; 6 years (water years 1977-82), 76.2 ft<sup>3</sup>/s; 55,210 acre-ft/yr; 7 years (water years 1977-83), 87.6 ft<sup>3</sup>/s; 63,470 acre-ft/yr, subsequent to completion of Trinidad Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft<sup>3</sup>/s, estimated, June 18, 1965, gage height, 19.6 ft, from floodmarks; no flow at times most years.

EXTREMES FOR WATER YEAR 1982.--Maximum discharge, 3,420 ft<sup>3</sup>/s at 0600 Aug. 11, gage height, 5.50 ft; minimum daily, 2.1 ft<sup>3</sup>/s Apr. 23.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown, minimum daily, 18 ft<sup>3</sup>/s Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	36	33	35	27	33	21	11	88	46	189	38
2	45	38	35	41	20	33	18	10	107	46	110	30
3	40	39	38	35	12	32	18	9.1	103	29	114	34
4	30	43	34	33	20	32	17	8.2	58	22	179	30
5	28	51	34	57	17	32	17	7.4	39	15	88	26
6	28	50	35	45	21	33	18	4.9	28	12	240	26
7	28	47	38	29	16	35	17	6.9	26	10	253	94
8	24	47	38	35	14	34	15	8.2	21	18	108	93
9	22	37	38	37	11	34	13	8.2	15	92	174	60
10	21	45	38	28	16	33	12	12	13	67	85	70
11	22	43	38	30	17	33	7.4	17	14	102	1000	115
12	22	42	36	30	20	31	6.7	14	45	48	113	325
13	21	40	36	37	21	29	5.3	18	40	32	58	681
14	19	41	36	39	25	32	5.3	18	23	68	112	364
15	18	40	34	37	32	32	4.7	14	109	50	74	211
16	18	40	37	32	40	29	4.1	38	165	32	363	169
17	18	40	37	36	46	26	4.3	37	208	22	185	133
18	19	41	32	41	41	25	6.0	30	122	18	105	116
19	28	40	32	39	42	24	4.2	32	204	17	156	118
20	34	39	33	33	40	23	2.6	26	539	21	177	158
21	34	41	34	31	38	22	4.7	22	195	17	247	101
22	32	42	33	30	34	22	2.9	21	94	14	528	84
23	36	46	28	35	35	21	2.1	24	67	11	320	337
24	36	46	22	36	34	21	11	19	59	10	132	369
25	36	40	28	35	34	20	11	18	113	8.2	78	193
26	36	29	27	35	33	20	14	407	61	6.6	63	168
27	36	29	22	30	34	20	11	291	52	5.8	51	153
28	38	29	28	30	35	21	13	163	110	20	40	170
29	42	32	24	28	---	21	12	136	70	314	35	165
30	40	35	31	27	---	19	10	110	50	1430	22	139
31	34	---	36	27	---	19	---	106	---	671	38	---
TOTAL	942	1208	1025	1073	775	841	308.3	1646.9	2838	3274.6	5437	4770
MEAN	30.4	40.3	33.1	34.6	27.7	27.1	10.3	53.1	94.6	106	175	159
MAX	57	51	38	57	46	35	21	407	539	1430	1000	681
MIN	18	29	22	27	11	19	2.1	4.9	13	5.8	22	26
AC-FT	1870	2400	2030	2130	1540	1670	612	3270	5630	6500	10780	9460

CAL YR 1981 TOTAL 59695.20 MEAN 164 MAX 7280 MIN .00 AC-FT 118400  
WTR YR 1982 TOTAL 24138.80 MEAN 66.1 MAX 1430 MIN 2.1 AC-FT 47880

## ARKANSAS RIVER BASIN

07126500 PURGATOIRE RIVER AT NINEMILE DAM, NEAR HIGBEE, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	47	34	25	39	59	69	904	767	533	47	63
2	232	47	34	25	36	52	157	666	737	408	49	69
3	189	49	34	23	30	44	140	645	662	262	59	65
4	220	47	32	23	30	40	140	634	640	203	71	56
5	159	47	31	25	37	43	134	522	510	152	322	54
6	95	47	31	25	35	51	92	433	471	134	217	60
7	68	45	31	27	30	74	78	414	1520	127	139	60
8	54	41	28	29	30	74	93	342	1310	175	322	57
9	50	41	30	27	34	63	102	368	1210	215	248	57
10	56	41	28	25	38	59	114	422	938	185	155	60
11	63	41	27	26	38	55	120	460	764	152	134	69
12	54	37	30	31	34	54	177	358	533	152	77	66
13	56	40	30	29	35	70	245	316	441	179	52	58
14	60	43	28	29	38	82	206	262	501	218	76	64
15	66	39	28	31	38	80	148	226	776	213	98	61
16	60	38	30	31	35	71	113	197	715	184	93	62
17	51	35	28	41	38	93	126	198	546	137	65	66
18	48	34	27	36	40	69	236	198	436	95	51	62
19	52	34	30	40	40	66	215	153	353	67	73	60
20	52	33	30	30	41	63	229	139	316	58	95	55
21	48	35	28	30	40	60	406	113	330	52	66	56
22	48	34	28	30	38	57	634	205	397	56	48	58
23	48	34	28	41	40	55	686	213	508	44	42	59
24	48	36	26	40	45	53	755	166	543	45	48	54
25	48	33	21	40	47	51	683	149	423	51	46	42
26	46	20	30	35	50	57	569	124	386	47	48	40
27	44	33	32	35	51	91	841	102	423	62	59	42
28	44	29	26	35	62	74	730	123	595	58	110	40
29	43	18	30	35	---	55	840	161	721	50	106	38
30	43	31	27	35	---	50	902	358	733	49	74	40
31	47	---	27	35	---	42	---	731	---	48	65	---
TOTAL	2313	1129	904	969	1089	1907	9980	10302	19205	4411	3155	1693
MEAN	74.6	37.6	29.2	31.3	38.9	61.5	333	332	640	142	102	56.4
MAX	232	49	34	41	62	93	902	904	1520	533	322	69
MIN	43	18	21	23	30	40	69	102	316	44	42	38
AC-FT	4590	2240	1790	1920	2160	3780	19800	20430	38090	8750	6260	3360
CAL YR 1982	TOTAL	25309.8	MEAN	69.3	MAX	1430	MIN	2.1	AC-FT	50200		
WTR YR 1983	TOTAL	57057.0	MEAN	156	MAX	1520	MIN	18	AC-FT	113200		

## 07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO

LOCATION.--Lat 38°02'02", long 103°12'00", in NE1SW1 sec.23, T.23 S., R.52 W., Bent County, Hydrologic Unit 11020010, on right bank at downstream side of bridge on State Highway 101, 2.3 mi southeast of courthouse in Las Animas, and 4.5 mi upstream from mouth.

DRAINAGE AREA.--3,503 mi<sup>2</sup>.

PERIOD OF RECORD.--Streamflow records, May to September 1889, July to October 1909 (gage heights and discharge measurements only), January 1922 to September 1931, July 1948 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Purgatoire Creek at Las Animas in 1889 and as Purgatory River near Las Animas in 1909. Water-quality data available, November 1963 to September 1965, October 1966 to July 1969.

REVISED RECORDS.--WSP 1241: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 3,878.04 ft, National Geodetic Vertical Datum of 1929. See WSP 1731 for history of changes prior to Oct. 1, 1955. Oct. 1, 1955, to July 11, 1966, at datum 3.00 ft higher. Supplementary water-stage recorder at site 1.6 mi downstream at different datum July 12 to Nov. 17, 1966. Nov. 18, 1966 to May 4, 1982 at datum 3.1 ft lower.

REMARKS.--Records good. Flow regulated to some extent since January 1975 by Trinidad Lake near Trinidad upstream. Diversions for irrigation of about 36,000 acres above station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--37 years (water years 1923-31, 1949-76), 116 ft<sup>3</sup>/s; 84,040 acre-ft/yr, prior to completion of Trinidad Lake; 6 years (water years 1978-83), 83.4 ft<sup>3</sup>/s; 60,420 acre-ft/yr, subsequent to completion of Trinidad Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft<sup>3</sup>/s May 20, 1955, gage height, 20.00 ft, different datum, from rating curve extended above 38,000 ft<sup>3</sup>/s; no flow at times in 1924-25, 1927, 1949, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Greatest flood since at least 1860 occurred Oct. 1, 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,070 ft<sup>3</sup>/s at 1930 June 7, gage height, 9.26 ft; minimum daily, 6.5 ft<sup>3</sup>/s July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	37	40	26	47	79	93	957	940	522	12	22
2	190	38	36	29	55	76	117	862	1080	406	10	19
3	262	35	32	26	54	67	208	752	934	316	9.1	19
4	204	35	35	25	44	55	196	700	760	216	6.9	15
5	174	41	35	33	39	48	211	569	705	119	8.8	19
6	131	45	35	35	44	54	188	500	613	72	210	15
7	90	43	34	40	38	66	154	480	2100	52	138	14
8	69	33	28	45	41	82	144	417	1590	45	95	12
9	62	30	27	47	45	87	151	360	1350	67	228	9.3
10	47	25	45	48	47	70	145	439	1250	95	176	7.4
11	46	33	44	47	46	61	134	511	975	94	117	8.3
12	56	47	33	51	43	59	125	496	803	80	83	9.5
13	49	41	40	53	45	54	157	409	715	91	46	11
14	39	58	43	51	45	61	217	366	706	98	251	9.5
15	49	45	36	51	45	95	177	312	791	116	84	8.7
16	46	41	36	49	44	104	158	276	718	106	45	7.9
17	80	42	40	52	45	89	146	219	583	77	55	8.0
18	80	32	40	64	47	108	193	342	458	57	32	6.9
19	64	33	33	63	47	98	207	263	358	50	20	8.3
20	74	34	35	60	50	96	234	201	271	33	17	10
21	37	33	40	44	44	92	375	169	264	34	35	12
22	31	14	33	42	40	92	637	118	267	24	30	12
23	30	32	31	39	42	104	1070	227	355	17	20	11
24	29	33	31	58	46	110	875	136	460	23	10	20
25	28	36	13	57	50	78	772	129	409	12	8.4	40
26	25	27	14	50	56	78	834	127	314	7.6	7.1	36
27	30	30	15	51	60	103	1220	86	295	6.5	7.0	30
28	30	35	17	50	60	117	1190	76	378	8.3	10	31
29	26	32	20	52	---	93	1240	100	644	7.6	22	32
30	16	35	21	49	---	75	983	202	649	15	55	36
31	17	---	23	48	---	64	---	777	---	8.4	31	---
TOTAL	2242	1075	985	1435	1309	2515	12551	11578	21735	2875.4	1879.3	499.8
MEAN	72.3	35.8	31.8	46.3	46.8	81.1	418	373	725	92.8	60.6	16.7
MAX	262	58	45	64	60	117	1240	957	2100	522	251	40
MIN	16	14	13	25	38	48	93	76	264	6.5	6.9	6.9
AC-FT	4450	2130	1950	2850	2600	4990	24890	22960	43110	5700	3730	991
CAL YR 1982	TOTAL	22958.8		MEAN	62.9	MAX	1520	MIN	1.5	AC-FT	45540	
WTR YR 1983	TOTAL	60679.5		MEAN	166	MAX	2100	MIN	6.5	AC-FT	120400	

## ARKANSAS RIVER BASIN

## 07130000 JOHN MARTIN RESERVOIR AT CADDOA, CO

LOCATION.--Lat 38°04'05", long 102°56'13", in NE¼NW¼ sec.8, T.23 S., R.49 W., Bent County, Hydrologic Unit 11020009, at dam on Arkansas River at Caddoa, 3.2 mi southeast of Hasty, and 58 mi upstream from Colorado-Kansas State line.

DRAINAGE AREA.--18,915 mi<sup>2</sup>, of which 785 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--January 1943 to current year. Monthend contents only prior to November 1943, published in WSP 1311.

GAGE.--Water-stage recorder for elevations above 3,784 ft, and nonrecording gage read once daily for those below. Datum of gage is 3,760.00 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Corps of Engineers); gage readings have been reduced to elevations NGVD.

REMARKS.--Records good. Reservoir is formed by concrete and earthfill dam. Storage began while dam was under construction prior to 1943, and record of contents began Jan. 1, 1943. Capacity (based on 1980 resurvey; new capacity table put into use Aug. 12, 1981), 615,500 acre-ft, at elevation 3,870.00 ft, top of spillway gates, of which 345,300 acre-ft between elevations 3,774.12 ft, elevation of no contents, and 3,851.00 ft, is for irrigation, and 270,200 acre-ft between elevations 3,851.00 ft, and 3,870.00 ft, is reserved for flood control. No dead storage. Figures given represent total contents.

COOPERATION.--Capacity tables furnished by U.S. Army, Corps of Engineers.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 429,600 acre-ft, Aug. 25, 1965, elevation, 3,856.16 ft; no contents at times many years.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 218,000 acre-ft, July 12, elevation, 3,838.29 ft; minimum contents, 11,500 acre-ft, Oct. 1, elevation, 3,795.22 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

3,785.0	448	3,800.0	21,800	3,830.0	153,700
3,790.0	3,380	3,810.0	52,300	3,840.0	232,900
3,795.0	11,100	3,820.0	94,400	3,850.0	333,800

CONTENTS, IN ACRE FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11500	13200	23700	35800	50200	60800	77400	105000	91200	181000	178000	116000
2	12200	13600	24100	36100	50500	61200	77500	106000	93500	186000	176000	115000
3	12800	14000	24500	36500	51000	61600	78200	107000	95400	192000	173000	113000
4	13100	14200	24900	36800	51400	62400	78900	108000	96800	198000	171000	111000
5	13300	14600	25300	37300	51600	63000	79400	109000	98400	202000	169000	109000
6	13300	14800	25800	37800	52000	63300	80100	109000	99900	205000	167000	108000
7	13300	15000	26100	38500	52300	63800	80700	109000	106000	208000	165000	106000
8	13200	15300	26500	39000	52800	64200	81100	108000	111000	210000	163000	104000
9	13100	15600	27000	39700	53000	64700	81500	107000	116000	213000	161000	103000
10	12900	15800	27300	40200	53300	65100	81900	105000	120000	215000	159000	101000
11	12900	16000	27800	40800	53600	65500	82400	104000	124000	217000	157000	99700
12	12900	16200	28200	41400	54000	65900	82600	103000	127000	218000	154000	98000
13	12800	16400	28600	41900	54400	66300	83000	102000	130000	217000	152000	96300
14	12700	16700	29000	42400	54700	66800	83500	100000	133000	216000	150000	94700
15	12600	17000	29400	42900	55100	67500	84000	98900	136000	216000	148000	93100
16	12500	17300	29700	43400	55500	68200	84400	97500	139000	214000	146000	91900
17	12400	17600	30100	43800	55900	68800	84800	96200	141000	213000	144000	91100
18	12400	17900	30600	44300	56300	70000	85200	94700	142000	211000	142000	90100
19	12400	18200	30900	44800	56900	70900	85300	93200	143000	209000	140000	89200
20	12300	18700	31200	45300	57400	71600	85800	92400	144000	207000	138000	88300
21	12500	19100	31600	45700	57800	72100	86300	91300	146000	204000	136000	87300
22	12600	19600	32000	46100	58100	72700	87800	90200	147000	202000	134000	86500
23	12800	20100	32300	46500	58400	73200	91100	89100	150000	199000	132000	85700
24	12900	20600	32900	46900	58800	74000	92900	88400	152000	197000	130000	85100
25	13000	21000	33100	47300	59100	74500	95000	88100	154000	195000	128000	84400
26	13000	21400	33400	47600	59500	75000	96000	88000	155000	193000	126000	83800
27	13000	21900	33900	48000	60000	75200	97800	87600	158000	190000	124000	83400
28	12900	22200	34500	48500	60400	75700	99600	87300	163000	188000	122000	83000
29	12900	22700	34900	48800	---	76200	102000	87100	168000	185000	121000	82400
30	12800	23200	35200	49200	---	76600	103000	87500	175000	183000	119000	81900
31	12700	---	35400	49700	---	77000	---	89000	---	180000	118000	---
MAX	13300	23200	35400	49700	60400	77000	103000	109000	175000	218000	178000	116000
MIN	11500	13200	23700	35800	50200	60800	77400	87100	91200	180000	118000	81900
WTR YR 1983	MAX	218000	MIN	11500								



## 07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, CO

LOCATION.--Lat 38°03'59", long 102°55'55", in NW¼NE¼ sec.8, T.23 S., R.49 W, Bent County, Hydrologic Unit 11020009, on right bank 0.2 mi downstream from John Martin Dam, 2.6 mi upstream from Caddoa Creek, and 3.5 mi southeast of Hasty.

DRAINAGE AREA.--18,915 mi<sup>2</sup>, of which 785 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--Streamflow records, March 1938 to current year. Published as "at Caddoa" prior to October 1947. Water-quality data available, August 1942 to August 1943, October 1945 to July 1949, January 1951 to September 1981.

REVISED RECORDS.--WSP 1241: 1942(M). WSP 1341: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3,737.40 ft, National Geodetic Vertical Datum of 1929. Prior to Feb. 22, 1940, at site 3 mi upstream at datum 22.83 ft, higher. Feb. 22, 1940, to Feb. 4, 1943, at site 700 ft upstream at datum 3.64 ft, higher, Feb. 5, 1943, to Apr. 8, 1975, at site 1.5 mi downstream at datum approximately 27.5 ft, lower.

REMARKS.--Records good. Storage diversions above station for irrigation of about 438,000 acres and for flood control. Flow completely regulated by John Martin Dam (station 07130000) 0.2 mi upstream since Oct. 1948. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years (water years 1939-43), 628 ft<sup>3</sup>/s, unadjusted; 455,000 acre-ft/yr, during construction of John Martin Dam: 35 years (water years 1949-83), 226 ft<sup>3</sup>/s; 163,700 acre-ft/yr, adjusted for storage in John Martin Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s Apr. 24, 1942, gage height, 10.46 ft, site and datum then in use, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of flow-over-dam and critical-depth measurement of peak flow; no flow at times in 1945-47; minimum daily prior to construction of John Martin Reservoir, 5 ft<sup>3</sup>/s July 16, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,540 ft<sup>3</sup>/s at 1600 July 11, gage height, 4.70 ft; minimum daily, 1.4 ft<sup>3</sup>/s many days during winter.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	306	3.2	1.5	1.4	1.4	1.4	1.5	57	439	480	1360	970
2	206	2.6	1.5	1.4	1.4	1.4	1.5	63	444	480	1350	966
3	208	2.4	1.5	1.4	1.4	1.4	1.5	70	448	480	1340	961
4	273	2.2	1.5	1.4	1.4	1.4	1.5	63	452	484	1300	961
5	346	1.8	1.5	1.4	1.4	1.4	1.5	72	452	696	1280	956
6	374	1.6	1.5	1.4	1.4	1.4	1.5	341	434	1080	1280	952
7	396	1.5	1.5	1.4	1.4	1.4	1.5	740	398	1150	1260	907
8	396	1.5	1.5	1.4	1.4	1.4	1.5	736	398	1200	1280	894
9	392	1.5	1.5	1.4	1.4	1.4	1.5	945	335	1200	1320	894
10	391	1.5	1.5	1.4	1.4	1.4	1.5	1100	269	1190	1340	894
11	395	1.5	1.5	1.4	1.4	1.4	1.5	1080	253	1310	1350	889
12	408	1.5	1.5	1.4	1.4	1.4	1.5	1070	241	1490	1350	898
13	422	1.5	1.5	1.4	1.4	1.4	1.5	1050	285	1470	1360	902
14	391	1.5	1.5	1.4	1.4	1.4	1.5	1040	309	1440	1350	889
15	363	1.5	1.5	1.4	1.4	2.0	1.5	1040	321	1350	1330	880
16	361	1.5	1.5	1.4	1.4	1.4	1.5	1080	337	1300	1320	649
17	363	1.5	1.5	1.4	1.4	1.4	1.5	1080	333	1300	1320	452
18	345	1.5	1.5	1.4	1.4	1.4	1.5	1060	337	1250	1280	448
19	328	1.5	1.5	1.4	1.4	1.4	1.5	1050	341	1280	1280	444
20	352	1.5	1.5	1.4	1.4	1.4	1.5	1020	349	1340	1280	462
21	396	1.5	1.4	1.4	1.4	1.4	1.5	979	357	1370	1280	470
22	409	1.5	1.4	1.4	1.4	1.4	1.5	974	408	1410	1290	470
23	410	1.5	1.4	1.4	1.4	1.4	1.5	948	434	1410	1290	448
24	410	1.5	1.4	1.4	1.4	1.4	1.5	721	507	1400	1270	434
25	409	1.5	1.4	1.4	1.4	1.4	1.5	498	552	1410	1230	430
26	408	1.5	1.4	1.4	1.4	1.4	1.5	480	547	1420	1220	426
27	411	1.5	1.4	1.4	1.4	1.4	1.5	466	516	1420	1220	408
28	411	1.5	1.4	1.4	1.4	1.4	63	470	493	1380	1220	403
29	412	1.5	1.4	1.4	---	1.4	71	470	488	1370	1200	398
30	412	1.5	1.4	1.4	---	1.4	57	466	484	1370	1090	398
31	317	---	1.4	1.4	---	1.4	---	448	---	1370	961	---
TOTAL	11421	49.8	45.4	43.4	39.2	44.0	231.5	21677	11961	37300	39601	20553
MEAN	368	1.66	1.46	1.40	1.40	1.42	7.72	699	399	1203	1277	685
MAX	422	3.2	1.5	1.4	1.4	2.0	71	1100	552	1490	1360	970
MIN	206	1.5	1.4	1.4	1.4	1.4	1.5	57	241	480	961	398
AC-FT	22650	99	90	86	78	87	459	43000	23720	73980	78550	40770
CAL YR 1982	TOTAL	111260.0	MEAN	305	MAX	1250	MIN	1.4	AC-FT	220700		
WTR YR 1983	TOTAL	142966.3	MEAN	392	MAX	1490	MIN	1.4	AC-FT	283600		

## ARKANSAS RIVER BASIN

07133000 ARKANSAS RIVER AT LAMAR, CO

LOCATION.--Lat 38°06'21", long 102°37'05", in NE¼SE¼ sec.30, T.22 S., R.46 W., Prowers County, Hydrologic Unit 11020009, on left bank at downstream side of bridge on U.S. Highways 50 and 287, and 1.3 mi north of courthouse in Lamar.

DRAINAGE AREA.--19,780 mi<sup>2</sup>, of which 950 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--Streamflow records, May 1913 to September 1955, April 1959 to current year. Monthly discharge only for some periods, published in WSP 1311. Water-quality data available, November 1963 to September 1965, September 1969 to August 1972.

REVISED RECORDS.--WSP 1341: 1921(M), 1945-46(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,602.23 ft, National Geodetic Vertical Datum of 1929. See WSP 1731 for history of changes prior to Apr. 4, 1959. Apr. 4, 1959, to Mar. 26, 1968, at site 450 ft upstream at datum 2.42 ft, higher.

REMARKS.--Records good except those for winter period which are fair. Flow regulated by John Martin Reservoir (station 07130000) 21 mi upstream since Oct. 1948. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 487,000 acres, and return flow from irrigated areas. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--30 years (water years 1914-43), 298 ft<sup>3</sup>/s; 215,900 acre-ft/yr, prior to and during construction of John Martin Dam, 31 years (water years 1949-55, 1960-83), 90.9 ft<sup>3</sup>/s, unadjusted; 65,860 acre-ft/yr, subsequent to completion of John Martin Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft<sup>3</sup>/s June 5, 1921, gage height, 14.55 ft, present datum, from rating curve extended above 10,000 ft<sup>3</sup>/s; maximum gage height, 16.48 ft, June 18, 1965, present datum, from floodmarks; no flow at times in 1913-15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft<sup>3</sup>/s at 1430 July 25, gage height, 7.67 ft; minimum daily, 3.3 ft<sup>3</sup>/s June 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	15	14	16	18	22	19	8.4	10	56	711	422
2	32	13	12	17	18	22	19	7.4	6.6	55	704	420
3	21	13	11	18	18	22	19	7.5	6.3	53	692	418
4	20	13	11	18	18	22	23	7.5	7.3	50	646	415
5	20	13	11	19	18	23	22	7.5	12	48	603	425
6	20	12	10	27	19	23	22	8.0	17	366	600	415
7	21	11	10	28	20	23	20	100	12	468	603	378
8	22	11	9.8	29	21	23	18	500	9.4	514	609	375
9	23	11	9.5	27	22	23	19	526	5.0	543	624	362
10	24	11	10	25	23	23	17	528	3.8	548	631	362
11	26	10	10	22	24	23	16	485	3.3	577	638	368
12	23	9.0	10	22	24	23	9.9	483	3.4	831	661	368
13	23	10	10	22	24	23	5.2	490	5.1	818	666	376
14	23	13	10	21	23	24	5.5	480	17	735	645	457
15	22	18	10	22	22	25	5.5	440	23	690	648	407
16	20	17	23	22	21	36	5.2	430	40	680	636	373
17	20	17	32	22	25	31	4.9	423	50	670	699	93
18	20	15	28	21	25	27	4.0	409	49	660	617	53
19	17	15	30	21	25	27	3.8	424	50	651	584	38
20	16	15	29	20	35	24	4.0	490	51	644	588	32
21	16	15	32	20	34	24	4.1	441	48	666	582	33
22	16	15	33	19	26	25	6.1	432	42	711	588	33
23	16	14	34	19	25	25	5.9	419	33	732	610	42
24	15	13	35	19	22	27	5.5	376	25	736	606	57
25	14	13	36	19	22	30	5.5	64	23	801	609	63
26	14	14	36	19	22	24	6.3	37	48	739	591	60
27	14	14	35	19	22	23	5.5	29	73	734	585	56
28	13	14	30	19	22	21	5.2	22	70	728	577	51
29	15	14	20	18	---	21	12	13	66	735	573	49
30	15	14	17	18	---	19	8.1	16	63	715	598	44
31	15	---	17	18	---	18	---	17	---	713	440	---
TOTAL	635	402.0	625.3	646	638	746	326.2	8120.3	872.2	17667	19164	7045
MEAN	20.5	13.4	20.2	20.8	22.8	24.1	10.9	262	29.1	570	618	235
MAX	59	18	36	29	35	36	23	528	73	831	711	457
MIN	13	9.0	9.5	16	18	18	3.8	7.4	3.3	48	440	32
AC-FT	1260	797	1240	1280	1270	1480	647	16110	1730	35040	38010	13970
CAL YR 1982	TOTAL	35503.80	MEAN	97.3	MAX	822	MIN	.70	AC-FT	70420		
WTR YR 1983	TOTAL	56887.00	MEAN	156	MAX	831	MIN	3.3	AC-FT	112800		

## ARKANSAS RIVER BASIN

301

07134180 ARKANSAS RIVER NEAR GRANADA, CO

LOCATION.--Lat 38°05'44", long 102°18'37", in SE¼NE¼ sec.36, T.22 S., R.44 W., Prowers County, Hydrologic Unit 11020009, on left bank at upstream side at end of bridge on U.S. Highway 385, 1.2 mi downstream from headgate of Buffalo Canal and 2.3 mi north of Granada.

DRAINAGE AREA.--23,707 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1899 to December 1901, gage heights only at different site and datum, August to October 1903, December 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,480 ft, from topographic map.

REMARKS.--Records good. Flow regulated by John Martin Reservoir (station 07130000) 38 mi upstream since October 1948. Natural flow of stream affected by transmountain diversion, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 500,000 acres, and return flow from irrigated areas. Several observation of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 1,170 ft<sup>3</sup>/s June 5, 1982, gage height, 9.27 ft; minimum daily, 3.3 ft<sup>3</sup>/s May 27-28, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 763 ft<sup>3</sup>/s at 0300 July 26, gage height, 7.82 ft; minimum daily, 5.2 ft<sup>3</sup>/s May 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	32	53	80	97	82	79	65	59	16	679	491
2	118	24	59	84	96	81	75	41	46	16	663	477
3	70	13	64	86	90	79	75	18	38	15	659	463
4	58	14	77	85	87	79	77	8.9	34	15	628	457
5	54	22	78	87	85	80	79	5.4	32	15	589	457
6	48	30	77	92	85	80	78	5.2	31	250	575	449
7	45	29	76	98	86	79	77	103	31	450	573	413
8	42	29	80	100	88	78	73	413	35	480	575	393
9	36	29	80	101	91	76	68	486	26	510	578	387
10	35	29	81	97	88	76	71	501	22	540	589	370
11	36	35	81	97	86	75	74	485	16	570	584	366
12	35	40	78	94	89	76	75	457	12	640	599	359
13	32	36	77	94	91	76	72	472	9.2	713	615	375
14	31	37	74	96	89	77	68	493	6.8	702	631	410
15	30	45	74	92	89	79	69	500	5.8	715	629	440
16	30	49	81	95	87	92	72	487	5.8	703	616	409
17	29	52	83	92	90	93	71	478	8.3	676	627	291
18	29	51	84	94	90	90	69	397	9.1	701	656	183
19	28	55	83	91	92	90	69	433	8.1	671	593	146
20	26	55	80	93	93	93	69	517	6.4	613	588	119
21	26	53	80	93	96	90	67	545	6.1	607	591	106
22	25	50	84	89	97	89	78	486	5.5	634	578	99
23	25	48	83	86	93	91	94	468	5.5	663	594	91
24	23	46	88	91	91	91	86	425	5.5	674	596	90
25	23	46	86	93	96	95	80	272	8.4	680	601	89
26	22	44	79	93	93	97	79	138	36	715	598	90
27	20	48	95	90	88	91	78	106	29	678	599	86
28	20	50	90	95	84	89	71	93	22	682	608	87
29	21	48	85	96	---	87	48	77	19	690	623	80
30	24	49	80	96	---	80	66	65	17	691	622	83
31	32	---	80	94	---	79	---	62	---	689	567	---
TOTAL	1191	1188	2450	2864	2527	2610	2207	9102.5	595.5	16414	18823	8356
MEAN	38.4	39.6	79.0	92.4	90.3	84.2	73.6	294	19.9	529	607	279
MAX	118	55	95	101	97	97	94	545	59	715	679	491
MIN	20	13	53	80	84	75	48	5.2	5.5	15	567	80
AC-FT	2360	2360	4860	5680	5010	5180	4380	18050	1180	32560	37340	16570
CAL YR 1982	TOTAL	35087.4	MEAN	96.1	MAX 704	MIN 3.3	AC-FT	69600				
WTR YR 1983	TOTAL	68328.0	MEAN	187	MAX 715	MIN 5.2	AC-FT	135500				

## ARKANSAS RIVER BASIN

## 07137000 FRONTIER DITCH NEAR COOLIDGE, KS

LOCATION.--Lat 38°02'18", long 102°02'19", in NE¼ sec.21, T.23 S., R.43 W., Hamilton County, Kans., Hydrologic Unit 11030001, on left bank 0.3 mi east of Colorado-Kansas State line, 0.5 mi downstream from Holly drain diversion, 1.5 mi west of Coolidge, and 2.3 mi downstream from diversion from Arkansas River.

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1731: 1951.

GAGE.--Water-stage recorders and Parshall flume. Datum of gage is 3,353.14 ft, National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. This ditch diverts water from Arkansas River in Colorado for use in Kansas. These records and records for Arkansas River near Coolidge (station 07137500) represent total flow of Arkansas River at the Colorado-Kansas State line.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 84 ft<sup>3</sup>/s Aug. 1, 1975; no flow for many days each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	.00	.00	.00	.00	.00	.00	23	.00	28	46	40
2	.63	.00	.00	.00	.00	.00	.00	23	.00	23	46	41
3	.42	.00	19	.00	.00	.00	.00	19	.00	49	47	44
4	4.8	.00	16	.00	.00	.00	.00	19	7.8	53	44	45
5	8.9	.00	14	.00	.00	.00	.00	36	14	50	41	33
6	12	.00	16	.00	.00	.00	.00	33	17	32	39	.56
7	11	.00	16	.00	.00	.00	.00	32	20	29	36	.21
8	8.4	.00	16	.00	.00	.00	.00	49	17	29	34	.07
9	9.2	.00	18	.00	.00	.00	.00	52	13	28	39	.00
10	12	.00	17	.00	.00	.00	.00	54	6.1	20	40	.00
11	13	.00	19	.00	.00	.00	.00	51	1.5	21	40	.00
12	13	.00	18	.00	.00	.00	.00	48	.21	20	40	.00
13	9.5	.00	19	.00	.00	.00	.00	55	10	18	35	.00
14	3.3	.00	7.2	.00	.00	.00	.00	56	24	16	12	.00
15	8.1	.00	.02	.00	.00	.00	.00	56	25	11	24	.00
16	10	.00	.00	.00	.00	.00	.00	56	20	13	34	.00
17	6.6	.00	.00	.00	.00	.00	.00	47	19	16	32	.00
18	3.9	.00	.00	.00	.00	.00	.00	42	33	21	38	.00
19	5.0	.00	.00	.00	.00	.00	.00	41	42	21	37	.00
20	5.4	.00	.00	.00	.00	.00	.00	45	40	20	41	.00
21	2.5	.00	.00	.00	.00	.00	.00	48	38	25	46	.00
22	.56	.00	.00	.00	.00	.00	.00	45	38	26	48	.00
23	.35	.00	.00	.00	.00	.00	.00	46	40	32	47	.00
24	.14	.00	.00	.00	.00	.00	.00	42	39	39	48	.00
25	.00	.00	.00	.00	.00	.00	.00	40	41	44	45	.00
26	.00	.00	.00	.00	.00	.00	.00	30	39	44	47	.00
27	.00	.00	.00	.00	.00	.00	.00	23	29	40	41	.00
28	.00	.00	.00	.00	.00	.00	.00	19	33	38	1.1	.00
29	.00	.00	.00	.00	---	.00	.00	7.7	11	39	29	.00
30	.00	.00	.00	.00	---	.00	16	.56	18	46	44	.00
31	.00	---	.00	.00	---	.00	---	.00	---	45	45	---
TOTAL	162.70	.00	195.22	.00	.00	.00	16.00	1138.26	635.61	936	1186.1	203.84
MEAN	5.25	.000	6.30	.000	.000	.000	.53	36.7	21.2	30.2	38.3	6.79
MAX	14	.00	19	.00	.00	.00	16	56	42	53	48	45
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	1.1	.00
AC-FT	323	.00	387	.00	.00	.00	32	2260	1260	1860	2350	404
CAL YR 1982	TOTAL	5282.62	MEAN 14.5	MAX 62	MIN .00	AC-FT 10480						
WTR YR 1983	TOTAL	4473.73	MEAN 12.3	MAX 56	MIN .00	AC-FT 8870						

## 07137500 ARKANSAS RIVER NEAR COOLIDGE, KS

LOCATION.--Lat 38°01'34", long 102°00'41", in NE¼NW¼ sec.26, T.23 S., R.43 W., Hamilton County, KS, Hydrologic Unit 11030001, on right bank at downstream side of bridge, 1.0 mi south of Coolidge, and 1.9 mi downstream from Colorado-Kansas State line.

DRAINAGE AREA.--25,410 mi<sup>2</sup>, of which 1,708 mi<sup>2</sup> is probably noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to October 1903, March to May 1921, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1341: 1903, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,330.84 ft, National Geodetic Vertical Datum of 1929. May 5 to Oct. 31, 1903, nonrecording gage, and Mar. 1 to May 31, 1921, water-stage recorder at present site at different datums. Oct. 1, 1950, to Mar. 31, 1966, water-stage recorder at site 0.3 mi upstream at datum 3.00 ft, higher.

REMARKS.--Records good except those for winter period, which are fair. Combined flow of river and Frontier Ditch (station 07137000) represents entire flow that enters Kansas. Flow regulated by John Martin Reservoir (station 07130000) since Oct. 1948. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation of about 500,000 acres, and return flow from irrigated areas.

AVERAGE DISCHARGE.--33 years (water years 1951-83), 177 ft<sup>3</sup>/s; 128,200 acre-ft/yr, subsequent to completion of John Martin Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 158,000 ft<sup>3</sup>/s June 17, 1965, gage height, 14.8 ft, present site and datum, from floodmarks, from rating curve extended above 13,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow for many days in 1903, 1954, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,380 ft<sup>3</sup>/s June 26, gage height, 6.88 ft; minimum daily, 14 ft<sup>3</sup>/s June 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	84	90	90	105	107	114	71	153	84	659	526
2	266	104	91	90	98	109	102	67	136	76	654	458
3	193	75	82	90	96	110	101	58	114	78	685	434
4	143	68	85	100	97	111	102	50	94	78	649	430
5	118	78	87	120	100	112	104	33	76	71	590	454
6	107	80	85	138	102	109	103	25	89	60	553	483
7	105	81	90	110	104	105	102	23	99	113	544	462
8	110	75	85	112	108	103	102	142	114	223	544	450
9	105	70	93	119	106	100	96	284	127	275	535	426
10	96	66	98	114	108	98	91	326	138	317	553	411
11	96	80	101	110	105	98	96	346	118	357	553	389
12	112	101	94	109	107	99	98	384	85	411	553	382
13	118	87	101	109	112	98	98	378	71	544	590	385
14	112	100	102	111	111	100	91	400	56	614	649	426
15	102	97	98	110	108	101	87	396	53	619	664	474
16	101	83	103	111	109	109	90	382	53	654	644	426
17	92	86	110	111	116	115	91	389	45	619	604	382
18	89	90	105	100	116	116	87	392	44	624	644	275
19	94	88	105	96	120	116	85	357	40	644	629	248
20	108	93	107	95	114	117	81	411	34	571	585	227
21	123	91	107	97	114	115	84	491	25	521	585	219
22	116	92	105	100	118	118	89	423	24	521	585	216
23	112	85	106	104	118	119	108	407	18	562	585	208
24	96	87	115	108	121	122	114	367	15	585	600	196
25	85	91	110	115	118	127	120	322	14	600	595	187
26	82	89	105	110	113	130	111	223	950	649	614	179
27	82	88	95	112	109	122	104	187	202	624	619	176
28	75	86	90	117	109	119	103	161	144	609	674	161
29	71	86	90	117	---	120	98	151	144	624	654	161
30	78	87	90	117	---	118	88	159	107	649	649	158
31	75	---	90	112	---	114	---	159	---	644	639	---
TOTAL	3501	2568	3015	3354	3062	3457	2940	7964	3382	13620	18880	10009
MEAN	113	85.6	97.3	108	109	112	98.0	257	113	439	609	334
MAX	266	104	115	138	121	130	120	491	950	654	685	526
MIN	71	66	82	90	96	98	81	23	14	60	535	158
AC-FT	6940	5090	5980	6650	6070	6860	5830	15800	6710	27020	37450	19850
CAL YR 1982	TOTAL	40134.3	MEAN	110	MAX	759	MIN	7.5	AC-FT	79610		
WTR YR 1983	TOTAL	75752.0	MEAN	208	MAX	950	MIN	14	AC-FT	150300		

## ARKANSAS RIVER BASIN

07137500 ARKANSAS RIVER NEAR COOLIDGE, KS--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1963 to September 1968, October 1969 to September 1973, April 1975 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1963 to September 1968, January 1976 to September 1981.

WATER TEMPERATURES: November 1963 to September 1968, January 1976 to September 1981.

REMARKS.--Daily maximum and minimum specific-conductance data available in district office.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,800 micromhos Mar. 29, 1978; minimum daily, 454 micromhos June 18, 1965.

WATER TEMPERATURES: Maximum, 34.5°C July 20, 1976; minimum, 0.0°C on several days during winter periods.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
NOV											
17...	1140	84	4210	4500	8.2	5.0	40	11.6	130	920	1700
FEB											
08...	1200	104	4650	4620	8.1	1.0	1.5	12.3	K10	120	1900
MAY											
10...	1440	330	2620	2710	8.6	19.5	250	8.6	410	1900	1100
AUG											
22...	1100	695	1790	1860	8.2	24.0	60	--	120	--	670
25...	1130	595	1800	--	8.2	24.0	--	--	--	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV										
17...	370	190	580	6	--	291	2300	160	1.0	17
FEB										
08...	430	210	580	6	10	293	2500	170	1.0	17
MAY										
10...	240	120	270	4	6.9	176	1300	79	<.10	21
AUG										
22...	150	70	180	3	6.9	181	790	52	.90	12
25...	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV										
17...	4020	3800	5.5	912	2.50	.000	1.8	.000	.000	<.000
FEB										
08...	4010	4100	5.5	1130	2.60	.130	.80	.000	.000	.000
MAY										
10...	2300	2100	3.1	2050	.890	.000	3.2	.400	.000	.000
AUG										
22...	1470	1400	2.0	2760	.590	.060	1.3	.140	.030	.020
25...	--	--	--	--	--	--	--	--	--	--

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV							
17...	--	200	--	--	--	--	--
FEB							
08...	1	100	<1	<1	<1	1	40
MAY							
10...	1	--	<1	<1	1	1	10
AUG							
22...	1	51	<1	<1	<3	4	88

K BASED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

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07137500 ARKANSAS RIVER NEAR COOLIDGE, KS--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 17...	--	--	--	--	--	--	--
FEB 08...	3	30	.3	1	31	<1	20
MAY 10...	<1	10	1.1	3	15	<1	10
AUG 22...	<1	16	.1	2	8	<1	14

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM
NOV 17...	1140	84	196	44	--	--	--	92	--	--	--	--
FEB 08...	1200	104	185	52	--	--	--	78	90	100	--	--
MAY 10...	1440	330	638	568	39	51	75	94	95	98	100	--
AUG 22...	1100	695	286	537	--	--	--	67	77	93	99	100

## WESTERN GULF OF MEXICO BASINS

## RIO GRANDE BASIN

08213500 RIO GRANDE AT THIRTYMILE BRIDGE, NEAR CREEDE, CO

LOCATION.--Lat 37°43'29", long 107°15'18", in NE¼ sec.13, T.40 N., R.4 W., Hinsdale County, Hydrologic Unit 13010001, on right bank 70 ft downstream from bridge, 500 ft upstream from Squaw Creek, 0.8 mi downstream from Rio Grande Reservoir, and 20 mi southwest of Creede.

DRAINAGE AREA.--163 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1909 to September 1923, May 1925 to current year. No winter records 1910, 1926. Monthly discharge only for some periods, published in WSP 1312.

GAGE.--Water-stage recorder. Altitude of gage is 9,300 ft, from topographic map. See WSP 1712 or 1732 for history of changes prior to Oct. 1, 1934.

REMARKS.--Records good. Flow regulated by Rio Grande Reservoir, capacity, 51,110 acre-ft, since 1912. Natural flow of stream affected by transmountain diversions from Colorado River basin to drainage area above station through Weminuche Pass and Pine River-Weminuche Pass ditches. No known diversions above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--69 years (water years 1911-23, 1927-82), 211 ft<sup>3</sup>/s; 152,900 acre-ft/yr; 70 years, (water years 1911-23, 1927-83), 211 ft<sup>3</sup>/s; 152,900 acre-ft/yr

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,500 ft<sup>3</sup>/s June 28, 1927, gage height, 7.03 ft, present datum, from rating curve extended above 1,200 ft<sup>3</sup>/s; minimum daily, 0.10 ft<sup>3</sup>/s Nov. 2-4, 1960.

EXTREMES FOR WATER YEAR 1982.--Maximum discharge, 1,640 ft<sup>3</sup>/s at 1000 June 24, gage height, 3.93 ft; minimum daily, 8.7 ft<sup>3</sup>/s, Nov. 4-10.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,180 ft<sup>3</sup>/s at 1000 June 10, gage height, 4.31 ft; minimum daily, 1.2 ft<sup>3</sup>/s, Nov. 18, 19

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	9.5	9.7	11	12	13	14	202	906	1090	543	270
2	74	92	9.7	11	12	13	14	202	850	922	460	238
3	74	55	9.8	11	12	13	14	235	810	874	454	208
4	74	8.7	9.8	11	12	13	14	294	715	826	454	199
5	84	8.7	9.9	11	12	13	14	444	802	794	449	226
6	99	8.7	9.9	11	12	13	14	520	842	786	444	191
7	104	8.7	10	11	12	13	14	520	715	826	484	170
8	106	8.7	10	11	12	13	14	520	678	754	552	174
9	107	8.7	10	11	12	13	14	454	692	685	648	79
10	107	8.7	10	11	12	13	14	427	738	648	662	103
11	107	8.8	10	11	12	13	14	427	930	634	613	152
12	107	8.8	10	11	12	13	14	422	1100	627	578	183
13	115	8.9	10	11	12	13	14	422	1270	627	559	105
14	129	8.9	10	11	12	13	14	355	1340	566	685	177
15	147	9.0	10	11	12	13	54	270	1350	533	263	129
16	157	9.0	10	11	12	13	152	246	1500	533	223	151
17	157	9.1	10	12	12	13	205	194	1570	552	226	270
18	157	9.1	10	12	12	13	205	167	1070	566	214	270
19	157	9.2	10	12	12	13	205	164	938	566	199	270
20	157	9.2	11	12	12	13	226	164	1090	526	223	224
21	154	9.2	11	12	12	13	238	197	1180	502	263	278
22	154	9.3	11	12	13	13	238	310	1270	395	278	286
23	154	9.3	11	12	13	13	238	449	1310	337	410	286
24	154	9.4	11	12	13	13	235	526	1500	337	566	282
25	154	9.4	11	12	13	13	235	599	1600	346	578	278
26	75	9.5	11	12	13	13	235	634	1580	390	502	270
27	28	9.5	11	12	13	13	235	685	1560	484	438	158
28	28	9.6	11	12	13	13	214	770	1370	484	496	112
29	23	9.6	11	12	---	13	202	842	1260	454	395	103
30	9.5	9.7	11	12	---	13	202	922	1210	454	342	163
31	9.5	---	11	12	---	14	---	946	---	502	310	---
TOTAL	3236.0	401.9	320.8	356	343	404	3515	13529	33746	18620	13511	6005
MEAN	104	13.4	10.3	11.5	12.3	13.0	117	436	1125	601	436	200
MAX	157	92	11	12	13	14	238	946	1600	1090	685	286
MIN	9.5	8.7	9.7	11	12	13	14	164	678	337	199	79
AC-FT	6420	797	636	706	680	801	6970	26830	66940	36930	26800	11910
CAL YR 1981	TOTAL	47072.5	MEAN 129	MAX 1400	MIN 8.1	AC-FT 93370						
WTR YR 1982	TOTAL	93987.7	MEAN 258	MAX 1600	MIN 8.7	AC-FT 186400						



## WESTERN GULF OF MEXICO BASINS

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## RIO GRANDE BASIN

08213500 RIO GRANDE AT THIRTYMILE BRIDGE, NEAR CREEDE, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266	68	1.4	1.9	2.4	2.8	3.3	5.4	8.7	1020	592	73
2	342	5.4	1.4	1.9	2.4	2.8	3.3	5.8	9.5	874	592	59
3	282	8.4	1.4	1.9	2.4	2.8	3.3	5.8	10	770	585	66
4	136	5.8	1.5	1.9	2.4	2.8	3.3	5.8	12	890	578	109
5	141	65	1.5	2.0	2.4	2.9	3.3	6.2	13	962	410	119
6	162	174	1.5	2.0	2.4	2.9	3.3	5.8	14	907	346	121
7	169	170	1.5	2.0	2.5	2.9	3.4	6.2	15	1060	444	106
8	289	64	1.5	2.0	2.5	2.9	3.4	6.2	17	1100	432	95
9	270	5.3	1.5	2.0	2.5	2.9	3.4	6.5	1070	1100	337	95
10	208	5.4	1.6	2.0	2.5	2.9	3.4	6.2	2090	970	290	95
11	93	5.8	1.6	2.0	2.5	2.9	3.5	5.8	2040	906	211	95
12	55	68	1.6	2.1	2.5	3.0	3.5	6.2	1980	890	194	80
13	9.1	180	1.6	2.1	2.6	3.0	3.5	6.5	1920	882	194	61
14	157	172	1.6	2.1	2.6	3.0	3.5	6.5	1230	802	194	56
15	395	160	1.6	2.1	2.6	3.0	3.5	6.5	786	770	191	69
16	260	86	1.6	2.1	2.6	3.0	3.5	6.5	715	802	191	94
17	220	3.8	1.7	2.1	2.6	3.0	3.5	6.5	778	818	183	94
18	205	1.2	1.7	2.2	2.6	3.1	3.5	6.5	970	866	143	90
19	197	1.2	1.7	2.2	2.6	3.1	3.5	6.5	1210	702	136	66
20	185	1.3	1.7	2.2	2.7	3.1	3.6	6.5	1300	648	113	62
21	174	1.3	1.7	2.2	2.7	3.1	3.6	6.5	1310	641	106	62
22	81	1.3	1.7	2.2	2.7	3.1	3.6	6.8	1380	641	106	62
23	75	1.3	1.8	2.2	2.7	3.1	3.6	6.8	1440	634	106	61
24	131	1.3	1.8	2.2	2.7	3.1	3.6	7.2	1480	634	73	61
25	56	1.3	1.8	2.3	2.7	3.2	3.6	291	1460	627	48	61
26	104	1.3	1.8	2.3	2.7	3.2	3.7	770	1300	620	42	61
27	106	1.4	1.8	2.3	2.8	3.2	41	970	756	613	95	61
28	106	1.4	1.8	2.3	2.8	3.2	27	979	502	613	104	61
29	58	1.4	1.8	2.3	---	3.2	5.4	1030	794	613	84	69
30	174	1.4	1.9	2.3	---	3.2	5.4	1060	1040	606	90	95
31	170	---	1.9	2.4	---	3.3	---	468	---	599	100	---
TOTAL	5276.1	1264.0	51.0	65.8	72.1	93.7	169.0	5719.2	27650.2	24670	7310	2359
MEAN	170	42.1	1.65	2.12	2.58	3.02	5.63	184	922	796	236	78.6
MAX	395	180	1.9	2.4	2.8	3.3	41	1060	2090	1100	592	121
MIN	9.1	1.2	1.4	1.9	2.4	2.8	3.3	5.4	8.7	599	42	56
AC-FT	10470	2510	101	131	143	186	335	11340	54840	48930	14500	4680
CAL YR 1982	TOTAL	96620.1	MEAN	265	MAX	1600	MIN	1.2	AC-FT	191600		
WTR YR 1983	TOTAL	74700.1	MEAN	205	MAX	2090	MIN	1.2	AC-FT	148200		

NOTE.--NO GAGE-HEIGHT RECORD NOV. 10 TO APR. 12.

## 08214500 NORTH CLEAR CREEK BELOW CONTINENTAL RESERVOIR, CO

LOCATION.--Lat 37°53'18", long 107°12'10", in NE¼SW¼ sec.21, T.42 N., R.3 S., Hinsdale County, Hydrologic Unit 13010001, on left bank 100 ft downstream from bridge, 1,000 ft downstream from Continental Reservoir, and 15 mi west of Creede.

DRAINAGE AREA.--51.7 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1929 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1960, published as Clear Creek below Continental Reservoir.

REVISED RECORDS.--WSP 1008: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 10,200 ft, from topographic map. Prior to Oct. 2, 1951, at site 150 ft upstream, at different datum.

REMARKS.--Records good except those for period of no gage-height record, which are fair. Flow regulated by Continental Reservoir, capacity, 26,720 acre-ft. No diversion above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--54 years, 30.2 ft<sup>3</sup>/s; 21,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362 ft<sup>3</sup>/s May 8, 1952, gage height, 3.66 ft, from rating curve extended above 120 ft<sup>3</sup>/s; no flow June 22, 23, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 259 ft<sup>3</sup>/s at 0930 July 24, gage height, 2.43 ft; minimum daily, 0.25 ft<sup>3</sup>/s many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	.25	.30	.35	.35	.40	.45	24	189	47	79	21
2	35	.25	.30	.35	.35	.40	.45	23	61	50	106	21
3	33	.25	.30	.35	.35	.40	.45	21	101	52	117	21
4	30	.25	.30	.35	.35	.40	.45	20	134	51	103	21
5	29	.25	.30	.35	.35	.40	.45	19	128	48	47	19
6	24	.25	.30	.35	.40	.40	.45	19	133	50	45	18
7	28	.25	.30	.35	.40	.40	.45	20	139	47	68	19
8	28	.25	.30	.35	.40	.40	.45	24	150	46	77	21
9	26	.25	.30	.35	.40	.40	.45	34	153	47	76	19
10	26	.25	.30	.35	.40	.40	.45	59	133	43	72	17
11	27	.25	.30	.35	.40	.40	.45	87	126	38	72	17
12	26	.25	.30	.35	.40	.40	.45	99	133	36	74	17
13	26	.25	.30	.35	.40	.40	.45	86	130	42	75	16
14	24	.25	.30	.35	.40	.40	.45	74	94	41	75	16
15	16	.25	.30	.35	.40	.40	.45	50	73	39	75	16
16	15	.25	.30	.35	.40	.40	.45	42	86	34	70	16
17	14	.25	.30	.35	.40	.40	.45	42	97	26	64	16
18	12	.30	.30	.35	.40	.45	.45	42	124	91	66	16
19	13	.30	.30	.35	.40	.45	.45	42	153	152	63	16
20	12	.30	.30	.35	.40	.45	.45	42	66	175	55	17
21	13	.30	.30	.35	.40	.45	.45	42	65	179	48	15
22	9.0	.30	.30	.35	.40	.45	.45	45	63	180	56	15
23	.65	.30	.30	.35	.40	.45	.45	76	56	186	77	16
24	.25	.30	.30	.35	.40	.45	.45	114	85	214	97	15
25	.25	.30	.30	.35	.40	.45	.45	139	112	189	100	15
26	.25	.30	.30	.35	.40	.45	.45	158	108	180	99	15
27	.25	.30	.30	.35	.40	.45	8.9	182	40	184	95	15
28	.25	.30	.35	.35	.40	.45	16	223	1.6	119	92	14
29	.25	.30	.35	.35	---	.45	18	231	36	60	91	16
30	.25	.30	.35	.35	---	.45	22	239	49	63	68	28
31	.25	---	.35	.35	---	.45	---	235	---	63	24	---
TOTAL	515.65	8.15	9.50	10.85	10.95	13.10	76.60	2553	3018.6	2772	2326	524
MEAN	16.6	.27	.31	.35	.39	.42	2.55	82.4	101	89.4	75.0	17.5
MAX	47	.30	.35	.35	.40	.45	22	239	189	214	117	28
MIN	.25	.25	.30	.35	.35	.40	.45	19	1.6	26	24	14
AC-FT	1020	16	19	22	22	26	152	5060	5990	5500	4610	1040
CAL YR 1982	TOTAL	13838.10	MEAN	37.9	MAX	231	MIN	.25	AC-FT	27450		
WTR YR 1983	TOTAL	11838.40	MEAN	32.4	MAX	239	MIN	.25	AC-FT	23480		

RIO GRANDE BASIN

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08217500 RIO GRANDE AT WAGONWHEEL GAP, CO

LOCATION.--Lat 37°46'01", long 106°49'51", in NW¼NE¼ sec.35, T.41 N., R.1 E., Mineral County, Hydrologic Unit 13010001, on right bank 250 ft upstream from private bridge, 0.4 mi upstream from Goose Creek, and 0.4 mi west of town of Wagonwheel Gap.

DRAINAGE AREA.--780 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 8,431.26 ft, National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, and those for period of no gage-height record, which are poor. Flow regulated by Santa Maria, Rio Grande, and Continental Reservoirs, combined capacity, 121,400 acre-ft. Diversions above station for irrigation. Transmountain diversions to drainage area above station from Colorado River basin (see elsewhere in this report). Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--32 years, 508 ft<sup>3</sup>/s; 368,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,870 ft<sup>3</sup>/s July 26, 1957, gage height, 5.38 ft; maximum gage height, 5.84 ft, Sept. 6, 1970; minimum daily discharge, 46 ft<sup>3</sup>/s Dec. 9, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,680 ft<sup>3</sup>/s at 0500 June 12, gage height, 4.82 ft; minimum daily, 96 ft<sup>3</sup>/s Apr. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	360	170	125	120	130	130	345	2130	2170	1250	394
2	1070	232	170	125	125	130	130	341	2060	2000	1330	363
3	973	172	170	125	125	130	130	364	1560	1840	1400	361
4	845	188	170	125	125	130	125	402	1600	1830	1370	362
5	702	195	170	125	125	130	115	461	1680	1930	1290	377
6	671	210	165	120	125	140	110	545	1620	1900	904	356
7	673	230	165	120	125	140	100	492	1620	1960	994	348
8	662	240	165	120	125	141	98	559	1720	1910	1070	362
9	758	240	165	120	125	139	96	707	1860	1940	1000	347
10	635	240	165	120	125	135	107	890	3190	1780	818	328
11	599	230	160	120	125	134	109	973	3370	1650	722	327
12	466	210	160	120	120	130	104	876	3560	1550	683	314
13	402	180	160	120	120	129	104	876	3190	1500	634	290
14	374	160	155	120	120	127	98	808	2570	1420	683	273
15	682	160	150	120	120	134	97	790	1970	1300	690	264
16	626	160	150	120	120	134	104	766	1940	1280	648	272
17	530	170	150	120	120	135	111	724	2240	1300	598	282
18	494	190	145	120	120	130	134	692	2580	1340	571	282
19	462	220	145	120	120	130	163	687	3010	1670	523	281
20	444	230	145	120	120	125	197	636	3090	1370	529	263
21	424	230	145	120	120	120	187	453	2800	1370	464	242
22	410	220	140	120	120	115	206	587	2910	1340	426	239
23	295	200	140	120	125	110	223	697	2810	1380	431	238
24	342	190	135	120	125	110	298	965	3020	1470	458	235
25	366	180	135	120	125	110	378	1340	3150	1480	504	255
26	267	170	130	120	130	110	380	2030	2890	1520	476	251
27	268	170	130	120	130	110	361	2660	2710	1530	462	251
28	231	170	130	120	130	115	355	2930	1770	1470	508	269
29	209	170	130	120	---	120	442	3020	1800	1280	496	253
30	325	170	130	120	---	120	408	3110	2210	1280	488	436
31	378	---	125	120	---	130	---	2870	---	1240	446	---
TOTAL	16743	6087	4665	3745	3455	3923	5600	33596	72630	49000	22866	9115
MEAN	540	203	150	121	123	127	187	1084	2421	1581	738	304
MAX	1160	360	170	125	130	141	442	3110	3560	2170	1400	436
MIN	209	160	125	120	120	110	96	341	1560	1240	426	235
AC-FT	33210	12070	9250	7430	6850	7780	11110	66640	144100	97190	45350	18380

CAL YR 1982 TOTAL 219079 MEAN 600 MAX 2540 MIN 94 AC-FT 434500  
WTR YR 1983 TOTAL 231425 MEAN 634 MAX 3560 MIN 96 AC-FT 459000

NOTE.--NO GAGE-HEIGHT RECORD NOV. 6 TO FEB. 8.

## RIO GRANDE BASIN

08218500 GOOSE CREEK AT WAGONWHEEL GAP, CO

LOCATION.--Lat 37°45'07", long 106°49'46", in SW¼SE¼ sec.35, T.41 N., R.1 E., Mineral County, Hydrologic Unit 13010001, on left bank 0.2 mi downstream from Pierce Creek, 1.0 mi upstream from mouth, 1.0 mi south of Wagonwheel Gap, and 8.8 mi southeast of Creede.

DRAINAGE AREA.--90 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1954 to current year.

REVISED RECORDS.--WSP 1712: 1955, 1956(M).

GAGE.--Water-stage recorder. Altitude of gage is 8,460 ft, from topographic map.

REMARKS.--Records fair except those for periods of no gage-height record, which are poor. Several small diversions above station for irrigation. Lake Humphreys, capacity, 842 acre-ft, with a fixed spillway and no gates has slight effect on flow. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--29 years, 59.3 ft<sup>3</sup>/s; 42,960 acre-ft/yr

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 879 ft<sup>3</sup>/s Sept. 14, 1970, gage height, 4.52 ft, from recorded range in stage, from rating curve extended above 480 ft<sup>3</sup>/s; minimum daily, 4.5 ft<sup>3</sup>/s Jan. 6, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1927 exceeded all other observed floods at this location, including those of October 1911 and June 18, 1949. Flood of October 1911 probably exceeded that of June 18, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 01	1000	390	3.72	June 19	2300	* 420	3.78
June 11	0600	322	3.57				

Minimum daily discharge, 17 ft<sup>3</sup>/s, Dec. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	40	29	20	21	23	29	68	340	264	63	41
2	150	39	27	21	22	24	28	61	284	242	66	41
3	140	32	27	21	19	24	28	56	260	232	72	39
4	130	37	28	21	20	27	27	61	264	236	68	39
5	120	37	27	23	20	27	29	74	256	222	62	38
6	110	36	26	23	19	28	26	79	253	214	70	37
7	110	36	25	23	19	27	25	72	253	208	74	37
8	100	36	26	24	20	28	24	87	239	194	64	45
9	94	37	27	23	20	28	24	118	218	178	58	37
10	90	36	27	20	19	30	25	146	242	166	58	39
11	90	36	28	22	18	31	24	144	288	155	58	41
12	86	34	25	23	18	32	22	113	246	144	58	36
13	80	35	24	23	19	31	22	108	204	130	54	36
14	76	33	25	23	20	32	21	92	204	118	60	35
15	72	33	23	23	19	32	22	81	222	108	56	34
16	66	34	25	22	20	29	22	81	236	90	52	30
17	62	35	26	23	19	30	24	74	256	96	50	30
18	58	36	27	23	20	31	31	68	318	94	49	30
19	58	32	25	21	21	30	38	70	372	106	48	30
20	60	30	26	22	21	30	44	68	350	92	47	30
21	54	30	28	22	20	30	48	74	327	94	46	30
22	50	31	28	22	22	31	52	92	332	92	45	30
23	48	30	27	21	22	31	58	116	336	87	45	30
24	47	32	25	21	22	29	66	160	336	85	41	30
25	49	30	23	23	22	28	80	190	350	76	43	36
26	45	30	24	22	22	26	85	211	314	83	42	35
27	49	31	25	23	21	24	81	232	354	87	44	32
28	44	29	20	23	23	24	76	250	304	83	41	30
29	41	30	17	23	---	24	87	268	276	68	41	30
30	44	30	18	24	---	27	87	296	280	66	41	90
31	41	---	19	24	---	30	---	304	---	59	40	---
TOTAL	2424	1007	777	692	568	878	1255	3914	8514	4169	1656	1098
MEAN	78.2	33.6	25.1	22.3	20.3	28.3	41.8	126	284	134	53.4	36.6
MAX	160	40	29	24	23	32	87	304	372	264	74	90
MIN	41	29	17	20	18	23	21	56	204	59	40	30
AC-FT	4810	2000	1540	1370	1130	1740	2490	7760	16890	8270	3280	2180

CAL YR 1982 TOTAL 23159 MEAN 63.4 MAX 232 MIN 12 AC-FT 45940  
WTR YR 1983 TOTAL 26952 MEAN 73.8 MAX 372 MIN 17 AC-FT 53460

NOTE.--NO GAGE-HEIGHT RECORD NOV. 28 TO APR. 25, AUG. 4 TO SEPT. 8.

## 08219500 SOUTH FORK RIO GRANDE AT SOUTH FORK, CO

LOCATION.--Lat 37°39'25", long 106°38'55", in SW¼NE¼ sec.3, T.39 N., R.3 E., Rio Grande County, Hydrologic Unit 13010001, on left bank near U.S. Highway 160, 700 ft downstream from Church Creek, 0.8 mi southwest of village of South Fork, and 1.4 mi upstream from mouth.

DRAINAGE AREA.--216 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1910 to September 1922, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 898: 1911(M). WSP 1312: 1912, 1944(M). WSP 1632: 1956-58(P).

GAGE.--Water-stage recorder. Datum of gage is 8,221.79 ft, National Geodetic Vertical Datum of 1929. Aug. 9, 1910, to Mar. 28, 1915, nonrecording gage, and Mar. 29, 1915, to Sept. 30, 1922, water-stage recorder, at bridges 1 mi downstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Transmountain diversions from Colorado River basin to drainage area above station through Treasure Pass ditch. Natural flow of stream affected by a few small diversions for irrigation, slight regulation by Beaver Creek Reservoir, capacity, 4,760 acre-ft, and several smaller storage reservoirs. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--59 years (water years 1911-22, 1937-83), 209 ft<sup>3</sup>/s; 151,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft<sup>3</sup>/s Oct. 5, 1911, gage height, 9.7 ft, from floodmarks, present site and datum, from rating curve extended above 1,500 ft<sup>3</sup>/s; minimum daily, 10 ft<sup>3</sup>/s Jan. 6, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 5, 1911, exceeded all other observed floods at this location since at least 1873. Flood of June 29, 1927, reached a stage about 1 ft lower than that of Oct. 5, 1911, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft<sup>3</sup>/s at 1130 June 1, gage height, 5.62 ft, only peak above base of 900 ft<sup>3</sup>/s; minimum daily, 37 ft<sup>3</sup>/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	595	85	83	50	48	64	81	235	1630	825	191	91
2	439	81	87	50	50	64	80	212	1660	735	212	90
3	383	69	84	50	48	68	80	193	1390	710	220	85
4	344	78	86	50	50	72	78	208	1330	700	215	85
5	307	81	82	52	50	74	84	252	1330	680	193	81
6	262	87	78	52	46	74	75	275	1270	655	230	77
7	240	83	74	52	46	74	73	250	1280	620	240	71
8	230	76	74	54	46	74	70	301	1290	572	197	80
9	205	87	72	52	46	76	70	407	1160	532	179	71
10	195	88	72	48	46	78	72	532	1090	491	173	67
11	195	84	74	50	48	80	73	550	1240	478	175	67
12	187	78	66	52	48	80	73	451	1370	387	171	64
13	179	96	62	52	48	80	72	431	1110	347	161	61
14	169	88	64	52	48	82	70	375	906	322	183	60
15	157	94	62	52	48	84	72	328	912	295	175	60
16	139	101	64	50	50	86	71	316	1000	275	159	58
17	131	109	64	52	48	85	76	283	1100	262	155	56
18	125	99	64	50	50	81	93	255	1280	240	151	56
19	127	83	64	48	52	80	120	260	1490	225	141	58
20	129	78	64	48	52	80	141	260	1460	203	141	60
21	116	83	66	50	54	85	145	255	1380	201	133	55
22	111	88	68	50	58	85	153	344	1310	193	127	53
23	109	80	68	48	58	84	169	435	1250	193	114	52
24	105	78	64	48	60	78	225	645	1200	193	87	52
25	114	90	60	52	62	78	286	835	1280	183	101	54
26	131	81	60	50	64	73	298	996	1210	193	99	50
27	171	83	62	52	64	67	275	1130	1250	212	105	39
28	143	72	54	52	64	67	255	1250	1060	230	93	39
29	123	91	46	52	---	66	283	1300	966	199	94	37
30	93	87	48	54	---	71	272	1420	924	197	90	182
31	90	---	48	54	---	83	---	1490	---	189	88	---
TOTAL	6044	2558	2084	1578	1452	2373	3985	16474	37128	11737	4793	2011
MEAN	195	85.3	67.2	50.9	51.9	76.5	133	531	1238	379	155	67.0
MAX	595	109	87	54	64	86	298	1490	1660	825	240	182
MIN	90	69	46	48	46	64	70	193	906	183	87	37
AC-FT	11990	5070	4130	3130	2880	4710	7900	32680	73640	23280	9510	3990

CAL YR 1982 TOTAL 90423 MEAN 248 MAX 1210 MIN 31 AC-FT 179400  
WTR YR 1983 TOTAL 92217 MEAN 253 MAX 1660 MIN 37 AC-FT 182900

NOTE.--NO GAGE-HEIGHT RECORD DEC. 16 TO MAR. 16.

## RIO GRANDE BASIN

08220000 RIO GRANDE NEAR DEL NORTE, CO

LOCATION.--Lat 37°41'22", long 106°27'38", in NW¼ sec.29, T.40 N., R.5 E., Rio Grande County, Hydrologic Unit 13010001, on right bank 20 ft downstream from county highway bridge, 6.0 mi west of Del Norte, and 18 mi upstream from Pinos Creek.

DRAINAGE AREA.--1,320 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1889 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 763: Drainage area. WSP 1312: 1889, 1901, 1913-14.

GAGE.--Water-stage recorder. Datum of gage is 7,980.25 ft, National Geodetic Vertical Datum of 1929. Prior to May 16, 1908, nonrecording gage at site 4 mi downstream at different datum. May 16, 1908, to Nov. 8, 1910, nonrecording gages on bridge at present site and datum.

REMARKS.--Records good except those for winter period, which are fair. Small diversions above station for irrigation. Flow regulated by Beaver Creek Reservoir since 1910, Santa Maria Reservoir since 1912, Rio Grande Reservoir since 1912, and Continental Reservoir since 1925, combined capacity, 126,100 acre-ft, and by several smaller reservoirs. Transmountain diversions to drainage area above station from Colorado River basin (see elsewhere in this report). Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--94 years, 896 ft<sup>3</sup>/s; 649,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft<sup>3</sup>/s Oct. 5, 1911, gage height, 6.80 ft, from rating curve extended above 12,900 ft<sup>3</sup>/s; minimum daily, 69 ft<sup>3</sup>/s Aug. 21, 1902.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1873, that of Oct. 5, 1911, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,790 ft<sup>3</sup>/s at 0630 June 12, gage height, 4.77 ft; minimum daily, 170 ft<sup>3</sup>/s Feb. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	562	270	200	180	223	272	681	4300	3210	1440	520
2	1830	462	227	200	185	238	238	642	4450	2930	1510	488
3	1660	315	223	200	185	223	259	605	3440	2700	1610	474
4	1470	330	250	205	180	227	216	642	3380	2630	1610	474
5	1230	362	300	210	180	223	201	729	3400	2730	1560	474
6	1120	378	272	215	170	212	235	866	3310	2660	1280	462
7	1090	520	238	220	175	216	246	788	3270	2660	1330	443
8	1030	520	264	220	180	223	227	893	3420	2550	1320	462
9	1070	481	330	215	185	227	212	1120	3190	2520	1250	449
10	974	395	320	200	185	242	227	1520	4670	2320	1080	425
11	938	390	310	210	185	260	238	1700	5190	2130	983	419
12	770	305	238	220	190	270	231	1450	5560	1970	929	401
13	721	290	201	220	195	270	235	1430	4940	1900	884	390
14	635	527	210	215	200	290	223	1280	4030	1800	911	362
15	779	455	212	210	205	310	212	1190	3190	1640	947	356
16	911	419	219	210	215	264	223	1130	3140	1570	875	346
17	788	330	242	210	210	255	231	1050	3500	1570	822	356
18	713	373	235	205	220	268	268	974	4090	1520	788	356
19	681	373	212	190	230	242	325	956	4800	1950	721	362
20	665	351	208	190	240	238	395	956	5000	1580	721	340
21	620	310	216	195	245	231	395	779	4490	1600	658	310
22	598	300	231	195	250	259	413	947	4580	1530	598	295
23	527	315	242	190	250	246	437	1130	4430	1550	576	290
24	481	277	223	180	259	238	562	1600	4600	1640	569	290
25	548	295	223	185	242	238	762	2270	4870	1640	612	300
26	520	281	198	185	238	227	813	3320	4650	1690	642	325
27	527	286	200	190	227	212	754	4340	4600	1740	590	290
28	481	268	208	190	227	235	681	4850	3190	1760	620	305
29	419	272	185	190	---	238	813	5070	2900	1530	612	290
30	437	290	190	195	---	238	813	5260	3340	1490	620	491
31	576	---	195	190	---	286	---	5280	---	1430	583	---
TOTAL	27149	11032	7292	6250	5833	7569	11357	55448	121920	62140	29251	11545
MEAN	876	368	235	202	208	244	379	1789	4064	2005	944	385
MAX	2340	562	330	220	259	310	813	5280	5560	3210	1610	520
MIN	419	268	185	180	170	212	201	605	2900	1430	569	290
AC-FT	53850	21880	14460	12400	11570	15010	22530	110000	241800	123300	58020	22900
CAL YR 1982	TOTAL	351752	MEAN 964	MAX 4010	MIN 135	AC-FT 697700						
WTR YR 1983	TOTAL	356786	MEAN 977	MAX 5560	MIN 170	AC-FT 707700						

08224110 SAN LUIS CREEK NEAR PONCHA PASS, CO

LOCATION.--Lat 38°24'22", long 106°03'49", in NE¼NE¼ sec.22, T.48 N., R.8 E., Saguache County, Hydrologic Unit 13010003, on right bank 0.1 mi east of U.S. Highway 285, 0.5 mi upstream from Round Hill Gulch, 1.3 mi downstream from Dorsey Creek, and 1.7 mi southeast of Poncha Pass.

DRAINAGE AREA.--6.57 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 8,780 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45 ft<sup>3</sup>/s July 26, 1982, gage height, unknown; maximum gage height, 1.20 ft, Feb.12, 1981, (backwater from ice); minimum daily discharge, 0.03 ft<sup>3</sup>/s Aug.8, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 19	1815	5.4	1.08	May 10	0400	5.3	1.08
Apr. 21	1615	6.1	1.14	Aug. 14	1815	11	1.35
Apr. 24	1645	6.2	1.15	Aug. 24	2100	* 12	1.43

Minimum daily discharge, 0.27 ft<sup>3</sup>/s Sept.18.DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.58	.53	.45	.50	.65	1.0	1.5	3.2	.47	.55	.55
2	.32	.87	.54	.45	.45	.70	1.0	1.4	2.8	.43	.36	.55
3	.40	.87	.53	.50	.40	.75	1.0	1.5	2.5	.38	.50	.50
4	.36	1.1	.55	.55	.40	.75	1.0	1.8	2.3	.38	.55	.50
5	.36	.91	.58	.55	.45	.70	.95	1.9	2.3	.36	.66	.40
6	.40	1.2	.58	.58	.45	.63	.85	1.8	2.6	.34	.85	.36
7	.40	1.2	.58	.58	.47	.63	.85	1.8	2.5	.30	.60	.32
8	.40	.63	.58	.60	.50	.63	.85	2.1	2.1	.33	.50	.36
9	.36	.67	.55	.55	.55	.63	.85	2.4	2.1	.63	.40	.40
10	.40	.67	.65	.50	.50	.63	1.0	2.6	1.8	1.1	.36	.36
11	.60	.75	.65	.50	.50	.70	1.2	2.4	1.4	.94	.32	.40
12	.66	1.4	.64	.55	.50	.70	1.2	2.1	.45	.67	.60	.32
13	.65	1.5	.62	.55	.55	.70	1.0	1.9	.50	.71	.55	.34
14	.68	1.1	.58	.58	.60	.75	1.0	1.8	.55	.59	1.9	.33
15	.71	1.4	.55	.60	.60	.80	.90	1.8	.50	.61	1.1	.39
16	.76	1.4	.55	.55	.55	.75	1.0	1.6	.50	.58	.50	.33
17	.63	1.4	.65	.55	.55	.75	1.0	1.6	.50	.44	.40	.55
18	.53	1.0	.65	.50	.55	.80	1.5	1.7	.45	.42	.37	.27
19	.60	.66	.65	.50	.60	.80	2.0	1.8	.45	.44	.37	.28
20	.57	.58	.65	.45	.50	.80	2.2	1.9	.40	.39	.44	.40
21	.58	.56	.70	.45	.55	.75	2.5	1.9	.40	.40	.41	.36
22	.58	.53	.75	.40	.60	.75	1.7	2.0	.40	.43	.44	.39
23	.58	.56	.75	.40	.60	.80	2.3	2.1	.45	.45	.65	.39
24	.60	.50	.65	.45	.60	.80	3.3	2.3	.39	.50	1.6	.47
25	.60	.49	.60	.50	.60	.80	2.9	2.4	.60	.36	1.5	.40
26	.58	.50	.55	.50	.60	.80	2.3	2.5	1.3	.45	.98	.58
27	.61	.50	.55	.55	.60	.80	2.0	2.6	.83	.65	1.1	.36
28	.62	.52	.45	.55	.65	.80	2.1	2.7	.51	.45	.75	.39
29	.71	.52	.45	.50	---	.85	2.0	2.7	.47	.36	.75	.44
30	.62	.55	.40	.55	---	.90	1.7	3.1	.44	.32	.80	.60
31	.60	---	.40	.55	---	.90	---	3.0	---	.29	.55	---
TOTAL	17.67	25.12	18.11	16.04	14.97	23.20	45.15	64.7	35.69	15.17	21.41	12.29
MEAN	.57	.84	.58	.52	.53	.75	1.51	2.09	1.19	.49	.69	.41
MAX	1.2	1.5	.75	.60	.65	.90	3.3	3.1	3.2	1.1	1.9	.60
MIN	.32	.49	.40	.40	.40	.63	.85	1.4	.39	.29	.32	.27
AC-FT	35	50	36	32	30	46	90	128	71	30	42	24
CAL YR 1982	TOTAL 273.23	MEAN .75	MAX 5.0	MIN .10	AC-FT 542							
WTR YR 1983	TOTAL 309.52	MEAN .85	MAX 3.3	MIN .27	AC-FT 614							

NOTE.--NO GAGE-HEIGHT RECORD DEC. 4 - APR. 18.

08224110 SAN LUIS CREEK NEAR PONCHA PASS, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1981 to September 1983 (discontinued).

PERIOD OF DAILY RECORD.--May 1981 to September 1983 (discontinued).

INSTRUMENTATION.--Automatic pumping sampler since May 1981.

REMARKS.--In addition to pumping sediment sampler, samples are collected by local observer who also exchanges sediment bottles in sampler on a prescribed interval. Records are considered fair to poor due to lack of consistent data and poor on rises. The records on this site are seasonal records only.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS.--Maximum daily, 535 mg/L July 10, 1983; minimum daily, 4 mg/L Sept. 27-29, 1982.

SEDIMENT LOADS: Maximum daily, 7.1 tons Aug. 24, 1983; no load for several days in 1982.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS.--Maximum daily, 535 mg/L July 10; minimum daily, 4mg/L Sept. 23-24.

SEDIMENT LOADS: Maximum daily, 7.1 tons Aug 24; minimum, 0.01 ton Sept. 23.

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)
OCT					MAY				
14...	1420	.71	4	.00	19...	0930	1.5	82	.33
DEC					JUN				
09...	1040	.59	12	.02	21...	1200	.43	32	.04
FEB					JUL				
10...	1015	.53	31	.04	20...	1245	.46	45	.06
APR					AUG				
22...	1230	1.5	130	.53	17...	0810	.48	47	.06
25...	1325	2.6	261	1.8	SEP				
25...	1445	3.2	465	4.0	19...	1245	.28	6	.00
26...	1030	2.4	366	2.4					



08224110 SAN LUIS CREEK NEAR PONCHA PASS, CO

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	1.2	191	.62	.58			.53		
2	.32	27	.02	.87			.54		
3	.40	21	.02	.87			.53		
4	.36	21	.02	1.1			.55		
5	.36	---	.01	.91			.58		
6	.40	---	.01	1.2			.58		
7	.40	---	.01	1.2			.58		
8	.40	---	.01	.63			.58		
9	.36	---	.02	.67			.55		
10	.40	---	.05	.67			.65		
11	.60	---	.05	.75			.65		
12	.66	---	.04	1.4			.64		
13	.65	---	.04	1.5			.62		
14	.68	17	.03	1.1			.58		
15	.71	---	---	1.4			.55		
16	.76	---	---	1.4			.55		
17	.63	---	---	1.4			.65		
18	.53	---	---	1.0			.65		
19	.60	---	---	.66			.65		
20	.57	---	---	.58			.65		
21	.58	---	---	.56			.70		
22	.58	---	---	.53			.75		
23	.58	---	---	.56			.75		
24	.60	---	---	.50			.65		
25	.60	---	---	.49			.60		
26	.58	---	---	.50			.55		
27	.61	---	---	.50			.55		
28	.62	---	---	.52			.45		
29	.71	---	---	.52			.45		
30	.62	---	---	.55			.40		
31	.60	---	---	---			.40		
TOTAL	17.67	---	0.95	25.12			18.11		
JANUARY			FEBRUARY			MARCH			
1	.45		.50				.65		
2	.45		.45				.70		
3	.50		.40				.75		
4	.55		.40				.75		
5	.55		.45				.70		
6	.58		.45				.63		
7	.58		.47				.63		
8	.60		.50				.63		
9	.55		.55				.63		
10	.50		.50				.63		
11	.50		.50				.70		
12	.55		.50				.70		
13	.55		.55				.70		
14	.58		.60				.75		
15	.60		.60				.80		
16	.55		.55				.75		
17	.55		.55				.75		
18	.50		.55				.80		
19	.50		.60				.80		
20	.45		.50				.80		
21	.45		.55				.75		
22	.40		.60				.75		
23	.40		.60				.80		
24	.45		.60				.80		
25	.50		.60				.80		
26	.50		.60				.80		
27	.55		.60				.80		
28	.55		.65				.80		
29	.50		---				.85		
30	.55		---				.90		
31	.55		---				.90		
TOTAL	16.04		14.97				23.20		

## RIO GRANDE BASIN

08224110 SAN LUIS CREEK NEAR PONCHA PASS, CO

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.0	---	---	1.5	134	.54	3.2	197	1.7
2	1.0	---	---	1.4	125	.48	2.8	138	1.0
3	1.0	---	---	1.5	197	.88	2.5	165	1.1
4	1.0	---	---	1.8	188	.99	2.3	152	.94
5	.95	---	---	1.9	---	.80	2.3	163	1.0
6	.85	---	---	1.8	---	.50	2.6	139	.98
7	.85	---	---	1.8	139	.68	2.5	136	.92
8	.85	---	---	2.1	220	1.5	2.1	138	.78
9	.85	---	---	2.4	256	1.8	2.1	94	.53
10	1.0	---	---	2.6	479	3.8	1.8	101	.49
11	1.2	---	---	2.4	288	1.9	1.4	91	.34
12	1.2	---	---	2.1	261	1.5	.45	84	.10
13	1.0	---	---	1.9	149	.76	.50	33	.04
14	1.0	---	---	1.8	158	.77	.55	35	.05
15	.90	---	---	1.8	123	.60	.50	28	.04
16	1.0	---	---	1.6	116	.50	.50	23	.03
17	1.0	---	---	1.6	125	.54	.50	22	.03
18	1.5	---	---	1.7	166	.76	.45	24	.03
19	2.0	---	---	1.8	118	.57	.45	23	.03
20	2.2	---	---	1.9	93	.48	.40	26	.03
21	2.5	---	---	1.9	123	.63	.40	36	.04
22	1.7	130	.60	2.0	125	.68	.40	36	.04
23	2.3	278	2.2	2.1	143	.92	.45	33	.04
24	3.3	335	4.0	2.3	189	1.2	.39	28	.03
25	2.9	333	3.1	2.4	185	1.2	.60	61	.10
26	2.3	304	2.0	2.5	179	1.2	1.3	105	.37
27	2.0	172	.93	2.6	177	1.2	.83	48	.11
28	2.1	186	1.2	2.7	289	2.1	.51	40	.06
29	2.0	167	.91	2.7	167	1.2	.47	21	.03
30	1.7	124	.57	3.1	202	1.7	.44	16	.02
31	---	---	---	3.0	195	1.6	---	---	---
TOTAL	45.15	---	15.51	64.7	---	33.98	35.69	---	11.00
JULY			AUGUST			SEPTEMBER			
1	.47	22	.03	.55	30	.04	.55	20	.03
2	.43	22	.03	.36	26	.03	.55	26	.04
3	.38	22	.02	.50	45	.06	.50	20	.03
4	.38	29	.03	.55	52	.08	.50	30	.04
5	.36	17	.02	.66	234	1.3	.40	18	.02
6	.34	22	.02	.85	73	.17	.36	22	.02
7	.30	24	.02	.60	40	.06	.32	14	.01
8	.33	17	.02	.50	37	.05	.36	10	.00
9	.63	51	.09	.40	51	.06	.40	10	.01
10	1.1	535	2.5	.36	20	.02	.36	10	.00
11	.94	219	.66	.32	13	.01	.40	18	.03
12	.67	48	.09	.60	24	.04	.32	10	.00
13	.71	38	.07	.55	23	.03	.34	16	.02
14	.59	32	.05	1.9	359	5.4	.33	12	.01
15	.61	23	.04	1.1	119	.48	.39	8	.00
16	.58	15	.02	.50	31	.04	.33	7	.00
17	.44	12	.01	.40	31	.03	.55	144	.69
18	.42	17	.02	.37	31	.03	.27	43	.03
19	.44	21	.02	.37	22	.02	.28	6	.00
20	.39	34	.04	.44	26	.03	.40	6	.00
21	.40	21	.02	.41	33	.04	.36	9	.00
22	.43	29	.03	.44	50	.06	.39	15	.02
23	.45	26	.03	.65	30	.05	.39	5	.00
24	.50	44	.06	1.6	305	7.1	.47	5	.00
25	.36	23	.02	1.5	238	1.5	.40	14	.02
26	.45	23	.03	.98	131	.59	.58	55	.26
27	.65	57	.10	1.1	113	.39	.36	8	.00
28	.45	28	.03	.75	48	.10	.39	8	.00
29	.36	19	.02	.75	38	.08	.44	6	.00
30	.32	26	.02	.80	29	.06	.60	9	.01
31	.29	22	.02	.55	22	.03	---	---	---
TOTAL	15.17	---	4.18	21.41	---	17.98	12.29	---	1.29
YEAR	309.52		84.89						

## RIO GRANDE BASIN

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08224113 SAN LUIS CREEK ABOVE VILLA GROVE, CO

LOCATION.--Lat 38°24'04", long 106°03'51", in SE¼NE¼ sec.22, T.47 S., R.8 E., Saguache County, Hydrologic Unit 13010003, on right bank 600 ft east of U.S. Highway 285, 0.2 mi upstream from Round Hill Gulch, 1.1 mi upstream from Lone Tree Creek, and 11.3 mi northwest of Villa Grove.

DRAINAGE AREA.--11.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 8,710 ft, from topographic map.

REMARKS.--Records good except those Dec. 15 to Apr. 21 and those above 10 ft<sup>3</sup>/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44 ft<sup>3</sup>/s July 26, 1982, gage height, 2.27 ft, from rating curve extended above 8 ft<sup>3</sup>/s; minimum daily, 0.17 ft<sup>3</sup>/s Aug. 5-6, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 19	unknown	5.5	-	Aug. 5	1700	12	1.63
Apr. 21	unknown	6.0	-	Aug. 14	2000	8.0	1.44
Apr. 24	1600	* 23	1.92	Aug. 24	2200	18	1.84
May 10	0500	5.0	1.20				

Minimum daily discharge, 0.32 ft<sup>3</sup>/s, several days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	.75	.70	.45	.50	.65	1.0	1.8	2.7	.60	.57	.70
2	.32	.60	.77	.45	.47	.70	1.0	1.9	2.4	.58	.48	.70
3	.35	.65	.71	.48	.40	.70	1.0	1.9	2.2	.54	.58	.52
4	.38	.80	.72	.50	.40	.70	1.0	2.1	2.1	.56	.65	.52
5	.35	.80	.75	.50	.45	.60	.95	2.2	2.2	.47	1.6	.44
6	.41	.92	.75	.55	.45	.60	.85	2.1	2.3	.42	.60	.41
7	.48	.92	.75	.55	.47	.58	.85	2.1	2.3	.38	.43	.38
8	.56	.80	.71	.60	.50	.58	.85	2.3	2.1	.32	.38	.41
9	.65	.80	.75	.55	.55	.58	.85	2.3	2.2	.43	.35	.44
10	.56	.80	.81	.50	.52	.58	1.1	2.5	2.0	.80	.32	.41
11	.67	.98	.78	.50	.50	.63	1.5	2.2	1.6	.94	.32	.47
12	.60	1.0	.78	.52	.50	.68	1.5	2.2	.76	.71	.45	.35
13	.60	1.1	.76	.55	.55	.70	1.2	2.0	.75	.74	.41	.35
14	.65	1.0	.74	.58	.60	.73	1.2	2.0	.71	.57	1.5	.35
15	.75	1.1	.66	.60	.60	.80	1.2	2.0	.65	.56	.95	.41
16	.80	1.0	.65	.55	.55	.75	1.5	1.8	.64	.57	.44	.35
17	.65	1.1	.68	.55	.55	.75	1.8	1.8	.59	.44	.35	.46
18	.52	.86	.70	.53	.55	.80	2.5	1.8	.54	.42	.32	.32
19	.60	.80	.70	.50	.60	.80	3.0	1.8	.49	.43	.32	.32
20	.60	.72	.70	.45	.50	.80	2.0	2.0	.45	.38	.36	.44
21	.60	.70	.75	.45	.55	.75	3.0	2.0	.42	.42	.34	.38
22	.65	.67	.80	.40	.60	.75	2.3	2.0	.41	.44	.35	.41
23	.65	.68	.80	.40	.60	.80	3.2	2.1	.43	.49	.56	.41
24	.65	.62	.75	.45	.60	.80	5.7	2.1	.42	.52	1.8	.48
25	.65	.68	.60	.50	.60	.80	4.0	2.2	.50	.43	1.9	.44
26	.65	.66	.55	.50	.60	.80	2.4	2.3	1.3	.50	1.0	.55
27	.65	.65	.55	.55	.60	.80	2.0	2.3	1.1	.59	1.2	.38
28	.60	.66	.45	.55	.65	.80	2.3	2.4	.75	.48	.98	.41
29	.60	.67	.45	.50	---	.85	2.2	2.3	.62	.44	.92	.44
30	.74	.70	.40	.55	---	.90	2.0	2.7	.56	.38	.98	.56
31	.75	---	.40	.55	---	.90	---	2.6	---	.35	.70	---
TOTAL	19.19	24.19	21.07	15.86	15.01	22.66	55.95	65.8	36.19	15.90	22.11	13.21
MEAN	.62	.81	.68	.51	.54	.73	1.87	2.12	1.21	.51	.71	.44
MAX	1.5	1.1	.81	.60	.65	.90	5.7	2.7	2.7	.94	1.9	.70
MIN	.32	.60	.40	.40	.40	.58	.85	1.8	.41	.32	.32	.32
AC-FT	38	48	42	31	30	45	111	131	72	32	44	26

CAL YR 1982 TOTAL 282.19 MEAN .77 MAX 5.5 MIN .19 AC-FT 560  
WTR YR 1983 TOTAL 327.14 MEAN .90 MAX 5.7 MIN .32 AC-FT 649

NOTE.--NO GAGE-HEIGHT RECORD DEC. 15 TO APR. 21.

08224113 SAN LUIS CREEK NEAR VILLA GROVE, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1981 to September 1983 (discontinued).

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: May 1981 to September 1983 (discontinued).

INSTRUMENTATION.--Pumping sediment sampler since May 1981.

REMARKS.--In addition to pumping sediment sampler, samples are collected by observer who also exchanges sediment bottles in sampler on a prescribed interval. Sediment discharge record is considered fair at normal flow and poor on rises. The records on this site are seasonal records only.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS.--Maximum daily, 549 mg/L July 10, 1983; minimum daily, 4 mg/L Sept. 27- 29, 1982, Sept. 28, 1983.

SEDIMENT LOADS: Maximum daily, 11 tons July 26, 1982; no load at times in 1982, 1983.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS.--Maximum daily, 549 mg/L July 10; minimum daily, 4 mg/L Sept. 28.

SEDIMENT LOADS: Maximum daily, 8.5 tons Aug. 24; no load for several days.

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT					APR				
14...	1535	.66	23	.04	22...	1350	2.2	67	.40
14...	1535	.66	23	.04	25...	1520	4.1	166	1.8
NOV					MAY				
05...	1135	1.1	44	.14	19...	1145	1.8	71	.35
05...	1135	1.1	44	.14	25...	1005	2.2	108	.64
DEC					JUN				
09...	1135	.75	13	.03	21...	1415	.41	30	.03
09...	1135	.75	13	.03	JUL				
JAN					20...	1420	.40	17	.02
04...	1515	.50	18	.02	AUG				
FEB					17...	1040	.41	19	.02
10...	0900	E.50	38	--	SEP				
APR					19...	1415	.32	5	.00
20...	1220	2.2	90	.53					

08224113 SAN LUIS CREEK NEAR VILLA GROVE, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	1.5	---	.95	.75		.70			
2	.32	---	.30	.60		.77			
3	.35	---	.10	.65		.71			
4	.38	---	.05	.80		.72			
5	.35	---	.03	.80		.75			
6	.41	20	.02	.92		.75			
7	.48	16	.02	.92		.75			
8	.56	24	.04	.80		.71			
9	.65	18	.03	.80		.75			
10	.56	11	.02	.80		.81			
11	.67	---	.03	.98		.78			
12	.60	---	.02	1.0		.78			
13	.60	10	.02	1.1		.76			
14	.65	23	.04	1.0		.74			
15	.75	---	---	1.1		.66			
16	.80	---	---	1.0		.65			
17	.65	---	---	1.1		.68			
18	.52	---	---	.86		.70			
19	.60	---	---	.80		.70			
20	.60	---	---	.72		.70			
21	.60	---	---	.70		.75			
22	.65	---	---	.67		.80			
23	.65	---	---	.68		.80			
24	.65	---	---	.62		.75			
25	.65	---	---	.68		.60			
26	.65	---	---	.66		.55			
27	.65	---	---	.65		.55			
28	.60	---	---	.66		.45			
29	.60	---	---	.67		.45			
30	.74	---	---	.70		.40			
31	.75	---	---	---		.40			
TOTAL	19.19	---	1.67	24.19			21.07		
JANUARY			FEBRUARY			MARCH			
1	.45		.50			.65			
2	.45		.47			.70			
3	.48		.40			.70			
4	.50		.40			.70			
5	.50		.45			.60			
6	.55		.45			.60			
7	.55		.47			.58			
8	.60		.50			.58			
9	.55		.55			.58			
10	.50		.52			.58			
11	.50		.50			.63			
12	.52		.50			.68			
13	.55		.55			.70			
14	.58		.60			.73			
15	.60		.60			.80			
16	.55		.55			.75			
17	.55		.55			.75			
18	.53		.55			.80			
19	.50		.60			.80			
20	.45		.50			.80			
21	.45		.55			.75			
22	.40		.60			.75			
23	.40		.60			.80			
24	.45		.60			.80			
25	.50		.60			.80			
26	.50		.60			.80			
27	.55		.60			.80			
28	.55		.65			.80			
29	.50		---			.85			
30	.55		---			.90			
31	.55		---			.90			
TOTAL	15.86			15.01			22.66		

## 08224113 SAN LUIS CREEK NEAR VILLA GROVE, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY				JUNE	
1	1.0	---	---	1.8	72	.35	2.7	209	1.5
2	1.0	---	---	1.9	86	.44	2.4	141	.91
3	1.0	---	---	1.9	176	.99	2.2	184	1.1
4	1.0	---	---	2.1	171	1.1	2.1	189	1.1
5	.95	---	---	2.2	143	.88	2.2	212	1.3
6	.85	---	---	2.1	98	.56	2.3	164	1.0
7	.85	---	---	2.1	105	.60	2.3	162	1.0
8	.85	---	---	2.3	101	.65	2.1	244	1.4
9	.85	---	---	2.3	---	.80	2.2	155	.92
10	1.1	---	---	2.5	---	.95	2.0	148	.80
11	1.5	---	---	2.2	---	.85	1.6	102	.44
12	1.5	---	---	2.2	---	.95	.76	63	.13
13	1.2	---	---	2.0	---	.65	.75	51	.10
14	1.2	---	---	2.0	---	.40	.71	50	.10
15	1.2	---	---	2.0	---	.35	.65	48	.08
16	1.5	---	---	1.8	---	.30	.64	40	.07
17	1.8	---	---	1.8	---	.25	.59	42	.07
18	2.5	---	---	1.8	---	.35	.54	49	.07
19	3.0	---	---	1.8	75	.36	.49	66	.09
20	2.0	---	---	2.0	223	1.2	.45	60	.07
21	3.0	---	---	2.0	186	1.0	.42	42	.05
22	2.3	60	.37	2.0	107	.58	.41	70	.08
23	3.2	235	3.1	2.1	83	.53	.43	66	.08
24	5.7	227	6.6	2.1	138	.83	.42	42	.05
25	4.0	208	2.8	2.2	166	.99	.50	64	.09
26	2.4	114	.74	2.3	173	1.1	1.3	361	1.3
27	2.0	92	.50	2.3	191	1.2	1.1	148	.44
28	2.3	155	1.2	2.4	287	1.9	.75	51	.10
29	2.2	144	.88	2.3	211	1.3	.62	34	.06
30	2.0	91	.49	2.7	214	1.6	.56	27	.04
31	---	---	---	2.6	222	1.6	---	---	---
TOTAL	55.95	---	16.68	65.8	---	25.61	36.19	---	14.54
JULY				AUGUST				SEPTEMBER	
1	.60	37	.06	.57	51	.08	.70	19	.04
2	.58	37	.06	.48	40	.05	.70	36	.07
3	.54	60	.09	.58	44	.07	.52	28	.04
4	.56	10	.02	.65	52	.09	.52	23	.03
5	.47	30	.04	1.6	365	6.0	.44	8	.00
6	.42	77	.09	.60	119	.23	.41	24	.03
7	.38	23	.02	.43	32	.04	.38	10	.01
8	.32	43	.04	.38	16	.02	.41	8	.00
9	.43	53	.06	.35	22	.02	.44	8	.00
10	.80	549	2.3	.32	12	.01	.41	13	.01
11	.94	237	.70	.32	26	.02	.47	32	.05
12	.71	73	.14	.45	26	.03	.35	12	.01
13	.74	63	.13	.41	16	.02	.35	15	.01
14	.57	---	.08	1.5	375	5.2	.35	10	.00
15	.56	43	.07	.95	113	.40	.41	12	.01
16	.57	43	.07	.44	25	.03	.35	4	.00
17	.44	30	.04	.35	15	.01	.46	148	.45
18	.42	26	.03	.32	16	.01	.32	66	.06
19	.43	27	.03	.32	13	.01	.32	7	.00
20	.38	17	.02	.36	18	.02	.44	22	.03
21	.42	12	.01	.34	23	.02	.38	9	.00
22	.44	28	.03	.35	30	.03	.41	16	.02
23	.49	23	.03	.56	21	.03	.41	11	.01
24	.52	30	.04	1.8	275	8.5	.48	14	.02
25	.43	22	.03	1.9	199	1.7	.44	14	.02
26	.50	26	.04	1.0	118	.49	.55	83	.26
27	.59	48	.08	1.2	29	.46	.38	9	.00
28	.48	19	.02	.98	---	---	.41	4	.00
29	.44	18	.02	.92	35	.06	.44	6	.00
30	.38	24	.02	.98	33	.09	.56	8	.01
31	.35	16	.02	.70	---	---	---	---	---
TOTAL	15.90	---	4.43	22.11	---	23.74	13.21	---	1.19
YEAR	327.14		87.86						

08226600 NOLAND GULCH TRIBUTARY RESERVOIR INFLOW NEAR VILLA GROVE, CO

LOCATION.--Lat 38°12'34", long 105°57'40", in NW¼SE¼ sec.27, T.46 N., R.9 E., Saguache County, Hydrologic Unit 13010003, on left bank at inflow site to a small channel reservoir 500 ft upstream from dam, 1.2 mi west along Bureau of Land Management road exiting U.S. Highway 285, and 2.7 mi south of Villa Grove.

DRAINAGE AREA.--0.08 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder and Parshall Flume. Altitude of gage is 8,000 ft, from topographic map.

REMARKS.--Records good. Recording rain gage in basin upstream. This station is designed to evaluate rainfall runoff from a small drainage area into a small channel reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2.1 ft<sup>3</sup>/s Sept. 30, 1982, gage height, 3.65 ft; no flow most of time.

EXTREMES FOR CURRENT YEAR.--No flow for current season.

## RIO GRANDE BASIN

08227300 ANACONDA RESERVOIR NEAR VILLA GROVE, CO

LOCATION.--Lat 38°08'48", long 106°00'36", in SW1SW1 sec.17, T.45 N., R.9 E., Saguache County, Hydrologic Unit 13010004, on top of earthfill dam near center, 0.4 mi upstream from Stonehouse Gulch, 0.5 mi upstream from Big Hollow Gulch, 1.5 mi north of junction of Bureau of Land Management road and U.S. Highway 285 and 7.7 mi south of Villa Grove.

DRAINAGE AREA.--0.17 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder. Altitude of gage is 8,025 ft, from topographic map.

REMARKS.--Records good. Reservoir is formed by an earthfill dam. Storage occurs intermittently from storm runoff. Maximum storage is 4.97 acre-feet at a spillway gage height of 13.3 ft. No contents occur at a gage height of 3.34 ft. This dam forms a small channel reservoir for controlling heavy runoff and to help control sedimentation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 0.71 acre-ft Sept. 30, 1982, gage height, 7.45 ft; no contents most of time.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 0.50 acre-ft at 0015 Oct. 1, gage height, 6.87 ft, on recession of rise Sept. 30. Maximum contents for period Apr. 26 - Sept. 30, 0.05 acre-ft at 1700 Aug. 6, gage height, 4.20 ft; no contents most of time.

Capacity table (elevation, in feet, and total contents, in acre-feet)

3.3	0
5.6	0.20

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

June 5	0.01	July 29	0.02	Aug. 15	0.01
July 13	0.02	July 30	0.01	Aug. 16	0.01
July 14	0.01	July 31	0.01	Aug. 28	0.01
July 15	0.01	Aug. 1	0.01	Aug. 29	0.01
July 28	0.02	Aug. 6	0.05	Aug. 30	0.01



RIO GRANDE BASIN

323

08227400 TRACY PIT RESERVOIR INFLOW NEAR SAGUACHE, CO

LOCATION.--Lat 38°02'44", long 106°13'06", in SE¼SE¼ sec.20, T.44 N., R.7 E., Saguache County, Hydrologic Unit 13010004, on left bank 0.5 mi upstream from mouth at North Tracy Canyon, 5.1 mi southwest of Saguache, and 5.4 mi northwest of U.S. Highway 285 at Swede Corners.

DRAINAGE AREA.--0.05 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder and Parshall Flume. Altitude of gage is 8,190 ft, from topographic map.

REMARKS.--Records good. Recording rain gage in basin upstream. This station is designed to evaluate rainfall-runoff from a small drainage area into a small channel reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4.3 ft<sup>3</sup>/s Aug. 25, 1982, gage height, 4.05 ft; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4.0 ft<sup>3</sup>/s (time unknown) Aug. 29, gage height, 4.00 ft; no flow most of time

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Aug. 27	0.02
Aug. 29	0.10

## RIO GRANDE BASIN

08238350 YELLOW WARBLER RESERVOIR INFLOW NEAR ANTONITO, CO

LOCATION.--Lat 37°06'00", long 106°06'44", in NE¼SE¼ sec.17, T.33 N., R.8 E., Conejos County, Hydrologic Unit 13010002, on left bank, 400 ft upstream from Yellow Warbler Dam, 0.4 mi south of the geologic basin known as The Poso, and 6.0 mi west of Antonito.

DRAINAGE AREA.--0.18 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 8,380 ft, from topographic map.

REMARKS.--Records good. Recording rain gage in basin upstream. This station is designed to evaluate rainfall-runoff from a small drainage area into a small channel reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17 ft<sup>3</sup>/s Aug. 16, 1982, gage height, 4.97 ft; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.63 ft<sup>3</sup>/s at 1530 July 27, gage height, 3.23 ft; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983 (SEASONAL RECORD)  
MEAN VALUES

July 27 0.01

## 08238380 TURKEY RESERVOIR INFLOW NEAR CONEJOS, CO

LOCATION.--Lat 37°08'16", long 106°06'41", in SE¼SE¼ sec,32, T.34 N., R.8 E., Conejos County, Hydrologic Unit 13010002, on left bank 300 ft upstream from Turkey Dam, 0.4 mi upstream from mouth at the geologic basin known as The Poso, and 6.2 mi northwest of Conejos.

DRAINAGE AREA.--0.24 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 8,280 ft, from topographic map.

REMARKS.--Records good. Recording rain gage in basin upstream. This station is designed to evaluate rainfall-runoff from small drainage area into a small channel reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7.5 ft<sup>3</sup>/s Aug. 11, 1981, gage height, 4.16 ft; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.12 ft<sup>3</sup>/s at 1615 July 27, gage height, 3.09 ft; (mean daily discharge, for July 27, was 0.0 ft<sup>3</sup>/s), only flow during season.

## RIO GRANDE BASIN

08238400 BOBOLINK RESERVOIR NEAR CONEJOS, CO

LOCATION.--Lat 37°09'10", long 106°10'18", in SW¼SE¼ sec.26, T.34 N., R.7 E., Conejos County, Hydrologic Unit 13010002, on top of earthfill dam near Center, 0.7 mi southeast of Flat Top Mountain, 5.3 mi north of Los Mogotes Peaks and 9.4 mi northwest of Conejos.

DRAINAGE AREA.--0.23 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1979 to current year (seasonal record only).

GAGE.--Water-stage recorder. Altitude of gage is 8,800 ft, from topographic map.

REMARKS.--Records good. Reservoir is formed by an earthfill dam. Storage occurs intermittently from storm runoff. Maximum storage is 1.0 acre-ft at a spillway gage height of 7.1 ft. No contents occur at a gage height of 3.42 ft. This dam forms a small channel reservoir for controlling heavy runoff and to help control sedimentation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2.4 acre-ft, Sept. 9, 1982, gage height, 9.13 ft; no contents most of time.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 0.18 acre-ft at 0015 Oct. 1, gage height, 5.28 ft, on recession from rise of Sept. 30, 1982; no contents Apr. 21 to Sept. 30.

Capacity table (elevation, in feet, and total contents, in acre-feet)

3.5	0.01	5.5	0.25
4.5	0.06	6.5	0.67

CONTENTS, IN ACRE-FT, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

Oct. 1	0.17	Oct. 5	0.12	Oct. 9	0.07
Oct. 2	.15	Oct. 6	.09	Oct. 10	.07
Oct. 3	.14	Oct. 7	.08	Oct. 11	.06
Oct. 4	.12	Oct. 8	.08	Oct. 12	.06

## RIO GRANDE BASIN

327

08240000 RIO GRANDE ABOVE MOUTH OF TRINCHERA CREEK, NEAR LASAUSES, CO

LOCATION.--Lat 37°18'58", long 105°44'32", in sec.35, T.36 N., R.11 E., Conejos County, Hydrologic Unit 13010002, on right bank 0.2 mi upstream from Trinchera Creek, 3.2 mi north of Lasasuses, and 13 mi southeast of Alamosa.

DRAINAGE AREA.--5,740 mi<sup>2</sup>, approximately, includes 2,940 mi<sup>2</sup> in closed basin in northern part of San Luis Valley, Co.

PERIOD OF RECORD.--May 1936 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 7,500 ft, estimated from nearby level lines.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--47 years, 242 ft<sup>3</sup>/s; 174,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,470 ft<sup>3</sup>/s June 21, 1949, gage height, 9.50 ft, from rating curve extended above 3,600 ft<sup>3</sup>/s; minimum daily, 0.4 ft<sup>3</sup>/s July 4, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft<sup>3</sup>/s at 1400 June 29, gage height, 5.98 ft; minimum daily, 21 ft<sup>3</sup>/s Sept. 16-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	516	90	218	185	240	375	358	120	985	842	89	36
2	592	215	242	180	225	370	380	124	1130	1040	83	32
3	975	400	188	185	230	420	380	120	1030	940	79	30
4	1020	400	168	205	210	425	358	100	710	798	78	27
5	802	385	197	220	230	432	388	86	492	820	89	26
6	654	395	214	230	230	405	342	76	441	734	110	26
7	626	423	203	240	225	400	338	70	432	592	90	26
8	435	450	205	240	220	382	352	72	420	495	90	25
9	332	522	216	235	230	368	358	76	412	398	108	24
10	280	547	260	245	225	358	338	90	438	315	97	24
11	248	537	288	225	220	358	330	161	480	280	91	24
12	209	489	290	230	245	365	332	216	950	263	83	24
13	170	462	292	225	240	375	338	231	1310	239	73	24
14	150	398	218	210	225	380	348	222	1450	256	77	23
15	140	385	164	220	230	388	350	226	1430	248	93	22
16	155	468	130	225	245	410	340	272	1280	280	90	21
17	230	444	170	225	250	412	330	302	870	237	83	21
18	200	410	180	220	240	390	340	295	610	192	66	21
19	175	362	207	225	245	388	348	248	525	179	49	21
20	190	372	207	225	245	390	375	218	510	161	42	21
21	150	362	207	230	275	385	410	226	522	130	41	21
22	120	340	199	225	305	380	459	242	519	126	40	21
23	100	300	214	230	290	378	474	235	412	115	39	22
24	95	272	130	220	340	385	495	263	398	101	38	23
25	80	253	175	225	365	380	522	199	398	90	36	23
26	75	228	205	230	360	370	540	237	459	82	37	25
27	90	228	175	235	390	358	335	335	757	73	38	37
28	75	226	175	230	390	350	242	462	1220	71	38	32
29	80	218	185	240	---	342	168	575	1420	70	37	32
30	70	199	205	230	---	352	144	678	965	65	37	31
31	75	---	190	235	---	355	---	811	---	71	37	---
TOTAL	9109	10780	6317	6925	7365	11826	10812	7588	22975	10303	2078	765
MEAN	294	359	204	223	263	381	360	245	766	332	67.0	25.5
MAX	1020	547	292	245	390	432	540	811	1450	1040	110	37
MIN	70	90	130	180	210	342	144	70	398	65	36	21
AC-FT	18070	21380	12530	13740	14610	23460	21450	15050	45570	20440	4120	1520
CAL YR 1982	TOTAL	102307	MEAN 280	MAX 1020	MIN 54	AC-FT 202900						
WTR YR 1983	TOTAL	106843	MEAN 293	MAX 1450	MIN 21	AC-FT 211900						

## RIO GRANDE BASIN

## 08244500 PLATORO RESERVOIR AT PLATORO, CO

LOCATION.--Lat 37°21'07", long 106°32'38", Conejos County, Hydrologic Unit 13010005, on right bank in valvehouse, 400 ft downstream from Platoro Dam on Conejos River and 0.7 mi west of Platoro.

DRAINAGE AREA.--40 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--November 1951 to current year.

GAGE.--Nonrecording gage. Datum of gage is 9,911.5 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations NGVD. Prior to June 9, 1955, nonrecording gage at present site and datum. June 9, 1955 to Sept. 30, 1959, water-stage recorder in gate chamber at dam for elevations above 9,921.0 ft, at same datum.

REMARKS.--Reservoir is formed by an earth and rockfill dam and dikes. Dam completed Dec. 9, 1951; storage began Nov. 7, 1951. Capacity of reservoir (based on revised capacity table put in use Jan. 1, 1975), 59,570 acre-ft, between elevations 9,911.5 ft, sill of trashrack at outlet, and 10,034.0 ft, crest of spillway. No dead storage. Reservoir is used for irrigation and flood control. Figures given are usable contents.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 61,420 acre-ft, June 9, 11, 1958, elevation, 10,035.5 ft; no contents for long periods in 1952-56.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 19,980 acre-ft, Oct. 1, 2, elevation, 9,982.9 ft; minimum contents, 14,050 acre-ft, Feb. 28, June 14, elevation, 9,971.7 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 1000, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	9,982.4	19,690	-
Oct. 31. . . . .	9,972.0	14,200	-5,490
Nov. 30. . . . .	9,972.2	14,300	+100
Dec. 31. . . . .	9,972.2	14,300	0
CAL YR 1982 . . . . .			-5,560
Jan. 31. . . . .	9,982.3	19,630	+5,330
Feb. 28. . . . .	9,971.7	14,050	-5,580
Mar. 31. . . . .	9,972.2	14,300	+250
Apr. 30. . . . .	9,972.1	14,250	-50
May 31. . . . .	9,972.1	14,250	0
June 30. . . . .	9,975.5	15,950	+1,700
July 31. . . . .	9,975.4	15,900	-50
Aug. 31. . . . .	9,972.3	14,340	-1,560
Sept. 30. . . . .	9,972.5	14,440	+100
WTR YR 1983 . . . . .			-5,250

## 08245000 CONEJOS RIVER BELOW PLATORO RESERVOIR, CO

LOCATION.--Lat 37°21'18", long 106°32'37", Conejos County, Hydrologic Unit 13010005, on left bank 1,100 ft downstream from valvehouse for Platoro Reservoir and 0.7 mi northwest of Platoro.

DRAINAGE AREA.--40 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--May 1952 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 9,866.60 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Records good. No diversion above station. Flow completely regulated by Platoro Reservoir (station 08244500). Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--31 years, 90.7 ft<sup>3</sup>/s; 65,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,160 ft<sup>3</sup>/s, Nov. 1, 1957, gage height, 4.02 ft; maximum gage height, 4.29 ft, June 15, 1958; no flow Oct. 16-20, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 5, 1911, is the greatest since at least 1854, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 725 ft<sup>3</sup>/s at 1600 June 25, gage height, 3.34 ft; minimum daily, 4.0 ft<sup>3</sup>/s Nov. 16-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	11	25	14	7.0	8.0	21	61	618	636	114	27
2	245	21	25	14	31	8.0	21	61	555	519	148	31
3	239	21	25	14	64	8.0	20	46	555	650	173	31
4	155	21	25	14	64	8.0	20	28	582	645	150	30
5	123	21	25	14	64	8.0	16	29	582	636	126	24
6	80	21	25	14	64	8.0	10	35	582	636	116	23
7	57	21	25	13	64	8.0	10	35	573	594	182	23
8	59	21	25	13	64	8.0	10	35	578	654	179	23
9	60	21	25	13	99	8.0	10	57	632	510	83	23
10	60	30	18	13	140	8.0	10	93	494	564	166	23
11	60	43	10	13	140	8.0	10	144	627	498	308	23
12	58	43	10	12	139	8.0	10	114	676	298	336	14
13	56	43	11	12	138	8.0	11	69	506	394	326	7.4
14	29	43	14	12	137	8.0	11	88	332	358	216	6.4
15	11	23	14	12	137	8.0	11	88	366	252	60	6.4
16	17	4.0	14	12	136	8.0	11	60	482	212	48	6.4
17	17	4.0	14	11	136	8.0	11	26	645	329	51	6.4
18	44	4.0	14	11	135	8.0	11	54	700	308	51	6.4
19	69	4.0	14	11	134	8.0	12	65	564	284	43	11
20	47	4.0	14	11	133	8.0	12	57	568	266	37	13
21	32	4.0	14	11	132	8.0	12	50	710	212	37	13
22	27	10	14	10	119	8.0	12	76	710	158	37	13
23	23	18	14	10	106	10	12	142	715	161	37	12
24	23	18	14	10	106	14	12	150	720	182	37	12
25	19	18	14	10	105	14	12	270	715	194	46	12
26	12	22	14	10	104	14	23	354	710	206	62	20
27	76	25	14	8.8	104	14	50	438	705	161	50	27
28	76	25	14	7.0	56	14	61	470	586	109	40	12
29	5.8	25	14	7.0	---	14	61	546	663	95	28	6.0
30	5.8	25	14	7.0	---	17	61	555	695	116	25	44
31	5.8	---	14	7.0	---	21	---	632	---	118	25	---
TOTAL	1941.4	614.0	526	350.8	2858.0	308.0	574	4928	18146	10955	3337	529.4
MEAN	62.6	20.5	17.0	11.3	102	9.94	19.1	159	605	353	108	17.6
MAX	245	43	25	14	140	21	61	632	720	654	336	44
MIN	5.8	4.0	10	7.0	7.0	8.0	10	26	332	95	25	6.0
AC-FT	3850	1220	1040	696	5670	611	1140	9770	35990	21730	6620	1050
CAL YR 1982	TOTAL	49308.4	MEAN	135	MAX	745	MIN	4.0	AC-FT	97800		
WTR YR 1983	TOTAL	45067.6	MEAN	123	MAX	720	MIN	4.0	AC-FT	89390		

NOTE.--NO GAGE-HEIGHT RECORD DEC. 4 TO APR. 28.

## RIO GRANDE BASIN

08246500 CONEJOS RIVER NEAR MOGOTE, CO

LOCATION.--Lat 37°03'14", long 106°11'13", in SE¼SE¼ sec.34, T.33 N., R.7 E., Conejos County, Hydrologic Unit 13010005, on right bank 25 ft upstream from bridge on State Highway 174, 0.4 mi downstream from Fox Creek, 5.3 mi west of Mogote, and 10 mi west of Antonito.

DRAINAGE AREA.--282 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1903 to October 1905, October 1911 to current year. Monthly discharge only for some periods, published in WSP 1312. Records for March 1900 at site 5.5 mi upstream and May 1905 to September 1911 (some missing periods most years) at site 3.2 mi upstream not equivalent to present site due to inflow.

REVISED RECORDS.--WSP 898: 1911(M). WSP 1312: 1903-5, 1913. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 8,271.54 ft, Colorado State Highway datum. Apr. 17, 1903, to Oct. 31, 1905, nonrecording gage 500 ft downstream at different datum. Oct. 5, 1911, to early 1915, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are fair. Diversions for irrigation of about 500 acres of hay meadows above station. Some regulation by Platoro Reservoir (station 08244500). Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--74 years, 332 ft<sup>3</sup>/s; 240,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft<sup>3</sup>/s Oct. 5, 1911, gage height, 8.50 ft, from floodmarks, present site and datum, from rating curve extended above 3,100 ft<sup>3</sup>/s; minimum daily determined, 10 ft<sup>3</sup>/s July 18, 1904.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1854, that of Oct. 5, 1911, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,560 ft<sup>3</sup>/s at 0600 June 21, gage height, 4.76 ft; minimum daily, 45 ft<sup>3</sup>/s Dec. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	416	109	86	60	57	136	98	392	2400	1620	278	134
2	396	106	79	61	55	98	91	352	2420	1270	306	154
3	444	101	88	62	53	93	98	306	1940	1370	360	131
4	368	106	96	64	60	86	86	288	2020	1500	344	122
5	302	109	116	66	90	84	84	313	1900	1440	344	116
6	282	103	98	66	100	84	88	356	1880	1400	310	101
7	226	101	91	64	105	84	82	324	1810	1320	356	93
8	208	101	109	60	110	79	86	376	1830	1320	360	98
9	190	114	106	58	115	77	79	468	1880	1200	299	101
10	190	119	98	54	115	82	84	670	1730	1030	218	93
11	194	122	93	55	130	91	86	765	1770	1090	372	88
12	194	106	103	57	180	101	82	705	2210	905	448	84
13	184	122	82	58	190	103	84	597	1790	820	472	79
14	180	114	77	58	195	111	79	570	1250	775	456	72
15	148	109	48	56	200	116	79	520	1140	670	320	72
16	134	98	65	55	210	103	82	472	1250	570	208	66
17	131	88	82	57	220	91	84	384	1640	579	190	63
18	125	88	82	58	220	93	103	348	1970	628	170	62
19	145	88	75	56	215	84	128	388	2330	570	154	62
20	161	82	77	57	215	82	161	380	2000	534	154	66
21	131	79	82	58	215	77	170	356	2300	507	142	68
22	119	82	77	59	220	79	184	420	2250	428	131	64
23	114	82	77	57	220	75	201	530	2000	400	128	64
24	109	84	66	58	190	75	292	735	1970	404	139	64
25	111	91	60	60	194	75	412	970	1960	420	142	68
26	109	86	62	57	190	72	440	1260	1980	416	167	68
27	161	91	64	56	187	72	436	1470	1990	380	184	72
28	198	82	50	57	190	75	424	1590	1750	316	184	79
29	143	86	45	57	---	77	484	1730	1580	264	161	70
30	119	91	50	58	---	77	460	1920	1730	268	139	129
31	114	---	55	58	---	96	---	2090	---	271	131	---
TOTAL	6046	2940	2439	1817	4441	2730	5347	22045	56670	24685	7767	2603
MEAN	195	98.0	78.7	58.6	159	88.1	178	711	1889	796	251	86.8
MAX	444	122	116	66	220	136	484	2090	2420	1620	472	154
MIN	109	79	45	54	53	72	79	288	1140	264	128	62
AC-FT	11990	5830	4840	3600	8810	5410	10610	43730	112400	48960	15410	5160
CAL YR 1982	TOTAL	158644	MEAN	435	MAX	2320	MIN	40	AC-FT	314700		
WTR YR 1983	TOTAL	139530	MEAN	382	MAX	2420	MIN	45	AC-FT	276800		



## 08247500 SAN ANTONIO RIVER AT ORTIZ, CO

LOCATION.--Lat 36°59'35", long 106°02'17", in NE¼SE¼ sec.24, T.32 N., R.8 E., Rio Arriba County, New Mexico, Hydrologic Unit 13010005, on left bank 800 ft south of Colorado-New Mexico State line, 0.4 mi southeast of Ortiz, and 0.4 mi upstream from Los Pinos River.

DRAINAGE AREA.--110 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--April 1919 to October 1920, October 1924 to current year (no winter records prior to 1941). Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1732: 1951. WSP 1923: 1927 (monthly runoff).

GAGE.--Water-stage recorder. Altitude of gage is 7,970 ft, from topographic map. Prior to Apr. 7, 1926, nonrecording gage at various locations near present site, at different datums. Apr. 7, 1926, to June 24, 1954, water-stage recorder at site 200 ft downstream, at present datum.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, which are fair. A few small diversions above station for irrigation. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--43 years (1940-83), 25.1 ft<sup>3</sup>/s; 18,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,750 ft<sup>3</sup>/s Apr. 15, 1937, gage height, 5.38 ft, from rating curve extended above 1,100 ft<sup>3</sup>/s; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 5, 1911, is the greatest since at least 1854, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 330 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 26	0030	428	3.51	May 27	0430	* 504	3.83
May 11	0330	500	* 3.84				

No flow Sept. 21-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	6.1	4.2	4.5	4.5	5.0	23	182	317	7.5	.40	4.2
2	3.8	5.8	3.2	5.0	4.0	5.0	22	152	238	6.1	16	4.2
3	3.4	5.2	2.2	5.0	4.0	5.0	23	114	168	4.8	6.8	3.2
4	2.6	4.5	3.8	5.0	4.0	5.0	15	125	137	2.8	9.4	2.4
5	1.8	5.5	4.8	5.0	4.0	4.5	10	176	113	2.6	14	1.4
6	1.6	5.5	4.5	5.0	3.5	4.5	16	218	100	2.2	6.1	1.2
7	1.4	5.0	4.8	4.5	3.5	4.5	11	160	89	2.6	3.6	.90
8	1.4	4.2	5.0	4.5	4.0	4.0	9.3	230	77	2.4	4.5	.60
9	1.8	5.0	5.2	4.0	4.0	4.0	7.8	300	71	2.2	2.0	.50
10	2.0	9.3	5.5	4.0	4.0	6.0	12	395	66	2.0	1.3	.90
11	2.0	7.8	5.5	4.0	4.0	10	19	401	58	2.0	1.2	1.3
12	2.8	5.5	5.2	4.5	4.5	15	17	326	49	2.6	1.6	.80
13	4.0	3.6	5.0	4.5	4.5	20	13	282	49	3.8	1.8	.70
14	4.5	3.8	4.5	4.5	4.5	27	14	250	44	3.6	2.4	.60
15	5.0	5.2	4.0	4.0	4.5	29	13	202	36	2.4	3.4	.50
16	4.8	5.5	4.5	4.0	4.5	27	13	160	30	1.8	2.2	.40
17	4.0	6.4	5.0	4.0	4.5	23	21	133	28	1.2	1.4	.60
18	3.8	7.2	5.5	4.5	4.5	15	64	128	25	.80	.70	.40
19	3.6	6.1	5.5	4.0	4.5	14	101	140	21	.80	.50	.15
20	3.4	5.0	5.5	4.0	4.5	13	118	172	18	.50	.90	.05
21	3.4	5.0	5.5	4.0	4.0	13	123	158	16	.40	1.2	.00
22	3.4	7.2	5.5	4.0	4.0	14	92	178	15	.80	1.6	.00
23	3.4	5.2	5.5	4.0	4.0	14	113	248	14	.80	1.6	.00
24	3.4	6.1	5.0	4.5	4.0	14	192	320	16	1.2	4.8	.00
25	3.6	6.1	4.5	4.5	4.5	14	265	350	16	.90	5.0	.00
26	3.6	5.0	5.0	4.5	4.5	13	255	362	18	.60	10	.00
27	8.3	5.2	5.5	4.5	4.5	13	240	368	16	1.4	7.1	.00
28	16	3.4	5.0	4.5	5.0	14	230	341	14	1.2	7.0	.00
29	7.8	4.0	4.0	4.5	---	15	280	292	12	.70	6.1	.00
30	6.8	5.2	4.5	4.5	---	15	245	288	8.9	.50	4.2	.48
31	6.4	---	4.5	4.5	---	21	---	285	---	.40	3.4	---
TOTAL	127.0	164.6	147.9	136.5	118.5	400.5	2577.1	7436	1879.9	63.60	132.20	25.48
MEAN	4.10	5.49	4.77	4.40	4.23	12.9	85.9	240	62.7	2.05	4.26	.85
MAX	16	9.3	5.5	5.0	5.0	29	280	401	317	7.5	16	4.2
MIN	1.4	3.4	2.2	4.0	3.5	4.0	7.8	114	8.9	.40	.40	.00
AC-FT	252	326	293	271	235	794	5110	14750	3730	126	262	51

CAL YR 1982 TOTAL 13553.04 MEAN 37.1 MAX 536 MIN .00 AC-FT 26880  
WTR YR 1983 TOTAL 13209.28 MEAN 36.2 MAX 401 MIN .00 AC-FT 26200

NOTE.--NO GAGE-HEIGHT RECORD DEC. 12 TO MAR. 9.

## RIO GRANDE BASIN

08248000 LOS PINOS RIVER NEAR ORTIZ, CO

LOCATION.--Lat 36°58'56", long 106°04'23", on line between secs.26 and 27, T.32 N., R.8 E., Rio Arriba County, New Mexico, Hydrologic Unit 13010005, on left bank 0.9 mi south of Colorado-New Mexico State line, 2.1 mi southwest of Ortiz, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--167 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1915 to December 1920, October 1924 to current year. Monthly discharge only for some periods, published in WSP 1312.

GAGE.--Water-stage recorder. Altitude of gage is 8,040 ft, from topographic map. Prior to Apr. 15, 1955, at site 350 ft upstream at datum 2.52 ft, higher.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, which are fair. Diversions above station for irrigation. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--64 years, 120 ft<sup>3</sup>/s; 86,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,160 ft<sup>3</sup>/s May 12, 1941, gage height, 5.77 ft, site and datum then in use, from rating curve extended above 1,600 ft<sup>3</sup>/s; minimum observed, 4.0 ft<sup>3</sup>/s Dec. 17, 1945 (discharge measurement) but may have been less during periods of no gage-height record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 5, 1911, is the greatest since at least 1854, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 10	2300	924	4.93	June 1	2400	* 1,700	6.09

Minimum daily discharge, 15 ft<sup>3</sup>/s Nov. 12, Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	48	30	21	22	22	39	340	1410	288	50	33
2	59	43	25	21	21	23	37	288	1300	255	47	31
3	52	36	27	22	20	22	41	252	1070	234	68	29
4	48	39	30	22	21	22	32	264	954	228	78	27
5	43	41	33	22	21	21	31	329	855	215	68	24
6	39	37	31	22	19	21	33	346	810	205	49	24
7	39	36	30	23	19	21	33	309	765	192	56	23
8	39	38	33	22	20	20	34	402	755	178	44	24
9	36	43	31	21	20	20	32	556	725	162	38	24
10	34	39	30	20	21	25	32	730	695	151	34	22
11	38	35	28	21	21	33	36	780	710	145	37	20
12	39	15	30	22	21	40	33	666	720	157	39	19
13	42	47	27	22	22	43	34	620	638	149	39	18
14	41	48	25	21	22	50	34	564	516	120	59	18
15	42	48	22	21	22	50	32	472	492	112	53	19
16	39	45	24	21	22	45	32	399	504	96	43	18
17	37	43	26	22	21	43	37	340	512	87	36	17
18	35	43	26	22	22	39	53	312	548	84	32	16
19	33	39	26	21	22	38	72	329	612	77	30	16
20	32	33	25	20	22	35	101	346	620	71	41	16
21	30	35	26	21	21	34	124	318	580	79	39	16
22	31	36	25	22	21	37	126	402	556	74	33	15
23	30	36	25	22	21	33	149	524	488	68	31	16
24	30	32	24	23	21	33	234	730	472	65	38	16
25	30	37	23	23	22	33	343	924	476	65	38	17
26	30	35	24	21	22	31	371	1070	460	58	55	17
27	115	34	25	21	21	31	388	1210	436	56	42	17
28	64	30	23	22	23	32	396	1220	382	50	48	17
29	50	32	20	22	---	33	472	1210	354	48	38	17
30	52	34	21	23	---	33	416	1250	322	48	56	26
31	50	---	20	22	---	38	---	1250	---	41	37	---
TOTAL	1358	1137	815	671	593	1001	3827	18752	19737	3861	1396	612
MEAN	43.8	37.9	26.3	21.6	21.2	32.3	128	605	658	125	45.0	20.4
MAX	115	48	33	23	23	50	472	1250	1410	288	78	33
MIN	30	15	20	20	19	20	31	252	322	44	30	15
AC-FT	2690	2260	1620	1330	1180	1990	7590	37190	39150	7660	2770	1210

CAL YR 1982 TOTAL 58828.0 MEAN 161 MAX 1250 MIN 9.0 AC-FT 116700  
WTR YR 1983 TOTAL 53760.0 MEAN 147 MAX 1410 MIN 15 AC-FT 106600

NOTE.--NO GAGE-HEIGHT RECORD DEC. 13 TO MAR. 9.

## RIO GRANDE BASIN

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## 08249000 CONEJOS RIVER NEAR LASAUSES, CO

LOCATION.--Lat 37°18'01", long 105°44'47", in SW¼SW¼ sec.2, and SE¼NE¼ sec.10 (two channels), T.35 N., R.11 E., Conejos County, Hydrologic Unit 13010005, on left bank of main channel 125 ft downstream from bridge on State Highway 158 and on left bank of secondary channel 230 ft upstream from bridge on State Highway 158, 1.0 mi upstream from mouth, 2.1 mi north of Lasasuses, and 13 mi southeast of Alamosa.

DRAINAGE AREA.--887 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1921 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to Oct. 1, 1966, published as "near La Sausas."

REVISED RECORDS.--WSP 1312: 1934(M).

GAGE.--Two water-stage recorders. Datum of gage on main (north) channel is 7,495.02 ft, and on secondary (south) channel is 7,496.89 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Main channel: See WSP 1732 for history of changes prior to Oct. 1, 1937. South channel: Prior to Oct. 23, 1934, at bridge 230 ft downstream at datum 0.56 ft, lower; Oct. 23, 1934, to May 3, 1936, at site 250 ft downstream, and May 4, 1936, to Oct. 13, 1965, at site 280 ft downstream, at datum 1.00 ft, lower.

REMARKS.--Records good except those for winter period, which are fair. Diversions for irrigation of about 75,000 acres above station. Several observations of water temperature were obtained and are published elsewhere in this report.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--62 years, 183 ft<sup>3</sup>/s; 132,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,890 ft<sup>3</sup>/s May 15, 1941; no flow at times some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 5, 1911, is the greatest since at least 1854, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,640 ft<sup>3</sup>/s June 2; minimum daily, 0.51 ft<sup>3</sup>/s Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	386	84	56	48	98	257	156	485	1400	1180	134	16
2	452	137	58	50	101	212	166	398	1540	1040	144	2.7
3	442	156	58	51	96	178	153	328	1490	785	155	1.8
4	446	150	62	54	98	170	146	281	1290	715	180	1.2
5	376	152	69	56	96	164	146	285	1160	636	174	.91
6	321	157	77	58	98	149	139	334	1140	592	158	.73
7	243	150	81	64	106	143	144	355	1230	560	141	.60
8	171	142	92	68	115	143	139	332	1240	518	150	.51
9	152	147	121	72	122	138	142	414	1210	525	144	.90
10	141	162	121	68	129	140	124	547	1160	452	110	2.9
11	130	158	126	70	129	143	131	753	1040	457	85	5.3
12	143	153	122	73	136	159	144	862	971	484	108	.80
13	154	140	92	78	170	170	149	782	1170	426	104	.80
14	150	114	90	84	212	183	146	657	954	384	110	.90
15	145	111	90	82	225	211	142	573	738	327	115	2.7
16	112	113	90	84	235	211	137	460	627	282	91	.80
17	94	128	90	86	240	193	133	378	663	230	76	1.5
18	88	131	92	91	236	186	139	332	824	218	63	4.7
19	86	129	82	91	246	180	145	307	943	208	71	6.8
20	135	91	84	92	248	159	189	328	1050	179	58	11
21	152	73	86	94	235	156	212	380	955	174	43	1.2
22	117	66	89	96	248	149	219	402	1020	206	36	3.4
23	113	65	101	91	273	159	202	470	1060	206	31	7.1
24	104	65	85	91	254	145	242	571	1040	204	28	5.9
25	97	62	72	91	264	143	381	772	1200	216	26	1.0
26	97	60	72	91	270	147	519	956	1340	240	25	.90
27	103	65	78	93	257	131	531	1120	1440	233	24	.80
28	160	69	55	95	257	129	517	1230	1510	212	27	.80
29	140	67	42	94	---	136	533	1160	1400	157	31	.80
30	106	56	47	99	---	134	567	1150	1240	131	26	1.0
31	91	---	45	101	---	133	---	1300	---	121	23	---
TOTAL	5647	3353	2525	2456	5194	5051	6833	18702	34045	12298	2691	86.45
MEAN	182	112	81.5	79.2	186	163	228	603	1135	397	86.8	2.88
MAX	452	162	126	101	273	257	567	1300	1540	1180	180	16
MIN	86	56	42	48	96	129	124	281	627	121	23	.51
AC-FT	11200	6650	5010	4870	10300	10020	13550	37100	67530	24390	5340	171
CAL YR 1982 TOTAL	117237.00			MEAN 321	MAX 1640	MIN 42	AC-FT 232500					
WTR YR 1983 TOTAL	98881.45			MEAN 271	MAX 1540	MIN .51	AC-FT 196100					

## RIO GRANDE BASIN

08251500 RIO GRANDE NEAR LOBATOS, CO

LOCATION.--Lat 37°04'42", long 105°45'22", in sec.22, T.33 N., R.11 E., Conejos County, Hydrologic Unit 13010002, on right bank at highway bridge, 6 mi north of Colorado-New Mexico State line, 7 mi downstream from Culebra Creek, 10 mi east of Lobatos, and 14 mi east of Antonito.

DRAINAGE AREA.--7,700 mi<sup>2</sup>, approximately, includes 2,940 mi<sup>2</sup> in closed basin in northern part of San Luis Valley, Colo.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1899 to current year. Monthly discharge only for some periods, published in WSP 1312. Published as "at Cenicero" 1899-1901, and as "near Cenicero" 1902-4.

REVISED RECORDS.--WSP 1312: 1919 (monthly runoff). WSP 210: Drainage area. WDR CO-78-1: 1976.

GAGE.--Water Stage recorder. Datum of gage is 7,427.63 ft, National Geodetic Vertical Datum of 1929. Prior to 1910, nonrecording gages at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversion for irrigation, and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--31 years (water years 1900-30), 846 ft<sup>3</sup>/s; 612,900 acre-ft/yr, includes period of extensive development for irrigation; 53 years (water years 1931-83), 417 ft<sup>3</sup>/s; 302,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 13,200 ft<sup>3</sup>/s June 8, 1905, gage height, 9.1 ft, from rating curve extended above 8,000 ft<sup>3</sup>/s; no flow at times in 1950-51, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1828, that of June 8, 1905.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,230 ft<sup>3</sup>/s at 1800 June 29, gage height, 4.67 ft; minimum daily, 23 ft<sup>3</sup>/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	824	192	255	255	355	664	520	685	2420	2260	223	60
2	934	202	245	250	355	650	544	562	2730	2320	293	53
3	1140	380	260	250	345	601	562	508	2770	2130	306	41
4	1430	580	250	255	345	615	502	420	2430	1820	266	37
5	1240	574	250	280	325	615	564	385	1850	1700	278	33
6	988	562	275	295	345	587	538	405	1690	1610	286	32
7	848	587	295	305	345	556	496	445	1780	1440	282	31
8	706	594	320	325	350	544	502	405	1820	1220	250	28
9	502	657	375	325	355	520	502	460	1840	1110	274	28
10	445	713	430	325	370	508	490	574	1800	952	278	27
11	410	752	465	330	375	514	478	864	1720	824	234	29
12	385	685	455	315	370	532	472	1080	1920	898	220	32
13	355	657	405	320	400	550	490	1130	2500	816	250	28
14	335	608	370	320	430	562	490	997	2800	760	220	29
15	325	526	285	315	455	594	496	943	2600	713	238	26
16	310	556	215	320	475	622	490	856	2350	650	234	26
17	290	574	240	330	500	629	478	808	1910	580	198	24
18	350	615	280	330	510	594	484	713	1690	484	170	23
19	315	538	290	330	495	587	490	636	1620	478	133	27
20	286	514	290	335	510	568	526	587	1740	425	133	28
21	350	484	315	335	510	556	601	615	1670	385	105	34
22	325	460	345	345	530	544	664	657	1760	360	92	25
23	262	430	360	340	570	544	685	713	1690	380	82	25
24	238	385	305	340	580	538	699	800	1660	345	73	29
25	226	365	235	330	615	544	840	925	1760	325	71	31
26	202	330	265	335	650	538	1060	1110	2000	345	69	27
27	195	325	295	340	650	520	997	1310	2380	335	67	27
28	216	325	275	345	664	502	824	1550	2880	315	65	43
29	258	320	250	345	---	502	728	1740	3150	274	67	36
30	246	290	245	355	---	502	752	1760	2750	234	78	37
31	202	---	270	350	---	502	---	2060	---	212	62	---
TOTAL	15138	14780	9410	9870	12779	17404	17964	26703	63680	26700	5597	956
MEAN	488	493	304	318	456	561	599	861	2123	861	181	31.9
MAX	1430	752	465	355	664	664	1060	2060	3150	2320	306	60
MIN	195	192	215	250	325	502	472	385	1620	212	62	23
AC-FT	30030	29320	18660	19580	25350	34520	35630	52970	126300	52960	11100	1900
CAL YR 1982	TOTAL	221664	MEAN	607	MAX	1860	MIN	125	AC-FT	439700		
WTR YR 1983	TOTAL	220981	MEAN	605	MAX	3150	MIN	23	AC-FT	438300		

## RIO GRANDE BASIN

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08251500 RIO GRANDE NEAR LOBATOS, CO--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to September 1981.

WATER TEMPERATURES: October 1975 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1040 micromhos Sept. 17, 18, 1977; minimum, 89 micromhos May 9, 1979.

WATER TEMPERATURE: Maximum, 30.0°C July 17, 1977; minimum, 0.0°C on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 04...	1200	608	184	195	7.6	4.5	24	12.2	K27	660
DEC 10...	1030	440	--	242	7.5	.5	1.1	13.5	K28	140
FEB 08...	1145	350	--	216	7.8	.5	4.7	12.2	K32	160
APR 20...	1515	472	--	277	8.3	14.5	13	9.7	K24	110
JUN 22...	1400	1850	233	241	7.5	20.0	11	8.3	100	160
AUG 26...	1030	58	482	487	8.1	19.0	11	9.0	K20	83

DATE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 04...	66	20	3.9	11	.6	2.9	65	28	3.8	.20
DEC 10...	79	24	4.7	15	.8	3.0	81	32	4.5	.30
FEB 08...	72	22	4.0	13	.7	2.8	74	27	3.8	.20
APR 20...	92	28	5.3	19	.9	3.6	88	41	5.9	.30
JUN 22...	78	23	4.9	16	.8	3.3	70	44	4.3	.20
AUG 26...	160	49	10	39	1	6.0	129	110	10	.60

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV 04...	24	130	130	.18	213	<.100	.220	3.0	.210	.060
DEC 10...	28	171	160	.23	203	.230	.160	1.9	.180	.110
FEB 08...	30	153	150	.21	145	.260	.230	.90	.150	.120
APR 20...	26	179	180	.24	228	<.100	.110	.80	.080	.170
JUN 22...	19	161	160	.22	804	<.100	.090	.90	.160	.170
AUG 26...	20	317	320	.43	50	<.100	.040	1.1	.200	.120

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 04...	1	25	1	<1	<3	12	130	<1
FEB 08...	2	27	1	6	<3	6	57	<1
JUN 22...	1	36	2	1	<3	9	67	1
AUG 26...	4	62	<1	<1	<3	6	25	<1

## RIO GRANDE BASIN

08251500 RIO GRANDE NEAR LOBATOS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 04...	11	<.1	<10	<1	<1	<1	10
FEB 08...	21	<.1	<10	<1	<1	<1	23
JUN 22...	17	<.1	<10	2	<1	<1	5
AUG 26...	59	<.1	<10	<1	<1	<1	5

## RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
NOV 04...	<3.0	<1.5	3.4	1.4	3.2	1.4	.04	--	.39
JUN 22...	<5.2	4.0	3.9	2.2	3.2	1.9	.05	.6	--

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 04...	1200	608	103	169	--	APR 20...	1515	472	88	112	74
DEC 10...	1030	440	12	14	--	JUN 22...	1400	1850	71	355	57
FEB 08...	1145	350	14	13	63	AUG 26...	1030	58	26	4.1	88

Diversion	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TO PLATTE RIVER BASIN												
09010000 Water year	0 12,670	0	0	0	0	0	0	0	0	6,590	5,110	965
09013000 Water year	15,520 165,800	11,550	15,150	19,450	20,920	18,610	5,050	1,190	140	17,710	26,450	14,030
09021500 Water year	5.7 674	0	0	0	0	0	0	0	30	369	196	73
09050590 Water year	0 8,000	7,330	0	0	0	0	0	0	0	0	0	673
TO ARKANSAS RIVER BASIN												
09042000 Water year	900 6,160	0	0	0	0	0	0	278	3,150	423	900	509
09063700 Water year	0 22,740	0	0	6,520	6,960	7,660	1,600	0	0	0	0	0

## TRANSMOUNTAIN DIVERSIONS NO LONGER PUBLISHED

Following is a list of Transmountain Diversions no longer being published in this report. Diversions, in acre-feet, for these sites are available from the State of Colorado, Division of Water Resources.

TO PLATTE RIVER BASIN	TO ARKANSAS RIVER BASIN	TO RIO GRANDE BASIN
09012000 Eureka ditch	09061500 Columbine ditch	09118200 Tarbell ditch
09022500 Moffat Water tunnel	09062000 Ewing ditch	09121000 Tabor ditch
09046000 Boreas Pass ditch	09062500 Wurtz ditch	09347000 Don LaFont ditches 1&2
09047300 Vidler tunnel	09073000 Twin Lakes tunnel	09348000 Williams Cr- Squaw Pass ditch
	09077160 Chas. H. Boustead tunnel	09351000 Pine River- Weminuche Pass ditch
	09077500 Busk-Ivanhoe tunnel	09351500 Weminuche Pass ditch
	09115000 Larkspur ditch	



As the number of streams on which streamflow information is likely to be desired far exceeds the number of streamflow-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than streamflow-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a second table.

## CREST-STAGE PARTIAL-RECORD STATIONS

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

## ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1983

Station number	Station name	Location	Total drainage area (mi <sup>2</sup> )	Non contributing	Period of record	Annual maximum		
						Date	Gage height (feet)	Discharge (ft <sup>3</sup> /s)
PLATTE RIVER BASIN								
06708500	Deer Creek near Littleton, CO	Lat 39°32'56", long 105°07'59", in NE¼NE¼ sec.8, T.6 S., R.69 W., Jefferson County, 70 ft upstream from county bridge over Deer Creek, 7.5 mi southwest of Littleton.	26.2	-	1942-46, 1978-83	1983	6.06	280
06710350	Bear Creek near Evergreen, CO	Lat 39°38'11", long 105°20'51", in NW¼NW¼ sec.9, T.5 S., R.71 W., Jefferson County, 1.4 mi upstream from confluence with Evergreen Lake, 1.6 mi northwest of Evergreen.	96.6	-	1978-83	1983	7.12	358
06710400	Cub Creek at Evergreen, CO	Lat 39°37'50", long 105°19'16", in NW¼SE¼ sec.10, T.5 S., R.71 W., Jefferson County, 0.1 mi upstream from confluence with Bear Creek.	22.2	-	1978-83	1983	6.95	115
06710600	Mt. Vernon Creek near Morrison, CO	Lat 39°40'49", long 105°11'50", in NW¼NW¼ sec.26, T.4 S., R.70 W., Jefferson County, 1.9 mi north of Morrison.	7.58	-	1978-83	1983	9.00	31
06710990	Parmalee Gulch at mouth at Indian Hills, CO	Lat 39°36'57", long 105°13'54", in NW¼SE¼ sec.16, T.5 S., R.70 W., Jefferson County, 20 ft upstream from box type culvert beneath U.S. Highway 285.	5.80	-	1978-83	1983	9.42	80
06711000	Turkey Creek near Morrison, CO	Lat 39°37'22", long 105°11'13", in NE¼NE¼ sec.14, T.5 S., R.70 W., Jefferson County, 2.2 mi southwest of Morrison.	48.0	-	1942-53, 1969, 1978-83	1983	11.00	320
06711600	Sanderson Gulch tributary at Lakewood, CO	Lat 39°41'19", long 105°04'54", in NE¼NSW sec.23, T.4 S., R.68 W., Jefferson County, 300 ft upstream from S. Wadsworth Blvd., 300 ft south of W. Florida Ave. in Lakewood.	.38	-	1969-83	6-13-83	12.80	125
06714310	Sand Creek tributary at Denver, CO	Lat 39°47'07", long 104°50'31", in SW¼SW sec.13, T.3 S., R.67 W., Denver County, in median of Andrews Drive Parkway, 50 ft downstream from Troy St. in Denver.	.29	-	1971-83	7-21-83	12.27	190

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1983--Continued

Station number	Station name	Location	Total drainage area (mi <sup>2</sup> )	Non contributing	Period of record	Date	Annual maximum	
							Gage height (feet)	Dis charge (ft <sup>3</sup> /s)
PLATTE RIVER BASIN--Continued								
06723000	Middle Fork St. Vrain Creek near Allens Park, CO	Lat 40°10'07", long 105°26'27", in SW¼NW¼ sec.3, T.2 N., R.72 W., Boulder County, 1.4 mi northeast from Raymond.	28.0	-	1925-30 1978-83	1983	7.18	490
06727500	Fourmile Creek at Orodell, CO	Lat 40°01'06", long 105°19'33", NW¼SE¼ sec.27, T.1 N., R.71 W., Boulder County, 2 mi west of courthouse in Boulder.	24.1	-	1947-53 1978-83	1983	4.06	220
06732500	Fall River at Estes Park, CO	Lat 40°22'40", long 105°31'56", in NW¼NW¼ sec.25, T.5 N., R.73 W., Larimer County, 100 ft upstream from State bridge 34 and 0.7 mi upstream from mouth. Destroyed by flood, 7-82.	39.5	-	1947-53 1978-83	1983	8.39	470
06736650	Cedar Creek at Cedar Cove, CO	Lat 40°25'08", long 105°15'53", NW¼NW¼ sec.8, T.5 N., R.70 W., Larimer County, 0.2 mi north of Cedar Cove and 4.1 mi south-east of Drake.	18.9	-	1978-83	1983	6.27	145
ARKANSAS RIVER BASIN								
07091000	Chalk Creek near Nathrop, CO	Lat 38°44'01", long 106°09'34", in SE¼NW¼ sec.19, T.15 S., R.78 W., Chaffee County, 4 mi west of Nathrop.	97.0	-	1910, 1949-56, 1978-83	1983		unknown
07107500	St. Charles River Burnt Mill, CO	Lat 38°03'06", long 104°47'35", in NE¼NE¼ sec.17, T.23 S., R.66 W., Pueblo County, 5.9 mi downstream from North St. Charles River.	166	-	1923-33, 1978-83	1983	2.60	340

Samples are collected at sites other than gaging stations and partial-record stations to give coverage in a river basin. Such sites are referred to as miscellaneous sites.

## PLATTE RIVER BASIN

06612500 - ROARING FORK NEAR WALDEN, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 07...	1130	46	140	143	8.3	5.0	10.0	58	17	3.7
AUG 11...	1200	100	120	123	7.7	17.5	7.6	51	15	3.3

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	5.4	.3	.70	60	15	.70	.80	7.7	87
AUG 11...	4.7	.3	.50	52	11	.60	.70	6.9	74

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...	.12	11	<.100	<.010	10	400	170	40	30
AUG 11...	.10	20	<.100	<.010	<10	880	290	80	54

06613500 - NORTH FORK NORTH PLATTE RIVER AT HIGHO, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 07...	0945	49	82	83	8.7	3.5	9.9	35	9.6	2.7
AUG 11...	0900	125	54	59	7.6	13.5	8.0	25	6.9	1.8

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	2.4	.2	1.1	41	6.0	.70	.10	8.0	55
AUG 11...	1.6	.1	.90	30	4.3	.40	<.10	6.0	40

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...	.08	7.3	<.100	<.010	<10	360	200	20	14
AUG 11...	.05	14	<.100	.020	<10	680	210	40	16

## ANALYSIS OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

## PLATTE RIVER BASIN

06616500 - MICHIGAN R AT HAWORTH SCHOOL NEAR LINDLAND, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG 11...	1600	174	85	88	7.7	15.5	7.4	38	11	2.6
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG 11...		2.3	.2	1.0	39	10	.60	.20	8.6	60
DATE		SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
AUG 11...		.08	28	<.100	<.010	<10	790	260	50	28

06617100 - MICHIGAN RIVER AT WALDEN, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG 11...	1730	180	125	128	7.8	21.0	7.0	56	16	3.9
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG 11...		3.8	.2	1.1	61	10	.70	.20	11	83
DATE		SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
AUG 11...		.11	41	<.100	<.010	<10	1300	51	110	53

06617500 - ILLINOIS CREEK NEAR RAND, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG 11...	1445	54	95	98	7.8	19.0	7.1	42	12	3.0

## PLATTE RIVER BASIN

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG 11...	2.5	.2	1.1	46	9.1	.60	.50	8.4	65

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
AUG 11...	.09	9.5	<.100	<.010	<10	1300	250	50	26

06618500 - ILLINOIS CREEK AT WALDEN, CO.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG 11...	1700	40	165	167	8.6	21.5	8.0	69	19	5.2

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG 11...	7.3	.4	1.4	82	9.9	1.1	.20	11	100

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
AUG 11...	.14	11	<.100	.010	<10	1200	270	60	33

384840104481200 - CANAL 4 AT HEADGATE

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 21...	1255	13	777	700	6.4	14.5	5.9	36
NOV 18...	1210	21	795	786	6.9	13.0	6.0	41

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
OCT 21...	471	.700	1.30	2.00	10.0	5.0	15	17
NOV 18...	492	.500	<.020	.500	14.0	3.0	17	18

## ANALYSIS OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

## PLATTE RIVER BASIN

403508106270601 - CHEDSEY CREEK ABV MOUTH NR COALMONT, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 07...	1245	22	80	79	7.8	6.0	9.2	31	9.1	1.9
AUG 11...	1300	19	100	102	7.9	20.5	7.4	41	12	2.7

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	4.5	.4	.60	35	9.0	.80	.40	5.8	53
AUG 11...	4.7	.3	.70	43	10	.80	.50	6.3	64

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...	.07	3.2	<.100	.010	<10	480	290	70	65
AUG 11...	.09	3.3	<.100	.040	<10	840	360	100	77

404108106030701 - CANADIAN R. ABV MUDDY C. 1 MILE ABV STA 06619400

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 07...	1530	11	148	141	7.9	7.0	61	18	3.9

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	4.1	.2	1.1	52	24	.90	.10	7.4	91

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...	.12	2.7	<.100	.020	10	910	550	30	22

## ANALYSIS OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

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## PLATTE RIVER BASIN

404109106030501 - MUDDY CREEK AT MOUTH 1 MILE ABV STATION 06619400

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CA <sup>CO3</sup> )	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
OCT 07...	1540	1.0	280	265	7.8	9.0	120	36	8.1	
DATE	TIME	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY LAB (MG/L AS CA <sup>CO3</sup> )	SULFATE DIS- SOLVED (MG/L AS SO <sub>4</sub> )	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> )	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	4.8		.2	1.6	103	33	.80	.20	10	160
DATE	TIME	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...	.21	.42	.240	.010	20	540	67	90	73	

404151106362501 - LONE PINE CREEK AT LONE PINE TRAILHEAD

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 07...	0845	5.8	52	56	8.8	1.5	10.1	22	6.2	1.5
AUG 11...	1015	15	44	49	7.6	10.5	8.2	21	6.2	1.3
DATE	TIME	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 07...	1.4		.1	1.3	26	5.0	.30	<.10	6.4	38
AUG 11...	1.3		.1	1.1	22	4.4	.40	<.10	5.6	34
DATE	TIME	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 07...		.05	.59	<.100	<.010	<10	70	18	10	4
AUG 11...		.05	1.4	<.100	<.010	<10	130	23	10	5

## ANALYSES OF MISCELLANEOUS STATIONS

DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)
06614800 - MICHIGAN RIVER NEAR CAMERON PASS, CO. (LAT 40 29 46 LONG 105 51 52)							
OCT , 1982				MAY , 1983			
06... 1730		7.0	52	24... 1030		1.0	50
DEC				JUN			
07... 1335		.5	42	21... 1615		3.5	45
FEB , 1983				JUL			
15... 1245		2.0	50	13... 1100		5.0	30
MAR				AUG			
24... 1230		1.0	53	24... 1000		9.0	39
06619415 - BU'SH DRAW NEAR WALDEN, CO. (LAT 40 44 34 LONG 106 05 42)							
APR , 1983				MAY , 1983			
29... 1300		2.0	110	05... 1315		10.0	125
06696980 - TARRYALL CREEK AT UPPER STATION, NEAR COMO, CO. (LAT 39 20 22 LONG 105 54 37)							
OCT , 1982				APR , 1983			
12... 1515		15.0	--	18... 1525		1.5	120
NOV				28... 1525		1.5	120
08... 1510		.0	<50	MAY			
DEC				10... 1620		3.0	80
08... 1050		.0	<50	31... 1515		2.0	120
JAN , 1983				JUN			
03... 1620		.0	<50	20... 1445		5.0	120
FEB				JUL			
14... 1605		1.5	160	18... 1635		11.0	20
MAR				AUG			
21... 1545		1.0	90	23... 1545		7.0	80
06697450 - MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32 LONG 105 50 27)							
OCT , 1982				APR , 1983			
12... 1310		1.0	--	26... 1200		.0	220
NOV				MAY			
08... 1320		.0	75	10... 1150		2.0	140
DEC				31... 1215		2.5	180
08... 1245		.0	<50	JUN			
JAN , 1983				20... 1340		6.0	100
03... 1410		.0	60	JUL			
FEB				18... 1310		10.0	180
14... 1410		.0	120	AUG			
MAR				23... 1010		5.0	70
21... 1320		.0	60				
06698000 - JEFFERSON CREEK NEAR JEFFERSON, CO. (LAT 39 23 24 LONG 105 48 38)							
OCT , 1982				APR , 1983			
12... 1120		1.5	--	19... 1020		.0	60
NOV				MAY			
08... 1130		.0	<50	10... 1025		1.5	85
DEC				31... 1050		2.0	175
08... 1530		.0	<50	JUN			
JAN , 1983				20... 1020		5.0	<50
03... 1140		.0	<50	JUL			
FEB				18... 1145		9.0	80
14... 1100		.0	<50	AUG			
MAR				23... 1135		5.0	<50
21... 1115		.0	<50				
06699005 - TARRYALL CREEK BELOW ROCK C NEAR JEFFERSON, CO. (LAT 39 17 13 LONG 105 41 43)							
APR , 1983				JUL , 1983			
26... 1300		4.0	192	18... 1425		9.0	120
MAY				AUG			
10... 1410		3.0	180	23... 1330		8.0	80
31... 1345		3.0	285				
JUN							
20... 1150		6.0	85				



DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)
06709500 - PLUM CREEK NEAR LOUVIERS, CO. (LAT 39 29 04 LONG 105 00 07)							
OCT , 1982				APR , 1983			
13...	1315	14.0	310	07...	0945	5.0	200
21...	1115	8.0	210	22...	1510	7.0	275
28...	0900	5.0	320	MAY			
NOV				03...	1350	5.0	250
04...	1325	5.0	125	18...	1215	5.0	280
16...	0845	2.0	337	JUN			
18...	1340	5.0	175	06...	1320	5.0	120
DEC				15...	1115	10.0	260
13...	0815	1.0	330	29...	1400	8.0	85
22...	1400	5.0	170	JUL			
JAN , 1983				11...	1210	20.0	160
18...	1350	1.0	150	AUG			
FEB				01...	1135	10.0	80
03...	1300	3.0	125	SEP			
24...	1310	5.0	280	02...	1235	12.0	60
MAR				20...	1145	13.0	130
03...	1300	10.0	150				
25...	1020	5.0	310				

## 06711500 - BEAR CREEK AT MOUTH, AT SHERIDAN, CO. (LAT 39 39 08 LONG 105 01 57)

OCT , 1982				MAR , 1983			
07...	0715	9.5	235	24...	1430	9.0	--
07...	1550	16.0	280	APR			
07...	1700	15.5	240	07...	1335	8.0	--
07...	2015	14.0	270	20...	1310	10.0	--
07...	2235	14.0	265	MAY			
08...	0110	12.5	260	05...	0920	8.0	--
08...	0400	12.0	280	20...	0955	6.5	--
13...	0920	7.0	--	JUN			
28...	1340	9.0	--	17...	1545	14.0	--
NOV				JUL			
09...	0855	6.0	--	08...	1130	19.0	--
DEC				21...	0825	18.5	--
02...	1225	2.5	--	AUG			
14...	1225	3.0	--	04...	1025	19.0	--
JAN , 1983				18...	1050	20.0	--
04...	0955	.5	--	SEP			
25...	1135	3.5	--	01...	0920	17.0	--
FEB				15...	0810	14.0	--
09...	1320	3.5	--	22...	0550	10.0	430
22...	1210	6.5	--	22...	1845	16.0	425
MAR				23...	0440	11.0	420
11...	1250	9.0	--	29...	1255	15.5	--
14...	0600	7.5	650				
14...	1900	9.5	410				

## 06711565 - SOUTH PLATTE RIVER AT ENGLEWOOD, CO. (LAT 39 39 54 LONG 105 00 13)

OCT , 1982				MAR , 1983			
07...	0900	10.5	480	14...	1615	10.0	870
07...	1310	12.5	480	16...	1400	6.0	490
07...	1710	15.0	460	APR			
07...	2040	14.5	465	11...	1415	8.0	430
07...	2340	14.0	410	27...	1240	9.5	305
08...	0320	13.0	460	MAY			
08...	0620	12.0	470	04...	1200	10.0	250
DEC				12...	1215	11.0	250
16...	1240	8.0	1000	SEP			
JAN , 1983				22...	0850	10.5	700
17...	1540	4.0	810	22...	1245	14.0	700
FEB				22...	1620	19.0	650
09...	1230	5.0	750	22...	2030	15.5	750
MAR				22...	2300	14.5	725
10...	1200	6.5	514	23...	0230	13.0	750
14...	0830	8.0	840	23...	0455	12.0	750
14...	1230	11.0	840				

## ANALYSES OF MISCELLANEOUS STATIONS

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06712000 - CHERRY CREEK NEAR FRANKTOWN, CO. (LAT 39 21 21 LONG 104 45 46)							
OCT , 1982				MAY , 1983			
21... 1245	9.0	170		20... 1435	8.0	320	
NOV				JUN			
04... 1445	6.0	165		06... 1510	5.0	180	
18... 1445	4.0	200		15... 1340	10.0	225	
DEC				30... 1410	8.0	140	
22... 1530	3.0	135		JUL			
FEB , 1983				14... 1425	15.0	165	
03... 1510	1.0	125		AUG			
24... 1455	4.0	250		01... 1240	12.0	100	
MAR				SEP			
03... 1400	8.0	120		02... 1410	11.0	80	
APR				20... 1445	13.0	85	
17... 1340	6.0	240					
22... 1640	7.0	480					
06713000 - CHERRY CREEK BELOW CHERRY CREEK LAKE, CO. (LAT 39 39 12 LONG 104 51 41)							
APR , 1983				JUN , 1983			
14... 1100	5.0	820		01... 1540	12.5	575	
14... 1400	6.5	820		AUG			
19... 1040	8.0	830		01... 1455	8.0	80	
22... 0940	8.0	710		11... 1355	18.0	75	
22... 1055	8.0	740					
MAY							
03... 1520	5.0	780					
06713500 - CHERRY CREEK AT DENVER, CO. (LAT 39 44 58 LONG 105 00 08)							
OCT , 1982				APR , 1983			
01... 0900	11.5	1100		25... 1440	14.0	675	
NOV				MAY			
04... 1300	11.0	1280		18... 1450	5.0	320	
04... 1600	1.5	--		20... 0935	7.0	280	
DEC				20... 0955	7.0	280	
14... 0955	8.0	1220		JUN			
JAN , 1983				07... 1230	17.0	1050	
17... 1015	6.5	900		JUL			
FEB				05... 1325	24.0	1000	
14... 1340	9.0	1230		12... 1315	20.0	650	
APR				AUG			
07... 0925	6.0	1350		02... 1255	23.5	520	
15... 1250	10.0	750		30... 1100	19.0	980	
18... 1245	11.0	930					
06714215 - SOUTH PLATTE R AT 64TH ST. AT COMMERCE CITY, CO. (LAT 39 48 44 LONG 104 57 28)							
OCT , 1982				APR , 1983			
01... 1110	15.0	1050		21... 1250	16.0	1540	
NOV				25... 1235	10.0	420	
04... 1115	6.5	1000		27... 1440	10.0	390	
DEC				MAY			
14... 1230	6.0	1050		04... 1430	11.0	320	
JAN , 1983				JUN			
17... 1300	5.5	970		07... 1425	14.0	280	
FEB				22... 1230	15.0	220	
07... 1140	7.5	1450		JUL			
22... 1500	14.0	1680		06... 1100	17.0	200	
MAR				13... 1055	18.0	250	
02... 1220	13.0	1300		AUG			
10... 1420	11.5	609		30... 1325	22.0	510	
17... 1220	6.0	515		SEP			
APR				20... 1210	15.0	800	
08... 1140	6.0	556					
19... 1410	16.0	1210					
06719526 - CLEAR CREEK AT TABOR STREET, AT WHEATRIDGE, CO. (LAT 39 46 27 LONG 105 07 48)							
OCT , 1982				JUN , 1983			
01... 1400	17.0	400		08... 1430	12.0	165	
NOV				13... 1120	8.0	120	
08... 1345	16.0	320		14... 1040	6.0	130	
JAN , 1983				20... 1240	9.0	100	
04... 1040	5.0	350		JUL			
APR				06... 1320	13.0	100	
08... 1330	14.0	483		AUG			
MAY				17... 1310	12.0	160	
09... 1410	15.0	--		SEP			
25... 1410	5.0	250		20... 0955	12.5	330	

## ANALYSES OF MISCELLANEOUS STATIONS

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	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06746095 - JOE WRIGHT CREEK ABOVE JOE WRIGHT RESERVOIR, CO. (LAT 40 32 24 LONG 105 52 56)							
OCT , 1982				MAR , 1983			
08... 1220	.5	42		24... 1415	.0	80	
NOV				APR			
04... 1700	.0	45		11... 1730	.0	82	
DEC				MAY			
07... 1630	.5	65		23... 1400	.5	65	
JAN , 1983				JUN			
05... 1500	.0	65		22... 0855	9.5	50	
FEB				AUG			
15... 1445	.0	65		24... 1215	12.5	42	
15... 1530	.5	65					

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06746110 - JOE WRIGHT CREEK BELOW JOE WRIGHT RESERVOIR, CO. (LAT 40 33 43 LONG 105 52 09)							
JAN , 1983				APR , 1983			
05... 1600	.5	63		11... 1500	.0	60	
FEB				MAY			
15... 1640	.5	80		24... 1525	3.0	52	
MAR							
24... 1620	.0	75					

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06759100 - BIJOU CREEK NEAR FT. MORGAN, CO. (LAT 40 16 58 LONG 103 52 30)							
OCT , 1982				MAY , 1983			
05... 1335	18.5	1650		11... 1220	13.0	1220	
NOV				JUN			
09... 1055	10.0	1670		16... 1050	21.0	855	
DEC				JUL			
15... 1100	8.0	1710		19... 1000	20.5	1640	
JAN , 1983				AUG			
18... 1515	8.0	1710		16... 1030	19.5	1700	
FEB				SEP			
09... 1100	4.0	1580		02... 0915	16.0	1700	
MAR				30... 1135	17.0	1660	
23... 1530	13.5	1610					
APR							
12... 0950	7.0	1250					

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06826500 - SOUTH FORK REPUBLICAN RIVER NEAR HALE, CO. (LAT 39 37 26 LONG 102 09 47)							
OCT , 1982				APR , 1983			
20... 1220	9.0	540		20... 1330	18.5	550	
NOV				MAY			
16... 1020	6.0	530		10... 1045	15.0	750	
DEC				JUN			
21... 1050	5.0	560		15... 1045	18.0	720	
JAN , 1983				JUL			
19... 1040	4.0	540		19... 1020	20.0	730	
FEB				AUG			
15... 1145	6.0	505		24... 1140	20.0	520	
MAR							
09... 1045	9.5	593					

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07081200 - ARKANSAS RIVER NEAR LEADVILLE, CO. (LAT 39 15 26 LONG 106 20 35)							
OCT , 1982				MAR , 1983			
26... 1450	6.0	250		23... 1500	1.5	310	
NOV				APR			
23... 1525	1.0	280		22... 1450	3.5	--	
FEB , 1983							
01... 1400	.5	210					

07089000 - COTTONWOOD C BL HOT SPRINGS, NR BUENA VISTA, CO. (LAT 38 48 46 LONG 106 13 18)

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
NOV , 1982				MAR , 1983			
22... 1210	3.5	135		24... 1115	3.0	140	
FEB , 1983				APR			
01... 1305	3.0	145		22... 1315	7.0	150	

07096500 - FOURMILE CREEK NEAR CANON CITY, CO. (LAT 38 26 11 LONG 105 11 27)

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
OCT , 1982				APR , 1983			
05... 1120	12.5	590		19... 1040	15.0	1440	
NOV				JUN			
10... 1005	6.0	780		23... 1000	18.0	425	
JAN , 1983				SEP			
04... 1040	4.0	1180		07... 1050	16.0	650	
FEB							
02... 1030	6.0	1200					

## ANALYSES OF MISCELLANEOUS STATIONS

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07099215 - TURKEY CREEK NEAR FOUNTAIN COLO (LAT 38 36 42 LONG 104 53 39)							
FEB , 1983				SEP , 1983			
03... 1540	.0	--		07... 1430	10.0	600	
AUG							
04... 1400	16.0	300					
07099220 - LITTLE TURKEY CREEK NEAR FOUNTAIN, CO. (LAT 38 37 38 LONG 104 51 57)							
NOV , 1982				AUG , 1983			
10... 1430	9.0	260		04... 1400	14.0	145	
10... 1430	9.0	260					
JUN , 1983							
07... 1300	2.0	200					
07099235 - TURKEY CREEK NR STONE CITY, CO (LAT 38 26 27 LONG 104 49 31)							
OCT , 1982				MAR , 1983			
21... 1320	13.0	610		11... 1310	--	640	
DEC							
16... 1215	5.0	670					
07103747 - MONUMENT CREEK AT PALMER LAKE, CO. (LAT 39 06 07 LONG 104 53 27)							
OCT , 1982				MAY , 1983			
18... 1455	12.5	200		11... 1215	5.0	85	
NOV				11... 1250	5.0	79	
16... 1045	4.0	175		JUN			
DEC				02... 1150	8.0	92	
16... 1310	3.5	220		JUL			
JAN , 1983				06... 1215	17.0	140	
12... 0925	1.0	200		AUG			
FEB				03... 0845	15.5	162	
16... 0820	1.0	182		SEP			
MAR				07... 0855	13.0	148	
17... 1300	.0	110					
APR							
15... 0855	.0	163					
07103800 - WEST MONUMENT CREEK AT AIR FORCE ACADEMY, CO. (LAT 38 58 14 LONG 104 54 08)							
OCT , 1982				APR , 1983			
18... 1625	6.0	102		15... 1125	.0	103	
NOV				MAY			
16... 1240	.5	108		11... 1445	6.5	50	
DEC				JUN			
16... 1530	.5	50		07... 1015	6.0	111	
JAN , 1983				JUL			
12... 1040	.0	110		06... 1025	11.0	105	
FEB				AUG			
16... 0950	.5	98		03... 0955	13.0	118	
MAR				SEP			
25... 1445	1.0	102		07... 1030	11.5	<50	
07103950 - KETTLE CREEK NEAR BLACK FOREST, CO. (LAT 39 00 14 LONG 104 44 21)							
OCT , 1982				JUN , 1983			
19... 0805	1.5	250		02... 1320	16.0	218	
NOV				JUL			
16... 1450	2.5	160		06... 0910	13.0	238	
DEC				08... 1550	24.5	240	
16... 1445	1.5	158		26... 1015	18.0	240	
JAN , 1983				28... 1045	18.0	222	
11... 1520	.0	235		29... 1420	24.5	228	
FEB				AUG			
15... 1510	2.0	235		02... 1605	20.5	163	
MAR				SEP			
17... 1020	.0	222		06... 1820	18.0	163	
MAY							
11... 0945	9.0	200					

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07105800 - FOUNTAIN CREEK AT SECURITY, CO. (LAT 38 43 46 LONG 104 44 00)					
OCT , 1982			APR , 1983		
19... 1215	9.5	700	14... 1000	4.0	580
NOV			MAY		
17... 1230	9.5	840	05... 1450	14.0	340
DEC			31... 1135	7.0	212
17... 1130	6.0	820	JUL		
JAN , 1983			05... 1050	14.5	280
11... 1215	6.5	825	26... 1410	21.0	440
FEB			AUG		
16... 1140	8.0	850	01... 1505	20.0	380
MAR			SEP		
16... 1210	5.5	580	06... 1040	17.0	440
07105900 - JIMMY CAMP CREEK AT FOUNTAIN, CO. (LAT 38 41 04 LONG 104 41 17)					
OCT , 1982			MAY , 1983		
19... 1325	13.0	3000	12... 1320	20.0	3700
NOV			JUN		
17... 1330	14.0	3500	06... 1035	17.0	3750
DEC			JUL		
17... 1545	7.0	3250	01... 1035	--	3300
JAN , 1983			07... 1035	--	3300
11... 1200	4.5	3500	AUG		
FEB			01... 1245	26.0	3900
16... 1245	15.5	3520	SEP		
MAR			08... 1315	28.0	3000
25... 1210	7.5	3900			
07105924 - WOMACK DITCH NEAR FORT CARSON, CO. (LAT 38 40 52 LONG 104 51 20)					
OCT , 1982			MAY , 1983		
07... 1210	1.5	150	05... 1005	2.0	130
NOV			JUN		
24... 1215	3.0	145	07... 1030	.0	125
MAR , 1983			SEP		
30... 1140	.0	115	06... 1540	10.0	125
07105928 - LITTLE FOUNTAIN CREEK NEAR FORT CARSON, CO. (LAT 38 40 49 LONG 104 51 06)					
OCT , 1982			AUG , 1983		
29... 1450	2.0	210	03... 1415	8.0	140
JUN , 1983			SEP		
06... 1430	.0	125	07... 1400	12.0	145
07105940 - LITTLE FOUNTAIN CREEK NEAR FOUNTAIN, CO. (LAT 38 38 35 LONG 104 44 48)					
OCT , 1982			JUN , 1983		
01... 1200	11.5	750	07... 1330	14.0	420
DEC			JUL		
17... 1625	1.0	590	07... 1235	22.0	730
FEB , 1983			AUG		
23... 1500	13.5	2550	02... 0935	16.0	380
MAR			SEP		
25... 1710	9.0	2800	07... 1400	22.0	628
MAY					
12... 1015	8.0	401			
07105945 - ROCK CREEK ABOVE FORT CARSON RESERVATION, CO. (LAT 38 42 26 LONG 104 50 47)					
OCT , 1982			MAY , 1983		
06... 1210	2.0	180	04... 1050	.0	145
NOV			JUN		
24... 1400	1.0	190	06... 1100	2.0	175
MAR , 1983					
29... 1045	.0	130			
07105950 - ROCK CREEK NEAR FORT CARSON, CO. (LAT 38 41 49 LONG 104 49 39)					
OCT , 1982			MAY , 1983		
06... 1055	10.0	175	04... 1350	.0	140
FEB , 1983			JUN		
03... 1450	5.0	--	06... 1400	1.0	180
MAR			SEP		
29... 1320	1.0	180	06... 1350	10.0	250

## ANALYSES OF MISCELLANEOUS STATIONS

	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE		TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07105960 - ROCK CREEK NEAR FOUNTAIN, CO. (LAT 38 39 16 LONG 104 44 48)							
DEC , 1982				JUN , 1983			
22...	1300	2.0	750	07...	1435	14.0	418
FEB , 1983				JUL			
23...	1410	13.0	950	07...	1330	22.0	1010
MAR				AUG			
17...	1620	6.0	1100	02...	1020	15.5	1120
MAY				SEP			
12...	1145	12.0	438	08...	0910	13.5	1040
07108900 - ST. CHARLES RIVER AT VINELAND, CO. (LAT 38 14 44 LONG 104 29 09)							
OCT , 1982				APR , 1983			
06...	1120	12.0	1580	08...	1235	10.0	830
NOV				20...	1030	12.5	700
09...	1025	6.0	1710	MAY			
DEC				16...	1555	16.0	500
06...	1210	6.0	2000	JUN			
JAN , 1983				01...	1105	10.5	310
10...	1250	5.5	2500	13...	1510	13.5	380
FEB				JUL			
15...	0945	5.0	2050	20...	1310	28.0	1500
MAR				AUG			
14...	1000	8.5	1670	23...	1050	20.0	1920
07109500 - ARKANSAS RIVER NEAR AVONDALE, CO. (LAT 38 14 53 LONG 104 23 55)							
OCT , 1982				APR , 1983			
06...	1515	16.0	680	15...	1030	7.0	730
NOV				MAY			
12...	1110	7.0	830	19...	1045	12.0	715
DEC				JUN			
06...	1450	6.0	1160	06...	1245	13.0	580
JAN , 1983				13...	1310	13.0	580
10...	1550	3.0	1550	JUL			
FEB				20...	1115	19.5	430
15...	1215	6.0	1060	AUG			
MAR				23...	1315	21.5	430
14...	1215	9.5	1020	27...	1400	21.0	800
07116500 - HUERFANO RIVER NEAR BOONE, CO. (LAT 38 13 33 LONG 104 15 40)							
OCT , 1982				APR , 1983			
07...	1400	13.0	2000	14...	1415	12.0	5500
NOV				20...	1235	25.5	5000
09...	1320	13.0	1400	MAY			
DEC				16...	1245	17.0	1180
07...	1250	1.0	5400	JUN			
JAN , 1983				01...	1250	17.5	800
07...	1520	.0	4000	15...	1205	20.0	700
11...	1445	.0	2650	JUL			
FEB				26...	1125	30.0	2300
15...	1455	11.5	2780				
MAR							
14...	1415	12.0	5500				
07119500 - APISHAPA RIVER NEAR FOWLER, CO. (LAT 38 05 28 LONG 103 58 52)							
OCT , 1982				MAY , 1983			
04...	1505	19.0	905	16...	1220	15.0	900
NOV				JUN			
09...	1105	8.0	1680	16...	1450	20.5	610
DEC				JUL			
06...	1535	9.5	4000	21...	1045	25.0	1100
JAN , 1983				AUG			
14...	1145	7.0	3900	22...	1100	24.5	1250
FEB				SEP			
11...	1410	10.5	2600	21...	1330	18.5	1280
APR							
14...	1050	9.0	1040				

## ANALYSES OF MISCELLANEOUS STATIONS

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TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07121500 - TIMPAS CREEK AT MOUTH NEAR SWINK, CO. (LAT 38 00 10 LONG 103 39 18)					
OCT , 1982			APR , 1983		
05... 1425	18.5	1300	25... 1340	17.0	1330
NOV 08... 1615	9.0	1600	MAY 16... 1500	14.5	1190
DEC 10... 1410	5.5	2800	JUN 16... 1130	20.0	1580
JAN , 1983			29... 1515	24.0	1200
11... 0945	5.5	4900	JUL 14... 1535	26.0	900
FEB 08... 1345	7.0	2900	AUG 22... 1440	25.0	1330
MAR 21... 1515	6.5	1400	SEP 21... 0955	11.0	1450
APR 14... 1425	9.0	1280			
07122400 - CROOKED ARROYO NEAR SWINK, CO. (LAT 37 58 56 LONG 103 35 52)					
OCT , 1982			MAR , 1983		
05... 1610	18.5	1450	17... 0915	7.0	875
05... 1610	18.5	1430	APR 21... 0845	12.5	1980
NOV 05... 1400	8.5	1400	MAY 19... 1215	15.0	--
05... 1400	8.5	1400	JUN 16... 0930	17.0	1100
DEC 10... 1140	8.5	4500	JUL 14... 1215	22.0	1090
10... 1140	8.5	4500	AUG 22... 1255	23.5	1230
JAN , 1983			SEP 20... 1730	17.5	1500
11... 1155	7.0	--			
FEB 11... 1205	8.5	2800			
11... 1205	8.5	2800			
MAR 17... 0915	7.0	875			
07123675 - HORSE CREEK NEAR LAS ANIMAS, CO. (LAT 38 05 07 LONG 103 21 10)					
OCT , 1982			APR , 1983		
08... 1430	14.0	2500	20... 1440	21.0	4000
NOV 05... 1035	8.0	7500	MAY 19... 1100	15.0	2550
DEC 09... 1630	4.5	8000	JUN 15... 1515	20.0	2000
JAN , 1983			JUL 14... 1025	21.0	1660
11... 1455	7.0	8000	AUG 15... 1320	26.0	2200
FEB 11... 0955	5.5	4000	SEP 20... 1400	17.0	3400
MAR 16... 1535	8.5	3250			
07124000 - ARKANSAS RIVER AT LAS ANIMAS, CO. (LAT 38 04 51 LONG 103 13 09)					
OCT , 1982			MAR , 1983		
06... 0945	13.5	1500	14... 1040	12.0	--
NOV 02... 0945	9.0	2600	APR 20... 1230	23.0	3010
17... 1510	14.0	--	26... 0955	14.0	2350
20... 1255	7.0	--	MAY 17... 1315	13.0	3200
DEC 07... 1345	2.5	2750	AUG 08... 1500	28.0	900
21... 1215	5.0	--	18... 1015	24.0	1160
JAN , 1983			SEP 20... 1050	10.0	2400
06... 1145	.5	2400			
11... 1445	1.5	--			
12... 1455	5.0	--			
FEB 09... 1145	6.0	2350			
07124200 - PURGATOIRE RIVER AT MADRID, CO. (LAT 37 07 46 LONG 104 38 20)					
OCT , 1982			APR , 1983		
19... 1630	2.0	450	28... 1025	9.0	280
NOV 18... 1600	10.0	390	MAY 18... 1205	10.5	280
JAN , 1983			JUN 22... 1410	15.5	180
07... 1135	.0	--	JUL 22... 1355	21.0	241
FEB 03... 1010	.5	455	AUG 24... 1310	20.5	310
MAR 01... 1225	7.5	470			
APR 07... 1445	12.5	430			

## ANALYSES OF MISCELLANEOUS STATIONS

		TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE			TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
TIME				TIME			
07124300 - LONG CANYON CREEK NEAR MADRID, CO. (LAT 37 06 53 LONG 104 36 17)							
OCT , 1982				MAY , 1983			
19...	1435	9.0	530	08...	1410	20.0	470
JAN , 1983				JUN			
06...	1415	6.0	440	22...	1235	24.0	480
MAR				JUL			
01...	1020	5.0	770	22...	1050	23.0	480
APR				AUG			
07...	1320	11.5	397	24...	1110	21.5	478
27...	1650	18.5	385				
07124410 - PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO. (LAT 37 08 37 LONG 104 32 49)							
JAN , 1983				JUL , 1983			
07...	1330	4.0	310	07...	1205	13.0	295
MAR				AUG			
01...	1610	9.0	455	09...	1200	16.0	260
MAY				SEP			
18...	1545	10.0	350	07...	1045	17.5	270
JUN							
07...	1445	12.0	340				
07126200 - VAN BREMER ARROYO NEAR MODEL, CO. (LAT 37 20 45 LONG 103 57 27)							
JAN , 1983				JUN , 1983			
11...	0915	8.0	--	03...	0910	15.5	1940
FEB							
28...	1430	14.0	1700				
07128500 - PURGATOIRE RIVER NEAR LAS ANIMAS, CO. (LAT 38 02 02 LONG 103 12 00)							
OCT , 1982				MAY , 1983			
06...	1120	15.5	1550	17...	1005	14.0	1120
NOV				JUN			
01...	1410	12.0	3400	07...	1430	19.0	1200
DEC				15...			
07...	1015	2.0	5250	JUL			
JAN , 1983				12...			
05...	1145	.5	6750	AUG			
FEB				15...			
09...	0910	.5	3000	SEP			
APR				14...			
20...	0955	15.0	1720				
25...	1640	16.5	860				
07130500 - ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, CO. (LAT 38 05 02 LONG 102 55 10)							
OCT , 1982				JAN , 1983			
06...	1710	16.0	1420	13...	1145	7.0	3500
NOV				FEB			
02...	1415	12.0	3750	09...			
DEC				15...			
19...	1100	7.0	2700	MAR			
09...				15...			
1155	4.5	3000					
07133000 - ARKANSAS RIVER AT LAMAR, CO. (LAT 38 06 24 LONG 102 37 04)							
OCT , 1982							
08...	1045	17.5	2800				
NOV							
03...	0920	7.5	5500				
DEC							
18...	1335	11.5	5250				
08...							
1450	7.0	7000					
JAN , 1983							
12...	1550	9.0	6750				
FEB							
10...	1230	7.5	3800				
MAR							
15...	1610	6.5	3400				
APR							
19...	1155	17.5	3800				
MAY							
18...	0935	12.0	2050				
JUN							
14...	1420	25.0	2650				
AUG							
16...	1800	26.0	1350				
SEP							
13...	1435	18.0	1420				



TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
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07134180 - ARKANSAS RIVER NEAR GRANADA, CO. (LAT 38 05 44 LONG 102 18 37)

OCT , 1982					
07...	1405	21.5	3750		
NOV					
04...	1120	11.5	8000		
DEC					
08...	1100	2.5	8000		
JAN , 1983					
12...	1100	4.5	6500		
FEB					
10...	0940	4.5	3500		
MAR					
16...	1055	6.0	2650		
APR					
19...	0945	14.0	3830		
MAY					
18...	1210	13.0	2200		
JUN					
14...	1125	22.0	3750		
JUL					
12...	1650	24.0	1650		
AUG					
16...	1215	25.0	1600		
SEP					
14...	1000	18.0	1800		

08217500 - RIO GRANDE AT WAGONWHEEL GAP, CO. (LAT 37 46 01 LONG 106 49 51)

JAN , 1983					
05...	1435	.0	130		
FEB					
09...	1420	.0	140		
MAR					
08...	1100	.0	128		
APR					
27...	1035	5.0	100		
MAY					
23...	1515	13.5	89		
JUN					
24...	1240	8.5	50		
JUL					
22...	1020	13.0	80		
AUG					
18...	1005	14.5	80		
SEP					
20...	1330	13.0	108		

06695000 - S PLATTE R AB 11-MILE CANYON RE, NR HARTSEL, CO. (LAT 38 58 03 LONG 105 34 51)

OCT , 1982					
04...	1240	12.5			
18...	1150	8.0			
NOV					
01...	1310	7.0			
15...	1240	1.5			
29...	1215	1.5			
DEC					
13...	1515	3.5			
JAN , 1983					
05...	1630	.5			
17...	1445	.0			
31...	1515	5.0			
FEB					
14...	1435	7.0			
MAR					
01...	1515	8.0			
17...	1725	7.0			
28...	1500	9.0			
APR , 1983					
14...	1545	7.0			
26...	1405	5.5			
MAY					
09...	1235	11.0			
JUN					
08...	1215	16.0			
20...	1210	16.0			
JUL					
05...	1240	20.0			
18...	1215	18.5			
AUG					
01...	1250	19.0			
15...	1320	17.0			
29...	1505	18.0			
SEP					
12...	1330	19.0			
27...	1250	14.0			

## ANALYSES OF MISCELLANEOUS STATIONS

06696000 - SOUTH PLATTE RIVER NEAR LAKE GEORGE, CO. (LAT 38 54 19 LONG 105 28 22)

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
OCT , 1982			APR , 1983		
04...	1045	12.0	14...	1400	5.0
18...	1000	7.0	26...	1135	4.5
NOV			MAY		
01...	1110	6.0	09...	1105	6.0
15...	1110	4.0	JUN		
29...	1050	3.0	08...	1050	8.0
DEC			20...	1025	9.0
13...	1320	3.5	JUL		
JAN , 1983			05...	1115	16.0
05...	1315	3.5	18...	1055	17.5
17...	1250	4.0	AUG		
31...	1405	4.0	01...	1100	17.0
FEB			15...	1145	15.5
14...	1320	4.0	29...	1145	18.0
MAR			SEP		
01...	1345	5.0	12...	1140	17.0
17...	1520	4.5	27...	1030	11.0
28...	1315	4.5			

06701500 - SOUTH PLATTE RIVER BELOW CHEESMAN LAKE, CO. (LAT 39 12 33 LONG 105 16 02)

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
OCT , 1982			APR , 1983		
14...	1125	13.5	14...	1020	5.0
25...	1135	13.0	MAY		
NOV			02...	0920	7.5
08...	1000	10.5	16...	0830	9.0
23...	1150	8.0	JUN		
DEC			01...	1315	10.0
13...	0950	6.5	17...	0835	14.0
JAN , 1983			29...	1145	16.0
05...	1018	4.0	JUL		
17...	0910	4.0	28...	1110	17.5
31...	1015	4.0	AUG		
FEB			11...	1050	16.5
14...	0910	4.0	25...	1150	17.0
MAR			SEP		
01...	0935	4.0	23...	1145	5.5
17...	1120	4.5			
28...	1005	4.0			

06706000 - NF SOUTH PLATTE R BELOW GENEVA C, AT GRANT, CO. (LAT 39 27 26 LONG 105 39 29)

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
OCT , 1982			APR , 1983		
05...	1150	6.0	15...	1130	.0
19...	0915	.0	27...	1140	3.0
NOV			MAY		
02...	1000	.0	10...	1235	9.0
16...	1120	5.0	JUN		
30...	1030	.0	09...	1310	9.0
DEC			21...	1300	8.0
14...	1240	.0	JUL		
JAN , 1983			06...	1240	16.0
06...	1310	.0	19...	1255	12.0
18...	1210	.0	AUG		
FEB			02...	1150	10.5
01...	1155	.0	16...	1205	12.0
15...	1410	.0	30...	1125	8.0
MAR			SEP		
02...	1140	2.0	13...	1005	7.5
18...	1230	.0	28...	1035	6.0
29...	1220	3.0			

06710500 - BEAR CREEK AT MORRISON, CO. (LAT 39 39 11 LONG 105 11 43)

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
OCT , 1982			APR , 1983		
13...	1455	6.0	07...	1215	1.5
28...	1220	4.0	20...	1155	6.5
NOV			MAY		
09...	1025	2.0	05...	1545	9.0
DEC			JUL		
02...	1120	.0	07...	1025	14.5
14...	1120	.0	21...	1025	16.0
JAN , 1983			25...	1130	17.0
04...	1400	.0	AUG		
25...	1045	.0	04...	1350	18.0
FEB			18...	1310	17.5
09...	1220	.0	30...	1600	17.0
22...	1100	1.0	SEP		
MAR			15...	1045	12.0
11...	1130	4.0	29...	1110	11.0
24...	1205	2.5			

## ANALYSES OF MISCELLANEOUS STATIONS

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TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06714000 - SOUTH PLATTE RIVER AT DENVER, CO. (LAT 39 45 35 LONG 105 00 10)					
OCT , 1982			MAR , 1983		
07...	0725	12.0	14...	1455	12.0
07...	1020	13.0	22...	1055	7.0
07...	1110	13.5	APR		
07...	1515	16.0	04...	1535	5.0
07...	1910	15.0	21...	1720	11.0
07...	2300	14.0	MAY		
08...	0200	14.0	04...	1340	12.0
08...	0515	13.0	18...	1240	9.5
21...	1105	9.0	JUN		
NOV			15...	1335	12.0
04...	0955	7.0	27...	1550	16.0
18...	0950	7.0	JUL		
DEC			12...	1600	22.0
02...	1425	9.0	26...	1430	18.0
15...	1020	4.0	AUG		
29...	1050	.5	08...	1400	23.5
JAN , 1983			23...	1350	25.0
12...	1000	3.5	SEP		
26...	1455	8.0	07...	1105	19.0
FEB			20...	1110	13.0
04...	1300	5.0	22...	0700	13.0
21...	1405	10.0	22...	1040	13.5
MAR			22...	1450	17.5
08...	1420	8.0	22...	1820	17.0
14...	0650	8.5	22...	2120	16.0
14...	1050	10.0			

06714000 - SOUTH PLATTE RIVER AT DENVER, CO. (LAT 39 45 35 LONG 105 00 10)

SEP , 1983			SEP , 1983		
23...	0020	15.0	23...	0325	14.0

06716500 - CLEAR CREEK NEAR LAWSON, CO. (LAT 39 45 57 LONG 105 37 32)

OCT , 1982			APR , 1983		
06...	1105	4.0	07...	1050	.0
21...	1240	3.0	20...	1025	3.5
NOV			MAY		
04...	1600	1.5	05...	1405	8.0
18...	1250	2.0	20...	1500	8.0
DEC			JUN		
02...	1000	.0	23...	1350	6.5
14...	0950	.0	JUL		
JAN , 1983			07...	1255	9.0
04...	1210	.0	21...	1335	11.0
25...	0907	.5	AUG		
FEB			04...	1240	12.0
09...	1055	.5	18...	1455	12.5
22...	0950	1.0	30...	1215	12.0
MAR			SEP		
11...	1020	2.0	15...	1145	9.0
24...	1050	1.0	29...	0920	8.0

06720500 - SOUTH PLATTE RIVER AT HENDERSON, CO. (LAT 39 55 19 LONG 104 52 00)

OCT , 1982			APR , 1983		
07...	1310	17.0	04...	1135	6.5
21...	1310	15.0	21...	1050	11.0
NOV			MAY		
04...	1300	8.0	04...	0820	9.5
18...	1135	10.5	18...	0947	6.0
DEC			JUN		
02...	1055	7.0	15...	1005	13.0
15...	1205	8.0	27...	1005	14.0
29...	1320	4.5	JUL		
JAN , 1983			12...	1100	15.5
12...	1230	8.0	26...	0925	19.0
26...	1100	8.0	AUG		
FEB			08...	0900	20.5
04...	0920	6.0	23...	0800	19.5
21...	1040	9.5	SEP		
MAR			07...	0840	19.0
08...	1045	9.0	20...	1310	16.5
22...	1225	8.0			

## ANALYSES OF MISCELLANEOUS STATIONS

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
06724000 - ST. VRAIN CREEK AT LYONS, CO. (LAT 40 13 05 LONG 105 15 34)					
OCT , 1982			FEB , 1983		
04... 0945	10.0		16... 0815	1.5	
18... 1240	11.0		MAR		
NOV			01... 1030	5.0	
10... 1130	5.5		16... 1000	3.5	
24... 1415	.5		APR		
DEC			08... 1620	7.0	
06... 1055	5.0		27... 1615	10.0	
20... 0900	1.0		MAY		
JAN , 1983			24... 0900	7.0	
04... 0830	.5				
06725500 - MIDDLE BOULDER CREEK AT NEDERLAND, CO. (LAT 39 57 42 LONG 105 30 14)					
OCT , 1982			APR , 1983		
11... 1045	.5		19... 1042	4.0	
25... 1125	6.0		MAY		
NOV			03... 1000	3.0	
08... 1135	.0		19... 0937	3.0	
24... 1210	.0		31... 1245	2.5	
DEC			JUN		
06... 1140	.0		14... 1150	7.5	
21... 1230	.0		28... 1235	8.0	
JAN , 1983			JUL		
11... 1205	.0		12... 1440	11.0	
24... 1200	.0		27... 1240	10.5	
FEB			AUG		
08... 1130	.0		10... 1355	16.0	
23... 1345	2.0		22... 1120	11.0	
MAR			SEP		
09... 1345	2.0		05... 1350	13.0	
23... 1220	.0		19... 1045	10.0	
APR					
06... 1130	.0				
06727000 - BOULDER CREEK NEAR ORODELL, CO. (LAT 40 00 23 LONG 105 19 49)					
OCT , 1982			APR , 1983		
11... 0930	4.5		19... 0935	2.0	
25... 1010	7.0		MAY		
NOV			03... 0825	3.5	
08... 1000	.0		19... 0830	5.0	
24... 1100	.0		31... 1135	5.0	
DEC			JUN		
06... 1000	.0		14... 0925	8.0	
21... 1100	.0		28... 0930	9.0	
JAN , 1983			JUL		
11... 1030	.0		12... 1010	12.0	
24... 1040	.0		27... 1650	10.5	
FEB			AUG		
08... 1020	.0		10... 1020	14.5	
23... 1450	4.0		22... 0915	13.0	
MAR			SEP		
09... 1500	5.0		05... 1000	13.0	
23... 1055	2.0		19... 0935	13.5	
APR					
06... 1015	.0				
06729500 - SOUTH BOULDER CREEK NEAR ELDORADO SPRINGS, CO. (LAT 39 55 52 LONG 105 17 43)					
OCT , 1982			APR , 1983		
12... 1040	9.0		07... 1520	4.0	
26... 1010	8.0		20... 1125	6.0	
NOV			MAY		
09... 1115	6.0		20... 1215	5.0	
23... 1420	1.0		JUN		
DEC			03... 1115	9.5	
07... 1410	.5		13... 1340	11.0	
20... 1150	.0		30... 1325	13.0	
JAN , 1983			JUL		
10... 1305	.5		27... 1600	8.0	
25... 1140	4.0		AUG		
FEB			09... 1335	9.0	
10... 1205	2.0		24... 1555	12.5	
22... 1400	6.0		SEP		
MAR			06... 1230	13.0	
10... 1310	7.0		22... 1055	10.5	
24... 1405	5.0				
06731000 - ST. VRAIN CREEK AT MOUTH, NEAR PLATTEVILLE, CO. (LAT 40 15 29 LONG 104 52 45)					
OCT , 1982					
05... 1120	13.5				

## ANALYSES OF MISCELLANEOUS STATIONS

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TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
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06733000 - BIG THOMPSON RIVER AT ESTES PARK, CO. (LAT 40 22 42 LONG 105 30 48)

OCT , 1982			MAR , 1983		
06...	1010	4.0	03...	1335	3.0
21...	1040	1.0	10...	1130	5.0
NOV			17...	1100	.5
18...	1100	.5	24...	1120	1.0
24...	1130	.5	APR		
DEC			07...	1115	.5
02...	1105	.5	21...	1120	4.0
09...	1030	.5	MAY		
16...	1125	.5	03...	1335	3.0
JAN , 1983			05...	1200	9.0
06...	1100	.5	SEP		
FEB			15...	1235	13.0
10...	1100	.5			
17...	1300	.5			
24...	1200	1.5			

06735500 - BIG THOMPSON RIVER NEAR ESTES PARK, CO. (LAT 40 22 35 LONG 105 29 06)

OCT , 1982			FEB , 1983		
06...	0830	9.0	24...	1130	3.5
21...	0945	7.0	MAR		
NOV			03...	1240	3.5
04...	0930	4.0	17...	1030	3.0
18...	0930	3.0	APR		
DEC			07...	1030	3.0
02...	1035	2.0	21...	1400	6.0
16...	1010	2.0	MAY		
JAN , 1983			05...	1035	9.0
06...	1030	2.0	SEP		
FEB			15...	1110	15.0
17...	1130	2.5			

06738000 - BIG THOMPSON R AT MOUTH OF CANYON, NR DRAKE, CO. (LAT 40 25 18 LONG 105 13 34)

OCT , 1982			MAR , 1983		
21...	1400	7.0	10...	0855	3.0
NOV			17...	1245	1.5
04...	0915	.5	APR		
18...	0950	.5	18...	1450	10.0
DEC			MAY		
02...	1415	.0	03...	1130	6.0
FEB , 1983			11...	1030	8.0
10...	0915	.5	SEP		
17...	0945	1.0	21...	0900	6.0
24...	0900	1.0			

06752000 - CACHE LA POUFRE R A MO OF CH, NR FT COLLINS, CO. (LAT 40 39 52 LONG 105 13 26)

OCT , 1982			MAR , 1983		
04...	1500	14.0	28...	1415	3.0
20...	1030	5.0	APR		
21...	0925	3.5	27...	0920	7.0
NOV			MAY		
01...	0915	6.5	28...	0725	10.0
24...	1100	.5	28...	1415	3.0
JAN , 1983			JUN		
04...	1320	1.0	02...	0920	8.0
FEB					
11...	1340	4.0			
28...	1320	6.0			

## ANALYSES OF MISCELLANEOUS STATIONS

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07123000 - ARKANSAS RIVER AT LA JUNTA, CO. (LAT 37 59 26 LONG 103 31 55)					
OCT , 1982			APR , 1983		
01... 1020	19.0		28... 1325	19.0	
08... 1345	14.0		MAY		
15... 1150	14.0		10... 1550	23.0	
20... 1135	10.5		25... 1450	26.0	
NOV			JUN		
02... 1605	6.0		01... 1410	24.0	
10... 1505	15.0		17... 1440	24.0	
19... 1235	9.0		JUL		
DEC			13... 1400	28.0	
17... 1320	7.0		20... 1030	25.0	
23... 1135	6.0		AUG		
JAN , 1983			03... 1415	33.0	
04... 1440	1.0		10... 1535	30.0	
25... 1040	4.0		17... 1100	24.0	
FEB			31... 1250	27.0	
09... 1515	5.0		SEP		
MAR			08... 1230	25.0	
30... 1540	18.0		14... 1555	28.0	
APR			21... 1230	17.0	
21... 1115	19.0				

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
07126500 - PURGATOIRE RIVER AT NINEMILE DAM, NR HIGBEE, CO. (LAT 37 44 06 LONG 103 29 45)					
OCT , 1982			MAY , 1983		
01... 1300	19.0		25... 1200	20.0	
08... 1505	15.0		JUN		
15... 1445	17.0		22... 1520	20.0	
20... 1340	10.0		JUL		
NOV			06... 1230	26.0	
05... 1350	10.0		21... 1425	27.0	
12... 1055	11.0		AUG		
MAR , 1983			03... 1540	31.0	
10... 1305	5.0		10... 1410	33.0	
30... 1341	14.0		SEP		
MAY			21... 1440	19.0	
11... 1350	18.0				

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08213500 - RIO GRANDE AT THIRTYMILE BRIDGE, NR CREEDE, CO. (LAT 37 43 29 LONG 107 15 18)					
OCT , 1982			JUL , 1983		
07... 0930	5.5		08... 1200	9.5	
25... 0900	4.0		AUG		
NOV			05... 1130	13.5	
18... 1300	5.0		25... 0900	13.0	
APR , 1983			SEP		
10... 1400	8.0		09... 1100	14.5	
27... 1400	2.5		21... 1100	3.5	
MAY					
16... 1300	5.0				

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08214500 - NORTH CLEAR CREEK BL CONTINENTAL RESERVOIR, CO. (LAT 37 53 18 LONG 107 12 10)					
OCT , 1982			MAY , 1983		
07... 1100	3.0		16... 1030	2.5	
25... 1130	7.0		AUG		
NOV			25... 1230	15.5	
18... 1100	5.0		SEP		
APR , 1983			09... 0900	6.0	
27... 1100	4.0		21... 1000	3.0	

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08218500 - GOOSE CREEK AT WAGONWHEEL GAP, CO. (LAT 37 45 07 LONG 106 49 46)					
OCT , 1982			APR , 1983		
07... 1300	8.0		25... 1200	5.5	
25... 1100	5.0		MAY		
NOV			09... 1030	7.0	
18... 1500	1.0		25... 1130	9.0	
DEC			JUN		
13... 0900	.0		17... 1100	10.0	
JAN , 1983			JUL		
12... 0900	.0		29... 0830	10.5	
FEB			AUG		
14... 0830	.0		23... 1200	16.5	
MAR			SEP		
16... 1300	2.0		13... 1000	10.5	
APR					
10... 0930	1.0				

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08219500 - SOUTH FORK RIO GRANDE AT SOUTH FORK, CO. (LAT 37 39 25 LONG 106 38 55)					

OCT , 1982			MAY , 1983		
07... 1400	7.0		09... 1300	7.0	
25... 1200	5.0		25... 1400	6.5	
DEC			JUN		
13... 1130	.0		17... 1400	10.0	
JAN , 1983			JUL		
12... 1200	.0		29... 1100	20.5	
FEB			AUG		
14... 0930	.0		23... 1400	16.5	
MAR			SEP		
16... 1500	1.0		13... 1200	14.0	
APR					
12... 1030	2.5				
25... 1330	7.0				

08220000 - RIO GRANDE NEAR DEL NORTE, CO. (LAT 37 41 22 LONG 106 27 38)

OCT , 1982			APR , 1983		
02... 0800	4.5		01... 1000	2.0	
12... 1000	2.5		12... 1300	7.0	
20... 1000	3.5		20... 1100	6.5	
NOV			MAY		
02... 0900	2.5		03... 0930	5.5	
10... 0900	1.0		11... 1400	9.0	
19... 1000	.5		19... 1030	6.0	
DEC			31... 1030	7.0	
01... 1030	.0		JUN		
13... 1300	.0		10... 1730	10.0	
24... 1100	.0		20... 1130	9.0	
JAN , 1983			JUL		
04... 1000	.0		01... 1530	11.0	
12... 1300	.0		11... 1100	12.5	
21... 1000	.0		20... 1100	14.0	
FEB			AUG		
02... 1100	.0		03... 0930	15.0	
14... 1200	.0		22... 0900	13.5	
MAR			SEP		
01... 1730	2.0		12... 1030	13.5	
14... 1700	5.0		21... 1000	8.5	
24... 1530	4.5				

08240000 - RIO GRANDE AB MOUTH TRINCHERA C NR LASAUSES, CO. (LAT 37 18 58 LONG 105 44 32)

NOV , 1982			APR , 1983		
04... 1500	4.0		15... 1200	7.0	
30... 1230	1.5		MAY		
JAN , 1983			06... 1030	9.0	
10... 1000	.0		18... 1300	10.0	
FEB			AUG		
09... 1130	.0		15... 1230	24.0	
MAR			SEP		
04... 1700	3.0		08... 1400	22.0	
22... 1300	4.0		26... 1400	19.5	

08245000 - CONEJOS RIVER BELOW PLATORO RESERVOIR, CO. (LAT 37 21 18 LONG 106 32 37)

OCT , 1982			JUL , 1983		
14... 1400	9.0		29... 1030	9.5	
APR , 1983			AUG		
28... 1200	3.0		23... 1100	11.0	
JUN			SEP		
23... 1200	5.5		15... 1230	14.0	
JUL					
14... 1100	7.5				

## ANALYSES OF MISCELLANEOUS STATIONS

TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08246500 - CONEJOS RIVER NEAR MOCOTE, CO. (LAT 37 03 14 LONG 106 11 13)					
OCT , 1982			APR , 1983		
01... 1100	8.0		01... 1030	4.5	
20... 0930	4.0		12... 1200	6.5	
NOV			20... 1200	8.5	
01... 0800	2.5		MAY		
22... 0900	.5		02... 1000	3.0	
DEC			10... 1030	5.0	
01... 1200	.0		20... 1100	5.0	
10... 1400	.0		JUL		
22... 1400	.5		11... 1900	12.5	
JAN , 1983			20... 1630	15.0	
03... 1500	.0		AUG		
13... 0930	.0		01... 1100	15.0	
24... 0830	.0		10... 1400	19.0	
FEB			22... 1400	17.5	
01... 1400	.0		SEP		
15... 0800	.0		01... 0900	19.5	
22... 0900	.0		12... 1430	19.5	
MAR			20... 1530	13.0	
01... 0900	.5				
21... 0930	.0				
08247500 - SAN ANTONIO RIVER AT ORTIZ, CO. (LAT 36 59 35 LONG 106 02 17)					
OCT , 1982			APR , 1983		
01... 0930	8.0		12... 1530	7.0	
20... 1130	5.0		20... 1500	7.5	
NOV			MAY		
01... 1030	2.0		02... 0730	4.0	
DEC			10... 1200	3.5	
01... 1430	.0		20... 1400	5.0	
10... 1600	.0		JUL		
JAN , 1983			01... 0900	14.0	
03... 1630	.0		11... 1430	19.0	
17... 1600	.0		20... 1300	25.0	
FEB			AUG		
01... 1700	.0		01... 0830	17.0	
15... 1100	.0		10... 1300	20.0	
MAR			22... 1100	18.0	
01... 1130	.0		SEP		
16... 1230	.5		01... 1200	19.0	
APR			12... 1130	17.0	
01... 1300	5.0				
08248000 - LOS PINOS RIVER NEAR ORTIZ, CO. (LAT 36 58 56 LONG 106 04 23)					
OCT , 1982			APR , 1983		
01... 0800	7.5		20... 1400	9.5	
20... 1100	4.0		MAY		
NOV			02... 0830	1.0	
01... 0930	2.0		10... 1400	6.0	
DEC			20... 1330	3.0	
01... 1330	.0		JUL		
10... 1500	.0		01... 1045	10.5	
JAN , 1983			11... 1600	16.0	
05... 1430	.0		20... 1430	22.0	
17... 1500	.0		AUG		
FEB			01... 0900	15.5	
01... 1600	.0		10... 1100	19.0	
15... 1000	.0		22... 1230	17.0	
MAR			SEP		
01... 1000	.0		01... 1030	17.5	
16... 1030	.0		12... 1230	17.5	
APR			20... 1330	12.5	
01... 1200	5.5				
12... 1400	8.0				



## ANALYSES OF MISCELLANEOUS STATIONS

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TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE	TIME	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE
08249000 - CONEJOS RIVER NEAR LASAUSES, CO. (LAT 37 18 01 LONG 105 44 47)					
OCT , 1982			APR , 1983		
01...	1400	12.5	20...	0730	9.5
12...	1400	9.0	MAY		
20...	1400	10.0	02...	1500	10.0
NOV			11...	0900	10.5
02...	1200	6.0	19...	1600	10.5
10...	1130	6.0	JUN		
22...	1500	5.0	01...	1800	14.5
DEC			10...	1200	14.5
01...	1400	3.0	20...	1600	17.5
22...	0900	.0	JUL		
JAN , 1983			20...	1500	24.0
03...	0800	.0	AUG		
17...	0830	.5	01...	0730	20.0
FEB			10...	1430	28.5
01...	0800	.0	22...	1300	24.0
15...	1630	4.0	SEP		
MAR			01...	1100	25.0
01...	1730	5.5	12...	1400	24.0
10...	0830	4.5	20...	0800	13.5
21...	1500	7.0			
APR					
01...	1300	9.5			
12...	1830	11.5			

08251500 - RIO GRANDE NEAR LOBATOS, CO. (LAT 37 04 42 LONG 105 45 22)

NOV , 1982			APR , 1983		
04...	1200	4.5	20...	1515	14.5
DEC			JUN		
10...	1030	.5	22...	1400	20.0
FEB , 1983			AUG		
08...	1145	.5	26...	1030	19.0

## QUALITY OF GROUND WATER

## EL PASO COUNTY

384313104431801 - SC01506625AAD WIDEFIELD NO. 14.

LOCATION.--Lat 38° 43' 13", long 104° 43' 18", in SE¼NE¼NE¼ sec. 25, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

WELL CHARACTERISTICS.--Municipal well, diameter 18 in, depth 48 ft, screened 37 to 48 ft.

PERIOD OF RECORD.--January 1982 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 22...	1205	1500	1450	--	13.5	12	57
NOV 19...	1200	1470	1490	7.0	13.5	11	60
DEC 17...	0950	1480	1510	6.9	--	11	58
JAN 14...	1520	1510	1580	7.2	13.0	--	55
MAR 17...	1410	1440	1500	7.1	13.0	--	50
MAY 16...	1520	1300	1270	7.0	13.0	--	47
JUL 15...	1420	1170	1110	7.3	13.0	--	43

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT 22...	1110	<.020	11.0	<.060	--	1.1
NOV 19...	1080	<.020	10.0	<.060	--	1.1
DEC 17...	1130	<.020	9.60	.060	.94	1.0
JAN 14...	1070	--	11.0	.060	--	--
MAR 17...	1100	--	9.10	.070	--	--
MAY 16...	968	--	10.3	<.060	--	--
JUL 15...	831	--	9.60	.020	--	--

## QUALITY OF GROUND WATER

365

## EL PASO COUNTY

384407104434801 - SCO1506624BAD1 WIDEFIELD NO. 4.

LOCATION.--Lat 38°44'07", long 104°43'48", in SE¼NE¼NE¼ sec. 24, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Widefield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 16 in., depth 71 ft., screened 41 to 71 ft.

DATUM.--Altitude of land-surface is 5,685 ft.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
22...	1140	770	749	--	13.0	9.2	34
NOV							
19...	1000	769	767	7.0	14.0	8.1	35
DEC							
17...	1025	771	786	6.7	13.5	8.0	36
JAN							
14...	1600	773	794	6.9	12.0	--	36
MAR							
17...	1430	746	767	7.0	12.5	--	33
MAY							
16...	1440	740	754	6.7	13.0	--	34
JUL							
15...	1455	790	733	7.0	14.0	--	32
AUG							
04...	1420	790	--	7.0	13.0	--	--
SEP							
09...	1540	700	732	7.0	13.0	--	31

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT						
22...	508	6.60	<.020	6.60	<.060	2.6
NOV						
19...	460	7.00	<.020	7.00	<.060	1.1
DEC						
17...	516	7.00	<.020	7.00	<.060	1.0
JAN						
14...	507	5.20	--	5.20	.060	--
MAR						
17...	498	5.60	--	5.60	<.060	--
MAY						
16...	515	5.70	--	5.70	.060	--
JUL						
15...	496	5.40	--	5.40	.030	--
AUG						
04...	--	--	--	--	--	--
SEP						
09...	489	5.50	--	5.50	.040	--

## QUALITY OF GROUND WATER

## EL PASO COUNTY

38445810442601 - SC01506614AAD SECURITY NO. 2.

LOCATION.--Lat 38°44'58", long 104°44'26", in SE¼NE¼NE¼ sec. 14, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Widfield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 24 in., depth 78 ft., screened 43 to 78 ft.

DATUM.--Altitude of land-surface is 5,270 ft.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 22...	1050	660	657	--	13.0	7.9	29
NOV 19...	1115	670	672	6.5	13.5	6.4	29
DEC 17...	1045	633	645	6.5	13.5	6.9	28
JAN 14...	1315	616	637	6.7	13.0	--	26
MAR 16...	1245	605	618	6.7	13.0	--	25
MAY 16...	1115	552	555	6.6	13.5	--	20
JUL 15...	1315	510	532	6.7	14.0	--	18
AUG 04...	1315	510	--	6.8	13.0	--	--
SEP 09...	1420	--	517	6.8	14.5	--	19

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT 22...	446	5.80	<.020	5.80	<.060	2.1
NOV 19...	443	5.70	<.020	5.70	<.060	.70
DEC 17...	429	5.70	<.020	5.70	<.060	1.1
JAN 14...	406	5.20	--	5.20	<.060	--
MAR 16...	399	5.90	--	5.90	<.060	--
MAY 16...	369	6.30	--	6.30	<.060	--
JUL 15...	352	6.70	--	6.70	.020	--
AUG 04...	--	--	--	--	--	--
SEP 09...	339	7.60	--	7.60	.040	--

## QUALITY OF GROUND WATER

367

## EL PASO COUNTY

384535104450801 - SC01506611BCD2 VENETUCCI NO. 3.

LOCATION.--Lat 38°45'35", long 104°45'08", in SE¼SW¼NW¼ sec. 11, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Widfield of Fountain Alluvium.

WELL CHARACTERISTICS.--Irrigation well, diameter 24 in., depth 80 ft., screened unknown.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 22...	1315	420	408	--	13.0	9.4	10
NOV 19...	1145	469	469	6.7	13.5	10	14
DEC 17...	1340	400	413	6.6	14.0	9.7	10
JAN 14...	1245	412	424	6.8	13.0	--	11
MAR 17...	1055	413	431	6.7	13.0	--	11
MAY 16...	1410	437	447	6.9	13.0	--	13
SEP 09...	1130	443	434	7.0	13.0	--	12

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT 22...	276	8.20	<.020	8.20	<.060	1.1
NOV 19...	319	9.10	<.020	9.10	<.060	.90
DEC 17...	277	9.00	<.020	9.00	<.060	.70
JAN 14...	279	8.00	--	8.00	<.060	--
MAR 17...	281	7.50	--	7.50	.090	--
MAY 16...	304	7.70	--	7.70	<.060	--
SEP 09...	287	8.10	--	8.10	.010	--

## QUALITY OF GROUND WATER

## EL PASO COUNTY

384610104453501 - SC01506603DDB SECURITY NO. 14.

LOCATION.--Lat 38°46'10", long 104°45'35", in NW¼SE¼SE¼ sec. 14, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Widefield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 24 in., depth 80 ft., screened 39 to 80 ft.

DATUM.--Altitude of land-surface is 5,780 ft.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
22...	1110	530	508	--	13.0	7.5	17
NOV							
19...	1120	525	531	6.9	13.5	7.6	19
DEC							
17...	1110	522	531	7.0	13.5	7.9	18
JAN							
14...	1345	535	550	7.1	13.0	--	19
MAR							
17...	1220	529	548	6.9	12.5	--	38
MAY							
16...	1155	548	550	6.4	13.0	--	21
JUL							
15...	1340	530	540	7.2	13.0	--	20
SEP							
09...	1445	560	536	7.3	13.0	--	21

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT						
22...	336	6.40	<.020	6.40	<.060	1.1
NOV						
19...	349	7.00	<.020	7.00	<.060	.60
DEC						
17...	351	7.00	<.020	7.00	<.060	.90
JAN						
14...	349	6.00	--	6.00	<.060	--
MAR						
17...	348	6.40	--	6.40	<.060	--
MAY						
16...	327	5.80	--	5.80	<.060	--
JUL						
15...	354	6.30	--	6.30	.020	--
SEP						
09...	351	7.60	--	7.60	.040	--

## QUALITY OF GROUND WATER

369

## EL PASO COUNTY

384618104455901 - SC01506603CAD STRATMOOR HILLS NO. 4.

LOCATION.--Lat 38°46'17", long 104°45'59", in SE¼NE¼SW¼ sec. 3, T.15S., R.66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Widfield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 16 in., depth 49 ft., screened 29 to 49 ft.

DATUM.--Altitude of land-surface is 5,760 ft.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	NITRO- GEN DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 22...	1240	--	860	--	14.0	10	32
NOV 19...	1130	930	926	6.8	14.0	9.1	33
DEC 17...	1130	865	872	6.8	13.5	8.1	40
JAN 14...	1415	916	939	7.1	12.5	--	40
MAR 17...	1320	928	951	7.0	12.5	--	41
MAY 16...	1240	974	959	6.8	13.0	--	30
JUL 15...	1200	960	902	7.2	14.0	--	30
AUG 04...	1120	915	--	7.2	13.0	--	--
SEP 09...	1110	970	904	7.1	14.0	--	31

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT 22...	662	8.20	<.020	8.20	<.060	2.0
NOV 19...	651	8.50	<.020	8.50	<.060	.60
DEC 17...	603	7.50	<.020	7.50	<.060	.60
JAN 14...	636	6.50	--	6.50	<.060	--
MAR 17...	642	5.90	--	5.90	.060	--
MAY 16...	696	7.10	--	7.10	.060	--
JUL 15...	655	7.90	--	7.90	.080	--
AUG 04...	--	--	--	--	--	--
SEP 09...	638	8.20	--	8.20	.110	--

## GROUND-WATER LEVELS

## ADAMS COUNTY

395727N104071701

SC 1-60-17DCC. Carl Sanden. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 87 ft. MP, 1.7 ft, above lsd. Altitude of land surface, 4,830.8 ft. Records available: 1942-83.

Highest water level, 25.09 ft, below lsd, Nov. 19, 1942; lowest water level, 50.63 ft, below lsd, June 10, 1982.

March 31, 1983 48.07 ft

395643N104183301

SC 1-62-22DCA. Charles B. Nordloh. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 82 ft. MP, 0.8 ft, below lsd. Altitude of land surface, 4,994 ft. Records available: 1946-83.

Highest water level, 44.21 ft, below lsd, Nov. 25, 1949; lowest water level, 61.9 ft, below lsd, Mar. 12, 1973.

Mar. 11, 1983 61.48 ft

## ALAMOSA COUNTY

372154N105555401

NA36- 9-13AAA. U.S. Geological Survey. Jetted observation water-table well in basin-fill deposits. Diameter, 3 in. Depth, 10 ft. MP, 2.3 ft, above lsd. Altitude of land surface, 7,558.1 ft. Records available: 1949-64, 1966-75, 1980-83.

Highest water level, 0.07 ft, below lsd, May 5, 1968; lowest water level, 6.17 ft, below lsd, Jan. 6, 1964.

Jan. 4, 1983 3.35 ft

373409N106021501

NA39- 9-31CCC. U.S. Geological Survey. Jetted observation water-table well in basin-fill deposits. Diameter, 3 in. Depth, 10 ft. MP, 1.70 ft, above lsd. Altitude of land surface, 7,567.4 ft. Records available: 1948-64, 1966-75, 1977, 1980, 1983.

Highest water level, 1.42 ft, below lsd, June 26, 1962; lowest water level, 5.78 ft, below lsd, Jan. 27, 1969.

Jan. 4, 1983 3.27 ft

## BACA COUNTY

373058N102151500

SC29-43-15CCB. James Thompson. Drilled observation artesian well in Cheyenne Sandstone Member of Purgatoire Formation. Diameter, 1.25 in. Depth, 343 ft, (reported). MP, 1.40 ft, above lsd. Altitude of land surface, 3,913 ft. Records available: 1955-83.

Highest water level, 48.60 ft, below lsd, Jan. 16, 1975; lowest water level, 68.74 ft, below lsd, Feb. 2, 1978.

Jan. 18, 1983 60.27 ft

## BENT COUNTY

380228N103105600

SC23-52-13DDC. B. F. Owens. Drilled stock water-table well in valley-fill deposits. Diameter, 6 in. Depth, 19 ft. MP, 2.0 ft, above lsd. Altitude of land surface, 3,895 ft. Records available: 1959-75, 1979-83.

Highest water level, 8.6 ft below lsd, Dec. 4, 1962; lowest water level, 16.6 ft, below lsd, Nov. 13, 1964.

Mar. 10, 1983 14.62 ft

## ELBERT COUNTY

391717N103475001

SC 9-57- 8ABB. J. C. Mattson. Drilled observation water-table well in alluvium. Diameter, 6 in. Depth, 28 ft. MP, 0.20 ft, above lsd. Altitude of land surface, 5,475 ft. Records available: 1945-83.

Highest water level, 5.00 ft, below lsd, July 2, 1947; lowest water level, 7.92 ft below lsd, Mar. 2, 1977.

Apr. 27, 1983 7.50 ft



## EL PASO COUNTY

390441N104184501

SC11-62-22ADC. Anthony Eurich. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 44 ft. MP, 0.80 ft, above lsd. Altitude of land surface, 6,364.8 ft. Records available: 1945-83.

Highest water level, 5.49 ft, below lsd, Aug. 9, 1947; lowest water level, 8.48 ft below lsd, July 11, 1952.

Apr. 12, 1983 6.41 ft

## HUERFANO COUNTY

373922N104501401

SC-27-67-36ACB. State of Colorado. Drilled stock water-table well in Trinidad Sandstone. Diameter, 7 in. Depth, 62 ft. MP, 2.2 ft, above lsd. Altitude of land surface, 6,282 ft. Records available: 1950-75, 1980, 1983.

Highest water level, 41.33 ft, below lsd, May 7, 1980; lowest water level, 48.8 ft below lsd, Apr. 26, 1955.

Apr. 25, 1983 43.28 ft

## KIOWA COUNTY

383230N102274601

SC17-45-31ABA. U.S. Government. Bored observation water-table well in valley-fill deposits. Diameter, 1.25 in. Depth, 11 ft. MP, 1.5 ft, above lsd. Altitude of land surface, 3,954.4 ft. Records available: 1959-83.

Highest water level, 4.99 ft, below lsd, Apr. 27, 1983; lowest water level, 8.6 ft below lsd, Nov. 10, 1960.

Apr. 27, 1983 4.99 ft

## KIT CARSON COUNTY

392230N103052000

SC 8-51-10ABB2. Drilled irrigation water-table well in alluvium and Meade Formation. Diameter, 18 in. Depth, 74 ft. MP, 0.1 ft, above lsd. Altitude of land surface, 4,870 ft. Records available: 1951-83.

Highest water level, 30.4 ft, below lsd, Jan. 15, 1952; lowest water level, 40.64 ft, below lsd, Jan. 8, 1979.

Jan. 10, 1983 38.75 ft

391110N102030100

SC10-42-12DCD. U.S. Government. Drilled observation water-table well in Ogallala Formation. Diameter, 1.25 in. Depth, 273 ft. MP, 3.30 ft, above lsd. Altitude of land surface, 3,997.7 ft. Records available: 1955-83.

Highest water level, 101.67 ft, below lsd, Aug. 12, 1955; lowest water level, 132.50 ft, below lsd, Jan. 11, 1983.

Jan. 11, 1983 132.50 ft

## LARIMER COUNTY

402426N105013001

SB 5-68-17AAB. George Peak. Drilled irrigation water-table well in alluvium. Diameter, 48 in. Depth, 24 ft. MP, 1.0 ft, above lsd. Altitude of land surface, 4,948 ft. Records available: 1941-83.

Highest water level, 5.43 ft, below lsd, Oct. 27, 1947; lowest water level, 14.45 ft below lsd. Apr. 20, 1949.

Mar. 11, 1983 11.10 ft

403333N104585001

SB 7-68-23CBB1. W. A. Scott. Drilled observation water-table well in alluvium. Diameter, 48 in. Depth, 52 ft. MP, 2.70 ft, above lsd. Altitude of land surface, 4,902 ft. Records available: 1941-79, 1982-83.

Highest water level, 4.93 ft below lsd. Nov. 6, 1957; lowest water level, 10.5 ft below lsd, Mar. 15, 1975.

Mar. 10, 1983 4.41 ft

## GROUND-WATER LEVELS--Continued

## LARIMER COUNTY--Continued

404517N105014201

SB 9-68-17BAA. Harlan Seaworth. Drilled irrigation water-table well in alluvium. Diameter, 20 in. Depth, 92 ft. MP, 0.40 ft, above lsd. Altitude of land surface, 5,329 ft. Records available: 1939-79, 1983.

Highest water level, 29.02 ft below lsd, Apr. 3, 1959; lowest water level, 64.45 ft, below lsd, Nov. 9, 1956.

Mar. 11, 1983 34.70 ft

## LINCOLN COUNTY

385724N103155601

SC13-53-1DDC. U.S. Government. Bored observation water-table well in alluvium. Diameter, 1.25 in. Depth, 8 ft. MP, 1.0 ft, above lsd. Altitude of land surface, 4,720 ft. Records available: 1959-77, 1979-83.

Highest water level, 3.5 ft, below lsd, Apr. 4, 1960; lowest water level, 5.28 ft, below lsd, Mar. 2, 1977.

Apr. 27, 1983 4.81 ft

## LOGAN COUNTY

404256N103064401

SB 9-51-31BBB. Frank Manuello. Drilled irrigation water-table well in alluvium. Diameter unknown. Depth, 106 ft. MP, 1.0 ft, above lsd. Altitude of land surface, 3,865 ft. Records available: 1947-83.

Highest water level, 2.89 ft below lsd, Oct. 6, 1947; lowest water level, 7.16 ft, below lsd, Jan. 10, 1975.

Mar. 11, 1983 5.25 ft

405209N102481700

SB10-49-2CBC. G. E. Henery. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 32 ft. MP, 1.50 ft above lsd. Altitude of land surface, 3,711 ft. Records available: 1947-79, 1982-83.

Highest water level, 3.95 ft, below lsd, Apr. 7, 1958; lowest water level, 9.03 ft below lsd, Nov. 6, 1964.

Mar. 10, 1983 5.74 ft

## MORGAN COUNTY

401452N103480200

SB 3-57-6DCC. City of Fort Morgan. Dug and drilled observation water-table well in alluvium. Diameter, 12 in. Depth, 180 ft. MP, 5.0 ft below lsd. Altitude of land surface, 4,325.6 ft. Records available: 1940-83.

Highest water level, 39.88 ft, below lsd, Jan. 20-21, 1955; lowest water level, 56.76 ft, below lsd, Sept. 5, 1965.

Mar. 10, 1983 50.62 ft

401424N103505200

SB 3-58-11BCC. Alex Stark. Drilled irrigation water-table well in alluvium. Diameter, 16 in. Depth, 145 ft. MP, 2.40 ft, above lsd. Altitude of land surface, 4,366.2 ft. Records available: 1939-65, 1967, 1970-79, 1982-83

Highest water level, 51.85 ft, below lsd, Nov. 19, 1942; lowest water level, 69.87 ft, below lsd, Nov. 5, 1964.

Mar. 25, 1983 62.56 ft

401214N104053401

SB 3-60-22CCC. B. A. Holden. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 120 ft. MP, 0.20 ft, above lsd. Altitude of land surface, 4,568.4 ft. Records available: 1936-83.

Highest water level, 49.44 ft, below lsd, Apr. 11, 1938; lowest water level, 103.83 ft, below lsd, Mar. 25, 1980.

Mar. 24, 1983 -99.74 ft

401915N103321100

SB 4-55-9DCC. Rudolph and Schooley. Drilled irrigation water-table well in alluvium. Diameter, 14 in. Depth, 88 ft. MP, 2.0 ft, above lsd. Altitude of land surface, 4,175.2 ft. Records available: 1930, 1932-79, 1982-83.

Highest water level, 14.75 ft, below lsd, Oct. 19, 1949; lowest water level, 25.76 ft, below lsd, Mar. 11, 1969.

Mar. 9, 1983 21.35 ft

## MORGAN COUNTY--Continued

402113N103580300

SB 5-59-34CAD. G. Williams. Dug domestic and stock water-table well in alluvium. Diameter, 36 in. Depth, 20 ft. MP, 2.20 ft, above lsd. Altitude of land surface, 4,362 ft, above msl. Records available: 1947-83.

Highest water level, 7.16 ft, below lsd, Sept. 9, 1948; lowest water level, 16.72 ft, below lsd, Apr. 7, 1956.

Mar. 25, 1983      16.31 ft

## OTERO COUNTY

380706N103534200

SC22-58-21DAA. C. Meyer. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 56 ft. MP, 1.90 ft, above lsd. Altitude of land surface, 4,282 ft. Records available: 1928-31, 1933-83.

Highest water level, 25.54 ft, below lsd, Mar. 28, 1955; lowest water level, 36.61 ft, below lsd, Mar. 6, 1979.

Mar. 7, 1983      33.55 ft

380334N103434700

SC23-57-12DAD. American Crystal Sugar Co. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 27 ft. MP, 2.00 ft, above lsd. Altitude of land surface, 4,186 ft. Records available: 1944-78, 1980-83.

Highest water level, 8.87 ft, below lsd, Dec. 4, 1946; lowest water level, 15.78 ft, below lsd, Nov. 27, 1956.

Mar. 8, 1983      13.54 ft

## PHILLIPS COUNTY

403230N102070901

SB 7-43-35ABB2. Rosa Norris. Drilled irrigation water-table well in Ogallala Formation. Diameter, 16 in. Depth, 300 ft. MP, 0.70 ft, above lsd. Altitude of land surface, 3,601 ft. Records available: 1976-83.

Highest water level, 46.06 ft, below lsd, Feb. 20, 1974; lowest water level, 60.91 ft, below lsd, Dec. 29, 1981.

Jan. 4, 1983      60.56 ft

## PROWERS COUNTY

380532N102311600

SC22-45-31-CBB. U.S. Geological Survey. Driven observation water-table well in alluvium. Diameter, 1.25 in. Depth, 11 ft. MP, 3.5 ft, above lsd. Altitude of land surface, 3,567 ft. Records available: 1955-83.

Highest water level, 0.10 ft below lsd, Aug. 24, 1967; lowest water level, 6.00 ft below lsd, May 3, 1965.

Jan. 7, 1983      3.82 ft  
Mar. 10, 1983      3.88 ft  
May 19, 1983      3.86 ft  
Dec. 1, 1983      5.83 ft

## PUEBLO COUNTY

381340N104205601

SC21-62-9CCC. Susie C. Potestio. Drilled irrigation water-table well in alluvium. Diameter, 15 in. Depth, 28 ft. MP, 1.1 ft, above lsd. Altitude of land surface, 4,567 ft. Records available: 1929, 1934-75, 1980-83.

Highest water level, 13.90 ft, below lsd, Nov. 16, 1965; lowest water level, 20.55 ft, below lsd, July 28, 1981.

Mar. 10, 1983      16.14 ft

381443N104320701

SC21-64-3DAC. Joseph Thomas. Drilled irrigation water-table well in alluvium. Diameter, 15 in. Depth, 35 ft. MP, 2.10 ft, above lsd. Altitude of land surface, 4,679 ft. Records available: 1934-75, 1979, 1982.

Highest water level, 12.20 ft, below lsd, Nov. 11, 1942; lowest water level, 27.50 ft, below lsd, Mar. 14, 1977.

Mar. 17, 1982      23.94 ft

## GROUND-WATER LEVELS--Continued

## PUEBLO COUNTY--Continued

380817N104043400

SC22-60-13BBC. C. J. Sindig. Drilled irrigation water-table well in alluvium. Diameter, 4 ft. Depth, 39 ft. MP, 1.0 ft, above lsd. Altitude of land surface, 4,375 ft. Records available: 1952-83.

Highest water level, 27.60 ft, below lsd, Mar. 10, 1983; lowest water level, 36.16 ft, below lsd, Nov. 28, 1956.

Mar. 10, 1983      27.60 ft

## SEDGWICK COUNTY

404741N102030500

SB10-42-32DDD. U.S. Geological Survey. Drilled observation water-table well in Ogallala Formation. Diameter, 1.25 in. Depth, 207 ft. MP, 2.80 ft, above lsd. Altitude of land surface, 3,609.2 ft. Records available: 1952-83.

Highest water level, 176.34 ft, below lsd, Jan. 16, 1969; lowest water level, 190.75 ft, below lsd. Dec. 19, 1982.

Dec. 19, 1983      190.75 ft

405805N102235100

SB11-45-5BBA. F. J. Hilderman. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 52 ft. MP, 0.50 ft, above lsd. Altitude of land surface, 3,540 ft. Records available: 1947-79, 1982-83.

Highest water level, 11.23 ft, below lsd, Oct. 7, 1949; lowest water level, 20.70 ft, below lsd, Jan. 6, 1975.

Mar. 10, 1983      15.96 ft

405435N102364300

SB11-47-28BBB. James Jankovsky. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 52 ft. MP, 0.50 ft, above lsd. Altitude of land surface, 3,624 ft. Records available: 1948-79, 1982-83.

Highest water level, 2.51 ft below lsd, June 24, 1948; lowest water level, 5.61 ft below lsd, Oct. 17, 1954.

Mar. 10, 1983      3.27 ft

## WASHINGTON COUNTY

395706N103325901

SC 1-55-21BCD. A. Blake. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 41 ft. MP, 1.50 ft, above lsd. Altitude of land surface, 4,487.3 ft. Records available: 1947-67, 1970-83.

Highest water level, 11.83 ft, below lsd, Dec. 9, 1947; lowest water level, 16.95 ft, below lsd, Oct. 20, 1960.

1983                  Dry (well filled in)

394038N102481800

SC 4-49-25ADC1. Cecil Williams. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 17 ft. MP, 0.20 ft, above lsd. Altitude of land surface, 4,350 ft. Records available: 1950-69, 1971-72, 1975-79, 1982-83.

Highest water level, 7.42 ft below lsd, Aug. 6, 1951; lowest water level, 16.30 ft below lsd, Jan. 4, 1979.

Mar. 30, 1983      14.46 ft

393902N102561800

SC 5-50-2AAB. Lloyd McIrwin. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 54 ft. MP, 2.00 ft, above lsd. Altitude of land surface, 4,514.6 ft. Records available: 1950-67, 1969-75, 1982-83.

Highest water level, 16.44 ft, below lsd, Nov. 8, 1961; lowest water level, 22.65 ft, below lsd, July 23, 1954.

Mar. 30, 1983      20.78 ft

## WELD COUNTY

400306N104154701

SB 1-62-13ADD. C. M. Roark. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 76 ft. MP, 3.00 ft, above lsd. Altitude of land surface, 4,824.1 ft. Records available: 1947-75, 1981, 1983.

Highest water level, 18.29 ft, below lsd, Oct. 16, 1952; lowest water level, 53.20 ft, below lsd, Mar. 12, 1981.

Mar. 10, 1983      48.91 ft

## WELD COUNTY--Continued

4004271N104244801

SB 1-63-2CCC. D. Trupp. Drilled irrigation water-table well in alluvium. Diameter, 20 in. Depth, 96 ft. MP, 0.30 ft, above lsd. Altitude of land surface, 4,822 ft. Records available: 1944-56, 1958-83.

Highest water level, 51.70 ft below lsd, May 1, 1950; lowest water level, 75.90 ft below lsd, Nov. 13, 1959.

Mar. 10, 1983 68.80 ft

400125N104370001

SB 1-65-25CCD1. Fred Haffner, Sr. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 69 ft. MP, 0.60 ft, above lsd. Altitude of land surface, 5,044 ft. Records available: 1940-83.

Highest water level, 30.29 ft, below lsd, Apr. 12, 1950; lowest water level, 45.70 ft, below lsd, Mar. 2, 1979.

Mar. 10, 1983 44.50 ft

400129N104483800

SB 1-66-30ADA. G. J. Mancini. Dug irrigation water-table well in alluvium. Diameter, 8 ft. Depth, 31 ft. MP, 1.15 ft, above lsd. Altitude of land surface, 4,953 ft. Records available: 1929-75, 1978-83.

Highest water level, 10.29 ft, below lsd, Oct. 12, 1933; lowest water level, 21.16 ft, below lsd, Mar. 11, 1982.

Mar. 10, 1983 20.10 ft

401727N104133000

SB 4-61-28BBB. K. Mori. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 100 ft. MP, 0.80 ft, above lsd. Altitude of land surface, 4,482 ft. Records available: 1947-79, 1982-83.

Highest water level, 21.60 ft, below lsd, Oct. 9, 1947; lowest water level, 40.60 ft, below lsd, Mar. 1, 1976.

Mar. 23, 1983 32.75 ft

401912N104313700

SB 4-64-10DDD. T. E. Dwyer. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 60 ft. MP, 0.60 ft, above lsd. Altitude of land surface, 4,635 ft. Records available: 1940-83.

Highest water level, 6.43 ft below lsd, Nov. 9, 1949; lowest water level, 23.64 ft below lsd, Nov. 13, 1956.

Mar. 21, 1983 12.29 ft

402753N104280901

SB6-63-29BBB. H. L. Wells. Drilled irrigation water-table well in alluvium. Diameter, 4 ft. Depth, 37 ft. MP, 1.80 ft, above lsd. Altitude of land surface, 4,655 ft. Records available: 1932-79, 1982-83.

Highest water level, 7.19 ft, below lsd, Aug. 11, 1932; lowest water level, 22.85 ft, below lsd, Nov. 12, 1956.

Mar. 22, 1983 10.92 ft

402930N104414301

SB 6-65-17BBC. H. W. Farr. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 65 ft. MP, 0.80 ft, above lsd. Altitude of land surface, 4,761.9 ft. Records available: 1932-76, 1982-83.

Highest water level, 21.22 ft, below lsd, Aug. 1, 1932; lowest water level, 41.36 ft, below lsd, Nov. 12, 1956.

Mar. 22, 1983 25.69 ft

403032N104510201

SB 6-67-12BBB. Fred Felte. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 22 ft. MP, 0.50 ft, above lsd. Altitude of land surface, 4,859 ft. Records available: 1941-75, 1982-83.

Highest water level, 5.45 ft, below lsd, Mar. 21, 1962; lowest water level, 13.30 ft, below lsd, Nov. 12, 1956.

Mar. 22, 1983 8.24 ft

403454N104403701

SB 7-65-16BBB. K. Akahoshi. Drilled irrigation water-table well in alluvium. Diameter, 4 ft. Depth, 18 ft. MP, 2.70 ft, above lsd. Altitude of land surface, 4,875.1 ft. Records available: 1942-48, 1950-79, 1982-83.

Highest water level, 4.09 ft below lsd, Oct. 28, 1959; lowest water level, 7.42 ft below lsd, Apr. 29, 1946.

Mar. 10, 1983 4.34 ft

## GROUND-WATER LEVELS--Continued

## WELD COUNTY--Continued

403914N104451801

SB 8-66-22AAA. Troy Jones. Dug irrigation water-table well in alluvium. Diameter, 12 ft. Depth, 31 ft. MP, 2.1 ft, above lsd. Altitude of land surface, 5,073.7 ft. Records available: 1929-83.

Highest water level, 16.20 ft, below lsd, Jan. 8, 1947; lowest water level, 22.68 ft, below lsd, Nov. 22, 1954.

Mar. 10, 1983      20.73 ft

## YUMA COUNTY

401105N102061101

SB 3-42-31BDD. U.S. Geological Survey. Drilled observation water-table well in Ogallala Formation. Diameter, 1.25 in. Depth, 92 ft. MP, 0.5 ft above lsd. Altitude of land surface, 3,615.8 ft. Records available: 1952-83.

Highest water level, 21.25 ft, below lsd, Aug. 14, 1952; lowest water level, 48.52 ft, below lsd, Jan. 11, 1981.

Jan. 5, 1983      46.60 ft

401410N102415000

SB 3-48-12CCC. C. Pagel. Drilled stock water-table well in Ogallala Formation. Diameter, 4 in. Depth, 184 ft. MP, 0.1 ft, above lsd. Altitude of land surface, 4,068.1 ft. Records available: 1956-79, 1982-83.

Highest water level, 171.4 ft, below lsd, Nov. 21, 1966; lowest water level, 183.92 ft, below lsd, Jan. 15, 1977.

1983              Dry

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## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons

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