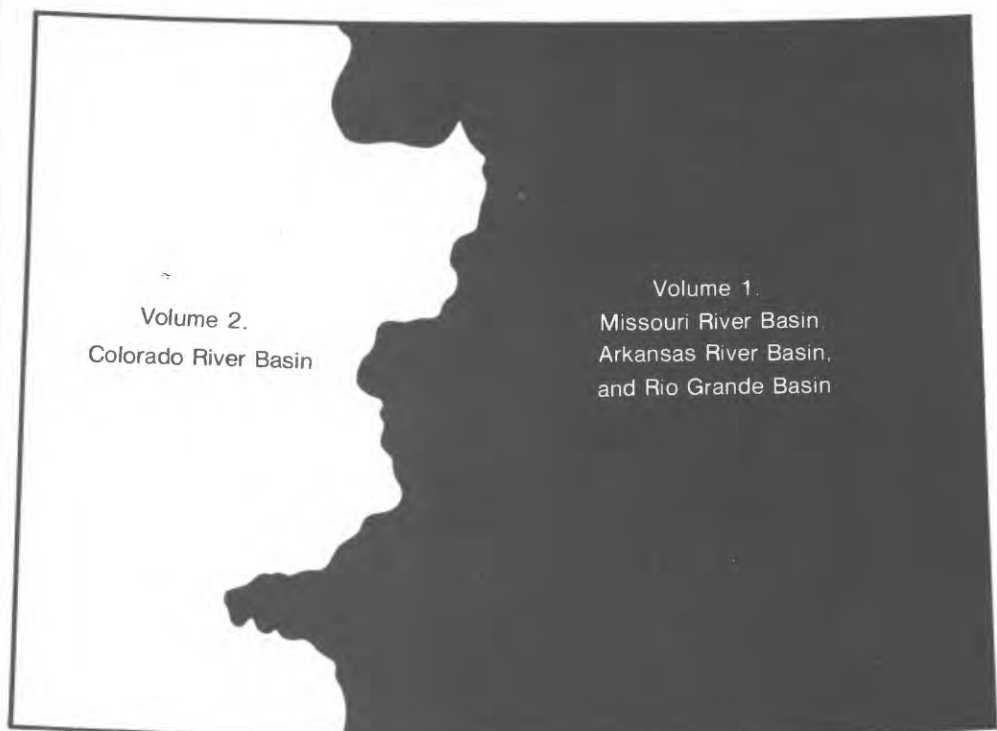




# Water Resources Data Colorado Water Year 1986

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CO-86-1  
Prepared in cooperation with the State of Colorado  
and with other agencies

CALENDAR FOR WATER YEAR 1986

1985

OCTOBER							NOVEMBER							DECEMBER						
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1986

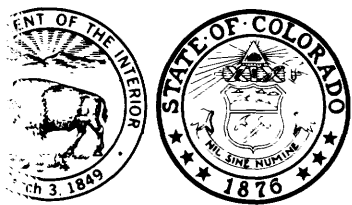
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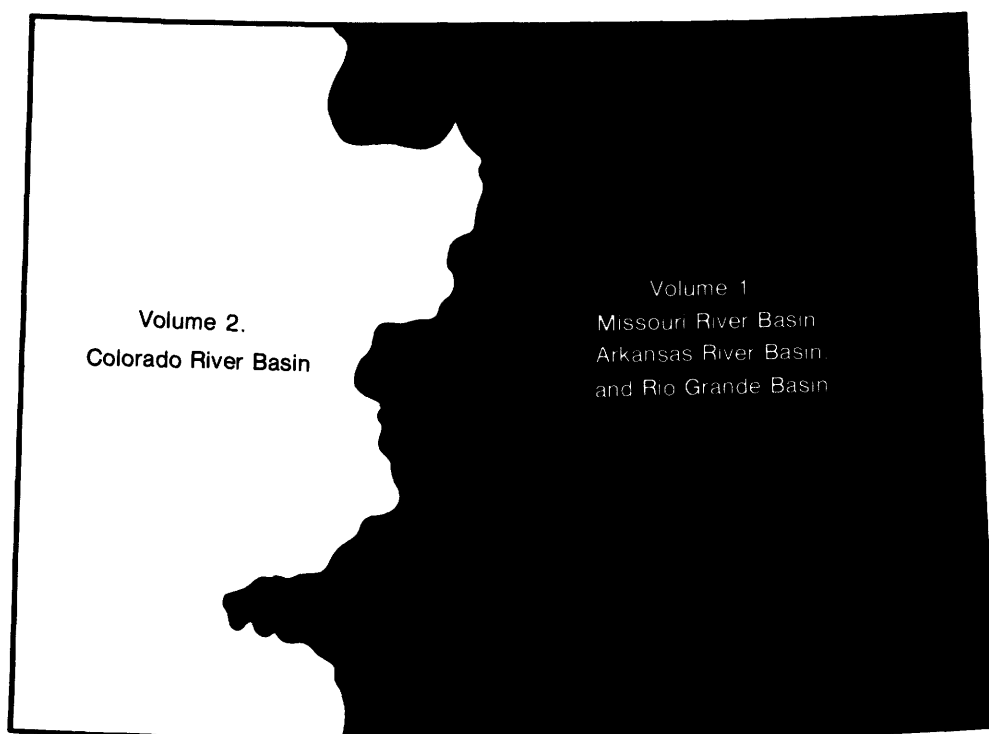
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							31															



# Water Resources Data Colorado Water Year 1986

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CO-86-1  
Prepared in cooperation with the State of Colorado  
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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U.S. Geological Survey  
Box 25046, Mail Stop 415  
Denver Federal Center  
Lakewood, Co 80225

1987

## 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 two volumes:

- Volume 1. Missouri River, Arkansas River, and Rio Grande  
basins in Colorado,
- Volume 2. Colorado River basin.

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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			<b>14.</b>
<b>16. Abstract (Limit: 200 words)</b>  Water-resources data for Colorado for the 1986 water year 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 discharge records for 374 gaging stations, stage and contents of 24 lakes and reservoirs, 5 partial-record low-flow stations, peak flow information for 34 crest-stage partial record stations, and 1 miscellaneous site; water quality for 118 gaging stations and 256 miscellaneous sites; and water levels for 44 observation wells. Six pertinent stations in bordering States also are included in this report. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey under the direction of C. A. Pascale, District Chief. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies.			
<b>17. Document Analysis a. Descriptors</b>  *Colorado, *Hydrologic data, *Surface water, *Ground water, *Water quality; Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses.  <b>b. Identifiers/Open-Ended Terms</b>    <b>c. COSATI Field/Group</b>			
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## CONTENTS

	Page
Preface . . . . .	III
List of gaging stations, in downstream order, for which records are published . . . . .	VII
List of observation wells, by county, for which records are published . . . . .	XII
Introduction. . . . .	1
Cooperation . . . . .	6
Overview of water year 1986 . . . . .	9
Definition of terms . . . . .	19
Downstream order and station number . . . . .	29
Special networks and programs . . . . .	30
Explanation of stage and water-discharge records. . . . .	31
Collection and computation of data. . . . .	31
Accuracy of field data and computed results . . . . .	34
Other data available. . . . .	34
Records of discharge collected by agencies other than the Geological Survey . . . . .	35
Access to WATSTORE DATA . . . . .	35
Explanation of water-quality records. . . . .	35
Collection and examination of data. . . . .	35
Water analysis. . . . .	36
Water temperatures. . . . .	37
Solutes . . . . .	38
Sediment. . . . .	38
Water-supply papers . . . . .	39
Explanation of ground-water-level records . . . . .	40
Collection of data. . . . .	40
Publications. . . . .	42
Explanation of omitted records. . . . .	42
Selected references . . . . .	44
Publications on techniques of water-resources investigations. . . . .	47
Gaging-station records. . . . .	49
Transmountain diversions. . . . .	307
Transmountain diversions from Colorado River basin in Colorado. . . . .	307
Discharge at partial-record stations and miscellaneous sites. . . . .	309
Crest-stage partial-record stations . . . . .	309
Supplemental Water-Quality Data for Gaging Stations . . . . .	312
Discharge and selected water-quality data at sites on Upper Fountain and Monument Creeks. . . . .	320
Fountain Creek streamflow evaluation. . . . .	328
Quality of Ground-water . . . . .	331
Ground-water levels . . . . .	337
Index . . . . .	343

Figures 1-3. Map showing:		
1. Location of lakes and stream-gaging stations and water-quality stations in Colorado. . . . .		3
2. Location of crest-stage partial-record stations in Colorado. . . . .		4
3. Location of observation wells in Colorado. . . . .		5
4. Comparison of precipitation and streamflow during water year 1986 to long-term means . . . . .		10
5. Comparison of range and distribution of specific conductance measured during water year 1986 to long-term values . . . . .		15
6. Annual water levels in selected wells for water years 1977-86 and principal aquifers in Colorado . . . .		18
7. System for numbering wells and miscellaneous sites (latitude and longitude) . . . . .		40

## TABLES

Table 1. Precipitation during water year 1986 and departures from normal precipitation (water years 1951-80), in inches . . .		9
2. Peak discharges for water year 1986 and for the period of record at selected gaging stations . . . . .		13
3. Results of t-tests comparing mean specific conductance of streamflow for water year 1986 with mean for the period of record at selected gaging stations . . . . .		16
4. Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter. . . .		23
5. Factors for conversion of sediment concentration in milli- grams per liter to parts per million. . . . .		24
6. Degrees Celsius (°C) to degrees Fahrenheit (°F) . . . . .		37
7. Water-supply paper numbers and parts, water years 1941-71 . .		39
8. Stations with data omitted from this report . . . . .		43
9. Stations with previous data included in this report . . . . .		43



GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED VII

( Letter after station name designates type and frequency of published data.

Daily tables: (D) discharge, (C) specific conductance, (S) sediment, (T) temperature, (e) elevation or contents, (O) dissolved oxygen, (P) pH.

Partial tables: (c) chemical, (b) biological, (m) microbiological, (s) sediment, (t) temperature)

Page

MISSOURI RIVER BASIN

Missouri River:

PLATTE RIVER BASIN

North Platte River:

Michigan River near Cameron Pass (D) . . . . . 49

North Platte River near Northgate (Dct) . . . . . 50

South Platte River:

South Platte River above Elevenmile Canyon Reservoir, near Hartsel (D) . . . . . 52

South Platte River near Lake George (D) . . . . . 53

Tarryall Creek at upper station, near Como (D) . . . . . 54

French Creek near Jefferson (D) . . . . . 55

Michigan Creek above Jefferson (D) . . . . . 56

Jefferson Creek near Jefferson (D) . . . . . 57

Rock Creek near Jefferson (D) . . . . . 58

Tarryall Creek below Rock Creek, near Jefferson (D) . . . . . 59

Reservoirs in South Platte River basin (e) . . . . . 60

South Platte River below Cheesman Lake (D) . . . . . 61

North Fork South Platte River below Geneva Creek, at Grant (D) . . . 62

East Plum Creek at Castle Rock (D) . . . . . 63

Plum Creek near Louviers (D) . . . . . 65

Plum Creek at Titan Road near Louviers (D) . . . . . 66

Chatfield Lake near Littleton (e) . . . . . 67

South Platte River at Littleton (DcmtCT) . . . . . 68

Bear Creek above Evergreen (D) . . . . . 72

Bear Creek at Morrison (D) . . . . . 73

Turkey Creek above Bear Creek Lake, near Morrison (D) . . . . . 74

South Platte River at Englewood (DTPCO) . . . . . 75

Cherry Creek near Franktown (D) . . . . . 80

Cherry Creek Lake near Denver (e) . . . . . 81

Cherry Creek below Cherry Creek Lake (D) . . . . . 82

Cherry Creek at Glendale (D) . . . . . 83

Cherry Creek at Denver (D) . . . . . 84

South Platte River at Denver (D) . . . . . 85

South Platte River at 64th Avenue at Commerce City (D) . . . . . 86

Clear Creek near Lawson (D) . . . . . 87

Clear Creek at Golden (D) . . . . . 88

St. Vrain Creek at Lyons (D) . . . . . 89

St. Vrain Creek below Longmont (D) . . . . . 90

VIII GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

	Page
Missouri River--Continued	
PLATTE RIVER BASIN--Continued	
North Platte River--Continued	
South Platte River--Continued	
St. Vrain Creek--Continued	
Boulder Creek--Continued	
Bummers Gulch near El Vado (D) . . . . .	91
Fourmile Creek at Orodell (D) . . . . .	92
South Boulder Creek near Eldorado Springs (D) . . . . .	93
Boulder Creek at mouth near Longmont (Dctm) . . . . .	94
Big Thompson River at Estes Park (D) . . . . .	97
Olympus Tunnel at Lake Estes (ctmb) . . . . .	98
Big Thompson River near Estes Park (D) . . . . .	100
Horsetooth Reservoir near Fort Collins (etcmb) . . . . .	101
Big Thompson River above Loveland (ct) . . . . .	108
Big Thompson River at Loveland (Dtc) . . . . .	111
Big Thompson River below Loveland (ct) . . . . .	115
Carter Lake near Berthoud (etcmb) . . . . .	118
Cache la Poudre River:	
Joe Wright Creek above Joe Wright Reservoir (D) . . . . .	121
Joe Wright Creek below Joe Wright Reservoir (D) . . . . .	122
Cache la Poudre River at mouth of canyon, near Fort Collins (D) . . . . .	123
Cache la Poudre River at Shields Street at Fort Collins (ct) . . . . .	124
Cache la Poudre River at Fort Collins (Dct) . . . . .	127
Cache la Poudre River below Fort Collins (ct) . . . . .	131
Cache la Poudre River above Box Elder Creek near Timnath (Dct) . . . . .	134
Cache la Poudre River near Greeley (D) . . . . .	138
South Platte River at Masters (Dctm) . . . . .	139
South Platte River near Weldona (ctb) . . . . .	141
Bijou Creek near Fort Morgan (D) . . . . .	143
South Platte River at Julesburg (Dtcms) . . . . .	144
KANSAS RIVER BASIN	
Arikaree River (head of Kansas River):	
North Fork Republican River at Colorado-Nebraska State line (D) . . . . .	147
Republican River (continuation of Arikaree River):	
South Fork Republican River:	
Bonny Reservoir near Hale (e) . . . . .	148
South Fork Republican River near Hale (D) . . . . .	149
LOWER MISSISSIPPI RIVER BASIN	
Mississippi River:	
ARKANSAS RIVER BASIN	
East Fork Arkansas River:	
Leadville Drain at Leadville (c) . . . . .	150
East Fork Arkansas River at Hwy 24, near Leadville (c) . . . . .	151
Arkansas River:	
Lake Fork:	
Turquoise Lake near Leadville (e) . . . . .	152

Mississippi River--Continued

ARKANSAS RIVER BASIN--Continued

Arkansas River--Continued

Lake Fork--Continued

Halfmoon Creek near Malta (Dctm) . . . . .	153
Lake Creek above Twin Lakes Reservoir (D) . . . . .	155
Arkansas River at Granite (D) . . . . .	156
Clear Creek above Clear Creek Reservoir (D) . . . . .	157
Cottonwood Creek below Hot Springs, near Buena Vista (D) . . . . .	160
Badger Creek, Upper Station, near Howard (DsS) . . . . .	161
Badger Creek, Lower Station, near Howard (DsS) . . . . .	164
Arkansas River at Parkdale (D) . . . . .	167
Grape Creek near Westcliffe (D) . . . . .	168
Arkansas River at Canon City (D) . . . . .	171
Fourmile Creek near Canon City (D) . . . . .	173
Arkansas River at Portland (DctmCTs) . . . . .	174
Turkey Creek near Fountain (D) . . . . .	178
Little Turkey Creek near Fountain (D) . . . . .	179
Turkey Creek above Teller Reservoir near Stone City (D) . . . . .	180
Teller Reservoir near Stone City (e) . . . . .	181
Pueblo Reservoir near Pueblo (e) . . . . .	182
Arkansas River above Pueblo (D) . . . . .	183
Fountain Creek near Colorado Springs (Dctms) . . . . .	186
Monument Creek at Palmer Lake (Dctms) . . . . .	189
Monument Creek above North Gate Boulevard at USAF Academy (Dctms) . . . . .	192
West Monument Creek at U.S. Air Force Academy (D) . . . . .	195
Kettle Creek near Black Forest (D) . . . . .	196
Cottonwood Creek at mouth at Pikeview (D) . . . . .	197
Monument Creek at Pikeview (Dctms) . . . . .	198
Monument Creek at Bijou Street at Colorado Springs (ctms) . . . . .	201
Fountain Creek at Colorado Springs (Dctms) . . . . .	203
Fountain Creek below Janitell Road below Colorado Springs (ctm) . . . . .	206
B Ditch Drain near Security (Dct) . . . . .	207
Fountain Creek at Security (D) . . . . .	209
Clover Ditch Drain near Widefield (Dct) . . . . .	210
Jimmy Camp Creek at Fountain (D) . . . . .	212
Fountain Creek above Little Fountain Creek below Fountain (ctm) . . . . .	213
Little Fountain Creek above Keaton Reservoir near Fort Carson (D) . . . . .	214
Womack Ditch near Fort Carson (D) . . . . .	215
Little Fountain Creek near Fort Carson (D) . . . . .	216
Little Fountain Creek near Fountain (D) . . . . .	217
Rock Creek above Fort Carson Reservation (D) . . . . .	218
Rock Creek near Fort Carson (D) . . . . .	219
Rock Creek near Fountain (D) . . . . .	220
Fountain Creek near Fountain (D) . . . . .	221
Fountain Creek near Pinon (D) . . . . .	222
Fountain Creek at Pueblo (Dctm) . . . . .	223
St. Charles River at Vineland (D) . . . . .	227

X GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

Page

Mississippi River--Continued	
ARKANSAS RIVER BASIN--Continued	
Arkansas River near Avondale (D) . . . . .	228
Huerfano River near Boone (D) . . . . .	232
Arkansas River near Nepesta (D) . . . . .	233
Apishapa River near Fowler (D) . . . . .	236
Arkansas River at Catlin Dam near Fowler (D) . . . . .	237
Timpas Creek:	
Big Arroyo near Thatcher (DtcsS) . . . . .	239
Timpas Creek at mouth, near Swink (D) . . . . .	241
Crooked Arroyo near Swink (D) . . . . .	242
Horse Creek near Las Animas (D) . . . . .	243
Arkansas River at Las Animas (DTtCc) . . . . .	244
Purgatoire River at Madrid (D) . . . . .	247
Long Canyon Creek near Madrid (D) . . . . .	248
Trinidad Lake near Trinidad (e) . . . . .	249
Purgatoire River below Trinidad Lake (D) . . . . .	250
Van Bremer Arroyo near Tyrone (Dc) . . . . .	251
Van Bremer Arroyo near Model (Dct) . . . . .	253
Purgatoire River near Thatcher (DTSCcts) . . . . .	255
Taylor Arroyo:	
Burke Arroyo:	
Burke Arroyo Tributary near Thatcher (DcsS) . . . . .	258
Taylor Arroyo below Rock Crossing near Thatcher (DtcsS) . . . . .	260
Lockwood Canyon Creek near Thatcher (Dct) . . . . .	262
Red Rock Canyon Creek at mouth near Thatcher (D) . . . . .	265
Chacuaco Creek at Mouth, near Timpas (DtcsS) . . . . .	266
Bent Canyon Creek at Mouth, near Timpas (D) . . . . .	268
Purgatoire River at Rock Crossing, near Timpas (DtcsCTS) . . . . .	269
Purgatoire River near Las Animas (DTCC) . . . . .	273
John Martin Reservoir at Caddoa (e) . . . . .	276
Arkansas River below John Martin Reservoir (DTCC) . . . . .	277
Arkansas River at Lamar (D) . . . . .	280
Arkansas River near Granada (D) . . . . .	281
Frontier ditch near Coolidge, KS (D) . . . . .	282
Arkansas River near Coolidge, KS (Dcmts) . . . . .	283
WESTERN GULF OF MEXICO BASINS	
RIO GRANDE BASIN	
Rio Grande at Thirtymile Bridge, near Creede (D) . . . . .	286
North Clear Creek below Continental Reservoir (D) . . . . .	287
Rio Grande at Wagonwheel Gap (D) . . . . .	288
Goose Creek at Wagonwheel Gap (D) . . . . .	289
South Fork Rio Grande at South Fork (D) . . . . .	290
Rio Grande near Del Norte (D) . . . . .	291

GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED XI

	Page
WESTERN GULF OF MEXICO BASINS	
RIO GRANDE BASIN--Continued	
Rio Grande--Continued	
Closed Basin in San Luis Valley:	
Noland Gulch Tributary Reservoir Inflow near Villa Grove (D) . . . . .	292
Tracy Pit Reservoir Inflow near Saguache (D) . . . . .	293
La Jara Arroyo:	
La Jara Arroyo tributary:	
Yellow Warbler Reservoir Inflow near Antonito (D) . . . . .	294
Turkey Reservoir Inflow near Conejos (D) . . . . .	295
Bobolink Reservoir near Conejos (e) . . . . .	296
Rio Grande above mouth of Trinchera Creek, near Lasauses (D) . . . . .	297
Conejos River:	
Platoro Reservoir at Platoro (e) . . . . .	298
Conejos River below Platoro Reservoir (D) . . . . .	299
Conejos River near Mogote (D) . . . . .	300
San Antonio River at Ortiz (D) . . . . .	301
Los Pinos River near Ortiz (D) . . . . .	302
Conejos River near Lasauses (D) . . . . .	303
Rio Grande near Lobatos (Dcmst) . . . . .	304

XII OBSERVATION WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED

	Page
Adams County . . . . .	337
Alamosa County . . . . .	337
Baca County . . . . .	337
Bent County . . . . .	337
Elbert County . . . . .	337
El Paso County . . . . .	338
Huerfano County . . . . .	338
Kiowa County . . . . .	338
Kit Carson County . . . . .	338
Larimer County . . . . .	339
Lincoln County . . . . .	339
Logan County . . . . .	339
Morgan County . . . . .	340
Otero County . . . . .	340
Phillips County . . . . .	340
Prowers County . . . . .	340
Pueblo County . . . . .	340
Sedgwick County . . . . .	341
Washington County . . . . .	341
Weld County . . . . .	341
Yuma County . . . . .	342

## WATER RESOURCES DATA FOR COLORADO, 1986

### 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. Ebling

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#### INTRODUCTION

Water-resources data for the 1986 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, and 2) contains discharge records for 374 streamflow-gaging stations, stage and contents of 24 lakes and reservoirs, low-flow data for 5 partial-record stations, peak flow information for 34 crest-stage partial-record stations and 1 miscellaneous site; water-quality data for 118 streamflow-gaging stations and 256 miscellaneous sites; and water levels for 44 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 the, U.S. Geological Survey, Books and Open-File Reports, Federal Center, Building 41, Box 25425, Denver, CO 80225.

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-86-1." 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.



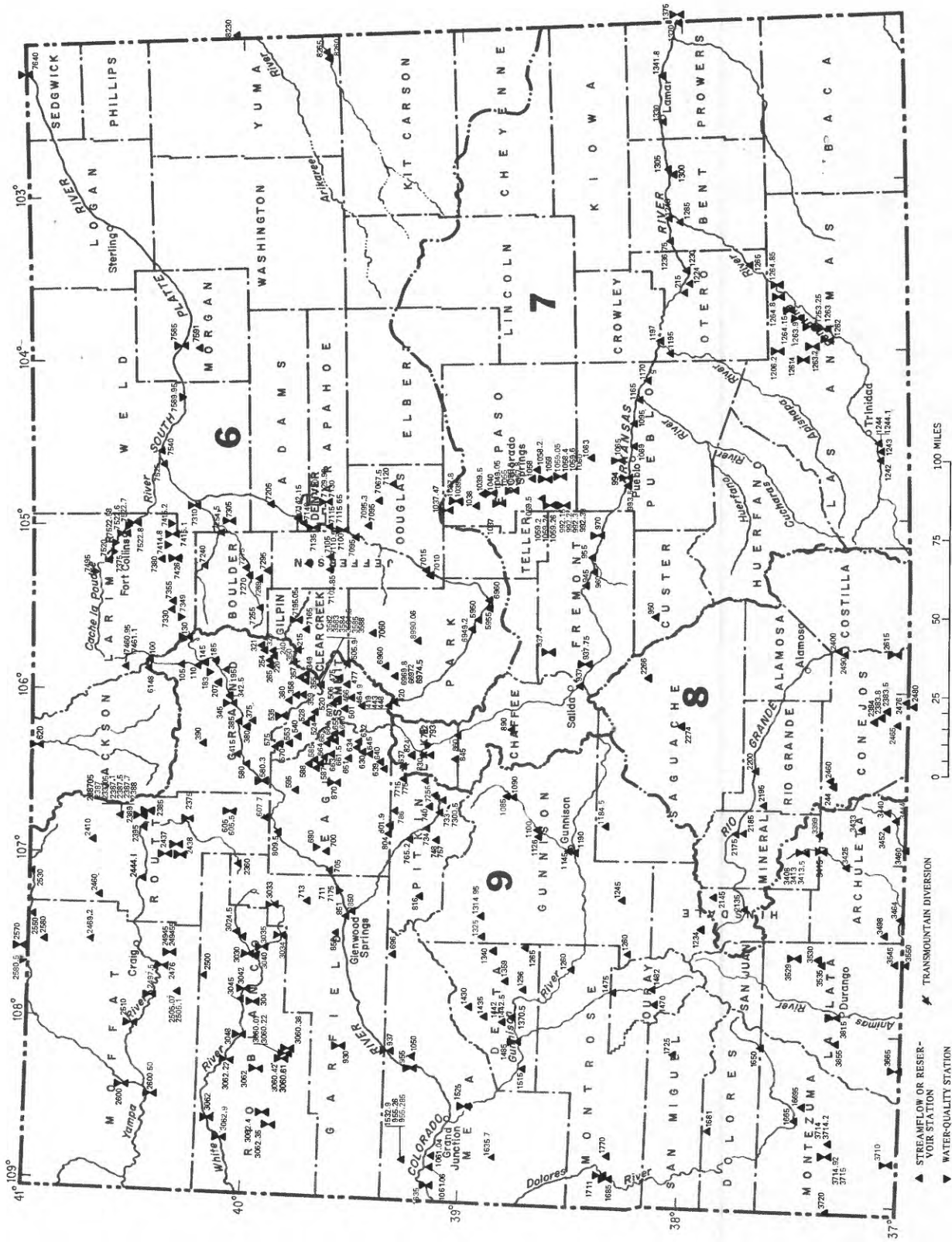


Figure 1.--Map showing locations of lakes and stream-gaging stations and water-quality stations in Colorado.

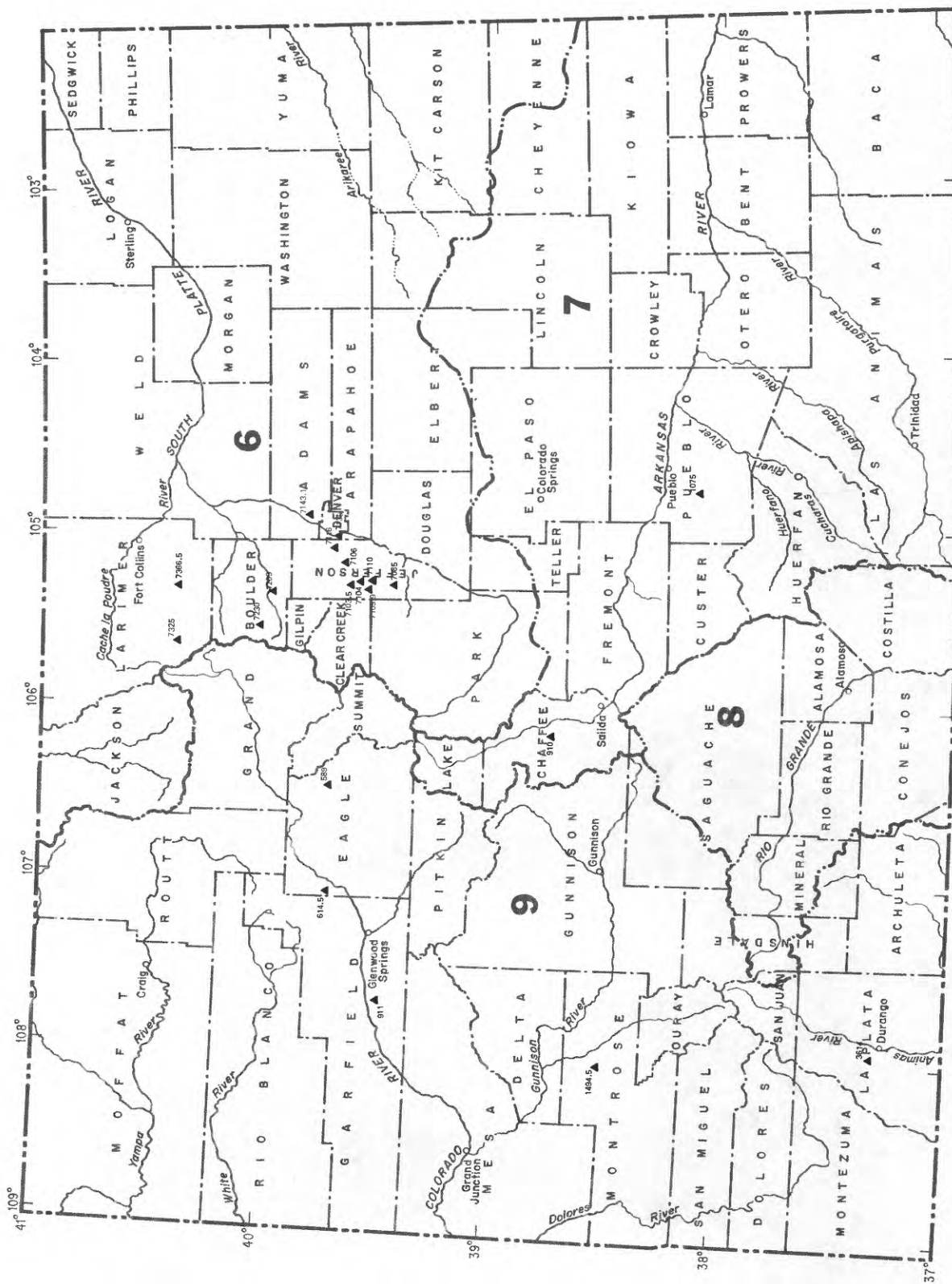
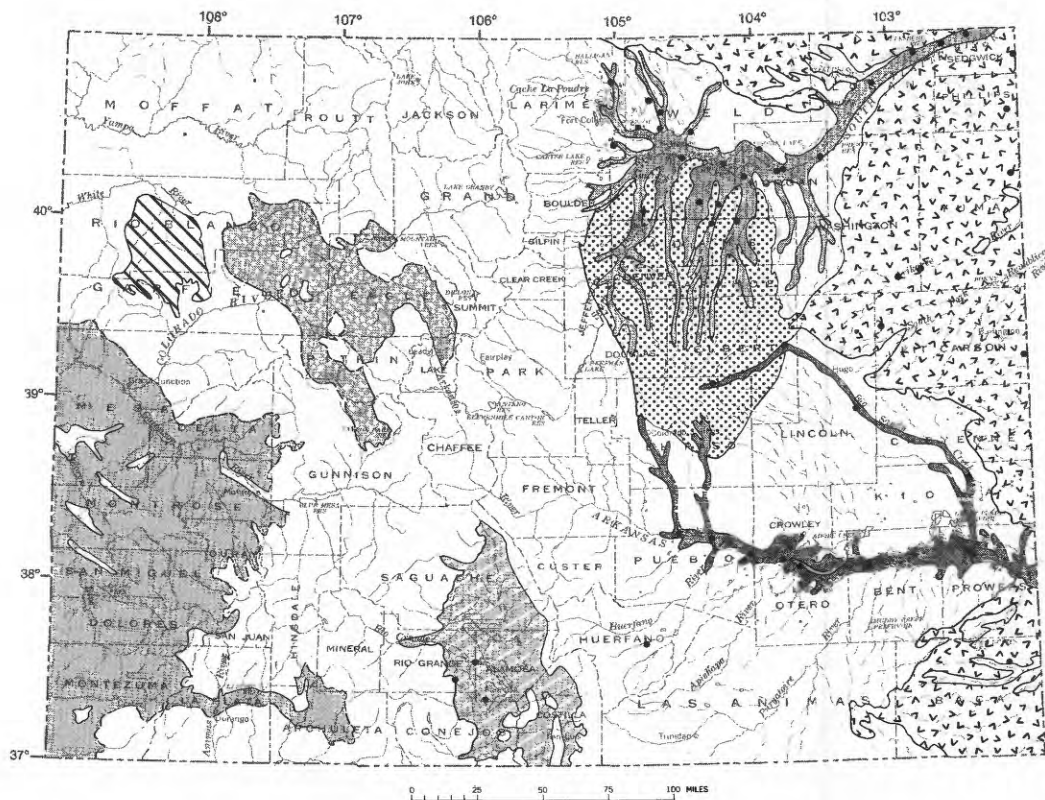


Figure 2.--Map showing locations of crest-stage partial-record stations in Colorado.



**EXPLANATION**

**UNCONSOLIDATED SEDIMENTARY ROCK AQUIFERS**

- South Platte alluvial
- Arkansas alluvial
- High Plains
- San Luis Valley aquifer system

**CONSOLIDATED SEDIMENTARY ROCK AQUIFERS**

- Denver Basin aquifer system
- Piceance Basin aquifer system
- Leadville limestone

**OTHER AQUIFERS**

- Dakota, Morrison and Entrada
- Not a principal aquifer

**OTHER MAP SYMBOLS**

- Observation well

**Figure 3.--Map showing locations 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, L. Idler, Secretary.  
 Boulder County Public Works Department, C. Light, Systems Analyst.  
 Cherokee Water and Sanitation District, F. S. Loosley, Manager.  
 Cherry Creek Basin Authority, George Kennedy.  
 City and County of Denver, Board of Water Commissioners, J. A. Yelenick, President.  
 City of Aspen, W. Chapman, City Manager.  
 City of Arvada, S. E. Schultz, Utility Division Director.  
 City of Aurora, Thomas Griswold, acting Director of Utilities.  
 City of Colorado Springs, G. H. Fellows, City Manager.  
 City of Englewood, Stewart Fonda, Director, Wastewater Treatment Plant.  
 City of Fort Collins, Bobbi Dunham, Civil Engineer II.  
 City of Fruita, Robert Pollock, Mayor.  
 City of Glendale, Robert Taylor.  
 City of Glenwood Springs, M. Flinn, Manager.  
 City of Longmont, Linn Folsom.  
 City of Thornton, Joseph E. Vigil, Chairman, Utilities Board.  
 City of Steamboat Springs, J. Zimmerman.  
 Colorado Department of Health, A. J. Hazle, Director.  
 Colorado Department of Natural Resources, David H. Getches, Executive Director.  
 Colorado Division of Water Resources, J. A. Danielson, State Engineer.  
 Colorado Division of Mined Land Reclamation, David Shelton, Director.  
 Colorado Geological Survey, John Rold, State Geologist.  
 Colorado River Water Conservation District, Roland C. Fischer, Secretary-Engineer.  
 Colorado Springs Department of Public Utilities, J. D. Phillips, Director.  
 Delta County Board of County Commissioners,  
 Denver Regional Council of Governments, Robert D. Farley, Executive Director.  
 Dolores Water Conservation District, Bruce C. McAfee, President.  
 Douglas County Planning Department, Julio Iturreria, Director.  
 Eagle County Board of Commissioners, D. E. Mott, Commissioner.  
 Evergreen Metropolitan District, G. C. Schulte, General Manager.  
 Fountain Valley Authority, Ed Bailey, Secretary.  
 Garfield County, Rodger Ludwig, Director of Administrative Services.  
 Grand County, R. Howard Moody, County Manager.  
 Larimer-Weld Regional Council of Governments, L. L. Pearson, Executive Director.  
 Lost Creek Groundwater Management District, G. H. Bush, Manager.  
 Lower Fountain Water-Quality Management Association, Stuart Loosely, President.  
 Metropolitan Denver Sewage Disposal District No. 1, Jack B. Enger, Manager.  
 Mineral County, Charles Steele, Planning Officer.  
 Moffat County, Richard Gibbons, Director.  
 North Kiowa-Bijou Ground Water Management District, Donald F. McClary, Attorney.  
 North LaJunta Water Conservation District, Mark Korbitz.  
 Northern Colorado Water Conservancy District, L. Simpson, Secretary.  
 Pitkin County Board of County Commissioners, C. Stewart, County Manager.  
 Pueblo Board of Water Works, Alan Hamel, Executive Director.  
 Pueblo Civil Defense, Betty Jo Hopper, Director.  
 Pueblo West Metro Water District, William Metropulos, Manager.

## COOPERATION

Purgatoire River Water Conservancy District, C. Latuda, President.  
Rio Blanco County Board of County Commissioners, A. J. Jones.  
Rio Grande Water Conservation District, Ralph Curtis, Manager.  
Southeastern Colorado Water Conservancy District, C. L. Thomson, General Manager.  
Southwestern Water Conservation District, Edward Searle, Manager.  
St. Charles Mesa Water Association, Lee Simpson, Manager.  
Town of Breckenridge, Gary Roberts, Town Manager.  
Town of Castle Rock, Tom Gallier, Director of Utilities.  
Trinchera Water Conservancy District, G. Wisecamp, President.  
Uncompahgre Valley Water Users Association, James Herbit, Manager.  
Upper Yampa Water Conservancy District, J. Fetcher.  
Upper Arkansas River Water Conservancy District, K. Baker, General Manager.  
Urban Drainage and Flood Control District, L. Scott Tucker, Executive Director.  
Water Users No. 1,.  
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 Land Management, Bureau of Mines, Bureau of Reclamation, the National Park Service, and the U.S. Environmental Protection Agency, U. S. Federal Emergency Management Agency, and U. S. National Weather Service. Organizations that supplied data are acknowledged in station descriptions.

OVERVIEW OF WATER YEAR 1986  
[East of the Continental Divide]

Prepared by Harold E. Petsch, Jr.

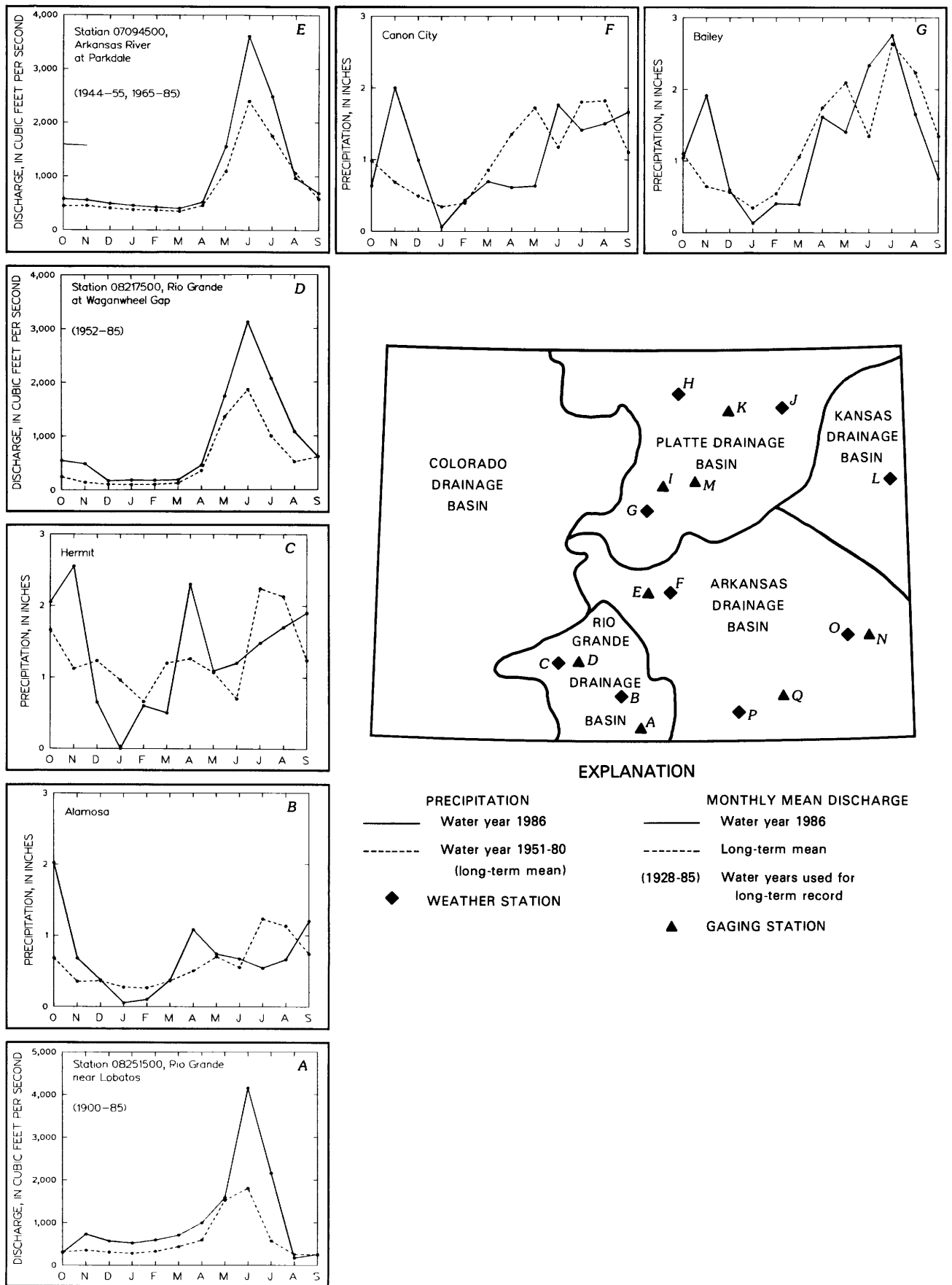
Precipitation data for water year 1986 that were obtained from published reports of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, for the four National Weather Service Divisions in Colorado east of the Continental Divide are shown in table 1. Precipitation and departure from normal are shown for the first 6 months of the water year when precipitation is predominately snow, and then for the remaining 6 months when precipitation is predominately rain. Also shown are the precipitation and departures from normal precipitation for the entire water year.

The Arkansas Drainage Basin Division had 20 percent less than normal precipitation during the first 6 months of the water year and 8 percent greater than normal precipitation during the last 6 months. The Kansas Drainage Basin Division had 3 percent less than normal precipitation during the first 6 months of the water year and 6 percent less than normal precipitation during the last 6 months. The Platte Drainage Basin Divisions had 11 percent greater than normal precipitation during the first 6 months of the water year and 4 percent less than normal precipitation during the last 6 months. The Rio Grande Drainage Basin Division had 17 percent greater than normal precipitation during the first 6 months of the water year and 32 percent greater than normal precipitation during the last 6 months.

Precipitation for the water year was 26 percent greater than normal in the Rio Grande Drainage Basin Division, 2 percent greater than normal in the Arkansas and Platte Drainage Basin Divisions, and 6 percent less than normal in the Kansas Drainage Basin Division. Graphs of normal monthly precipitation and monthly precipitation for the water year, at selected weather stations, are shown in figure 4.

Table 1.--Precipitation during water year 1986 and departures from normal precipitation (water years 1951-80), in inches

National Weather Service Division	October - March		April - September		Water year 1986	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
Arkansas Drainage Basin	3.36	-0.63	11.16	0.89	14.52	0.26
Kansas Drainage Basin	3.21	-.10	12.01	-.55	15.22	-.88
Platte Drainage Basin	4.69	.51	10.59	-.24	15.28	.27
Rio Grande Drainage Basin	5.47	.77	10.26	3.26	15.73	4.03



**Figure 4.--Comparison of precipitation and streamflow during water year 1986 to long-term means.**

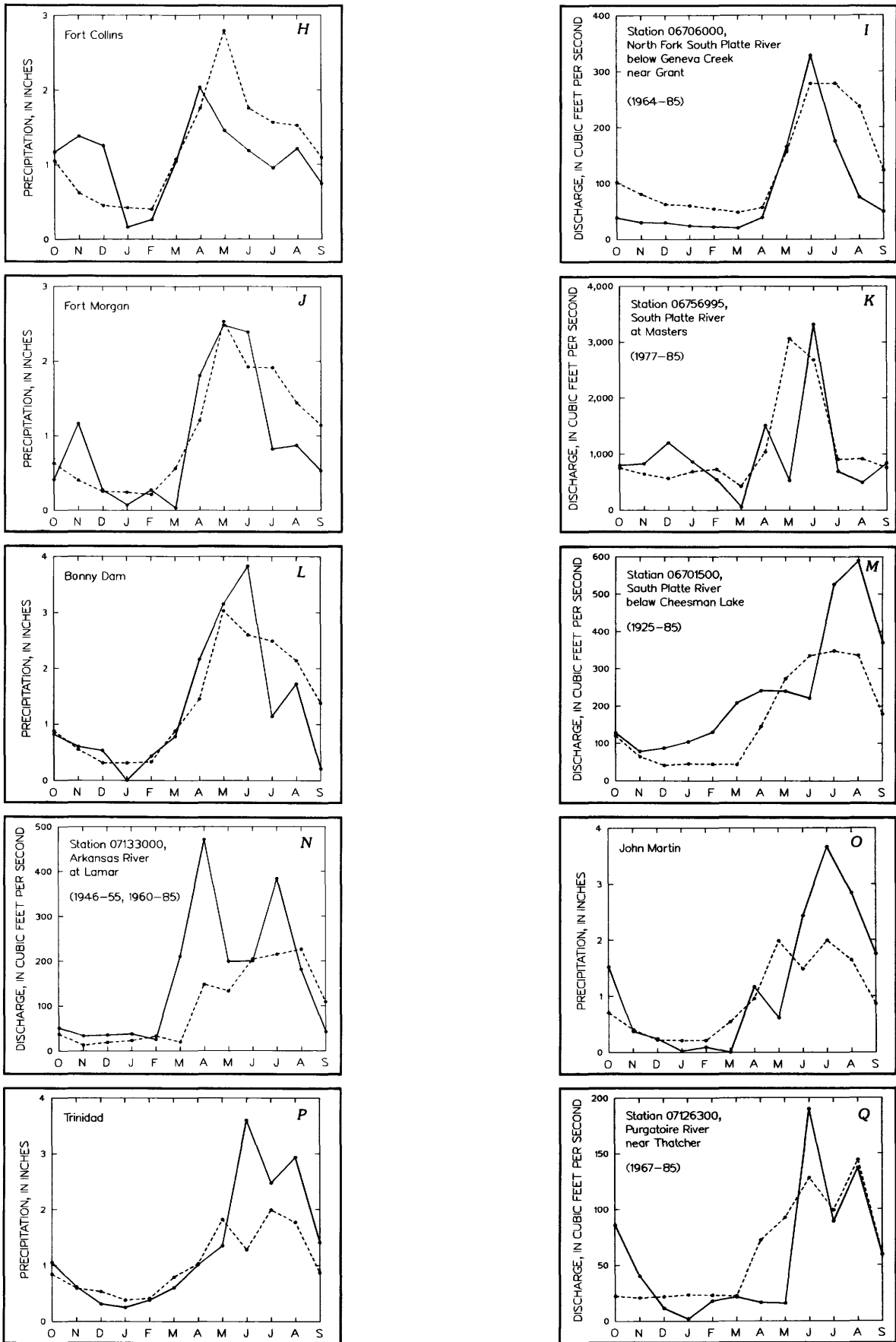


Figure 4.--(continued).



### Streamflow

Monthly mean discharge during water year 1986 at representative gaging stations is plotted against long-term monthly mean discharge in figure 4. Individual graphs demonstrate the varied streamflow conditions east of the Continental Divide during the water year. The long-term mean used at station 06706000, North Fork South Platte River below Geneva Creek, at Grant, is only for current flow conditions (since beginning of diversion that imports water from the Colorado River basin).

The graph for station 07094500, Arkansas River at Parkdale, indicates that streamflow during the water year had the same general trend as long-term streamflow, but remained greater than normal throughout most of the water year. The graphs for water year 1986 for stations 07126300, Purgatoire River near Thatcher, and 07133000, Arkansas River at Lamar, are not consistent with either the general trend of the long-term mean flows or the precipitation patterns in the Arkansas Drainage Basin Division. The shapes of the latter graphs are greatly influenced by local water-management practices consisting mostly of storage and release of water as dictated by daily and seasonal irrigation and municipal needs.

Graphs for stations 06701500, South Platte River below Cheesman Lake; 06706000, North Fork South Platte River below Geneva Creek, at Grant; and 06756995, South Platte River at Masters, for water year 1986, indicate that streamflow is inconsistent with respect to the general trend of long-term mean flows and to water year 1986 precipitation patterns in the Platte Drainage Basin Division. The shapes of these graphs also are influenced by local water-management practices.

Graphs for stations 08217500, Rio Grande at Wagonwheel Gap, and 08251500, Rio Grande near Lobatos, indicate that streamflow for water year 1986 was consistent with the above normal precipitation pattern in the Rio Grande Drainage Basin Division. These graphs had the same general trend as the long-term mean flow, but remained greater than normal throughout most of the water year.

Peak discharge during water year 1986 and for the period of record for selected streamflow-gaging stations are shown in table 2. The peak discharge at stations 06620000, North Platte River near Northgate; 06752500, Cache la Poudre River near Greeley; 08220000, Rio Grande near Del Norte; 08240000, Rio Grande above mouth of Trinchera Creek, near Lasausas; and 08251500, Rio Grande near Lobatos, was greater than 75th-percentile values, but was substantially less than the record maximum. Peak discharge at stations 07106500, Fountain Creek at Pueblo; 07124000, Arkansas River at Las Animas; and 07128500, Purgatoire River near Las Animas, was less than 25th-percentile values, but was substantially greater than the record minimum.

Table 2.--Peak discharges for water year 1986 and for the period of record at selected gaging stations

[mi<sup>2</sup> = square miles; ft<sup>3</sup>/s = cubic feet per second]

Station identification	Drainage area (mi <sup>2</sup> )	Period of record (water years)	Peak discharge water year 1986		Peak discharge period of record		Remarks on 1986 peak
			ft <sup>3</sup> /s	Date	ft <sup>3</sup> /s	Date	
06620000 North Platte River near Northgate	1,431	1904, 1915-85	4,750	6-11	6,720	6-11-23	Greater than 75th percentile
06696000 South Platte River near Lake George	963	1930-85	335	7-9	3,000	4-28-70	Less than median
06701500 South Platte River below Cheesman Lake	1,752	1927-1985	809	7-12	4,640	4-29-70	Less than median
06706000 North Fork South Platte River below Geneva Creek, at Grant	127	*1964-85	500	6-19	825	6-29-78	Less than median
06752500 Cache la Poudre River near Greeley	1,877	1903, 1916-17, 1919, 1924-85	2,030	6-10	6,360	6-14-83	Greater than median
06756995 South Platte River at Masters	12,165	1977-80, 1982-85	7,540	6-12	15,100	5-2-80	Greater than median
07094500 Arkansas River at Parkdale	2,548	1946-55, 1965-85	4,670	6-8	6,310	6-26-83	Greater than median
07106500 Fountain Creek at Pueblo	926	1921-22, 1924-25, 1935, 1941-65, 1971-85	2,590	6-4	47,000	6-17-65	Less than 25th percentile
07109500 Arkansas River near Avondale	6,327	1939-51, 1965-85	5,710	6-5	50,000	6-18-65	Less than median
07124000 Arkansas River at Las Animas	14,417	1939-85	2,540	6-9	44,000	5-20-55	Less than 25th percentile
07126300 Purgatoire River near Thatcher	1,791	1965-85	4,640	8-15	47,700	6-18-65	Less than median
07128500 Purgatoire River near Las Animas	3,318	1922-31, 1949-85	2,690	6-3	70,000	5-20-55	Less than 25th percentile
07133000 Arkansas River at Lamar	19,780	1913, 1915, 1919-55, 1960-85	2,110	9-3	130,000	6-5-21	Less than median
08220000 Rio Grande near Del Norte	1,320	1890-1985	7,620	6-7	18,000	10-5-11	Greater than 75th percentile
08240000 Rio Grande above mouth of Trinchera Creek, near Lasauces	5,740	1936-62, 1964-80, 1982-85	4,060	6-11	5,470	6-21-49	Greater than 75th percentile (4th highest)
08246500 Conejos River near Mogote	282	1903-5, 1912-85	2,600	6-19	9,000	10-5-11	Greater than median
08251500 Rio Grande near Lobatos	7,700	1900-85	6,180	6-11	13,200	6-8-05	Greater than 75th percentile

\*Period since imported water began flowing past station.

### Chemical Quality of Streamflow

To determine whether significant changes are occurring in the chemical quality of streamflow in Colorado, an analysis was made of specific conductance measured approximately monthly at stations on six representative streams. Each station is either the most downstream station on that stream, is representative of a major part of the drainage area of that stream, or is the only station in that drainage that meets the monthly criterion. A comparison of the range and distribution of the specific conductance for the water year to long-term values for each station for which data were analyzed is shown in figure 5.

Specific conductance can be used to estimate the dissolved-solids concentration in water because specific conductance is related to the concentrations and types of ions in water. To determine whether significant differences in specific conductance occurred between water year 1986 and the period of record used for comparison, a statistical technique called the t-test was used.

The t-test technique requires proving or disproving a hypothesis that the mean specific conductance for water year 1986 was equal to the mean for the period of record. The procedure for doing this requires computing a "t" statistic and comparing it to a value obtained from a Student's "t" table. If the absolute value of the computed "t" value ( $t_c$ ) is less than the tabular "t" value ( $t_{tab}$ ), the hypothesis that the means are equal is accepted. If the absolute value of  $t_c$  is greater than  $t_{tab}$ , the hypothesis is rejected and the means are considered to be not equal. In terms of specific conductance, a rejection of the hypotheses indicates that there is a difference in water quality at a particular site between water year 1986 and the period of record. A 95-percent level of significance ( $\alpha = 0.05$ ) was used for each t-test, and it was assumed that the data were normally distributed.

Results of the the t-tests for the six stations are given in table 3. For five of the stations, 06756995, South Platte River at Masters; 06759100, Bijou Creek near Fort Morgan; 07094500, Arkansas River at Parkdale; 07128500, Purgatoire River near Las Animas; and 07133000, Arkansas River at Lamar, comparisons of mean for water year 1986 to that for the period of record indicate that the means are not statistically different.

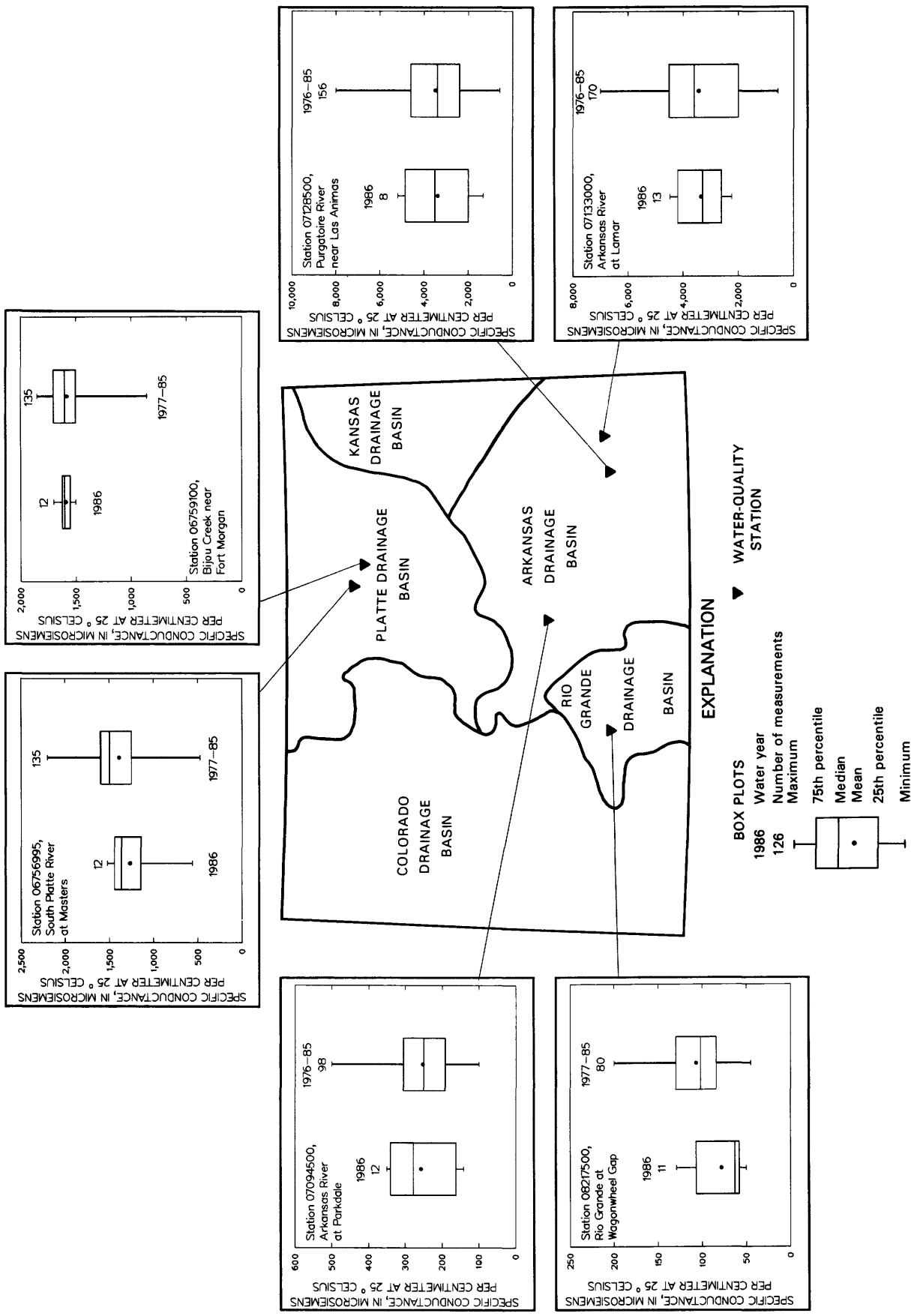


Figure 5.--Comparison of range and distribution of specific conductance measured during water year 1986 to long-term values.

Table 3.--Results of t-tests comparing mean specific conductance of streamflow for water year 1986 with mean for the period of record at selected gaging stations  
 [Specific conductance, in microsiemens per centimeter at 25 degrees Celsius; A = accepted; R = rejected]

Station identification	Water Year 1986				Specific Conductance			t-test		
	Number of values	Mean	Standard deviation	Number of values	Mean	Standard deviation	Period used (water years)	t <sub>tab</sub>	t <sub>c</sub>	Hypothesis
06756995 South Platte River at Masters-----	12	1,266	278	135	1,390	285	1977-85	± 2.16	-1.47	A
06759100 Bijou Creek near Fort Morgan-----	12	1,590	58.2	135	1,579	166	1977-85	± 2.04	0.52	A
07094500 Arkansas River near Parkdale-----	12	257	84.2	98	253	747	1976-85	± 2.16	0.14	A
07128500 Purgatoire River near Las Animas-----	8	3,377	1,476	156	3,495	1,516	1976-85	± 2.32	-0.22	A
07133000 Arkansas River at Lamar-----	13	3,345	818	170	3,438	1,476	1976-85	± 2.09	-0.36	A
08217500 Rio Grande at Wagonwheel Gap-----	11	78.9	27.9	80	108	34.1	1977-85	± 2.14	-3.12	R

The mean specific conductance for water year 1986 for station 08217500, Rio Grande at Wagonwheel Gap, was substantially less than the mean specific conductance for the 9-year period of record 1977-85. Published records of specific conductance and coincident water discharge for the station indicate an inverse relation exists between the two parameters. For water year 1986, mean water discharge at the station exceeded the 9-year mean by 60 percent. It follows, therefore, that the mean specific conductance for water year 1986 would be substantially less than the mean specific conductance for the period of record.

### Ground-Water Levels

Water-level changes that occurred during water year 1986 were determined from a network of 44 wells measured by the U.S. Geological Survey. The 44 wells are in unconsolidated sedimentary rock aquifers. With one exception, the wells are measured approximately annually during the winter months. Ten of the wells are observation wells. The remainder are irrigation or stock-pond wells. The observation wells, located in those areas where large quantities of ground water are pumped for irrigation, are in unconfined aquifers. Annual water-levels, in selected observation wells for water years 1977-86, are shown in figure 6.

Water levels in the aquifers in the alluvial valleys in eastern Colorado are affected by both recharge from surface-water irrigation and discharge by ground-water pumpage. Graphs of water levels in the observation wells in Alamosa County (San Luis Valley aquifer system), Morgan County (South Platte alluvial aquifer), and Elbert and Prowers Counties (Arkansas alluvial aquifer) indicate response to recharge and discharge. Although each of these graphs show an increased water level for water year 1986 there is no indication of a long-term trend.

Water levels in the High Plains aquifer are affected mostly by discharge by ground-water pumpage. The only source of recharge to this aquifer is precipitation (14 to 18 inches per year). Graphs of water levels in the observation wells in Kit Carson and Sedgwick Counties (High Plains aquifer) indicate response to discharge and little if any response to recharge. Each of these graphs show a decline in water level for water year 1986 and indicate the continuance of large withdrawals of ground water from this aquifer.

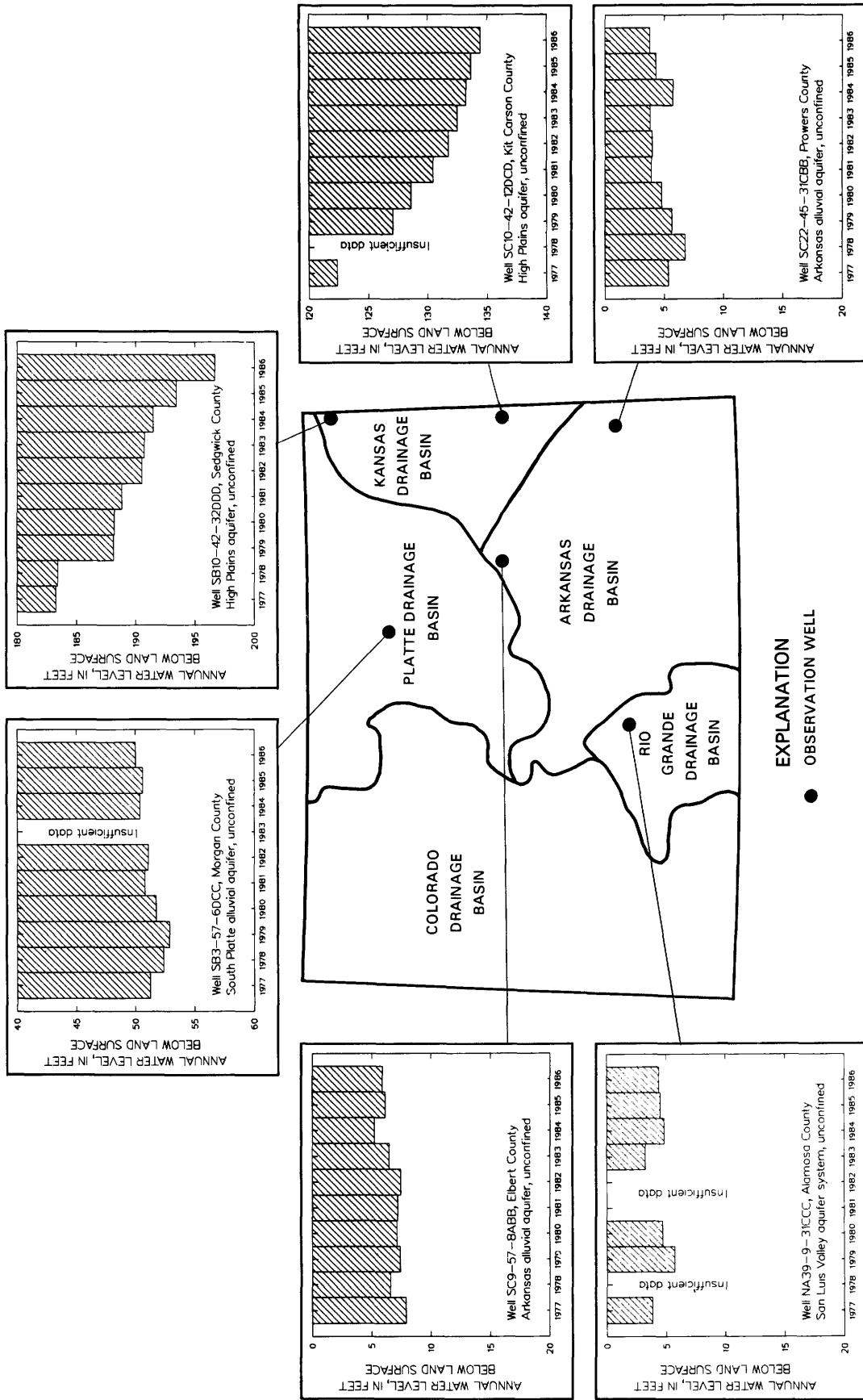


Figure 6.---Annual water levels in selected observation wells for water years 1977-86.

## 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 sample 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, of 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  $35^{\circ}\text{C} + 1.0^{\circ}\text{C}$  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 of 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, ft<sup>3</sup>/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 um 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) 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, 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 mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Mean Sea Level."

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 4.-- 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 ( $Al^{+3}$ )*.....	0.11119	Iodide ( $I^{-1}$ ).....	0.00788
Ammonia as N.....	.07139	Iron ( $Fe^{+3}$ )*.....	.05372
Barium ( $Ba^{+2}$ ).....	.01456	Lead ( $Pb^{+2}$ )*.....	.00965
Bicarbonate ( $HCO_3^{-1}$ )...	.01639	Lithium ( $Li^{+1}$ )*.....	.14411
Bromide ( $Br^{-1}$ ).....	.01251	Magnesium ( $Mg^{+2}$ )*.....	.08226
Calcium ( $Ca^{+2}$ ).....	.04990	Manganese ( $Mn^{+2}$ )*.....	.03640
Carbonate ( $CO_3^{-2}$ ).....	.03333	Nickel ( $Ni^{+2}$ )*.....	.03406
Chloride ( $Cl^{-1}$ ).....	.02821	Nitrate as N.....	.07139
Chromium ( $Cr^{+6}$ )*.....	.11539	Nitrite as N.....	.07139
Cobalt ( $Co^{+2}$ )*.....	.03394	Phosphate,ortho as P.....	.09686
Copper ( $Cu^{+2}$ )*.....	.03148	Potassium ( $K^{+1}$ ).....	.02557
Cyanide ( $CN^{-1}$ ).....	.03844	Sodium ( $Na^{+1}$ ).....	.04350
Fluoride ( $F^{-1}$ ).....	.05264	Strontium ( $Sr^{+2}$ )*.....	.02283
Hydrogen ( $H^{+1}$ ).....	.99209	Sulfate ( $SO_4^{-2}$ ).....	.02082
Hydroxide ( $OH^{-1}$ ).....	.05880	Zinc ( $Zn^{+2}$ )*.....	.03060

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

Table 5.--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	639-650	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	313-345	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 ug/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 (ug/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 (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 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 (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. A microsiemen is equal to one millionth of a mho.

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 work "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 um 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 um 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-Resources Data" in the summary REVISIONS paragraph to refer to State annual basic-data reports published prior to 1976.

WDR is used as an abbreviation for "Water-Data Report" in the summary REVISIONS paragraph to refer to State annual basic-data reports published after 1976.

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 indention, each indention 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.

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 (ft<sup>3</sup>/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 pages 48, and 49.

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 ( $^{\circ}$ 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 ( $^{\circ}$ 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 6.

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 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 6.--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 equals  $5/9(°F-32°)$  or °F equals  $9/5(°C)+32°$ .

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 4 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 7.--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.

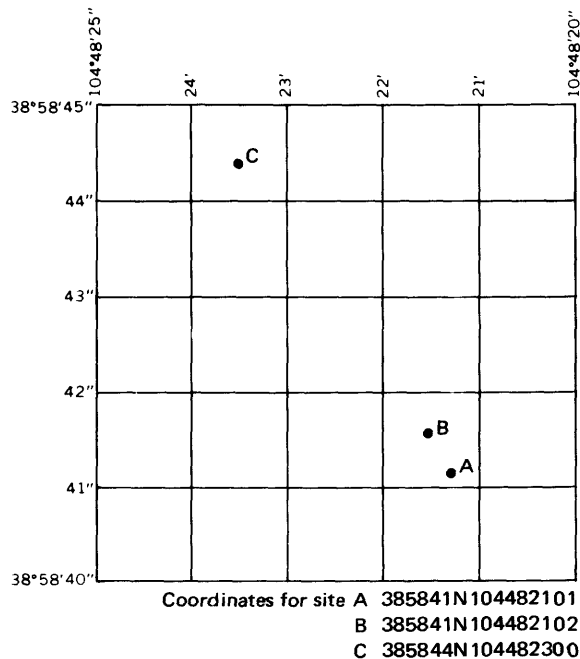


Figure 7.--System for numbering wells and miscellaneous sites (latitude and longitude).

The local well number locates a well within a 10-acre 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 by townships and is subdivided in the east-west direction every 6 mi 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> area described by the township and range designation is subdivided into 1-mi<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, is subdivided into quarter sections. The 160-acre 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 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 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 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.

#### EXPLANATION OF OMITTED DATA

##### Omitted data, water year 1986

Data for some stations operated during water year 1986, which have previously published data, are not included in this report. The data for these stations, listed in table 8, was omitted for various technical reasons. These data will be published in a subsequent report.

##### Omitted data, previous water years

Data for some stations omitted from previous water year publications are included in this report. These stations are listed in table 9.

Table 8.--Stations with data omitted from this reportPLATTE RIVER BASIN

06711500 Bear Creek at mouth at Sheridan  
 06720500 South Platte River at Henderson  
 06725500 Middle Boulder Creek at Nederland  
 06727000 Boulder Creek near Orodell  
 06731000 St. Vrain Creek at mouth, near Platteville  
 06738000 Big Thompson River at mouth of canyon, near Drake  
 06754000 South Platte River near Kersey  
 06758500 South Platte River near Weldona (streamflow only)

ARKANSAS RIVER BASIN

07084500 Lake Creek above Twin Lakes Reservoir  
 07086000 Arkansas River at Granite  
 07093700 Arkansas River near Wellsville  
 07093705 Badger Creek above Cals Fork Gulch  
 07093710 Wagon Tongue Creek near Howard  
 07093720 Long Gulch near Howard  
 07093745 Gribbles Creek near Howard  
 07097000 Arkansas River at Portland  
 07105800 Fountain Creek at Security (water-quality only)  
 07123000 Arkansas River at La Junta  
 07126500 Purgatoire River at Ninemile Dam, near Higbee

Table 9.--Stations with previous water year data included in this reportARKANSAS RIVER BASIN

07084500 Lake Creek above Twin Lakes Reservoir--1985, streamflow  
 07086500 Clear Creek above Clear Creek Reservoir--1984-85, streamflow  
 07093740 Badger Creek at upper station, near Howard--1985, daily  
     sediment  
 07095000 Grape Creek near Westcliffe--1985, streamflow  
 07096000 Arkansas River at Canon City--1985, streamflow  
 07097000 Arkansas River at Portland--1985, streamflow  
 07117000 Arkansas River near Nepesta--1985, streamflow  
 07119700 Arkansas River at Catlin Dam near Fowler--1985, streamflow



## SELECTED REFERENCES

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

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- Moran, R. E., and Wentz, D. A., 1974, Effects of metal-mine drainage on water quality in selected areas of Colorado, 2 of 3, 1972-73: Colorado Water Conservation Board Circular 25, 250 p.

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- Report AA, 1959, Federal Inter-Agency sedimentation instruments and reports: St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minn., 41 p.
- Report 13, 1961, The single-stage sampler for suspended sediment: Washington, D. C., U.S. Government Printing Office, 105 p.
- Report 14, 1963, Determinations of fluvial sediment discharge: Washington, D. C., U.S. Government Printing Office 151 p.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
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PLATTE RIVER BASIN

06614800 MICHIGAN RIVER NEAR CAMERON PASS, CO

LOCATION.--Lat 40°29'46", long 105°51'52", in S½ 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. Elevation of gage is 10,390 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 5-11, Jan. 1-5, and May 21 to June 10. Records good except for estimated daily discharges, and winter period, which are poor. No diversion upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--13 years, 3.89 ft<sup>3</sup>/s; 2,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64 ft<sup>3</sup>/s, June 30, 1984, gage height, 3.28 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, 32 ft<sup>3</sup>/s at 2200 July 4, gage height, 3.07 ft; minimum daily, 0.39 ft<sup>3</sup>/s, Feb. 1-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.83	.82	.53	.39	.97	.70	.87	14	21	4.8	2.7
2	.97	.84	.86	.52	.39	.97	.63	1.3	15	20	4.5	2.5
3	.91	.82	.86	.52	.39	.97	.62	2.0	16	19	4.3	2.4
4	.81	.81	.90	.51	.39	.95	.68	2.6	17	21	4.1	2.1
5	.86	.80	.86	.50	.39	.91	.67	2.8	18	24	3.8	1.9
6	.86	.78	.81	.49	.39	.91	.63	2.1	20	18	3.7	1.8
7	1.0	.76	.78	.49	.39	.91	.66	1.8	21	16	3.5	1.8
8	1.2	.76	.75	.50	.39	.91	.63	1.7	21	15	3.5	1.8
9	1.2	.76	.72	.51	.39	.86	.62	1.6	20	14	3.5	1.6
10	1.2	.76	.72	.49	.39	.86	.59	1.6	17	12	3.2	1.6
11	1.2	.76	.72	.49	.39	.86	.58	1.6	13	11	3.1	1.6
12	1.3	.76	.70	.49	.39	.86	.56	1.7	14	12	3.6	1.6
13	1.3	.95	.68	.48	.39	.86	.55	1.7	15	11	3.3	1.4
14	1.2	.86	.68	.45	.41	.86	.54	1.8	16	11	3.0	1.3
15	1.1	.84	.64	.45	.42	.86	.56	1.7	19	11	2.7	1.3
16	1.1	.84	.63	.44	.45	.81	.56	1.7	23	12	2.6	1.3
17	1.1	.86	.60	.42	.51	.81	.52	1.7	24	11	2.5	1.2
18	1.0	.85	.59	.42	.53	.81	.54	1.8	25	9.0	2.5	1.2
19	1.0	.81	.59	.42	.57	.81	.57	2.4	26	7.9	2.5	1.2
20	1.0	.81	.59	.42	.60	.81	.56	3.8	26	7.2	2.9	1.1
21	.98	.81	.59	.42	.66	.81	.58	5.2	25	7.1	3.2	1.1
22	1.1	.85	.58	.42	.75	.81	.65	6.0	24	7.1	2.9	1.1
23	.97	.91	.56	.42	.81	.81	.88	7.0	25	7.6	2.7	1.3
24	.96	.81	.56	.42	.84	.81	.82	8.0	24	8.6	2.6	1.2
25	.94	.63	.56	.42	.91	.81	.80	8.8	22	8.9	2.6	1.3
26	.94	.76	.56	.42	.96	.81	.77	9.6	24	8.0	2.5	1.4
27	.93	.77	.56	.42	.97	.81	.73	10	26	7.1	2.2	1.3
28	.91	.81	.56	.42	.97	.83	.70	11	25	6.3	2.1	1.3
29	.91	.81	.56	.42	---	.86	.69	12	26	5.8	2.5	1.3
30	.89	.81	.54	.42	---	.86	.75	13	23	5.5	2.8	1.3
31	.90	---	.52	.40	---	.80	---	13	---	5.2	2.5	---
TOTAL	31.84	24.23	20.65	14.14	15.43	26.59	19.34	141.87	624	360.3	96.2	46.0
MEAN	1.03	.81	.67	.46	.55	.86	.64	4.58	20.8	11.6	3.10	1.53
MAX	1.3	.95	.90	.53	.97	.97	.88	13	26	24	4.8	2.7
MIN	.81	.63	.52	.40	.39	.80	.52	.87	13	5.2	2.1	1.1
AC-FT	63	48	41	28	31	53	38	281	1240	715	191	91
CAL YR 1985	TOTAL	1050.80		MEAN	2.88	MAX	26	MIN	.29	AC-FT	2080	
WTR YR 1986	TOTAL	1420.59		MEAN	3.89	MAX	26	MIN	.39	AC-FT	2820	

## PLATTE RIVER BASIN

06620000 NORTH PLATTE RIVER NEAR NORTHGATE, CO

LOCATION.--Lat 40°56'15", long 106°20'16", in NE¼SW¼SE¼ 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 above 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. Aug. 22, 1961, to Sept. 18, 1984, at site 650 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 9 to Mar. 27, and June 3-5. Records good except for estimated daily discharges, which are poor. Diversions for irrigation of about 130,000 acres of hay meadows upstream from station. Transbasin diversions upstream from station to Cache la Poudre River basin.

AVERAGE DISCHARGE.--71 years, 447 ft<sup>3</sup>/s; 324,000 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, 4,750 ft<sup>3</sup>/s, June 11, gage height, 6.63 ft; minimum daily, 110 ft<sup>3</sup>/s, Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	272	152	190	165	340	2330	1540	2380	2170	566	363
2	171	270	166	180	170	352	2210	1780	2440	1950	544	363
3	161	270	180	177	175	363	2030	1970	2440	1590	524	324
4	152	272	190	170	180	372	1460	2140	2660	1440	513	319
5	145	266	198	160	177	387	1400	2350	2900	1540	529	285
6	141	252	212	162	175	390	1570	2550	3040	1960	499	257
7	145	213	215	157	168	415	1680	2550	3150	1980	442	238
8	205	247	225	152	162	460	1720	2240	3260	1740	461	234
9	276	220	213	153	150	507	1690	2210	3390	1530	471	242
10	294	160	193	156	146	565	1590	2100	3940	1430	463	242
11	350	192	171	152	143	615	1470	1730	4620	1400	434	249
12	466	260	154	146	140	595	1400	1560	4240	1320	416	257
13	472	230	147	147	147	565	1470	1410	3370	1190	420	242
14	445	110	158	144	152	540	1370	1400	2880	1090	410	221
15	388	147	166	144	157	515	1170	1420	2540	1180	386	208
16	357	212	172	147	170	510	1140	1520	2430	1220	358	193
17	358	253	178	149	182	496	1220	1740	2360	1340	330	190
18	346	225	184	151	192	474	1200	1620	2420	1290	311	186
19	333	193	186	154	203	455	1010	1470	2610	1190	298	193
20	312	167	190	159	217	445	909	1490	2690	1080	305	197
21	296	147	183	155	230	447	930	1660	2610	1050	392	193
22	290	138	178	152	244	495	1170	1850	2420	1020	455	200
23	291	128	172	153	253	555	1490	2080	2190	918	428	212
24	285	138	170	156	270	680	1790	2040	2040	871	379	215
25	284	150	163	151	280	790	1910	1880	2020	867	352	227
26	269	167	159	146	290	970	1990	1870	2180	871	366	257
27	263	197	154	147	310	1170	1940	1980	2550	847	343	297
28	257	183	151	149	323	1460	1560	2150	2640	797	306	306
29	255	188	154	153	---	1960	1340	2130	2190	715	277	306
30	261	168	162	157	---	2190	1360	2190	2190	640	277	310
31	262	---	177	162	---	2310	---	2340	---	593	347	---
TOTAL	8724	6035	5473	4831	5571	22388	45519	58960	82790	38819	12602	7526
MEAN	281	201	177	156	199	722	1517	1902	2760	1252	407	251
MAX	472	272	225	190	323	2310	2330	2550	4620	2170	566	363
MIN	141	110	147	144	140	340	909	1400	2020	593	277	186
AC-FT	17300	11970	10860	9580	11050	44410	90290	116900	164200	77000	25000	14930
CAL YR 1985	TOTAL	193614		MEAN	530	MAX	2460	MIN	110	AC-FT	384000	
WTR YR 1986	TOTAL	299238		MEAN	820	MAX	4620	MIN	110	AC-FT	593500	

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1965 to July 1986 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	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)
OCT										
02...	1030	170	280	9.0	110	29	8.9	14	0.6	1.6
NOV										
07...	1140	179	270	1.0	110	31	7.5	13	0.6	1.3
DEC										
18...	1200	190	293	0.0	120	33	8.8	15	0.6	1.5
JAN										
29...	1200	152	278	0.0	120	35	9.0	14	0.6	1.4
APR										
23...	1100	1430	247	9.0	96	26	7.5	13	0.6	1.6
MAY										
05...	1300	2380	175	10.0	72	21	4.7	8.7	0.5	1.5
JUN										
05...	1730	2920	218	17.5	87	24	6.5	11	0.5	1.6
25...	1810	2050	207	16.0	89	25	6.4	9.4	0.5	0.8

DATE	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 SI02)	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, TOTAL (MG/L AS P)
OCT										
02...	110	26	2.7	0.3	10	160	0.22	73	0.00	0.14
NOV										
07...	100	26	2.3	0.4	10	150	0.21	73	0.00	0.02
DEC										
18...	110	30	2.8	0.4	13	170	0.23	87	0.10	0.03
JAN										
29...	120	29	2.6	0.4	5.3	170	0.23	69	0.10	0.06
APR										
23...	85	29	2.6	0.2	10	140	0.19	544	0.00	0.13
MAY										
05...	67	19	1.1	0.3	10	110	0.14	684	0.00	0.13
JUN										
05...	88	17	1.3	0.1	9.7	120	0.17	977	0.00	0.08
25...	98	14	1.7	0.4	8.2	120	0.17	690	0.10	0.10



## PLATTE RIVER BASIN

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.--Estimated daily discharges: Oct. 1 to Nov. 8, Nov. 13, Nov. 16-23, Nov. 27 to Feb. 17, and Feb. 21-23. Records good except for estimated daily discharges, which are fair. Flow regulated by Antero Reservoir, capacity, 22,300 acre-ft, prior to Sept. 15 1981, and by Spinney Mountain Reservoir, 3.6 mi upstream, capacity, 152,900 acre-ft, since Sept. 15 1981. Many small diversions upstream from 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.--42 years, (water years 1940-81), 77.3 ft<sup>3</sup>/s; 56,000 acre-ft/yr, prior to completion of Spinney Mountain Dam; 5 years, (water years 1982-86), 113 ft<sup>3</sup>/s; 81,870 acre-ft/yr, subsequent to completion of Spinney Mountain Dam.

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, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 400 ft<sup>3</sup>/s at 1130 June 20, gage height, 2.47 ft, minimum daily, 20 ft<sup>3</sup>/s, Dec. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	39	46	43	58	112	282	43	106	228	149	197
2	51	38	45	42	58	112	285	43	90	236	166	197
3	50	38	47	41	57	117	249	40	66	240	175	189
4	50	39	41	24	57	148	217	35	56	240	172	173
5	50	39	20	41	58	146	217	35	54	243	164	168
6	51	38	37	45	58	130	217	35	38	269	160	162
7	52	38	57	50	58	153	217	36	37	303	155	160
8	53	40	43	56	58	191	199	36	37	320	148	158
9	52	37	43	57	58	238	164	36	38	327	135	146
10	50	37	43	58	58	260	92	37	40	282	123	155
11	51	37	42	59	58	260	37	37	38	187	134	168
12	52	38	45	59	59	262	36	47	37	157	135	153
13	52	38	46	59	60	278	35	55	37	187	141	132
14	52	37	66	59	58	289	36	55	36	175	183	123
15	44	37	72	59	60	289	35	55	36	166	181	118
16	43	37	70	59	61	289	35	52	36	166	155	106
17	42	38	72	59	62	289	35	37	82	166	151	112
18	42	38	36	58	62	289	32	37	142	183	153	101
19	41	35	42	58	62	289	29	37	179	195	187	95
20	41	33	42	58	55	289	30	37	337	209	215	101
21	41	57	42	57	37	289	30	46	344	230	245	96
22	40	59	42	58	32	287	30	55	339	238	223	104
23	39	79	42	58	31	285	30	55	264	240	213	115
24	40	79	42	60	36	278	37	56	221	230	256	112
25	39	79	41	58	41	260	48	56	205	219	207	115
26	39	79	41	58	58	271	49	56	232	193	209	118
27	40	51	41	58	114	278	52	56	234	168	197	115
28	40	49	40	58	112	282	45	56	276	146	172	112
29	40	48	40	58	---	282	42	56	269	132	177	115
30	39	48	44	58	---	285	44	62	238	141	193	122
31	40	---	43	58	---	285	---	92	---	162	203	---
TOTAL	1409	1379	1413	1683	1636	7512	2886	1471	4144	6578	5477	4038
MEAN	45.5	46.0	45.6	54.3	58.4	242	96.2	47.5	138	212	177	135
MAX	53	79	72	60	114	289	285	92	344	327	256	197
MIN	39	33	20	24	31	112	29	35	36	132	123	95
AC-FT	2790	2740	2800	3340	3250	14900	5720	2920	8220	13050	10860	8010
CAL YR 1985	TOTAL	49436	MEAN	135	MAX	655	MIN	20	AC-FT	98060		
WTR YR 1986	TOTAL	39626	MEAN	109	MAX	344	MIN	20	AC-FT	78600		

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. Elevation 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.--Estimated daily discharges: Dec. 5, and 11. 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.--57 years, 76.4 ft<sup>3</sup>/s; 55,350 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, 335 ft<sup>3</sup>/s at 1900 July 9, gage height, 3.00 ft; minimum daily, 22 ft<sup>3</sup>/s, May 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	45	49	42	57	66	275	35	44	224	157	198
2	69	42	46	43	58	71	278	35	51	222	153	195
3	68	39	45	42	59	77	287	35	55	222	155	200
4	59	37	45	41	58	83	277	37	54	219	156	200
5	58	38	40	40	59	93	270	36	55	219	152	181
6	55	37	36	40	58	97	250	29	57	225	148	170
7	58	36	36	45	58	102	244	29	52	241	145	166
8	51	33	38	47	59	111	232	28	49	260	143	168
9	50	33	42	47	58	125	224	27	48	295	143	157
10	48	33	44	48	59	142	207	25	48	300	138	153
11	54	33	44	49	60	160	178	24	44	285	133	147
12	51	32	43	51	61	178	155	22	42	254	129	145
13	48	33	45	52	62	194	142	23	41	236	126	138
14	51	35	47	52	61	210	114	24	39	224	125	133
15	49	37	50	54	59	224	96	25	36	209	133	126
16	49	34	52	53	60	236	88	27	33	200	135	120
17	46	34	53	54	60	250	80	29	33	188	133	113
18	45	35	56	53	60	263	75	29	40	184	135	109
19	44	34	54	54	61	267	67	28	50	182	138	102
20	43	32	52	55	61	270	62	28	75	182	145	97
21	43	33	52	54	59	273	55	29	112	187	170	92
22	45	37	51	53	58	273	52	30	145	198	182	88
23	42	40	50	55	52	273	47	28	171	206	207	88
24	38	44	49	56	47	275	45	30	181	209	224	92
25	38	47	47	54	51	272	46	28	187	206	227	88
26	38	50	47	54	49	270	46	29	195	200	225	85
27	38	53	45	56	53	270	47	30	201	191	221	83
28	38	51	45	57	60	273	42	30	207	181	212	82
29	37	50	44	57	---	275	40	33	219	171	206	82
30	38	47	44	56	---	277	36	34	225	157	198	85
31	40	---	43	57	---	278	---	37	---	152	197	---
TOTAL	1505	1164	1434	1571	1617	6228	4057	913	2789	6629	5091	3883
MEAN	48.5	38.8	46.3	50.7	57.8	201	135	29.5	93.0	214	164	129
MAX	74	53	56	57	62	278	287	37	225	300	227	200
MIN	37	32	36	40	47	66	36	22	33	152	125	82
AC-FT	2990	2310	2840	3120	3210	12350	8050	1810	5530	13150	10100	7700
CAL YR 1985	TOTAL	49904	MEAN	137	MAX	579	MIN	28	AC-FT	98980		
WTR YR 1986	TOTAL	36881	MEAN	101	MAX	300	MIN	22	AC-FT	73150		

## PLATTE RIVER BASIN

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.

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

PERIOD OF RECORD.--June 1978 to September 1986 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 9,935 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 15, 1980, at site 250 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 3, 4, 7-16, 23-27, Nov. 1-7, 10-12, Nov. 14 to Mar. 10, 12-16, 19-22, Mar. 24 to Apr. 2, Apr. 4-8, 14, 15. Records good except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 20.8 ft<sup>3</sup>/s; 15,070 acre-ft/yr.

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, 84 ft<sup>3</sup>/s at 2145 June 8, gage height, 1.73 ft; minimum daily, 5.0 ft<sup>3</sup>/s, Dec. 10-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	9.0	10	7.0	8.0	8.0	6.4	16	49	43	23	18
2	10	9.0	10	7.0	8.0	8.0	6.6	18	49	42	20	18
3	9.6	9.0	10	7.0	8.0	8.0	6.6	20	52	41	20	18
4	9.6	9.6	10	7.0	7.4	8.0	7.4	25	60	41	20	18
5	9.4	9.6	10	7.0	6.0	8.0	7.4	26	68	41	19	17
6	9.4	9.6	10	7.0	6.0	8.0	7.4	23	73	42	19	17
7	10	9.6	10	7.0	6.0	8.0	7.8	21	75	44	19	17
8	11	9.7	8.0	7.0	6.0	8.0	7.8	20	76	41	19	17
9	11	9.7	7.0	7.0	6.0	7.4	7.7	19	80	40	19	16
10	11	9.4	5.0	8.0	6.0	6.7	8.0	18	73	38	19	14
11	11	8.4	5.0	8.0	6.0	6.4	7.4	20	66	36	19	14
12	11	8.2	5.0	8.0	6.0	5.9	7.7	21	63	34	19	14
13	10	8.2	5.0	8.0	6.0	6.0	7.4	23	63	34	19	13
14	10	8.2	5.0	8.0	7.0	5.8	8.0	25	63	34	19	13
15	10	8.2	7.0	8.0	8.0	5.4	8.2	24	64	33	19	13
16	10	8.2	7.0	8.0	8.0	5.4	8.2	25	66	33	19	12
17	11	8.2	7.0	8.0	8.0	5.4	8.0	24	68	32	19	12
18	11	9.0	7.0	8.0	8.0	5.6	7.4	24	69	32	19	12
19	11	8.0	7.0	8.0	8.0	5.8	7.7	25	70	35	18	12
20	11	8.0	7.0	8.0	8.0	6.0	8.0	28	68	35	18	12
21	10	8.0	7.0	7.4	8.0	5.8	9.4	33	64	35	18	12
22	10	8.0	7.0	7.0	8.0	5.6	12	37	61	33	18	12
23	9.6	10	7.0	7.0	8.0	5.6	13	40	59	32	18	11
24	9.6	10	7.0	7.0	8.0	5.6	14	41	60	31	18	13
25	9.6	10	7.0	7.0	8.0	5.6	14	41	56	30	18	13
26	9.6	10	7.0	7.0	8.0	5.6	13	45	54	28	18	12
27	9.6	10	7.0	8.0	8.0	5.6	9.7	44	52	28	17	12
28	10	10	7.0	8.0	8.0	6.0	9.4	45	48	27	17	12
29	10	10	7.0	8.0	---	6.0	11	46	46	25	18	13
30	10	10	7.0	8.0	---	6.0	14	46	45	24	18	14
31	10	---	7.0	8.0	---	6.4	---	47	---	23	18	---
TOTAL	315.0	272.8	229.0	233.4	204.4	199.6	270.6	910	1860	1067	581	421
MEAN	10.2	9.09	7.39	7.53	7.30	6.44	9.02	29.4	62.0	34.4	18.7	14.0
MAX	11	10	10	8.0	8.0	8.0	14	47	80	44	23	18
MIN	9.4	8.0	5.0	7.0	6.0	5.4	6.4	16	45	23	17	11
AC-FT	625	541	454	463	405	396	537	1800	3690	2120	1150	835
CAL YR 1985	TOTAL	7898.6	MEAN	21.6	MAX	122	MIN	3.0	AC-FT	15670		
WTR YR 1986	TOTAL	6563.8	MEAN	18.0	MAX	80	MIN	5.0	AC-FT	13020		

## 06697200 FRENCH CREEK NEAR JEFFERSON, CO

LOCATION.--Lat 39°23'21", long 105°38'07", unsurveyed, Park County, Hydrologic Unit 10190001, on right bank 150 ft upstream from culverts under Forest Service road, 0.4 mi upstream from confluence with Michigan Creek, and 8.4 mi northwest of Jefferson, Co.

DRAINAGE AREA.--4.63 mi<sup>2</sup>.

PERIOD OF RECORD.--April to September, 1986 (seasonal record only).

GAGE.--Water-stage recorder. Elevation of gage is 10,190 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Apr. 1 to May 13, Sept. 21-30. Records good except for estimated daily discharges, which are poor. No diversions upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF SEASONAL RECORD.--Maximum discharge, 52 ft<sup>3</sup>/s, June 19, 1986, gage height, 2.07 ft; minimum daily, 1.5 ft<sup>3</sup>/s, Apr. 1-4, 1986.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 52 ft<sup>3</sup>/s at 2300 June 19, gage height, 2.07 ft; minimum daily, 1.5 ft<sup>3</sup>/s, Apr. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						1.5	3.7	20	25	10		6.3
2						1.5	4.2	20	23	10		6.1
3						1.5	5.2	24	22	9.8		5.7
4						1.5	6.5	31	24	10		6.3
5						1.6	8.9	37	23	9.4		6.0
6						1.6	8.1	42	23	8.9		5.5
7						1.7	7.5	45	25	8.6		5.7
8						1.7	6.9	45	20	8.6		6.8
9						1.7	6.5	45	19	8.4		5.7
10						1.7	6.3	39	17	8.1		5.6
11						1.7	7.4	35	16	7.8		5.5
12						1.7	8.3	33	16	8.0		5.3
13						1.7	11	34	15	7.7		5.1
14						1.7	11	36	15	7.2		4.9
15						1.8	11	37	15	7.0		4.8
16						1.8	11	39	15	6.8		4.7
17						1.8	11	41	14	6.6		4.6
18						1.9	11	44	14	6.5		4.5
19						1.9	12	45	14	6.5		4.4
20						1.9	13	45	14	7.9		4.3
21						1.9	14	43	13	8.0		4.0
22						2.1	16	40	13	7.4		3.8
23						2.3	17	37	13	7.7		3.7
24						2.8	17	36	12	7.1		3.5
25						3.5	17	35	12	7.3		3.3
26						3.3	19	34	12	7.3		3.2
27						3.0	19	33	12	6.8		3.1
28						2.9	20	31	11	6.6		3.0
29						3.0	19	29	11	6.7		3.0
30						3.4	18	28	11	6.6		3.0
31						---	19	---	11	6.5		---
TOTAL						62.1	365.5	1083	500	241.8		141.4
MEAN						2.07	11.8	36.1	16.1	7.80		4.71
MAX						3.5	20	45	25	10		6.8
MIN						1.5	3.7	20	11	6.5		3.0
AC-FT						123	725	2150	992	480		280

06697450 MICHIGAN CREEK ABOVE JEFFERSON, CO

LOCATION.--Lat 39°21'02", long 105°49'56", in NE¼SW¼ sec.13, T.8 S., R.76 W., Park County, Hydrologic Unit 10190001, on right bank 30 ft upstream from bridge on U.S. Highway 285 and 2.4 mi southwest of Jefferson. Prior to Oct. 1, 1985 at site 0.3 mi upstream

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

PERIOD OF RECORD.--June 1978 to September 1986 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 9,503 ft from National Geodetic Vertical Datum of 1929, from topographic map. June 1, 1978 to May 5, 1982 at site 0.7 mi upstream at different datum, May 6, 1982 to Sept. 30, 1985 at site 0.3 mi upstream at different datum.

REMARKS.--Estimated discharges: Nov. 1 to Apr. 7, Apr. 14, 15, Sept. 8, 9. Records fair except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 15.2 ft<sup>3</sup>/s; 11,010 acre-ft/yr.

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, 97 ft<sup>3</sup>/s at 1545 June 9, gage height, 1.11 ft; minimum daily, 3.0 ft<sup>3</sup>/s, Feb. 8-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	10	6.0	4.0	5.0	7.0	6.0	12	49	46	19	18
2	17	10	6.0	4.0	5.0	7.0	6.0	12	49	42	18	16
3	16	10	6.0	4.0	5.0	7.0	6.0	12	49	40	18	13
4	13	10	6.0	4.0	5.0	7.0	6.0	14	60	40	18	13
5	12	10	6.0	4.0	5.0	7.0	6.0	17	70	41	20	15
6	11	10	6.0	4.0	5.0	7.0	7.0	17	68	43	18	12
7	18	10	6.0	4.0	4.0	7.0	9.0	17	69	60	18	13
8	21	10	6.0	4.0	3.0	7.0	12	19	74	52	17	14
9	20	10	6.0	4.0	3.0	7.0	12	18	83	53	19	13
10	18	10	5.0	5.0	3.0	7.0	11	17	82	48	21	13
11	27	10	5.0	5.0	3.0	7.0	8.8	16	73	46	18	13
12	18	10	5.0	5.0	3.0	7.0	8.1	17	70	42	16	14
13	17	9.0	5.0	5.0	4.0	6.0	6.8	14	63	43	17	12
14	17	7.0	5.0	5.0	5.0	5.0	3.4	15	62	40	14	13
15	17	6.0	5.0	5.0	6.0	5.0	12	17	61	40	12	12
16	17	6.0	5.0	5.0	7.0	5.0	12	18	62	40	12	12
17	14	6.0	5.0	5.0	7.0	5.0	12	22	62	40	12	11
18	13	6.0	5.0	5.0	7.0	5.0	9.4	19	62	40	12	10
19	12	6.0	5.0	5.0	7.0	5.0	12	19	61	42	12	11
20	12	6.0	5.0	5.0	7.0	5.0	11	21	65	45	15	11
21	12	6.0	5.0	5.0	7.0	5.0	16	24	65	42	21	11
22	11	6.0	5.0	5.0	7.0	6.0	21	29	63	35	17	11
23	11	6.0	5.0	5.0	7.0	6.0	24	36	62	29	27	12
24	10	6.0	5.0	5.0	7.0	6.0	20	38	58	28	24	13
25	10	6.0	5.0	5.0	7.0	6.0	18	40	57	25	22	15
26	10	6.0	5.0	5.0	7.0	6.0	18	36	59	26	24	13
27	10	6.0	5.0	5.0	7.0	6.0	20	37	52	25	18	12
28	10	6.0	5.0	5.0	7.0	6.0	13	39	52	24	17	12
29	10	6.0	5.0	5.0	---	6.0	12	39	52	22	19	14
30	10	6.0	5.0	5.0	---	6.0	12	39	52	19	20	16
31	10	---	4.0	5.0	---	6.0	---	39	---	19	20	---
TOTAL	442	232.0	163.0	146.0	155.0	190.0	350.5	729	1866	1177	555	388
MEAN	14.3	7.73	5.26	4.71	5.54	6.13	11.7	23.5	62.2	38.0	17.9	12.9
MAX	27	10	6.0	5.0	7.0	7.0	24	40	83	60	27	18
MIN	10	6.0	4.0	4.0	3.0	5.0	3.4	12	49	19	12	10
AC-FT	877	460	323	290	307	377	695	1450	3700	2330	1100	770
CAL YR 1985	TOTAL	7457.5		MEAN	20.4	MAX	124	MIN	3.2	AC-FT	14790	
WTR YR 1986	TOTAL	6393.5		MEAN	17.5	MAX	83	MIN	3.0	AC-FT	12680	

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 September 1986 (discontinued).

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 9,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 11, 15, Nov. 1 to Apr. 14. Records good except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 9.17 ft<sup>3</sup>/s; 6,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76 ft<sup>3</sup>/s, July 25, 1984, gage height, 1.89 ft; no flow Jan. 28 to Apr. 5, 1979, May 18, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft<sup>3</sup>/s at 0300 Aug. 21, gage height, 1.30 ft; minimum daily, 2.0 ft<sup>3</sup>/s, Jan. 1-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	2.7	2.5	2.0	4.0	4.0	6.0	7.8	12	22	13	27
2	7.5	2.6	2.5	2.0	4.0	4.0	6.0	10	11	24	14	27
3	7.5	2.5	2.5	2.0	4.0	4.0	6.0	12	13	24	13	27
4	8.1	2.3	2.5	2.0	4.0	4.0	6.0	13	18	26	14	26
5	7.5	2.3	2.5	2.0	4.0	4.0	6.0	14	20	26	14	26
6	7.2	2.3	2.5	2.0	4.0	4.2	6.0	13	22	28	13	25
7	7.0	2.3	2.5	2.0	4.0	4.5	6.0	11	23	30	12	25
8	6.7	2.3	2.5	2.0	4.0	4.8	6.0	10	25	23	13	26
9	6.4	2.3	2.5	2.0	4.0	5.2	6.0	8.4	30	16	26	25
10	6.2	2.3	2.5	2.0	4.0	5.6	6.0	7.7	24	12	31	23
11	6.0	2.3	2.5	2.0	4.0	5.8	6.2	8.1	20	8.9	33	22
12	5.7	2.3	2.5	2.0	4.0	6.0	6.4	9.2	19	7.5	34	21
13	5.4	2.3	2.5	2.0	4.0	6.0	6.8	9.8	19	8.9	34	20
14	5.0	2.3	2.5	2.0	4.0	6.0	6.8	9.8	19	10	34	20
15	4.7	2.3	2.5	2.0	4.0	6.0	5.6	5.2	19	9.8	34	19
16	4.2	2.5	2.5	2.0	4.0	6.0	5.9	5.3	20	10	35	19
17	4.0	2.5	2.5	2.0	4.0	6.0	5.9	5.0	22	10	35	18
18	3.8	2.5	2.5	2.0	4.0	6.0	5.7	4.5	22	13	35	18
19	4.5	2.5	2.5	2.0	4.0	6.0	5.7	5.0	26	8.6	35	17
20	2.9	2.5	2.5	2.0	4.0	6.0	5.4	6.4	26	8.6	36	16
21	3.6	2.5	2.5	2.0	4.0	6.0	3.1	8.9	23	9.8	37	16
22	3.6	2.5	2.5	2.0	4.0	6.0	4.0	12	21	12	36	15
23	3.5	2.5	2.5	2.0	4.0	6.0	4.0	13	20	11	37	15
24	3.1	2.5	2.5	2.1	4.0	6.0	4.2	13	20	11	34	13
25	3.1	2.5	2.5	2.2	4.0	6.0	4.5	12	18	10	32	12
26	3.1	2.5	2.5	2.4	4.0	6.0	4.5	14	18	10	31	12
27	2.9	2.5	2.5	2.6	4.0	6.0	4.4	12	17	9.2	30	10
28	2.9	2.5	2.5	2.9	4.0	6.0	4.2	11	17	11	29	8.1
29	2.9	2.5	2.5	3.0	---	6.0	4.6	13	17	16	30	11
30	2.7	2.5	2.5	3.3	---	6.0	5.9	11	17	15	29	10
31	2.9	---	2.5	3.6	---	6.0	---	10	---	13	28	---
TOTAL	152.4	72.9	77.5	68.1	112.0	170.1	163.8	305.1	598	454.3	861	569.1
MEAN	4.92	2.43	2.50	2.20	4.00	5.49	5.46	9.84	19.9	14.7	27.8	19.0
MAX	8.1	2.7	2.5	3.6	4.0	6.0	6.8	14	30	30	37	27
MIN	2.7	2.3	2.5	2.0	4.0	4.0	3.1	4.5	11	7.5	12	8.1
AC-FT	302	145	154	135	222	337	325	605	1190	901	1710	1130
CAL YR 1985	TOTAL	3987.2	MEAN	10.9	MAX	46	MIN	1.1	AC-FT	7910		
WTR YR 1986	TOTAL	3604.3	MEAN	9.87	MAX	37	MIN	2.0	AC-FT	7150		

## SOUTH PLATTE RIVER BASIN

06699000 ROCK CREEK NEAR JEFFERSON, CO.

LOCATION.--Lat 35°17'29", long 105°41'43", in NE¼NE¼, Sec. 7, T.9 S., R.14 W., Park County Hydrologic Unit 10190001 on left bank 80 ft downstream from Park County Road 77, 1,000 ft upstream from mouth and 8.5 mi southeast of Jefferson, Colorado.

DRAINAGE AREA.--45.5 mi<sup>2</sup>.

PERIOD OF RECORD.--May to September 1986.

GAGE.--Water-stage recorder. Elevation of gage is 9,037 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: May 1-19, June 17 to July 1. Records good except for estimated daily discharges, 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 106 ft<sup>3</sup>/s, July 7, 1986, gage height 5.24 ft, minimum daily discharge, 4.2 ft<sup>3</sup>/s, Sept. 28, 1986

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period May to September, 106 ft<sup>3</sup>/s at 1400 July 7, gage height, 5.24 ft; minimum daily, 4.2 ft<sup>3</sup>/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								13	22	14	6.8	7.5
2								15	28	13	6.7	6.1
3								18	27	12	6.7	5.5
4								20	25	12	6.7	5.2
5								20	25	12	6.8	5.2
6								18	23	12	6.3	4.8
7								15	21	54	6.1	5.2
8								12	20	22	6.2	6.1
9								11	30	21	6.4	5.8
10								9.2	34	16	7.2	5.5
11								10	25	13	6.5	5.0
12								11	22	12	7.6	4.8
13								12	20	12	6.8	4.7
14								13	20	11	6.1	4.6
15								13	18	11	5.8	4.5
16								13	18	10	5.5	4.4
17								12	17	11	5.4	4.4
18								12	17	16	5.4	4.3
19								13	17	14	5.4	4.4
20								16	17	14	5.7	4.3
21								21	16	14	6.1	4.2
22								22	16	12	5.5	4.2
23								18	16	10	7.6	4.2
24								17	16	10	7.5	4.4
25								15	15	9.2	6.1	4.8
26								18	15	8.8	6.6	4.5
27								16	15	8.4	5.6	4.3
28								17	14	7.8	5.2	4.2
29								17	14	7.5	6.0	4.4
30								17	14	7.5	5.8	4.7
31								16	---	7.1	7.2	---
TOTAL								470.2	597	414.3	195.3	146.2
MEAN								15.2	19.9	13.4	6.30	4.87
MAX								22	34	54	7.6	7.5
MIN								9.2	14	7.1	5.2	4.2
AC-FT								933	1180	822	387	290

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.--230 mi<sup>2</sup> (revised).

PERIOD OF RECORD.--April 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 9,020 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 9-13, Oct. 25 to May 19, July 27 to Sept. 8, Sept. 16-30. 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, 560 ft<sup>3</sup>/s, June 28, 1983, gage height, 6.47 ft; minimum daily, 5.0 ft<sup>3</sup>/s, Dec. 27 to Jan. 6, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 253 ft<sup>3</sup>/s at 0030 June 10, gage height, 4.18 ft; minimum daily, 5.0 ft<sup>3</sup>/s, Dec. 27 to Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	26	7.0	5.0	9.8	13	16	29	96	100	39	50
2	34	25	7.0	5.0	9.8	13	17	29	117	87	42	49
3	32	26	7.0	5.0	9.8	13	18	29	131	74	46	48
4	26	27	7.0	5.0	9.8	13	20	29	125	74	50	48
5	24	27	7.0	5.0	9.8	13	21	29	187	82	54	48
6	23	22	7.0	5.0	9.8	13	21	29	179	82	56	49
7	28	16	7.0	6.0	9.8	13	21	30	176	211	58	50
8	42	17	7.0	7.4	9.8	13	21	31	191	165	60	50
9	42	17	7.0	9.8	9.8	13	21	32	242	186	64	51
10	42	17	7.0	9.8	9.8	13	21	33	253	125	64	49
11	58	17	7.0	9.8	9.8	13	21	34	205	82	68	45
12	53	16	7.0	9.8	9.8	13	21	34	157	62	68	42
13	39	15	7.0	9.8	9.8	13	21	34	146	54	68	40
14	39	14	7.0	9.8	9.8	13	21	34	140	51	68	39
15	37	13	7.0	9.8	9.8	13	21	34	137	54	68	36
16	37	12	7.0	9.8	9.8	13	21	34	165	51	68	34
17	37	11	7.0	9.8	9.8	13	21	34	183	53	68	34
18	37	10	7.0	9.8	9.8	13	21	34	173	72	68	34
19	37	9.7	7.0	9.8	9.8	13	21	35	177	88	68	32
20	35	9.2	7.0	9.8	9.8	13	21	34	180	167	68	31
21	33	8.6	7.0	9.8	11	13	21	41	161	118	70	30
22	32	8.0	7.0	9.8	11	13	23	46	135	90	70	31
23	29	7.6	7.0	9.8	12	13	24	42	120	66	60	32
24	28	7.0	7.0	9.8	12	13	25	39	120	67	56	32
25	25	7.0	7.0	9.8	13	13	26	43	139	54	54	33
26	27	7.0	6.0	9.8	13	13	28	48	141	50	50	31
27	27	7.0	5.0	9.8	13	13	29	49	123	48	50	30
28	27	7.0	5.0	9.8	13	14	29	54	97	47	50	29
29	27	7.0	5.0	9.8	---	15	29	66	86	45	50	29
30	27	7.0	5.0	9.8	---	15	29	80	89	44	50	30
31	27	---	5.0	9.8	---	15	---	73	---	43	50	---
TOTAL	1046	420.1	206.0	268.8	294.0	410	670	1222	4571	2592	1823	1166
MEAN	33.7	14.0	6.65	8.67	10.5	13.2	22.3	39.4	152	83.6	58.8	38.9
MAX	58	27	7.0	9.8	13	15	29	80	253	211	70	51
MIN	23	7.0	5.0	5.0	9.8	13	16	29	86	43	39	29
AC-FT	2070	833	409	533	583	813	1330	2420	9070	5140	3620	2310
CAL YR 1985	TOTAL	16651.1		MEAN	45.6	MAX	256	MIN	5.0	AC-FT	33030	
WTR YR 1986	TOTAL	14688.9		MEAN	40.2	MAX	253	MIN	5.0	AC-FT	29140	



## PLATTE RIVER BASIN

## RESERVOIRS IN SOUTH PLATTE RIVER BASIN

06695500 ELEVENMILE CANYON RESERVOIR.--Lat 38°54'19", long 105°28'30", in N>SW¼ 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 above National Geodetic Vertical Datum of 1929.

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 provided 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, 102,100 acre-ft, July 9, elevation, 8,598.26 ft; minimum observed, 98,800 acre-ft, Nov. 11, 12, May 11, 12, elevation, 8,597.30 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

Capacity, 79,060 acre-ft at gage height 212 ft, spillway crest, above sill of lowest gate. Figures given represent total contents. Water is for municipal use by city of Denver. Records provided 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, 79,590 acre-ft, June 26, gage height, 212.60 ft; minimum observed, 38,850 acre-ft, Sept. 30, gage height, 155.98 ft.

## MONTHEND ELEVATION IN FEET AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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.....	8,597.53	99,660	-	204.26	72,480	-
Oct. 31.....	8,597.34	98,940	-720	204.26	72,480	0
Nov. 30.....	8,597.39	99,100	+160	206.40	74,260	+1,780
Dec. 31.....	8,597.42	99,210	+110	206.80	74,600	+340
CAL YR 1985...	-	-	+330	-	-	-2,990
Jan. 31.....	8,597.44	99,280	+70	205.67	73,650	-950
Feb. 28.....	8,597.43	99,250	-30	204.16	72,390	-1,260
Mar. 31.....	8,598.20	101,900	+2,650	208.98	76,450	+4,060
Apr. 30.....	8,597.40	99,140	-2,760	210.55	77,800	+1,350
May 31.....	8,597.42	99,210	+70	205.22	73,280	-4,520
June 30.....	8,598.04	101,400	+2,190	212.45	79,460	+6,180
July 31.....	8,597.84	100,700	-700	199.99	68,990	-10,470
Aug. 31.....	8,598.00	101,200	+500	171.26	48,180	-20,810
Sept.30.....	8,597.58	99,760	-1,440	155.98	38,850	-9,330
WTR YR 1986....	-	-	+100	-	-	-33,630

a NATIONAL GEODETIC VERTICAL DATUM OF 1929.

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 above National Geodetic Vertical Datum of 1929. Prior to May 14, 1956, at site 370 ft upstream at datum 0.50 ft, higher.

REMARKS.--No estimated daily discharges. Records good. 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.--62 years, 167 ft<sup>3</sup>/s; 121,000 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, 809 ft<sup>3</sup>/s at 1430 July 12, gage height, 3.46 ft; minimum daily, 25 ft<sup>3</sup>/s, Apr. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	92	62	87	122	151	287	382	96	371	493	604
2	42	65	62	87	122	149	210	402	97	365	538	604
3	32	52	62	87	122	168	96	402	97	374	571	604
4	26	52	62	87	122	196	41	402	97	481	568	591
5	26	51	63	87	122	174	25	402	84	558	535	561
6	27	51	63	87	122	164	182	379	44	663	484	554
7	36	51	63	101	134	164	343	303	30	702	484	554
8	86	52	62	96	144	164	388	257	30	699	484	481
9	121	52	63	96	144	164	397	221	30	706	484	365
10	146	52	65	96	149	181	382	203	31	742	481	365
11	146	52	65	96	170	233	354	203	31	548	484	335
12	146	52	103	96	187	257	327	279	55	649	487	285
13	146	52	156	96	189	257	295	408	214	805	487	282
14	146	52	156	96	189	257	262	388	269	805	487	279
15	146	69	153	111	151	257	228	77	266	761	484	292
16	147	81	153	126	106	257	207	48	254	598	548	349
17	147	69	111	132	81	257	196	81	247	548	674	385
18	147	48	82	132	119	223	187	81	272	500	731	385
19	147	48	82	132	140	205	179	117	290	408	728	382
20	147	57	82	132	140	194	166	176	290	405	724	382
21	147	87	82	132	119	176	164	235	305	405	761	379
22	147	122	84	132	106	176	174	257	335	405	809	368
23	147	136	84	132	106	176	252	257	357	402	802	354
24	147	138	86	108	89	176	242	257	371	402	684	321
25	147	138	86	92	86	176	252	257	377	368	611	254
26	147	138	86	92	86	176	274	257	402	340	608	174
27	147	138	86	94	119	176	269	231	417	362	608	151
28	240	138	87	94	151	245	269	162	405	441	608	151
29	346	103	87	94	---	300	269	121	391	496	608	151
30	204	62	87	94	---	300	313	94	435	496	604	151
31	103	---	87	106	---	300	---	94	---	496	604	---
TOTAL	3971	2350	2712	3230	3637	6449	7230	7433	6619	16301	18263	11093
MEAN	128	78.3	87.5	104	130	208	241	240	221	526	589	370
MAX	346	138	156	132	189	300	397	408	435	805	809	604
MIN	26	48	62	87	81	149	25	48	30	340	481	151
AC-FT	7880	4660	5380	6410	7210	12790	14340	14740	13130	32330	36220	22000
CAL YR 1985	TOTAL	108646	MEAN	298	MAX	1110	MIN	16	AC-FT	215500		
WTR YR 1986	TOTAL	89288	MEAN	245	MAX	809	MIN	25	AC-FT	177100		

## 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 above 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.--Estimated daily discharges: Oct. 1, Nov. 1, 2, 6-11, Nov. 14 to Feb. 28, Mar. 4, 7, 9-23, 25, 26, Apr. 3, 6, 14, 15, 19, 27, 28, May 10, 11, 17, 25-28, July 7, 8, and 18-21. Records good except for estimated daily discharges, which are poor. Small diversions upstream from station for irrigation of about 200 acres. Diversions from Colorado River basin to North Fork South Platte River upstream from 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.--48 years (water years 1909-13, 1943-86), 70.8 ft<sup>3</sup>/s; 51,290 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, 500 ft<sup>3</sup>/s at 2230 June 19, gage height, 1.76 ft; minimum daily, 16 ft<sup>3</sup>/s, Feb. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	32	26	24	25	17	31	76	255	260	88	68
2	41	32	28	23	25	17	28	91	250	245	88	63
3	41	36	34	22	24	17	25	103	276	235	91	56
4	41	33	32	20	23	17	23	121	304	255	91	54
5	36	34	34	20	22	18	25	127	333	255	91	52
6	36	30	36	21	21	18	32	115	372	265	82	49
7	41	32	34	22	20	18	41	103	392	282	79	52
8	42	30	34	22	19	21	39	97	399	245	79	68
9	41	30	32	23	18	21	37	85	427	220	79	58
10	45	26	27	24	16	21	34	79	359	210	79	56
11	56	32	18	24	17	19	33	91	304	192	76	54
12	45	39	22	25	19	18	33	130	304	179	79	52
13	45	32	24	26	21	18	33	162	309	170	76	49
14	44	26	26	26	22	18	32	216	304	162	70	47
15	36	26	28	26	23	18	31	352	320	162	68	45
16	39	28	30	27	23	18	31	243	333	166	65	45
17	39	28	32	27	23	18	30	106	359	166	63	44
18	39	27	32	27	23	17	27	106	359	179	63	44
19	37	26	34	26	24	17	30	118	385	158	63	44
20	36	24	34	26	24	17	33	146	399	154	68	44
21	36	24	34	25	24	17	39	184	352	150	73	42
22	36	28	32	24	24	18	49	210	333	138	73	42
23	33	32	32	23	24	18	56	210	320	142	100	42
24	34	34	30	23	25	18	54	206	340	130	73	44
25	34	32	30	23	25	19	56	197	309	121	65	42
26	34	30	30	23	23	20	54	230	304	115	70	44
27	34	30	28	24	20	23	49	235	298	109	61	41
28	34	28	26	24	20	26	45	250	282	97	63	42
29	34	28	25	24	---	30	58	255	282	94	68	45
30	34	28	27	25	---	33	65	235	276	88	68	47
31	34	---	26	26	---	33	---	235	---	91	70	---
TOTAL	1197	897	917	745	617	618	1153	5114	9839	5435	2322	1475
MEAN	38.6	29.9	29.6	24.0	22.0	19.9	38.4	165	328	175	74.9	49.2
MAX	56	39	36	27	25	33	65	352	427	282	100	68
MIN	33	24	18	20	16	17	23	76	250	88	61	41
AC-FT	2370	1780	1820	1480	1220	1230	2290	10140	19520	10780	4610	2930
CAL YR 1985	TOTAL	27493		MEAN	75.3	MAX	434	MIN	17	AC-FT	54530	
WTR YR 1986	TOTAL	30329		MEAN	83.1	MAX	427	MIN	16	AC-FT	60160	



## PLATTE RIVER BASIN

06708750 EAST PLUM CREEK AT CASTLE ROCK, CO.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	18	7.2	9.0	8.0	8.0	9.7	12	16	2.8	1.9	1.5
2	9.1	16	7.2	9.0	9.0	7.6	13	12	22	2.6	1.9	1.5
3	9.2	16	7.2	9.0	8.8	7.4	14	11	26	2.6	1.9	1.5
4	8.7	16	7.4	9.2	8.9	7.2	30	11	30	2.6	1.9	1.3
5	9.0	15	7.6	14	9.2	7.0	37	11	29	3.3	1.9	1.0
6	8.9	15	7.8	13	9.2	6.8	42	11	20	4.1	1.9	1.0
7	8.6	14	8.0	13	8.7	6.6	40	11	16	3.4	1.9	1.1
8	9.2	12	8.2	12	8.3	6.4	41	10	13	3.4	1.8	1.1
9	9.1	13	8.4	11	8.2	6.3	36	9.7	15	4.1	1.7	1.1
10	9.5	13	8.6	11	8.4	6.2	32	9.4	23	3.4	1.6	1.1
11	11	13	8.8	11	8.7	6.2	29	9.0	23	2.8	1.5	.94
12	9.0	13	9.0	11	9.2	6.5	22	8.5	20	2.0	1.5	.94
13	9.9	15	9.2	11	10	6.8	22	8.0	18	1.8	1.5	.94
14	11	15	9.4	12	11	7.0	23	8.0	19	1.5	2.3	.85
15	12	13	9.6	12	12	7.2	22	7.8	19	1.4	1.2	.77
16	9.4	14	9.6	12	11	8.0	20	12	15	1.2	1.0	.70
17	9.5	13	9.6	9.3	9.2	8.0	18	14	13	1.2	.80	.56
18	9.7	12	9.6	9.9	8.7	8.0	18	14	12	1.3	.60	.56
19	9.7	12	9.6	9.7	8.7	8.0	18	14	11	1.6	.50	.60
20	10	11	9.6	9.2	9.1	9.5	19	12	9.5	6.8	.50	.56
21	10	10	9.4	8.5	9.6	9.5	19	11	8.3	4.3	.50	.56
22	9.4	9.0	9.4	8.7	9.7	9.4	17	10	7.4	5.6	.50	.63
23	9.8	8.5	9.2	8.8	9.8	9.6	16	9.0	7.3	2.1	3.3	.77
24	9.7	8.0	9.2	9.0	9.5	9.6	15	8.0	7.3	1.5	2.8	1.0
25	9.5	7.6	9.0	8.3	9.1	9.6	16	8.0	6.2	2.5	2.4	.63
26	9.5	7.6	9.0	8.8	8.9	9.7	16	8.0	4.5	1.7	2.4	.56
27	9.7	7.4	9.0	9.5	8.6	9.7	15	7.0	3.7	1.7	2.4	.67
28	9.4	7.2	9.0	9.4	8.3	9.7	14	8.0	3.3	1.7	2.4	.94
29	9.3	7.2	9.0	9.6	---	9.7	12	9.0	3.2	1.8	2.0	1.5
30	9.6	7.2	9.0	8.2	---	9.7	12	11	3.1	1.8	1.8	2.0
31	13	---	9.0	7.9	---	9.7	---	13	---	1.8	1.6	---
TOTAL	301.2	358.7	271.8	314.0	257.8	250.6	657.7	317.4	423.8	80.4	51.90	28.88
MEAN	9.72	12.0	8.77	10.1	9.21	8.08	21.9	10.2	14.1	2.59	1.67	.96
MAX	13	18	9.6	14	12	9.7	42	14	30	6.8	3.3	2.0
MIN	8.6	7.2	7.2	7.9	8.0	6.2	9.7	7.0	3.1	1.2	.50	.56
AC-FT	597	711	539	623	511	497	1300	630	841	159	103	57
WTR YR 1986	TOTAL	3314.18		MEAN	9.08	MAX	42	MIN	.50	AC-FT	6570	

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. Elevation of gage is 5,585 ft above National Geodetic Vertical Datum of 1929, 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. Low-flow records may not be equivalent with station 06709530 Plum Creek at Titan Road near Louviers, located at former site, because of possible undetermined losses between sites.

REMARKS.--Estimated daily discharges: Nov. 20-22, Dec. 1-10, 13-28, Feb. 7-16. Records poor. Diversions upstream from station for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--39 years, 34.0 ft<sup>3</sup>/s; 24,630 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 discharges greater than base discharges of 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. 10	0830	*131	*2.80				
Minimum daily, 0.22 ft <sup>3</sup> /s, Aug. 18.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	56	17	6.5	25	42	20	43	36	8.2	2.3	1.4
2	23	36	20	11	19	42	15	42	59	5.3	2.2	1.5
3	17	31	21	16	25	30	17	29	54	3.5	3.4	1.5
4	23	40	21	26	21	21	41	33	35	3.1	4.1	1.1
5	24	60	20	35	17	23	31	39	48	3.3	5.2	1.0
6	30	45	20	27	14	20	51	27	47	7.3	3.0	1.1
7	24	31	19	28	15	18	68	25	38	6.0	2.2	1.9
8	28	27	18	21	17	18	85	28	33	5.0	3.1	4.3
9	25	23	17	35	17	21	115	37	29	6.0	1.6	2.7
10	36	27	16	35	16	22	93	35	71	3.3	1.0	1.9
11	42	30	14	25	15	24	83	31	65	2.9	.67	1.6
12	34	19	15	25	16	25	89	33	61	2.7	.45	1.3
13	24	19	19	38	17	25	89	37	68	2.7	.40	1.3
14	27	14	45	46	19	27	50	40	62	2.7	.32	1.3
15	25	18	46	44	20	23	81	35	48	2.7	.72	1.1
16	20	19	47	54	22	19	83	51	36	2.5	.34	1.2
17	14	16	48	52	23	21	68	40	23	2.7	.25	1.0
18	24	17	45	49	15	21	43	49	25	3.8	.22	1.0
19	24	18	42	38	16	19	42	47	24	3.2	.24	1.0
20	22	18	40	33	24	19	44	56	22	4.3	.31	1.3
21	17	18	40	24	18	14	61	50	17	14	.34	1.3
22	20	18	35	17	24	17	65	40	16	8.6	1.3	1.3
23	18	15	34	21	33	20	69	38	14	22	2.8	1.7
24	23	19	32	22	21	20	54	33	12	15	1.9	1.8
25	17	35	30	24	25	24	29	28	12	12	1.2	1.7
26	21	33	31	28	27	29	42	23	12	11	1.2	1.7
27	19	28	30	24	31	17	52	25	12	7.7	1.2	1.8
28	18	32	30	22	42	17	40	15	12	5.6	1.1	2.0
29	18	25	30	25	---	21	37	30	8.2	3.9	1.1	2.9
30	24	15	27	24	---	17	36	53	7.4	3.2	1.1	3.6
31	32	---	8.9	21	---	23	---	28	---	2.7	1.4	---
TOTAL	741	802	877.9	896.5	594	699	1693	1120	1006.6	186.9	46.66	50.3
MEAN	23.9	26.7	28.3	28.9	21.2	22.5	56.4	36.1	33.6	6.03	1.51	1.68
MAX	42	60	48	54	42	42	115	56	71	22	5.2	4.3
MIN	14	14	8.9	6.5	14	14	15	15	7.4	2.5	.22	1.0
AC-FT	1470	1590	1740	1780	1180	1390	3360	2220	2000	371	93	100
CAL YR 1985	TOTAL	19716.4		MEAN	54.0	MAX	588	MIN	8.2	AC-FT	39110	
WTR YR 1986	TOTAL	8713.86		MEAN	23.9	MAX	115	MIN	.22	AC-FT	17280	

## PLATTE RIVER BASIN

06709530 PLUM CREEK AT TITAN ROAD NEAR LOUVIERS, CO.

LOCATION.--Lat 39°30'27", long 105°01'26", on line between sec.20 and sec.29, T.6 S., R.68 W., Douglas County, Hydrologic Unit 10190002, on upstream side of bridge on Titan Road, 2.4 mi north of Louviers.

DRAINAGE AREA.--315 mi<sup>2</sup> (revised).

PERIOD OF RECORD.--May 1, 1984 to current year. Low-flow records may not be equivalent with station 06709500 Plum Creek near Louviers because of possible undetermined channel losses between sites.

GAGE.--Water-stage recorder. Elevation of gage is 5,520 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1 to June 9, July 31 to Aug. 2, Aug 10 to Sept. 30. Records poor due to unstable channel conditions. Diversions upstream from station for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,300 ft<sup>3</sup>/s, May 15, 1984, gage height, 7.00 ft; maximum gage-height, 8.02 ft, Dec. 25, 1985 (backwater from ice); minimum daily discharge, 6.5 ft<sup>3</sup>/s, Sept. 4, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 153 ft<sup>3</sup>/s at 2200 Apr. 9, gage height, 5.34 ft; maximum gage height, 7.13 ft, Jan. 11 (backwater from ice); minimum daily discharge, 0.13 ft<sup>3</sup>/s, Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	56	17	29	20	41	18	41	43	5.5	1.3	.14
2	15	38	19	29	19	34	15	35	56	5.5	1.2	.15
3	19	33	20	29	23	26	18	31	43	4.9	1.2	.16
4	21	36	20	29	20	22	36	34	40	4.4	1.5	.14
5	24	56	19	27	13	20	36	30	36	4.4	2.0	.22
6	30	50	19	27	14	18	54	26	38	6.5	1.2	.39
7	28	35	18	28	14	18	70	25	34	6.0	1.2	.72
8	28	28	17	20	14	19	100	32	30	4.9	1.5	1.3
9	25	24	16	34	14	21	110	36	42	4.4	1.2	1.1
10	36	26	15	31	14	23	86	33	33	4.9	.60	.98
11	41	20	14	25	14	24	86	30	57	4.4	.42	.94
12	35	18	15	25	14	25	86	26	73	3.9	.35	.92
13	25	16	20	37	15	26	64	37	85	3.8	.31	.92
14	27	14	22	44	15	23	70	37	37	3.5	.31	.90
15	26	18	23	43	15	21	80	41	33	3.0	.33	.78
16	20	18	25	52	15	20	74	49	54	2.5	.24	.80
17	24	17	26	50	15	21	56	45	46	3.0	.21	.72
18	23	16	28	47	16	21	44	48	17	4.2	.20	.68
19	23	17	29	37	17	19	44	50	22	3.5	.20	.68
20	21	18	30	30	18	16	50	54	15	3.9	.23	.72
21	17	18	26	20	17	15	62	49	14	13	.29	.78
22	20	17	34	17	21	19	64	40	8.7	3.1	.46	.96
23	18	16	33	19	26	20	56	38	8.1	9.4	1.1	.96
24	22	23	30	20	23	23	39	34	7.5	7.0	1.0	.98
25	19	28	29	22	25	28	35	30	7.5	4.4	.80	1.0
26	21	27	30	24	26	23	48	24	7.0	4.9	.64	1.1
27	19	26	29	21	30	17	46	25	7.0	3.5	.47	1.1
28	18	26	29	20	41	19	39	20	7.5	2.3	.36	1.1
29	18	23	29	21	---	21	35	50	6.5	2.0	.27	1.1
30	23	15	29	19	---	15	41	35	5.5	2.0	.19	1.1
31	34	---	29	20	---	16	---	32	---	1.3	.13	---
TOTAL	748	773	739	896	528	674	1662	1117	913.3	140.0	21.41	23.54
MEAN	24.1	25.8	23.8	28.9	18.9	21.7	55.4	36.0	30.4	4.52	.69	.78
MAX	41	56	34	52	41	41	110	54	85	13	2.0	1.3
MIN	15	14	14	17	13	15	15	20	5.5	1.3	.13	.14
AC-FT	1480	1530	1470	1780	1050	1340	3300	2220	1810	278	42	47
CAL YR 1985	TOTAL	19680.3		MEAN	53.9	MAX	548	MIN	6.5	AC-FT	39040	
WTR YR 1986	TOTAL	8235.25		MEAN	22.6	MAX	110	MIN	.13	AC-FT	16330	

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 above National Geodetic Vertical Datum of 1929.

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 provided 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, 29,090 acre-ft, Apr. 11, elevation, 5,433.65 ft; minimum, 17,400 acre-ft, Sept. 5, elevation, 5,424.55 ft.

MONTHEND ELEVATION AND CONTENTS, AT 1200, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30 . . . . .	5,429.03	22,690	-
Oct. 31 . . . . .	5,432.23	27,020	+4,330
Nov. 30 . . . . .	5,430.14	24,140	-2,880
Dec. 31 . . . . .	5,431.61	26,150	+2,010
CAL YR 1985 . . . . .	-	-	-1,470
Jan. 31 . . . . .	5,432.10	26,840	+690
Feb. 28 . . . . .	5,432.11	26,850	+10
Mar. 31 . . . . .	5,431.87	26,510	-340
Apr. 30 . . . . .	5,432.05	26,760	+250
May 31 . . . . .	5,429.08	22,760	-4,000
June 30 . . . . .	5,431.32	25,750	+2,990
July 31 . . . . .	5,426.17	19,210	-6,540
Aug. 31 . . . . .	5,425.39	18,320	-890
Sept. 30 . . . . .	5,425.56	18,510	+190
WTR YR 1986 . . . . .	-	-	-4,180



## 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 September 1986 (discontinued).

REVISED RECORDS.--WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,304.36 ft above 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.--Estimated daily discharges: Feb. 18 to Sept. 30. Records good except for estimated daily discharges, which are poor. 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; 11 years (water years 1976-86), 275 ft<sup>3</sup>/s; 199,200 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, unknown; minimum daily, 25 ft<sup>3</sup>/s, Dec. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	235	111	27	54	78	31	91	181	498	293	418
2	39	257	100	27	54	77	40	82	212	495	291	419
3	43	256	97	27	54	76	74	76	238	571	271	382
4	44	255	98	28	81	78	238	76	405	699	241	305
5	45	260	99	28	71	80	424	79	315	608	194	263
6	45	264	99	28	70	83	426	141	176	474	171	250
7	43	260	99	39	64	84	320	172	241	511	166	213
8	41	263	100	59	72	79	410	240	257	574	217	212
9	42	268	101	60	70	84	530	260	266	551	194	214
10	45	208	100	60	94	83	568	249	233	572	236	170
11	47	112	100	60	83	87	612	236	49	486	288	143
12	46	107	85	63	86	93	621	232	55	482	258	130
13	48	106	35	70	84	96	599	200	51	484	177	104
14	51	106	35	81	76	93	599	111	212	408	173	85
15	51	113	30	83	76	93	454	99	189	255	184	68
16	52	108	30	83	74	94	173	238	143	259	180	55
17	51	106	28	84	76	95	86	86	160	289	172	41
18	48	107	28	87	74	94	111	51	168	328	166	35
19	46	113	28	88	72	93	171	58	363	303	170	36
20	45	107	28	87	76	104	167	123	500	342	172	36
21	47	105	28	89	76	95	143	201	530	148	187	36
22	49	105	28	91	76	90	90	235	419	180	227	31
23	65	104	26	83	76	91	93	195	261	349	238	31
24	67	102	25	63	75	86	87	189	257	346	238	38
25	68	110	25	63	75	78	94	191	288	318	308	37
26	70	108	25	64	76	72	102	190	335	311	419	38
27	68	104	26	63	79	72	107	177	338	302	415	39
28	67	105	27	64	79	66	105	164	370	295	402	37
29	156	105	27	65	---	62	92	230	452	297	407	40
30	268	103	27	64	---	55	97	156	518	264	407	40
31	294	---	27	62	---	50	---	123	---	249	415	---
TOTAL	2129	4662	1722	1940	2073	2561	7664	4951	8182	12248	7877	3946
MEAN	68.7	155	55.5	62.6	74.0	82.6	255	160	273	395	254	132
MAX	294	268	111	91	94	104	621	260	530	699	419	419
MIN	38	102	25	27	54	50	31	51	49	148	166	31
AC-FT	4220	9250	3420	3850	4110	5080	15200	9820	16230	24290	15620	7830
CAL YR 1985	TOTAL	129749	MEAN	355	MAX	2230	MIN	23	AC-FT	257400		
WTR YR 1986	TOTAL	59955	MEAN	164	MAX	699	MIN	25	AC-FT	118900		

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1970 to September 1986 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1979 to September 1986.  
WATER TEMPERATURES: April 1970 to February 1986.

INSTRUMENTATION.--Temperature recorder, April 1970 to February 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 692 microsiemens Dec. 4, 1981; minimum daily, 118 microsiemens 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, 542 microsiemens Jan. 16, 22; minimum daily, 302 microsiemens Nov. 10.  
WATER TEMPERATURES: Maximum, 16.0°C Oct. 7; minimum, 1.0°C Feb. 11.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SEDI-MENT, SUSPENDED (MG/L)	SEDI-MENT, DISCHARGE, SUSPENDED (T/DAY)
NOV 1984				
19...	1330	406	11	12
JAN 1985				
17...	1300	92	1	0.25
APR 16...	1330	417	24	27
MAY 21...	1315	1490	34	137
JUL 31...	0930	946	25	64
SEP 17...	1300	61	38	6.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLIFORM, FECAL, UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	NONCARBONATE WH WAT (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)
NOV 18...	1430	107	436	9.1	7.0	33	13.5	K12	48	160	42	44
JAN 16...	1300	87	444	8.4	6.0	2.0	12.0	78	--	170	50	47
MAR 28...	1230	73	426	8.0	14.0	110	9.0	K270	K100	140	21	38
JUN 04...	0950	423	402	8.0	16.0	3.0	7.5	140	290	140	36	38
JUL 28...	1600	292	364	8.7	23.5	2.5	9.7	K22	44	120	29	31
SEP 23...	1245	50	557	9.1	23.0	1.0	16.0	370	130	190	60	54

DATE	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, 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 CONSTITUENTS, DIS-SOLVED (MG/L)
NOV 18...	12	32	30	1	2.5	118	69	32	1.2	1.2	253	250
JAN 16...	12	30	28	1	2.6	117	69	30	1.3	4.7	262	270
MAR 28...	9.8	25	28	1	2.8	114	55	25	1.2	3.3	219	230
JUN 04...	10	25	28	1	2.6	100	54	25	1.1	1.6	233	220
JUL 28...	9.7	24	30	1	2.2	88	47	24	0.9	6.8	205	200
SEP 23...	13	41	32	1	2.9	129	93	40	1.0	6.8	--	330

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

06710000 SOUTH PLATTE RIVER AT LITTLETON, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	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)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L)	PHOS- PHORUS, TOTAL (MG/L )	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV 18...	0.34	73	0.01	0.16	0.04	0.03	0.46	0.5	0.02	0.04	0.02
JAN 16...	0.36	62	0.01	0.49	0.05	0.04	0.45	0.5	0.06	0.04	0.03
MAR 28...	0.3	43	<0.01	0.35	0.06	<0.01	1.5	1.6	0.28	0.05	0.03
JUN 04...	0.32	266	<0.01	0.13	0.01	0.01	0.59	0.6	0.05	0.02	<0.01
JUL 28...	0.28	162	<0.01	<0.10	0.03	<0.01	0.37	0.4	0.03	0.02	<0.01
SEP 23...	0.45	44	0.01	0.33	0.04	0.03	0.46	0.5	0.09	0.05	0.04

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	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)	IRON, DIS- SOLVED (UG/L )	*LEAD, DIS- SOLVED (UG/L AS PB)
NOV 18...	1430	<10	<1	54	<0.5	<1	<1	<3	<1	13	<1
JAN 16...	1300	<10	<1	62	<0.5	2	<1	<3	<1	7	<1
MAR 28...	1230	--	--	--	--	--	--	--	--	--	--
JUN 04...	0950	20	<1	51	<0.5	<1	<1	<3	<1	20	3
JUL 28...	1600	--	--	--	--	--	--	--	--	--	--
SEP 23...	1245	20	<1	59	<0.5	<1	<1	<3	4	19	<5

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	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)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 18...	14	51	<0.1	<10	2	2	390	<6	<1	<3
JAN 16...	17	110	<0.1	<10	3	2	420	<6	<1	<3
MAR 28...	--	--	--	--	--	--	--	--	--	--
JUN 04...	12	82	<0.1	<10	1	<1	320	<6	<1	<3
JUL 28...	--	--	--	--	--	--	--	--	--	--
SEP 23...	21	21	<0.1	<10	2	2	430	<6	<1	9

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)
NOV 18...	1430	107	17	4.9
JAN 16...	1300	87	8	1.9
MAR 28...	1230	73	491	97
JUN 04...	0950	423	15	17
JUL 28...	1600	292	9	7.1

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.



## PLATTE RIVER BASIN

06710385 BEAR CREEK ABOVE EVERGREEN, CO.

LOCATION.--Lat 39°37'58", long 105°19'59", in SE¼NE¼ Sec.9, T.5 S., R.71 W., Jefferson County, Hydrologic Unit 10190002, on right bank 0.6 mi upstream of Evergreen Lake dam at Evergreen, Co.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage 7,076 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 1 to May 1. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by small diversions for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 388 ft<sup>3</sup>/s, Aug. 26, 1984, gage height 3.80 ft Aug. 26, 1984; minimum daily, 13 ft<sup>3</sup>/s, Feb. 1-3, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 206 ft<sup>3</sup>/s at 2000 June 9, gage height 3.56 ft; minimum daily, 14 ft<sup>3</sup>/s, Jan. 5-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	18	19	17	19	17	26	60	79	91	41	43
2	34	18	19	16	19	17	27	66	79	85	40	42
3	32	18	19	15	18	17	29	69	78	80	40	35
4	32	18	18	15	17	17	30	66	93	86	39	33
5	29	18	18	14	17	17	31	70	129	88	38	31
6	29	17	18	14	16	18	32	63	120	91	35	31
7	31	15	18	14	16	18	33	57	118	103	35	33
8	35	17	18	14	16	18	33	60	115	88	38	35
9	33	17	18	14	15	18	34	55	143	89	37	32
10	36	18	17	15	15	18	35	52	140	81	36	29
11	37	19	18	15	16	18	35	51	118	75	35	28
12	36	19	19	15	16	17	34	52	115	71	34	28
13	34	19	19	15	17	17	34	46	120	68	35	28
14	33	19	20	16	17	17	34	51	119	67	32	26
15	31	20	20	16	17	17	33	50	122	70	30	26
16	32	20	21	16	17	17	33	69	121	68	28	27
17	31	20	21	16	17	17	33	63	130	71	28	26
18	29	20	22	18	17	17	32	64	130	78	29	25
19	28	20	22	18	17	16	32	68	130	72	29	25
20	27	20	22	18	17	16	32	77	147	67	30	24
21	29	20	22	18	16	16	32	84	126	68	31	24
22	27	20	22	18	15	16	35	87	116	69	31	25
23	25	21	22	18	15	16	39	86	112	74	61	26
24	25	21	21	18	16	16	41	80	109	70	49	25
25	26	21	21	18	16	16	41	78	105	59	36	24
26	25	21	21	19	17	16	41	80	102	56	64	25
27	23	21	21	20	17	18	40	77	98	51	41	24
28	22	20	20	20	17	20	39	75	94	47	35	24
29	20	20	20	20	---	21	40	86	93	45	36	26
30	19	19	19	20	---	23	50	75	91	43	34	29
31	19	---	18	20	---	24	---	72	---	42	45	---
TOTAL	902	574	613	520	465	546	1040	2089	3392	2213	1152	859
MEAN	29.1	19.1	19.8	16.8	16.6	17.6	34.7	67.4	113	71.4	37.2	28.6
MAX	37	21	22	20	19	24	50	87	147	103	64	43
MIN	19	15	17	14	15	16	26	46	78	42	28	24
AC-FT	1790	1140	1220	1030	922	1080	2060	4140	6730	4390	2280	1700
CAL YR 1985	TOTAL	17081	MEAN	46.8	MAX	144	MIN	13	AC-FT	33880		
WTR YR 1986	TOTAL	14365	MEAN	39.4	MAX	147	MIN	14	AC-FT	28490		

## BEAR CREEK 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 above 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.--Estimated daily discharges: Nov. 1-5, 11, 12, Nov. 20 to Dec. 18, Jan. 1-15, 20-27, Feb. 6-17, and April 4. 2-4. Records good except for estimated daily discharges, which are fair. Small diversions for irrigation of about 1,000 acres 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.--71 years (water years 1891, 1897, 1899, 1901, 1920-86), 53.8 ft<sup>3</sup>/s; 38,980 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.--Peak discharges greater than base discharge of 250 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 10	0030	*260	*5.31	No other peak greater than base discharge.			
Minimum daily, 13 ft <sup>3</sup> /s, Jan. 13.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	28	17	19	18	23	32	72	84	82	44	39
2	46	27	17	19	18	23	32	73	85	78	43	41
3	40	27	18	18	16	24	36	73	82	73	44	34
4	37	27	18	18	16	22	25	71	84	75	42	30
5	34	26	19	18	14	23	48	76	126	80	42	30
6	33	25	19	18	14	21	53	71	117	82	37	29
7	33	21	19	18	14	21	68	67	117	110	35	31
8	36	23	19	17	14	23	70	71	112	90	37	32
9	35	28	19	17	14	24	78	67	136	88	38	33
10	38	26	18	16	14	22	91	64	182	80	37	30
11	38	26	18	15	16	19	92	61	134	76	34	27
12	38	26	18	15	20	22	92	60	126	71	33	25
13	36	27	18	13	20	20	94	58	128	68	37	28
14	34	23	16	15	20	20	82	59	130	67	31	27
15	33	26	19	16	20	23	82	61	128	70	30	25
16	34	25	21	17	22	21	82	86	123	67	28	25
17	33	27	22	18	24	23	80	78	128	70	27	25
18	30	26	22	18	26	21	75	76	132	77	28	23
19	30	24	22	19	26	18	70	75	128	73	28	23
20	30	15	22	18	28	23	68	81	149	68	28	24
21	29	15	22	18	24	21	67	90	126	67	30	22
22	30	16	23	18	24	25	70	92	112	67	28	22
23	25	16	22	18	25	24	78	92	107	66	62	23
24	24	16	21	18	23	25	77	85	100	72	56	23
25	25	16	21	18	30	25	76	84	97	64	34	23
26	25	18	20	18	30	26	76	85	94	60	58	22
27	25	18	20	19	28	25	71	82	94	59	43	23
28	24	18	19	20	21	25	68	81	86	52	33	23
29	25	18	20	20	---	28	67	102	85	49	33	25
30	25	18	20	19	---	28	70	85	84	46	32	29
31	28	---	19	19	---	30	---	80	---	43	40	---
TOTAL	994	672	608	547	579	718	2070	2358	3416	2190	1152	816
MEAN	32.1	22.4	19.6	17.6	20.7	23.2	69.0	76.1	114	70.6	37.2	27.2
MAX	46	28	23	20	30	30	94	102	182	110	62	41
MIN	24	15	16	13	14	18	25	58	82	43	27	22
AC-FT	1970	1330	1210	1080	1150	1420	4110	4680	6780	4340	2280	1620
CAL YR 1985	TOTAL	19435	MEAN	53.2	MAX	232	MIN	13	AC-FT	38550		
WTR YR 1986	TOTAL	16120	MEAN	44.2	MAX	182	MIN	13	AC-FT	31970		

## PLATTE RIVER BASIN

06711040 TURKEY CREEK ABOVE BEAR LAKE NEAR MORRISON, CO

LOCATION.--Lat 39°38'27", long 105°09'34", in SE¼SW¼ Sec.6, T.5 S, R.69 W, Jefferson County, Hydrologic Unit 10190002, on right downstream side of bridge, 0.5 mi east of intersection of Highway 285 and Soda Creek Lake Road, 1.5 mi upstream from mouth and 1.9 mi east of Morrison.

DRAINAGE AREA.--50.6 mi<sup>2</sup>.

PERIOD OF RECORD.--April to September, 1986.

GAGE.--Water-stage recorder. Elevation of gage is 5,635 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: May 3-21. Records good except for estimated daily discharges which are poor. Natural flow of stream affected by Harriman Canal. Several observations of specific conductance and temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 147 ft<sup>3</sup>/s, July 31, 1986, gage height, 2.68 ft; minimum daily, 0.41 ft<sup>3</sup>/s, Aug. 20, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period April to September, 147 ft<sup>3</sup>/s, at 0900 July 31, 1986, gage height, 2.68 ft; minimum daily, 0.41 ft<sup>3</sup>/s, Aug. 20, 1986.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1							---	14	5.3	2.9	137	.59	
2							---	13	6.0	2.4	131	.94	
3							---	13	5.1	2.3	131	1.0	
4							---	13	3.9	2.3	131	.76	
5							---	11	3.6	2.2	74	.73	
6							---	18	3.1	3.4	44	.76	
7							---	17	1.6	16	44	.88	
8							---	12	1.6	2.7	42	.95	
9							---	10	17	2.3	24	1.0	
10							---	9.5	35	2.3	.70	1.0	
11							---	9.0	22	2.3	.69	1.1	
12							---	5.0	17	2.3	.67	.96	
13							---	7.5	14	2.4	.68	.94	
14							---	7.0	14	2.4	.68	.94	
15							---	1.0	13	2.3	.66	.92	
16							---	13	12	2.3	.61	.81	
17							---	20	11	2.3	.48	.80	
18							---	18	11	2.0	.50	.80	
19							---	16	8.9	1.7	.44	.75	
20							---	13	13	1.8	.41	.73	
21							---	11	8.8	1.7	.43	.73	
22							---	7.2	7.1	4.6	.70	.80	
23							---	6.1	4.8	12	.78	.88	
24							---	6.0	3.5	19	.78	1.0	
25							---	26	5.9	3.4	.83	1.0	
26							---	27	5.8	3.5	10	.80	.92
27							---	25	4.6	3.7	9.9	.71	.87
28							---	22	3.5	3.4	9.3	.57	.87
29							---	21	14	3.0	8.0	.59	.97
30							---	16	8.8	3.1	6.9	.55	1.1
31							---	6.4	---	68	.57	---	
TOTAL							---	319.3	262.4	224.0	771.83	26.50	
MEAN							---	10.3	8.75	7.23	24.9	.88	
MAX							---	20	35	68	137	1.1	
MIN							---	1.0	1.6	1.7	.41	.59	
AC-FT							---	633	520	444	1530	53	

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.--3,387 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,250 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 4, 9-16, Sept. 18-29. Records good except for estimated daily discharges, which are poor. 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 OF RECORD.--Maximum discharge, 4,090 ft<sup>3</sup>/s, Aug. 20, 1984, gage height, 5.25 ft; minimum daily, 28 ft<sup>3</sup>/s, Feb. 11, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,450 ft<sup>3</sup>/s at 2030 Apr. 11, gage height, 3.57 ft; minimum daily, 50 ft<sup>3</sup>/s, Sept. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	364	150	61	98	121	63	180	272	638	350	491
2	114	323	138	63	104	121	76	171	322	630	357	498
3	117	318	135	65	110	121	138	167	357	705	339	463
4	117	312	127	57	107	121	327	167	546	820	312	370
5	114	312	124	71	110	121	548	163	471	715	258	319
6	114	323	128	60	110	124	578	234	329	572	230	307
7	110	318	128	71	101	121	464	273	404	637	221	268
8	121	312	132	101	107	117	562	338	411	713	278	268
9	114	357	128	95	104	124	712	357	457	675	251	268
10	117	285	128	98	132	121	754	339	547	653	290	217
11	124	164	127	91	121	121	818	318	260	594	338	184
12	121	163	125	95	124	128	822	312	230	600	301	167
13	133	163	88	98	123	135	796	273	216	600	208	135
14	142	159	88	110	114	128	796	168	397	506	202	114
15	135	173	78	110	117	128	622	154	369	314	216	95
16	128	159	76	117	121	132	307	355	322	312	211	79
17	117	154	71	110	124	135	208	213	330	345	202	60
18	117	159	68	114	121	132	230	140	339	393	197	54
19	114	161	79	117	121	128	289	139	546	369	202	54
20	110	150	79	124	132	139	284	229	720	458	202	54
21	109	139	84	114	124	128	251	322	746	205	221	54
22	101	135	79	114	121	124	189	357	602	232	280	50
23	117	132	76	114	121	128	193	285	413	457	307	50
24	117	128	74	101	121	124	193	268	399	450	307	57
25	110	154	71	98	124	114	197	257	431	394	374	56
26	114	159	76	98	128	107	207	251	477	375	497	56
27	110	142	74	101	132	107	211	235	477	357	498	56
28	110	142	74	101	128	95	202	230	505	345	477	56
29	177	146	68	95	---	88	184	350	592	345	477	60
30	318	148	74	101	---	82	188	269	659	307	477	60
31	428	---	68	107	---	79	---	208	---	290	484	---
TOTAL	4204	6254	3015	2972	3300	3694	11409	7722	13146	15006	9564	5020
MEAN	136	208	97.3	95.9	118	119	380	249	438	484	309	167
MAX	428	364	150	124	132	139	822	357	746	820	498	498
MIN	101	128	68	57	98	79	63	139	216	205	197	50
AC-FT	8340	12400	5980	5890	6550	7330	22630	15320	26080	29760	18970	9960
CAL YR 1985	TOTAL	173986	MEAN	477	MAX	2760	MIN	68	AC-FT	345100		
WTR YR 1986	TOTAL	85306	MEAN	234	MAX	822	MIN	50	AC-FT	169200		



## 06711565 SOUTH PLATTE RIVER AT ENGLEWOOD, CO

PERIOD OF RECORD.--March 1985 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1985 to September 1986.

pH: March 1985 to September 1986.

WATER TEMPERATURE: March 1985 to September 1986.

DISSOLVED OXYGEN: March 1985 to September 1986.

INSTRUMENTATION.--Water quality monitor since March 1985.

REMARKS.--Daily maximum and minimum specific conductance data available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 865 microsiemens Nov. 19, 1986; minimum 291 microsiemens June 10, 1985.

pH: Maximum, 9.4 units Aug. 15, 1985; minimum, 6.8 units Sept. 27, 1985.

WATER TEMPERATURE: Maximum, 27.5°C Aug. 17, 1986; minimum, 0.0°C Feb. 13, 1986.

DISSOLVED OXYGEN: Maximum, 17.4 mg/L Mar. 14, 1985; minimum, 3.5 mg/L July 20, 1985.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 865 microsiemens Nov. 19, 1986; minimum, 341 microsiemens June 10, 1986.

pH: Maximum, 9.2 units July 20, 1986, minimum, 7.3 units July 23, 1986.

WATER TEMPERATURE: Maximum, 27.5°C, Aug. 17, 1986; minimum, 0.0°C, Feb. 13, 1986.

DISSOLVED OXYGEN: Maximum, 13.8 mg/L Jan. 5, 1986; minimum, 5.3 mg/L May 2, 1986.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	756	633	---	705	575	527	---	545	435	346	421	423
2	752	649	---	701	575	529	---	475	428	345	418	422
3	717	650	---	697	558	570	558	475	418	343	425	424
4	697	656	599	694	542	591	592	472	401	350	444	426
5	699	664	614	688	545	588	569	464	393	359	453	431
6	703	674	628	684	545	595	534	458	386	369	460	434
7	681	678	640	680	552	590	544	452	371	383	458	440
8	668	685	669	678	562	590	566	466	357	390	453	450
9	667	694	697	671	562	592	553	443	347	396	453	454
10	660	701	724	664	572	585	543	440	346	404	445	449
11	662	710	748	657	573	585	529	443	341	415	442	456
12	641	723	775	646	618	592	521	441	355	420	451	465
13	638	756	695	633	657	598	514	---	364	429	464	475
14	635	777	---	621	646	599	503	---	369	439	462	498
15	640	804	---	608	428	592	499	---	373	454	456	527
16	650	814	---	596	436	588	497	---	376	480	450	540
17	659	828	---	543	477	588	504	---	362	495	452	---
18	657	846	---	493	470	591	508	---	368	508	454	---
19	657	865	---	495	493	593	507	---	373	519	456	---
20	664	835	---	501	44	599	495	---	370	525	---	---
21	665	812	---	511	516	606	490	---	369	555	451	---
22	669	795	---	508	522	606	496	---	366	477	450	---
23	697	822	---	509	531	598	496	458	367	---	434	---
24	698	837	---	516	522	592	495	461	366	---	445	---
25	704	795	748	523	523	597	491	461	362	---	453	---
26	705	740	741	532	523	602	489	461	360	---	447	---
27	713	684	733	542	528	606	485	458	357	---	436	---
28	716	678	726	548	526	610	481	458	355	---	426	---
29	726	667	721	560	---	---	480	454	352	---	425	---
30	663	---	717	573	---	---	478	446	347	---	423	---
31	631	---	710	575	---	---	---	439	---	---	422	---
MONTH	680			598	540				371			

06711565 SOUTH PLATTE RIVER AT ENGLEWOOD, CO--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	8.0	8.0	---	---	7.9	7.8	8.2	8.2	8.0	8.0
2	---	---	8.1	8.0	---	---	8.0	7.9	8.2	8.2	8.0	7.9
3	---	---	8.1	8.0	---	---	8.2	7.9	8.2	8.2	8.0	7.9
4	---	---	8.1	8.0	8.2	---	8.1	7.9	8.2	8.2	8.0	7.9
5	---	---	8.1	8.0	8.1	8.1	8.0	7.9	8.2	8.2	8.0	8.0
6	---	---	8.1	8.0	8.1	8.1	8.0	7.9	8.2	8.2	8.0	8.0
7	---	---	8.2	8.0	8.1	8.1	8.0	7.9	8.2	8.2	8.0	8.0
8	---	---	8.1	8.0	8.1	8.1	7.9	7.8	8.3	8.2	8.0	8.0
9	---	---	8.0	8.0	8.1	8.1	7.9	7.9	8.3	8.3	8.0	8.0
10	---	---	8.0	8.0	8.1	8.1	7.9	7.9	8.3	8.3	8.0	7.9
11	---	---	8.0	8.0	8.1	8.0	8.0	7.9	8.3	8.3	8.0	7.9
12	---	---	8.0	8.0	8.0	8.0	8.0	7.9	8.3	8.2	8.0	7.9
13	---	---	8.0	8.0	8.0	8.0	7.9	7.9	8.3	8.2	8.0	7.9
14	---	---	8.0	8.0	8.0	7.9	7.9	7.9	8.2	8.2	8.0	7.9
15	---	---	8.1	8.0	7.9	7.9	8.0	7.9	8.3	8.2	8.0	7.9
16	---	---	8.0	8.0	7.9	7.9	8.0	7.9	8.4	8.2	8.0	7.9
17	---	---	8.1	8.0	7.9	7.9	8.0	7.9	8.3	8.2	8.0	7.9
18	---	---	8.0	8.0	7.9	7.9	8.0	7.9	8.3	8.2	7.9	7.9
19	---	---	8.1	8.0	7.9	7.9	8.0	7.9	8.2	8.2	8.0	7.9
20	---	---	8.0	8.0	7.9	7.9	8.0	8.0	8.2	8.1	8.0	7.9
21	---	---	8.1	8.0	7.9	7.9	8.0	8.0	8.1	8.1	8.0	7.9
22	---	---	8.1	8.0	7.9	7.9	8.1	8.0	8.2	8.1	7.9	7.9
23	7.9	7.8	8.1	8.0	7.9	7.9	8.1	8.0	8.1	8.1	8.0	7.9
24	8.0	7.9	8.1	8.1	7.9	7.8	8.1	8.1	8.1	8.1	8.0	7.9
25	8.0	8.0	8.1	8.1	7.8	7.7	8.1	8.1	8.1	8.0	8.0	7.9
26	8.0	7.9	8.1	8.1	7.8	7.8	8.1	8.1	8.1	8.0	8.0	7.9
27	7.9	7.9	8.2	8.1	7.8	7.8	8.2	8.1	8.1	8.0	8.0	7.9
28	7.9	7.9	8.1	8.1	7.8	7.8	8.2	8.1	8.0	8.0	7.9	7.9
29	8.0	7.9	8.1	8.1	7.8	7.8	8.2	8.1	---	---	8.0	7.9
30	8.0	8.0	---	---	7.9	7.8	8.2	8.1	---	---	8.0	7.9
31	8.1	8.0	---	---	7.9	7.8	8.2	8.1	---	---	8.0	7.9
MONTH	---	---	---	---	---	---	8.2	7.8	8.4	8.0	8.0	7.9
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.1	7.9	7.9	7.8	8.2	7.8	8.6	7.8	8.8	7.7	8.1	8.0
2	8.1	8.0	7.9	7.8	8.3	7.8	8.7	7.9	8.6	7.7	8.1	8.0
3	8.1	7.9	7.9	7.8	8.5	7.9	8.4	8.0	8.7	7.7	8.1	8.0
4	8.1	7.9	8.1	7.8	8.4	7.9	8.4	7.8	8.8	7.7	8.0	7.9
5	8.1	8.0	8.9	7.6	8.3	7.9	8.2	7.8	8.8	7.8	8.2	7.9
6	8.1	8.0	8.9	7.8	8.4	7.8	8.3	7.7	8.8	7.8	7.9	7.9
7	8.2	8.1	8.8	7.8	8.5	7.9	8.4	7.8	9.0	8.0	8.0	7.8
8	8.2	8.1	8.3	7.8	8.5	7.9	8.4	7.8	9.0	8.0	8.0	7.8
9	8.1	8.0	8.7	7.9	8.3	7.9	8.5	7.7	9.0	7.9	8.1	8.0
10	8.1	8.1	8.9	7.9	8.0	7.7	8.5	7.8	8.9	7.9	8.7	8.0
11	8.3	8.1	---	---	7.9	7.8	8.6	7.8	8.8	7.9	8.4	8.1
12	8.1	8.0	---	---	7.9	7.7	8.6	8.0	8.9	7.9	8.1	8.0
13	8.2	8.1	---	---	7.9	7.7	8.6	8.0	8.9	7.8	8.0	8.0
14	8.3	8.1	---	---	8.2	7.7	8.6	7.9	9.1	7.9	8.0	7.9
15	8.3	8.1	---	---	8.1	7.6	9.0	7.8	9.0	7.7	8.0	7.9
16	8.1	8.0	---	---	8.4	7.5	9.0	7.9	9.1	7.9	8.0	7.9
17	8.1	8.0	---	---	8.5	7.6	9.0	7.9	9.2	7.9	8.0	7.9
18	8.1	7.9	---	---	8.9	7.6	9.0	7.9	9.0	7.9	8.2	7.9
19	8.0	7.9	---	---	8.7	7.8	9.1	7.9	8.9	7.8	8.2	8.2
20	8.0	7.9	---	---	8.4	7.6	9.2	8.1	---	---	8.2	8.1
21	7.9	7.8	---	---	8.4	7.7	8.6	8.0	8.8	7.8	8.1	8.1
22	7.9	7.8	---	---	8.5	7.7	8.6	7.6	8.7	7.9	8.2	8.1
23	7.8	7.8	8.4	8.1	8.6	7.5	8.5	7.3	8.6	8.0	8.2	8.1
24	7.8	7.8	8.4	7.8	8.7	7.6	8.5	7.4	8.0	7.7	8.1	8.1
25	7.9	7.8	8.4	7.9	8.6	7.8	8.6	7.6	7.8	7.7	8.2	8.0
26	8.0	7.8	8.4	7.9	8.7	7.7	8.8	7.6	7.9	7.8	8.3	8.1
27	7.9	7.8	8.3	7.8	8.8	7.9	8.8	7.6	7.9	7.8	8.3	8.1
28	7.9	7.8	8.3	7.8	8.7	7.9	8.7	7.6	7.9	7.9	8.2	8.1
29	7.9	7.8	8.0	7.7	8.6	7.9	8.7	7.6	7.9	7.9	---	---
30	7.9	7.8	8.2	7.9	8.3	7.8	8.8	7.7	8.0	7.9	---	---
31	---	---	8.4	7.9	---	---	8.8	7.8	8.1	7.9	---	---
MONTH	8.3	7.8	---	---	8.9	7.5	9.2	7.3	---	---	---	---

## PLATTE RIVER BASIN

06711565 SOUTH PLATTE RIVER AT ENGLEWOOD, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	17.0	9.5	14.5	10.5	---	---	5.5	3.0	8.0	3.5	12.5	6.5
2	18.0	13.0	14.5	11.5	---	---	5.5	4.0	8.0	4.0	13.0	6.5
3	19.0	13.5	15.0	11.0	---	---	6.5	3.5	6.5	3.5	15.5	9.0
4	17.5	13.0	14.5	11.0	---	---	4.5	2.5	6.0	2.5	15.5	8.0
5	18.5	12.0	14.5	11.5	7.0	5.0	2.5	2.0	5.0	3.0	15.5	9.5
6	18.5	14.0	13.5	10.5	8.5	6.0	4.0	2.5	4.0	2.5	14.0	8.5
7	19.5	15.5	13.5	9.5	9.0	5.5	6.5	3.0	2.0	1.5	15.5	8.5
8	17.0	11.5	13.5	10.0	8.5	5.5	4.0	1.5	1.5	1.0	15.5	10.0
9	11.5	10.0	11.0	8.5	6.0	5.0	5.5	2.5	1.0	1.0	13.5	10.0
10	15.5	10.0	9.0	8.0	5.0	5.0	7.0	3.0	1.0	.5	11.5	8.0
11	16.0	13.5	8.5	7.0	5.0	4.5	7.5	3.5	1.0	.5	13.0	7.5
12	17.5	12.0	8.0	7.0	5.0	4.5	7.0	3.0	.5	.5	11.5	8.5
13	16.0	10.5	9.5	7.5	4.5	4.5	5.0	2.5	.5	.0	14.0	8.0
14	14.5	9.5	8.5	7.0	5.0	4.5	6.0	2.0	2.5	1.0	13.5	7.0
15	16.5	10.5	9.0	7.0	5.0	4.0	6.5	2.5	7.5	2.0	15.0	9.0
16	16.5	11.5	9.0	6.5	5.5	3.5	6.5	3.5	8.0	4.0	13.0	8.5
17	15.5	12.0	9.0	7.0	5.0	4.0	6.5	3.5	9.5	4.5	11.0	9.0
18	16.5	13.0	9.0	8.0	4.5	4.0	7.0	3.0	9.5	6.5	9.5	7.5
19	16.5	12.0	8.5	6.0	5.5	4.0	7.0	4.0	10.5	6.5	9.0	5.5
20	17.0	12.5	6.5	5.0	7.0	4.5	8.0	3.5	9.0	4.0	14.0	6.5
21	16.5	12.5	6.0	5.0	9.0	4.5	5.5	2.5	7.5	2.5	16.5	7.0
22	16.5	13.0	5.0	4.5	9.0	5.0	4.0	1.5	8.5	3.5	12.5	9.0
23	16.5	12.5	4.5	4.0	7.0	5.5	6.5	2.0	9.5	6.0	15.5	8.5
24	17.0	12.5	4.0	4.0	6.0	5.0	5.5	2.5	11.5	5.5	13.5	9.0
25	17.5	12.0	7.5	4.0	5.5	4.0	4.5	2.0	12.5	6.0	15.0	8.5
26	16.5	12.5	7.5	6.0	6.0	4.0	4.5	1.5	12.0	7.5	16.5	9.0
27	17.0	12.0	8.5	6.0	5.5	4.0	6.5	2.0	10.5	7.5	18.0	9.5
28	17.0	12.0	8.0	6.5	4.0	3.5	6.5	3.5	11.5	5.5	19.0	10.5
29	15.0	12.0	7.0	6.0	5.5	3.5	7.5	4.0	---	---	19.5	11.0
30	15.5	11.0	---	---	6.5	4.0	6.0	4.0	---	---	18.0	12.5
31	13.5	11.0	---	---	5.5	3.5	8.0	3.5	---	---	16.0	12.5
MONTH	19.5	9.5					8.0	1.5	12.5	0.0	19.5	5.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	15.5	11.5	21.5	12.5	19.0	14.0	24.5	19.5	25.0	19.0	21.0	17.5
2	17.0	10.0	21.5	13.5	19.5	14.5	26.0	19.5	24.0	18.0	21.5	17.0
3	9.0	4.0	19.5	13.5	20.5	14.5	24.0	20.0	24.0	17.5	23.0	16.5
4	9.0	4.5	22.0	13.5	20.0	15.5	25.0	20.5	26.0	17.5	22.5	17.0
5	13.5	7.0	22.0	12.0	20.0	15.5	24.0	21.0	26.0	18.5	24.0	16.0
6	15.0	8.5	19.0	12.5	22.5	15.5	24.0	20.0	24.0	18.0	18.5	15.5
7	14.5	10.0	17.0	12.5	22.5	15.5	23.5	19.5	25.0	18.0	18.5	15.0
8	12.5	11.0	14.0	12.5	22.0	16.0	23.5	20.0	25.5	17.5	22.5	15.5
9	14.5	10.5	17.0	12.0	21.0	16.0	24.5	20.0	26.0	18.0	21.0	16.0
10	14.0	10.5	20.0	12.0	16.5	15.0	23.0	19.0	25.5	18.5	19.0	15.0
11	14.0	10.5	21.0	12.5	21.0	13.5	24.0	18.5	25.0	18.5	22.5	13.5
12	14.5	11.0	19.5	13.5	23.0	15.0	24.0	19.0	26.0	18.0	21.5	14.0
13	14.0	11.0	---	---	20.0	15.5	23.5	19.0	25.5	18.5	19.5	14.5
14	14.0	10.0	---	---	22.5	15.5	24.0	19.0	27.0	17.5	23.5	13.5
15	15.0	10.0	---	---	24.0	16.0	26.0	18.5	27.0	18.0	24.0	15.0
16	14.0	10.0	---	---	23.5	16.0	25.0	18.5	27.0	18.0	22.5	15.5
17	12.0	9.5	---	---	23.5	17.0	24.0	18.0	27.5	18.5	22.0	13.0
18	15.0	9.0	---	---	24.0	16.0	23.5	18.5	25.5	19.5	18.5	13.0
19	17.0	9.5	---	---	22.5	17.5	23.0	18.0	22.5	18.5	20.0	11.5
20	17.0	11.0	---	---	21.0	16.5	23.5	18.0	19.0	18.5	18.0	12.0
21	19.0	11.5	---	---	22.0	17.0	26.5	17.0	25.5	19.0	19.5	12.0
22	21.5	11.5	---	---	22.0	17.0	23.0	17.5	22.0	17.0	18.0	14.0
23	18.5	13.0	---	---	24.0	17.0	23.0	17.5	23.5	17.5	20.0	14.0
24	20.0	12.5	19.0	12.5	23.5	17.5	22.0	16.5	25.5	17.5	18.0	13.0
25	18.5	12.0	20.0	12.0	23.0	18.0	22.5	16.5	24.0	17.5	18.0	10.5
26	16.5	12.0	17.5	12.5	24.0	18.5	25.0	16.5	22.0	18.0	20.0	11.5
27	18.5	11.0	17.0	13.0	25.5	18.0	25.0	16.5	23.5	17.5	19.5	11.0
28	18.5	10.5	18.0	13.5	25.0	18.5	25.0	16.5	23.0	17.5	21.0	11.5
29	22.0	11.5	15.5	13.0	24.5	19.5	26.0	17.0	23.5	18.0	17.5	13.5
30	22.0	12.5	21.0	12.0	22.5	20.0	25.0	17.5	22.5	18.0	---	---
31	---	---	22.0	13.0	---	---	25.5	18.0	22.0	17.5	---	---
MONTH	22.0	4.0			25.5	13.5	26.5	16.5	27.5	17.0		



## PLATTE RIVER BASIN

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. Elevation of gage is 6,170 ft above National Geodetic Vertical Datum of 1929, from topographic map. See WSP 1730 for history of changes prior to Oct. 1, 1953.

REMARKS.--Estimated daily discharges: Nov. 25 to Dec. 14, Feb. 26 to Mar. 19. Records good except for estimated daily discharges, which are poor. Many small diversions upstream from 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.--46 years (water years 1941-86), 9.78 ft<sup>3</sup>/s; 7,090 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 discharges greater than base discharge 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)
Apr. 7	1900	*76	*3.70	No other peak greater than base discharge.			
Minimum daily, 2.2 ft <sup>3</sup> /s, Aug. 13, Sept. 5, 6.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	16	8.4	9.3	13	19	11	8.8	7.3	3.4	2.8	3.0
2	12	16	8.4	9.3	12	19	11	8.6	9.7	3.2	2.7	3.6
3	12	16	8.4	9.6	12	18	7.7	8.4	11	2.8	2.9	3.6
4	12	15	8.5	9.9	14	17	8.2	8.8	8.6	2.8	3.5	2.8
5	11	15	8.6	18	15	16	8.4	7.7	11	2.8	4.0	2.2
6	11	14	8.7	17	15	16	22	7.5	8.8	3.6	3.7	2.2
7	11	13	8.8	15	11	15	60	7.3	7.5	3.4	3.1	3.7
8	11	13	9.0	14	13	15	61	7.9	6.6	3.2	2.6	4.1
9	11	13	9.2	14	15	14	56	9.1	6.6	5.0	2.5	4.0
10	11	10	9.4	14	13	14	46	7.9	12	3.2	2.8	3.8
11	12	11	9.6	14	11	13	40	7.1	12	3.2	2.6	3.9
12	12	14	9.8	14	11	13	34	7.2	8.6	3.0	2.3	3.6
13	12	12	9.9	14	12	13	30	7.3	7.3	2.7	2.2	3.6
14	12	11	9.9	15	15	13	24	6.8	12	2.8	2.5	3.5
15	12	11	10	15	23	12	22	6.8	11	2.6	4.2	3.6
16	12	11	11	16	27	12	21	9.8	7.1	2.5	4.9	3.8
17	11	12	11	16	22	12	19	13	5.4	2.5	3.5	3.7
18	11	13	11	15	23	12	17	11	4.9	3.3	3.1	4.7
19	11	11	11	15	21	12	16	9.3	4.5	3.3	2.9	4.8
20	11	10	10	15	21	11	15	7.9	4.0	5.0	3.6	4.4
21	11	9.6	10	14	15	15	15	6.1	3.9	5.7	3.5	4.2
22	11	9.6	10	14	16	15	15	5.7	3.8	7.0	5.2	4.2
23	12	9.3	10	14	21	15	13	5.9	3.7	6.1	4.2	4.2
24	11	9.1	10	15	20	14	12	5.7	3.5	5.0	4.2	4.0
25	11	9.0	10	14	20	14	11	5.6	3.4	4.3	4.1	3.8
26	11	8.9	10	13	20	13	11	5.7	3.5	4.1	4.2	3.6
27	12	8.8	9.8	13	20	13	11	5.6	3.4	3.9	4.2	4.0
28	12	8.7	9.6	14	19	12	10	6.0	2.8	3.4	3.9	4.2
29	12	8.6	9.6	14	---	12	9.8	6.3	3.2	2.8	3.7	4.0
30	13	8.5	9.8	13	---	11	8.8	8.2	3.4	2.7	3.0	3.8
31	13	---	9.3	13	---	11	---	7.3	---	2.8	2.7	---
TOTAL	359	347.1	298.7	430.1	470	431	645.9	236.3	200.5	112.1	105.3	112.6
MEAN	11.6	11.6	9.64	13.9	16.8	13.9	21.5	7.62	6.68	3.62	3.40	3.75
MAX	13	16	11	18	27	19	61	13	12	7.0	5.2	4.8
MIN	11	8.5	8.4	9.3	11	11	7.7	5.6	2.8	2.5	2.2	2.2
AC-FT	712	688	592	853	932	855	1280	469	398	222	209	223
CAL YR 1985	TOTAL	6272.4	MEAN	17.2	MAX	131	MIN	3.9	AC-FT	12440		
WTR YR 1986	TOTAL	3748.6	MEAN	10.3	MAX	61	MIN	2.2	AC-FT	7440		

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 above National Geodetic Vertical Datum of 1929.

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 provided 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, 15,280 acre-ft, Apr. 9, elevation, 5,552.32 ft; minimum, 13,230 acre-ft, Oct. 10, elevation, 5,550.00 ft.

MONTHEND ELEVATION AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,551.72	14,730	-
Oct. 31. . . . .	5,550.44	13,610	-1,120
Nov. 30. . . . .	5,551.61	14,640	+1,030
Dec. 31. . . . .	5,551.11	14,190	-450
CAL YR 1985 . . . . .	-	-	-260
Jan. 31. . . . .	5,551.71	14,730	+540
Feb. 28. . . . .	5,550.61	13,750	-980
Mar. 31. . . . .	5,551.52	14,560	+810
Apr. 30. . . . .	5,550.07	13,290	-1,270
May 31. . . . .	5,550.76	13,880	+590
June 30. . . . .	5,551.31	14,370	+490
July 31. . . . .	5,551.10	14,180	-190
Aug. 31. . . . .	5,550.72	13,850	-330
Sept. 30. . . . .	5,550.45	13,620	-230
WTR YR 1986 . . . . .	-	-	-1,110

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.--No estimated daily discharges. Records good. Flow regulated by Cherry Creek Lake (see elsewhere in this report). Diversions upstream from 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.--36 years, 6.38 ft<sup>3</sup>/s; 4,620 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, 640 ft<sup>3</sup>/s at 1100 Apr. 16, gage height, 5.06 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.50	.00	58	.00	69	.00	.00	.00	.50	.50	.50
2	56	.25	.47	58	.00	69	.00	.00	.00	.50	.50	.50
3	94	.25	2.8	62	.00	19	.00	.00	.00	.50	.50	.25
4	101	.25	1.3	64	.00	.00	20	.00	.00	.50	.50	.25
5	99	.50	.00	64	.00	.00	50	.00	.00	.75	.50	.00
6	96	.50	.00	62	.00	.00	52	.00	.00	1.0	.50	.00
7	94	.50	.00	24	.00	.00	52	.00	.00	.51	.50	.25
8	92	.50	.00	.00	.00	.00	50	.00	.00	.50	.50	.25
9	89	.50	.00	.00	.00	.00	158	.00	.00	.50	.25	.25
10	32	.50	.00	.00	.00	.00	230	.00	.49	.50	.25	.25
11	.75	.50	.00	.00	46	.00	226	.00	.00	.50	.25	.00
12	.50	.50	.00	.00	67	.00	74	.00	.00	.75	.25	.00
13	.50	.50	.00	.00	67	.00	.00	.00	.00	.75	.00	.00
14	.50	.50	.00	.00	67	.00	.00	.00	.00	.75	.00	.00
15	.25	.50	.00	.00	69	.00	42	.14	.00	.75	.00	.00
16	.25	.50	.00	.00	71	.00	118	.49	.00	1.0	.00	.00
17	.25	.50	.00	.00	69	.00	18	.00	.00	1.3	.00	.00
18	.25	.50	.00	.00	71	.00	76	.00	.00	1.0	.25	.00
19	.25	.50	38	.00	69	.00	79	.00	.00	.51	.50	.00
20	.25	.00	64	.00	69	.00	79	.00	.00	1.9	.75	.00
21	.25	.00	62	.00	69	.00	79	.00	.00	.25	.75	.00
22	.25	.00	60	.00	69	.00	81	.00	.00	.25	.75	.00
23	.25	.00	58	.00	69	.00	81	.00	.00	.25	.75	.00
24	.25	.00	58	.00	69	.00	79	.00	.25	.25	.50	.00
25	.25	.00	58	.00	69	.00	87	.00	.25	.25	.50	.00
26	.25	.00	58	.00	69	.00	92	.00	.25	.25	.50	.00
27	.50	.00	58	.00	69	.00	92	.00	.25	.50	.50	.00
28	.50	.00	58	.00	69	.00	92	.00	.25	.50	.50	.00
29	.50	.00	58	.00	---	.00	92	.00	.25	.50	.50	.00
30	.25	.00	58	.00	---	.00	36	.00	.50	.50	.50	.00
31	.74	---	58	.00	---	.00	---	.00	---	.50	.50	---
TOTAL	761.49	8.75	750.57	392.00	1217.00	157.00	2135.00	.63	2.49	18.97	12.75	2.50
MEAN	24.6	.29	24.2	12.6	43.5	5.06	71.2	.02	.08	.61	.41	.08
MAX	101	.50	64	64	71	69	230	.49	.50	1.9	.75	.50
MIN	.25	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00	.00
AC-FT	1510	17	1490	778	2410	311	4230	1.2	4.9	38	25	5.0
CAL YR 1985	TOTAL	9414.58		MEAN	25.8	MAX	296	MIN	.00	AC-FT	18670	
WTR YR 1986	TOTAL	5459.15		MEAN	15.0	MAX	230	MIN	.00	AC-FT	10830	

PLATTE RIVER BASIN

06713300 CHERRY CREEK AT GLENDALE, CO.

LOCATION.--Lat 39°42'22", long 104°56'13", in SW¼NW¼ sec.18, T.4 S., R.67 W., Denver County, Hydrologic Unit 10190003, on left bank 900 ft upstream from Colorado Blvd. on Cherry Creek South Drive and Ash Ct. in the City of Glendale, and 5 miles downstream from Cherry Creek Reservoir.

DRAINAGE AREA.--404 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,320 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 16. Records good except for estimated daily discharges, which are poor. Flow regulated Cherry Creek Lake (see elsewhere in this report). Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,970 ft<sup>3</sup>/s, July 20, 1986, gage height 6.74 ft; minimum daily, 3.9 ft<sup>3</sup>/s, Apr. 1, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 1,970 ft<sup>3</sup>/s, July 20, gage height, 6.74 ft.; minimum daily, 3.9 ft<sup>3</sup>/s, Apr. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	15	6.0	59	8.9	50	3.9	14	12	10	12	8.1
2	49	7.8	6.0	60	9.0	48	4.3	13	20	11	9.4	8.2
3	106	6.9	6.0	60	9.0	27	7.8	13	11	11	8.3	8.0
4	116	6.7	5.4	61	9.1	9.4	66	12	33	11	8.4	8.3
5	117	6.5	5.4	61	9.2	8.5	98	12	15	11	8.0	8.6
6	116	6.3	5.4	61	10	7.6	65	12	11	16	7.9	13
7	113	6.3	5.4	46	11	7.1	32	12	11	22	7.4	15
8	108	6.2	5.4	11	9.9	6.9	22	30	31	13	7.8	10
9	109	12	5.4	10	9.9	6.5	101	16	31	13	7.7	9.2
10	62	8.0	5.4	9.5	13	6.2	152	12	143	13	8.2	9.1
11	18	8.5	5.4	9.0	12	6.0	188	11	15	13	7.6	8.8
12	14	7.1	5.4	8.8	13	6.0	81	12	10	13	7.6	8.8
13	20	7.6	5.4	8.8	13	5.5	8.3	12	10	16	7.4	8.7
14	21	7.4	5.4	8.7	13	5.2	7.4	12	10	15	6.9	8.8
15	12	11	5.4	8.7	17	5.0	26	108	10	13	7.0	8.7
16	11	8.4	5.8	8.6	32	4.9	124	174	23	13	6.9	8.7
17	10	7.7	6.8	8.8	50	6.3	52	20	25	21	6.9	8.6
18	11	7.8	7.2	9.1	65	4.3	105	10	18	56	6.8	9.1
19	11	8.9	15	9.3	65	4.4	96	11	22	18	6.5	9.8
20	10	7.9	40	9.5	75	5.6	94	11	24	279	7.3	9.8
21	10	7.4	45	9.6	66	4.6	93	11	12	84	7.2	9.5
22	9.9	6.8	47	8.4	65	4.6	89	12	11	15	17	11
23	9.4	6.8	50	8.2	62	4.4	88	11	12	13	14	10
24	8.8	6.9	51	7.9	61	4.2	86	10	12	9.8	8.1	10
25	8.8	7.9	52	8.0	59	4.2	86	10	12	10	8.2	9.4
26	8.9	7.3	54	9.3	57	4.1	118	10	11	9.9	8.2	9.7
27	8.7	7.0	54	9.3	56	4.1	98	11	11	9.9	8.2	8.1
28	8.2	6.8	55	9.2	53	4.2	92	12	11	9.7	8.1	7.3
29	7.6	6.7	57	9.7	---	4.1	92	20	10	9.6	8.8	7.4
30	7.4	6.2	57	10	---	4.1	58	14	11	9.5	9.4	7.0
31	34	---	58	9.9	---	4.0	---	9.8	---	9.9	7.4	---
TOTAL	1176.7	233.8	737.6	627.3	933.0	277.0	2233.7	657.8	598	778.3	260.6	276.7
MEAN	38.0	7.79	23.8	20.2	33.3	8.94	74.5	21.2	19.9	25.1	8.41	9.22
MAX	117	15	58	61	75	50	188	174	143	279	17	15
MIN	7.4	6.2	5.4	7.9	8.9	4.0	3.9	9.8	10	9.5	6.5	7.0
AC-FT	2330	464	1460	1240	1850	549	4430	1300	1190	1540	517	549
CAL YR 1985	TOTAL	13618.3		MEAN	37.3	MAX	329	MIN	5.4	AC-FT	27010	
WTR YR 1986	TOTAL	8790.5		MEAN	24.1	MAX	279	MIN	3.9	AC-FT	17440	



## 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 September 1983, and annual maximums 1984, 1985. April to September 1986.

REVISED RECORDS.--WSP 1710: Drainage area. WDR CO-82-1: 1982 (M).

GAGE.--Water-stage recorder. Elevation of gage is 5,175.48 ft above 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.--Estimated daily discharges: May 1-15. Records fair. Several diversions upstream from 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, 1,150 ft<sup>3</sup>/s at 1915 July 20, gage height, 5.63 ft; minimum daily, 8.3 ft<sup>3</sup>/s, Apr. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	8.3	15	18	19	23	21
2						---	17	14	31	20	19	21
3						---	62	14	16	19	18	21
4						---	181	13	44	19	18	23
5						---	227	13	24	34	18	25
6						---	186	13	16	36	18	35
7						---	117	13	16	37	17	36
8						---	72	33	37	27	18	27
9						---	154	21	65	28	16	21
10						---	255	13	226	26	15	21
11						---	281	12	41	24	15	20
12						---	179	13	28	23	19	19
13						---	16	13	22	25	20	19
14						---	8.7	13	20	26	18	19
15						---	16	131	19	22	18	18
16						---	130	221	47	22	18	19
17						---	28	40	58	27	18	18
18						---	71	14	29	95	18	18
19						---	63	12	35	45	19	20
20						---	64	12	36	185	19	19
21						---	70	12	21	136	20	18
22						---	69	12	17	46	54	26
23						---	70	13	17	33	37	22
24						---	72	13	17	20	22	22
25						10	73	11	18	19	20	19
26						9.9	97	11	18	18	20	18
27						10	85	13	18	20	19	19
28						9.5	75	15	18	20	19	17
29						9.2	70	34	19	19	21	17
30						9.2	50	24	19	20	25	15
31						8.9	---	13	---	21	19	---
TOTAL						---	2867.0	814	1010	1131	638	633
MEAN						---	95.6	26.3	33.7	36.5	20.6	21.1
MAX						---	281	221	226	185	54	36
MIN						---	8.3	11	16	18	15	15

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.--3,861 mi<sup>2</sup> (revised).

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 above 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.--No estimated daily discharges. 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: 11 years (water years 1976-86), 435 ft<sup>3</sup>/s; 315,200 acre-ft/yr, subsequent to completion of Chatfield Dam. The figure of average discharge subsequent to completion of Chatfield Dam published in the reports for water years 1980 to 1985 are in error, the correct figures are: 5 years (water years 1976-80), 299 ft<sup>3</sup>/s; 216,600 acre-ft/yr; 6 years (water years 1977-81), 276 ft<sup>3</sup>/s; 200,000 acre-ft/yr; 7 years (water years 1976-82), 269 ft<sup>3</sup>/s; 194,900 acre-ft/yr; 8 years (water years 1977-83), 355 ft<sup>3</sup>/s; 257,200 acre-ft/yr; 9 years (water years 1976-84), 406 ft<sup>3</sup>/s; 294,100 acre-ft/yr; 10 years (water years 1976-85), 435 ft<sup>3</sup>/s; 315,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft<sup>3</sup>/s, June 17, 1965, gage height, 18.66 ft, from floodmarks, 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, 5,060 ft<sup>3</sup>/s at 2100 July 20, gage height. 5.68 ft; minimum daily, 125 ft<sup>3</sup>/s, Dec. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	206	457	187	168	164	226	132	260	359	630	422	510
2	210	389	182	168	164	226	149	250	406	630	426	525
3	272	382	193	168	164	217	334	250	400	695	414	490
4	280	378	197	168	159	189	754	250	589	869	389	406
5	282	378	204	164	157	178	912	239	562	813	362	369
6	282	378	190	170	157	182	821	292	378	630	340	365
7	282	372	195	180	157	176	661	326	454	688	320	337
8	272	356	195	161	151	170	674	434	477	760	362	320
9	274	459	199	159	147	178	974	410	578	730	349	320
10	246	372	193	161	149	178	1040	392	720	716	356	292
11	221	246	189	166	157	168	1180	382	362	636	386	255
12	193	241	180	164	197	178	697	375	320	624	356	239
13	252	241	130	168	208	197	877	362	311	630	303	215
14	274	232	125	178	217	178	853	282	430	600	295	193
15	217	264	138	180	215	176	430	299	418	418	303	168
16	197	244	153	184	213	174	486	769	464	414	240	161
17	172	230	140	184	219	211	328	414	470	434	284	138
18	180	230	149	184	213	187	369	250	378	535	280	136
19	174	250	165	187	213	180	410	244	535	459	282	134
20	174	224	194	191	274	206	403	311	688	1050	280	140
21	174	206	194	180	228	176	382	382	745	522	295	140
22	170	202	183	174	228	170	331	418	600	350	480	153
23	170	202	180	174	228	168	331	365	438	535	451	174
24	174	202	180	157	232	168	328	359	426	515	375	164
25	170	235	172	149	235	164	331	340	438	464	406	151
26	176	226	178	151	232	160	369	337	477	442	515	142
27	170	199	176	157	241	170	359	334	472	426	520	140
28	170	199	170	157	237	153	337	334	495	410	505	129
29	207	199	172	153	---	149	328	472	567	406	495	134
30	382	193	174	161	---	132	309	365	648	389	500	138
31	680	---	172	166	---	132	---	306	---	365	500	---
TOTAL	7303	8386	5449	5232	5556	5517	15889	10803	14605	17785	11791	7178
MEAN	236	280	176	169	198	178	530	348	487	574	380	239
MAX	680	459	204	191	274	226	1180	769	745	1050	520	525
MIN	170	193	125	149	147	132	132	239	311	350	240	129
AC-FT	14490	16630	10810	10380	11020	10940	31520	21430	28970	35280	23390	14240
CAL YR 1985 TOTAL		203072		MEAN	556	MAX	2740	MIN	125	AC-FT	402800	
WTR YR 1986 TOTAL		115494		MEAN	316	MAX	1180	MIN	125	AC-FT	229100	

## 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.68 W., 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.--3,884 mi<sup>2</sup> (revised).

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

GAGE.--Water-stage recorder. Elevation of gage is 5,105 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 17-21. 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, 6,480 ft<sup>3</sup>/s, Aug. 20, 1984, gage height, 7.64 ft; minimum daily, 4.0 ft<sup>3</sup>/s, Mar. 25, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,460 ft<sup>3</sup>/s at 2200, June 16, gage height 4.98 ft; minimum daily, 6.6 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	252	193	188	169	19	8.6	19	89	658	313	362
2	19	15	195	190	155	20	10	55	34	585	320	326
3	56	14	199	184	49	22	103	20	22	592	308	308
4	65	117	213	180	30	16	632	29	76	702	270	192
5	63	231	222	176	20	16	953	29	254	667	260	155
6	63	250	208	182	19	14	875	34	64	490	255	159
7	28	290	213	204	19	13	687	29	211	487	226	207
8	11	326	217	175	18	13	633	138	208	363	295	213
9	11	478	225	173	18	12	893	52	509	251	275	184
10	11	381	226	173	18	13	999	22	1060	231	290	121
11	12	215	213	176	18	12	1190	16	273	139	361	120
12	11	208	204	173	23	16	1150	23	106	203	326	110
13	13	226	158	169	30	23	833	58	56	347	241	88
14	24	231	151	180	33	18	790	100	172	291	213	66
15	11	301	162	184	34	17	642	175	165	367	240	40
16	9.8	265	184	188	34	17	300	803	242	392	218	12
17	9.8	240	165	182	36	31	127	223	382	408	218	10
18	12	231	184	180	33	15	194	113	92	420	213	11
19	10	265	188	188	32	18	244	66	177	350	218	9.7
20	8.9	243	222	191	106	19	213	19	290	800	218	15
21	8.3	213	231	184	49	16	198	23	285	75	231	6.6
22	7.7	208	210	173	43	13	124	41	188	92	408	32
23	7.7	199	204	180	41	13	123	29	28	215	529	31
24	8.3	203	208	165	43	11	99	21	21	180	338	28
25	8.3	264	195	148	34	9.2	78	19	27	124	350	27
26	8.6	270	196	155	20	9.5	122	17	41	59	502	27
27	10	227	199	145	24	8.7	116	15	21	47	496	30
28	13	231	191	169	21	7.1	128	11	16	119	496	28
29	18	222	195	151	---	8.3	84	89	267	206	488	28
30	42	213	195	169	---	8.3	66	24	693	314	405	28
31	242	---	191	173	---	8.6	---	16	---	256	357	---
TOTAL	849.4	7029	6157	5448	1169	456.7	12614.6	2328	6069	10430	9878	2974.3
MEAN	27.4	234	199	176	41.8	14.7	420	75.1	202	336	319	99.1
MAX	242	478	231	204	169	31	1190	803	1060	800	529	362
MIN	7.7	14	151	145	18	7.1	8.6	11	16	47	213	6.6
AC-FT	1680	13940	12210	10810	2320	906	25020	4620	12040	20690	19590	5900
CAL YR 1985	TOTAL	156383.4		MEAN	428	MAX	2700	MIN	7.7	AC-FT	310200	
WTR YR 1986	TOTAL	65403.0		MEAN	179	MAX	1190	MIN	6.6	AC-FT	129700	

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. Elevation 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.--Estimated daily discharges: Nov. 20-24, Nov. 30 to Jan. 26, and Feb. 4-15. Records good except for estimated daily discharges, 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 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.--40 years, 140 ft<sup>3</sup>/s; 101,400 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.--Peak discharges greater than base discharge 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 7	2330	840	5.49	June 20	0100	*1,160	*6.12
July 5	2230	925	5.70				

Minimum daily discharge, 24 ft<sup>3</sup>/s, Jan. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	52	38	28	33	31	43	90	374	694	263	139
2	74	52	34	27	33	32	47	106	340	670	252	126
3	74	56	33	26	33	32	51	121	377	682	244	121
4	72	53	32	25	31	30	47	139	447	770	236	116
5	63	55	31	24	30	31	49	153	514	775	229	114
6	62	52	32	24	30	31	49	139	618	775	207	106
7	70	50	32	24	29	32	55	134	725	735	195	111
8	74	55	32	25	29	32	60	128	775	650	191	126
9	71	55	30	25	27	32	58	114	770	566	195	114
10	72	53	25	26	28	29	61	104	674	558	187	114
11	81	55	26	26	28	30	61	107	558	500	180	111
12	67	54	27	26	28	29	60	121	558	478	182	104
13	71	51	27	26	30	28	61	126	594	475	180	98
14	66	47	30	26	31	28	54	143	606	461	165	96
15	62	49	31	27	31	28	55	139	670	458	155	90
16	72	52	32	28	32	26	58	143	720	447	153	95
17	62	47	33	29	32	29	56	134	785	444	147	88
18	61	51	34	30	32	27	54	128	805	461	143	86
19	58	49	35	32	32	26	53	139	895	440	141	83
20	60	43	36	32	33	28	52	161	966	412	139	82
21	65	43	36	30	30	26	52	189	900	398	145	83
22	63	43	36	30	28	27	55	226	835	384	155	82
23	53	44	35	30	28	27	65	242	825	468	167	81
24	54	44	34	30	29	28	68	234	860	408	153	81
25	54	45	34	30	30	27	72	236	805	377	143	72
26	55	45	34	33	32	26	71	269	805	355	170	78
27	60	44	33	35	32	29	66	286	790	334	147	75
28	61	44	33	34	29	33	63	307	785	316	135	78
29	61	44	31	35	---	36	65	340	770	295	135	82
30	58	42	30	35	---	37	74	325	740	266	135	86
31	58	---	29	35	---	43	---	340	---	266	137	---
TOTAL	2002	1469	995	893	850	930	1735	5563	20886	15318	5406	2918
MEAN	64.6	49.0	32.1	28.8	30.4	30.0	57.8	179	696	494	174	97.3
MAX	81	56	38	35	33	43	74	340	966	775	263	139
MIN	53	42	25	24	27	26	43	90	340	266	135	72
AC-FT	3970	2910	1970	1770	1690	1840	3440	11030	41430	30380	10720	5790

CAL YR 1985	TOTAL	49062	MEAN	134	MAX	880	MIN	24	AC-FT	97310
WTR YR 1986	TOTAL	58965	MEAN	162	MAX	966	MIN	24	AC-FT	117000

## 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>.

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. Elevation of gage is 5,695 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 21 to Sept. 30. Records good except for estimated daily discharges, 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 upstream from station. Diversion by Welch ditch 1.4 mi upstream from station and by Church Ditch 0.7 mi upstream from station for irrigation of about 5,200 acres downstream from station.

AVERAGE DISCHARGE.--12 years, 198 ft<sup>3</sup>/s; 143,500 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 (observed), 1,390 ft<sup>3</sup>/s, June 20, gage height, unknown; minimum daily, 22 ft<sup>3</sup>/s, Feb. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	79	72	66	34	46	67	120	620	940	300	150
2	108	74	68	64	33	46	72	130	580	940	290	150
3	105	80	68	60	31	46	80	150	640	960	280	150
4	115	78	70	52	29	46	88	170	720	1100	270	150
5	107	80	72	48	28	45	98	190	780	1100	260	150
6	102	77	74	50	26	43	105	225	900	1100	230	150
7	112	68	74	56	25	41	115	210	1000	950	220	150
8	103	79	74	64	24	41	130	200	1200	840	210	150
9	95	83	70	68	23	41	120	180	1200	740	200	140
10	97	79	66	66	22	41	110	150	1100	700	200	140
11	118	87	60	62	23	41	110	160	860	680	200	140
12	94	95	58	60	25	41	110	170	860	660	200	140
13	98	83	56	56	28	42	110	190	900	600	190	140
14	94	66	56	54	34	42	100	210	900	560	180	140
15	84	80	56	50	38	43	94	220	900	540	170	150
16	104	78	56	48	41	43	90	210	900	520	160	160
17	100	84	56	46	44	43	88	200	950	580	150	150
18	88	76	56	45	46	43	84	190	1100	560	145	140
19	88	72	56	45	46	43	82	230	1200	560	140	130
20	85	63	58	43	46	43	80	270	1350	540	140	120
21	93	60	60	40	42	43	78	320	1300	540	180	110
22	94	62	64	39	38	42	78	350	1100	520	210	110
23	80	64	66	38	38	41	100	370	1000	680	220	110
24	79	68	68	36	41	41	96	350	1000	600	200	110
25	77	72	70	34	43	40	96	350	1000	540	190	100
26	82	74	72	33	46	40	96	390	980	450	180	110
27	81	74	72	32	47	44	96	450	980	400	170	110
28	90	74	72	34	45	48	96	510	960	360	160	110
29	86	74	70	37	---	52	96	580	960	330	150	110
30	83	72	70	37	---	56	110	560	960	310	150	120
31	86	---	68	36	---	60	---	590	---	310	150	---
TOTAL	2937	2255	2028	1499	986	1367	2875	8595	28900	20210	6095	3990
MEAN	94.7	75.2	65.4	48.4	35.2	44.1	95.8	277	963	652	197	133
MAX	118	95	74	68	47	60	130	590	1350	1100	300	160
MIN	77	60	56	32	22	40	67	120	580	310	140	100
AC-FT	5830	4470	4020	2970	1960	2710	5700	17050	57320	40090	12090	7910
CAL YR 1985	TOTAL	63084		MEAN	173	MAX	1340	MIN	25	AC-FT	125100	
WTR YR 1986	TOTAL	81737		MEAN	224	MAX	1350	MIN	22	AC-FT	162100	

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. Elevation of gage is 5,292 ft above National Geodetic Vertical Datum of 1929, 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.--Estimated daily discharges: Nov. 14-25. Records good except for estimated daily discharges, which are fair. Diversions upstream from station for irrigation of about 2,000 acres. Flow partly regulated by small reservoirs upstream from station.

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

AVERAGE DISCHARGE.--95 years (water years 1888-91, 1896-1986), 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, 1,120 ft<sup>3</sup>/s at 1500 June 19, gage height, 5.37 ft; minimum daily, 10 ft<sup>3</sup>/s, Mar. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	29	17	21	18	24	42	67	275	588	184	121
2	36	29	20	20	16	16	48	72	345	548	184	113
3	36	28	24	18	18	22	63	82	376	478	197	102
4	29	28	24	14	22	24	65	92	522	516	194	97
5	26	30	22	19	18	22	65	99	600	648	181	88
6	33	18	24	22	24	22	68	122	782	655	171	76
7	33	18	24	20	22	22	86	154	902	490	162	80
8	47	22	22	20	23	24	113	162	926	360	151	82
9	34	28	22	20	21	24	162	168	950	316	159	76
10	40	22	24	18	17	26	159	156	910	293	165	70
11	38	22	20	22	22	27	154	162	600	293	156	68
12	40	28	22	20	18	27	145	159	581	316	151	68
13	38	30	22	18	20	23	148	129	683	335	148	68
14	38	28	22	21	22	16	126	104	718	302	148	67
15	32	27	20	18	27	16	113	92	760	320	151	62
16	37	27	24	18	24	16	95	113	805	350	151	63
17	32	26	22	18	22	18	90	111	805	350	151	60
18	36	25	22	16	20	16	82	151	872	360	151	56
19	32	25	20	18	26	14	72	178	1020	340	129	58
20	30	25	22	18	24	18	72	200	982	280	113	52
21	32	27	22	14	22	15	72	255	865	271	113	50
22	32	27	20	14	24	16	92	302	775	251	139	53
23	30	28	22	17	24	12	104	320	704	271	148	56
24	34	30	22	15	24	13	113	288	704	298	142	55
25	30	31	20	12	20	13	113	293	641	288	139	62
26	27	28	22	15	24	12	102	335	627	263	139	55
27	27	26	20	16	24	13	90	370	746	243	121	46
28	24	26	20	16	21	10	78	302	669	218	116	40
29	27	27	22	12	---	23	74	360	669	197	116	38
30	27	24	24	18	---	34	74	298	676	194	116	44
31	27	---	19	18	---	40	---	259	---	184	113	---
TOTAL	1022	789	672	546	607	618	2880	5955	21490	10816	4599	2026
MEAN	33.0	26.3	21.7	17.6	21.7	19.9	96.0	192	716	349	148	67.5
MAX	47	31	24	22	27	40	162	370	1020	655	197	121
MIN	24	18	17	12	16	10	42	67	275	184	113	38
AC-FT	2030	1560	1330	1080	1200	1230	5710	11810	42630	21450	9120	4020
CAL YR 1985	TOTAL	38276		MEAN	105	MAX	918	MIN	14	AC-FT	75920	
WTR YR 1986	TOTAL	52020		MEAN	143	MAX	1020	MIN	10	AC-FT	103200	

## PLATTE RIVER BASIN

06725450 ST VRAIN CREEK BELOW LONGMONT, CO.

LOCATION.--Lat 40°09'30", long 105°00'48", in NW¼NW¼ sec.9, T.2 N., R.68 W., Weld County, Hydrologic Unit 10190005, on left bank 1,750 ft upstream from mouth of Boulder Creek, 1.8 mi downstream from Spring Gulch, and 4.7 mi southeast of Longmont.

DRAINAGE AREA.--424 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1976 to September 1982, August 1984 to current year. Water-quality data available, October 1976 to February 1981.

GAGE.--Water-stage recorder. Elevation of gage is 4,852 ft, above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 22-28, May 4-7, Aug. 9-28. Records good except for estimated daily discharges which are poor. Natural flow of stream affected by storage reservoirs, diversions for irrigation, and return flow from irrigated areas. Several observations of specific conductance and temperature are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 120 ft<sup>3</sup>/s, 86,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft<sup>3</sup>/s May 1, 1980, gage height, 6.37 ft; minimum daily, 22 ft<sup>3</sup>/s Apr. 25, 1978, Apr. 3, 25, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft<sup>3</sup>/s at 0030 June 10, gage height, 4.87 ft; minimum daily, 32 ft<sup>3</sup>/s, Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	61	52	64	78	42	76	119	173	309	178	165
2	83	61	50	64	60	39	47	121	198	272	187	178
3	74	58	45	69	60	37	173	123	202	234	203	155
4	69	61	50	66	53	38	205	124	319	216	210	118
5	68	63	52	64	55	34	188	124	402	333	205	112
6	64	61	66	78	58	37	203	127	596	405	192	117
7	66	57	72	74	51	36	151	130	798	335	198	127
8	69	62	72	69	55	33	170	166	879	223	151	151
9	64	74	60	72	45	32	248	135	831	148	154	140
10	74	68	69	79	43	34	267	100	884	165	158	123
11	81	64	78	72	42	51	243	90	687	187	160	119
12	72	69	72	72	43	51	219	104	603	173	165	114
13	64	74	72	71	43	50	216	92	650	216	168	110
14	69	68	76	66	45	44	190	83	754	210	170	110
15	61	69	63	66	55	69	141	104	800	203	172	94
16	61	72	66	72	48	55	121	209	770	198	179	98
17	66	69	68	74	52	51	117	188	712	185	181	94
18	63	66	68	63	71	45	128	208	710	180	186	88
19	64	68	66	60	45	50	128	139	735	185	191	94
20	64	72	68	68	48	51	88	173	730	185	200	81
21	64	74	71	66	45	50	87	198	626	216	211	78
22	66	71	69	63	44	50	92	257	535	175	218	76
23	63	52	68	60	42	45	96	264	431	180	228	87
24	62	52	68	58	42	42	114	206	331	190	240	83
25	60	51	63	55	42	37	130	165	247	213	219	85
26	59	54	63	55	38	37	181	185	176	219	200	92
27	58	55	63	57	39	34	168	190	291	216	180	79
28	56	55	66	60	42	36	140	205	261	203	165	76
29	57	51	64	58	---	36	128	205	219	183	162	76
30	58	47	69	60	---	38	117	185	323	175	152	85
31	58	---	64	63	---	43	---	168	---	185	147	---
TOTAL	2042	1879	2013	2038	1384	1327	4572	4887	15873	6717	5730	3205
MEAN	65.9	62.6	64.9	65.7	49.4	42.8	152	158	529	217	185	107
MAX	85	74	78	79	78	69	267	264	884	405	240	178
MIN	56	47	45	55	38	32	47	83	173	148	147	76
AC-FT	4050	3730	3990	4040	2750	2630	9070	9690	31480	13320	11370	6360
CAL YR 1985	TOTAL	36368	MEAN	99.6	MAX	474	MIN	45	AC-FT	72140		
WTR YR 1986	TOTAL	51667	MEAN	142	MAX	884	MIN	32	AC-FT	102500		

PLATTE RIVER BASIN

06726900 BUMMERS GULCH NEAR EL VADO, CO.

LOCATION.--Lat 40°00'42", long 105°20'53", in NE1/4 sec.33, T.1 N., R.71 W., Boulder County, Hydrologic Unit 10190005, on left bank, 0.8 mi north of Highway 119 on Sugarloaf Road, 0.1 mi south of service road to Boulder Filtration Plant, 0.65 mi upstream from mouth and, 3.7 mi from Boulder County courthouse.

DRAINAGE AREA.--3.87 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,270 ft above National Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7.8 ft<sup>3</sup>/s, Apr. 25, 1984, gage height, 2.65 ft; minimum daily, 0.02 ft<sup>3</sup>/s, Sept. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.5 ft<sup>3</sup>/s at 1930 Apr. 8, gage height, 2.76 ft; minimum daily, 0.06 ft<sup>3</sup>/s, Aug. 17-20, 25, 28-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.32	.37	.28	.19	.40	.32	.81	.55	.30	.11	.09
2	.10	.30	.29	.27	.18	.39	.42	.80	.53	.26	.12	.14
3	.11	.29	.20	.28	.18	.38	.30	.79	.47	.24	.12	.10
4	.11	.28	.27	.24	.16	.38	.72	.75	.57	.27	.11	.10
5	.12	.27	.33	.26	.17	.37	.82	.69	.56	.35	.11	.09
6	.13	.28	.32	.29	.18	.36	1.0	.71	.53	.39	.10	.13
7	.13	.28	.32	.27	.20	.36	1.3	.69	.52	.32	.10	.17
8	.18	.28	.31	.25	.21	.36	1.7	.79	.53	.30	.10	.16
9	.18	.33	.35	.24	.21	.35	2.3	.73	.54	.28	.09	.11
10	.18	.31	.37	.24	.21	.34	2.3	.71	.56	.28	.10	.10
11	.20	.32	.38	.25	.21	.34	2.2	.60	.52	.26	.09	.10
12	.19	.34	.39	.25	.24	.35	2.0	.54	.51	.25	.08	.09
13	.19	.34	.39	.26	.24	.39	1.8	.55	.50	.24	.09	.11
14	.21	.33	.34	.24	.21	.37	1.6	.58	.49	.21	.09	.11
15	.21	.35	.32	.22	.33	.38	1.5	.64	.46	.20	.08	.10
16	.20	.39	.32	.22	.29	.37	1.5	.95	.50	.21	.07	.10
17	.19	.39	.32	.24	.29	.38	1.4	.87	.48	.22	.06	.09
18	.20	.38	.32	.24	.36	.37	1.3	.73	.42	.31	.06	.09
19	.21	.36	.33	.26	.39	.32	1.3	.69	.42	.29	.06	.09
20	.22	.35	.31	.26	.38	.39	1.2	.63	.44	.28	.06	.09
21	.22	.32	.31	.20	.37	.37	1.1	.61	.42	.26	.08	.09
22	.24	.29	.32	.17	.36	.36	1.1	.58	.42	.24	.07	.11
23	.30	.23	.32	.23	.35	.34	1.1	.57	.36	.23	.09	.10
24	.30	.19	.32	.21	.36	.33	1.1	.55	.38	.18	.07	.12
25	.30	.26	.32	.16	.41	.33	1.0	.51	.36	.16	.06	.16
26	.27	.36	.31	.18	.41	.32	1.0	.49	.38	.16	.07	.18
27	.25	.37	.30	.18	.41	.31	.94	.52	.33	.15	.07	.19
28	.22	.37	.30	.20	.38	.30	.87	.54	.29	.13	.06	.19
29	.19	.38	.30	.18	---	.29	.83	.63	.28	.12	.06	.22
30	.19	.37	.30	.19	---	.28	.82	.54	.30	.11	.06	.23
31	.25	---	.29	.20	---	.29	---	.47	---	.12	.06	---
TOTAL	6.08	9.63	9.94	7.16	7.88	10.87	36.84	20.26	13.62	7.32	2.55	3.75
MEAN	.20	.32	.32	.23	.28	.35	1.23	.65	.45	.24	.08	.12
MAX	.30	.39	.39	.29	.41	.40	2.3	.95	.57	.39	.12	.23
MIN	.09	.19	.20	.16	.16	.28	.30	.47	.28	.11	.06	.09
AC-FT	12	19	20	14	16	22	73	40	27	15	5.1	7.4
CAL YR 1985	TOTAL	112.07		MEAN	.31	MAX	.73	MIN	.02	AC-FT	222	
WTR YR 1986	TOTAL	135.90		MEAN	.37	MAX	2.3	MIN	.06	AC-FT	270	



## PLATTE RIVER BASIN

06727500 FOURMILE CREEK AT ORODELL, CO

LOCATION.--Lat 40°01'08", long 105°19'32", in NW¼SE¼ sec.27, T.1 N., R.71 W., Boulder County Hydrologic Unit 10190005, on right bank 30 ft downstream from private bridge, 0.3 mi upstream from Highway 119 and mouth, 2.5 mi west of courthouse in Boulder.

DRAINAGE AREA.--24.1 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1947 to September 1953, April 1978 to September 1982 (peak stage and discharge only), July 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,760 ft above National Geodetic Vertical Datum of 1929, from topographic map. April 1, 1947 to September 30, 1953 water-stage recorder 500 feet downstream; April 1, 1978 to September 1982 crest-stage gage 200 feet downstream, at different datums.

REMARKS.--Estimated daily discharges: Nov. 25, Dec. 3, and Jan. 31 to Feb. 3. Records good except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years (water years 1947-53, 1983-86), 7.07 ft<sup>3</sup>/s, 5,120 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 256 ft<sup>3</sup>/s, June 6, 1949, gage height, 3.66 ft, site and datum then in use; no flow Sept. 1-7, 15-18, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83 ft<sup>3</sup>/s at 0045 Apr. 11, gage height, 3.42 ft; minimum daily, 0.66 ft<sup>3</sup>/s, Sept. 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.6	2.3	2.2	2.1	2.9	3.7	22	22	11	.92	.79
2	1.2	1.4	2.4	1.8	2.2	2.9	5.7	24	23	10	.91	1.2
3	1.1	1.3	2.3	1.8	2.3	3.0	7.0	24	22	9.3	.96	.79
4	1.1	1.4	2.2	1.7	2.3	2.9	8.8	24	28	8.7	.88	.74
5	1.1	1.4	2.0	1.8	2.3	3.0	12	26	32	9.0	.82	.74
6	.87	1.4	1.9	1.9	2.3	2.8	17	25	32	9.6	.79	.71
7	.94	1.4	1.9	1.7	2.3	2.8	34	22	35	8.6	.76	.90
8	1.6	1.3	1.8	1.7	2.3	2.9	56	21	36	7.3	.83	1.1
9	1.7	2.0	1.8	1.7	2.1	3.0	70	19	36	6.2	.86	.78
10	1.5	2.3	1.9	1.7	2.1	3.0	76	17	34	5.8	.79	.70
11	1.6	2.3	1.9	1.7	2.1	3.0	69	15	32	5.1	.79	.68
12	1.6	2.3	1.9	1.8	2.1	3.0	50	14	29	4.4	.74	.71
13	1.6	2.2	1.9	1.8	2.2	2.9	55	13	25	3.8	.76	.71
14	1.7	2.3	1.9	1.8	2.2	2.8	44	13	23	3.6	.76	.72
15	1.7	2.2	1.9	1.9	2.8	2.9	36	14	23	3.3	.76	.71
16	1.7	2.1	1.9	1.9	2.5	2.6	32	18	22	3.4	.75	.71
17	1.5	2.4	1.8	1.8	2.2	2.7	32	18	22	3.2	.71	.71
18	1.5	2.4	1.7	1.8	2.7	2.3	30	18	21	3.5	.71	.69
19	1.4	2.2	1.9	2.1	3.3	2.2	25	18	22	3.2	.71	.66
20	1.4	2.0	2.0	2.1	3.4	2.4	23	19	22	2.9	.71	.66
21	1.4	2.0	1.9	2.0	3.4	2.2	23	22	20	2.8	.72	.66
22	1.3	2.0	1.8	2.0	2.9	2.3	27	25	18	2.4	.73	.69
23	1.3	2.1	1.7	2.3	2.8	2.2	34	27	17	2.3	1.2	.71
24	1.3	2.2	1.7	2.1	2.7	2.4	42	27	17	1.9	.94	.72
25	1.3	2.1	1.7	2.1	2.8	2.4	43	26	17	1.6	.71	.76
26	1.3	2.1	1.7	2.1	3.1	2.5	38	26	16	1.4	.74	.74
27	1.3	2.1	1.6	2.4	3.1	2.7	31	25	15	1.4	.76	.77
28	1.2	2.1	1.8	2.0	2.8	2.8	26	24	13	1.1	.74	.78
29	1.2	2.3	2.0	2.0	---	3.1	23	27	13	.97	.71	.84
30	1.3	2.3	2.0	1.9	---	3.3	22	23	12	.89	.71	.93
31	1.4	---	2.0	2.0	---	3.7	---	21	---	.87	.71	---
TOTAL	42.11	59.2	59.2	59.6	71.4	85.6	995.2	657	699	139.53	24.59	23.01
MEAN	1.36	1.97	1.91	1.92	2.55	2.76	33.2	21.2	23.3	4.50	.79	.77
MAX	1.7	2.4	2.4	2.4	3.4	3.7	76	27	36	11	1.2	1.2
MIN	.87	1.3	1.6	1.7	2.1	2.2	3.7	13	12	.87	.71	.66
AC-FT	84	117	117	118	142	170	1970	1300	1390	277	49	46
CAL YR 1985	TOTAL	2457.13		MEAN	6.73	MAX	48	MIN	.10	AC-FT	4870	
WTR YR 1986	TOTAL	2915.44		MEAN	7.99	MAX	76	MIN	.66	AC-FT	5780	

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. Elevation of gage is 6,080 ft, from topographic map. See WSP 1710 or 1730 for history of changes prior to May 10, 1940.

REMARKS.--Estimated daily discharges: Nov. 9, 19-24, Nov. 30 to Dec. 23, Jan. 1-15, 21-27, and Dec 31 to Feb. 15. Records good except for estimated daily discharges, which are fair. Many small diversions upstream from station for irrigation. Water is imported upstream from 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 upstream from station. City of Denver diverts water 1.8 mi 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.--30 years (water years 1957-86), 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, 286 ft<sup>3</sup>/s at 1830 June 4, gage height, 2.84 ft; minimum daily, 1.0 ft<sup>3</sup>/s, Dec. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	11	9.0	14	12	33	21	91	236	218	34	23
2	26	11	9.0	14	12	33	35	111	232	229	50	21
3	21	12	9.0	14	12	33	46	111	232	209	50	21
4	20	12	9.0	14	12	33	40	111	243	187	49	19
5	19	14	9.0	14	12	29	44	111	250	178	44	17
6	17	15	9.0	14	12	25	52	136	229	200	43	17
7	19	15	9.0	14	12	25	69	155	222	206	43	18
8	19	15	4.0	14	5.0	25	102	155	229	206	33	20
9	19	18	22	14	8.0	25	139	139	240	152	28	22
10	19	18	10	14	7.0	24	144	128	226	133	21	22
11	20	18	10	14	15	24	142	128	215	106	16	22
12	19	18	10	14	16	22	131	116	215	94	15	21
13	21	18	10	14	16	19	126	106	215	85	16	20
14	22	18	10	14	22	19	123	106	215	72	18	20
15	22	19	10	14	22	20	126	109	215	67	22	19
16	22	18	10	9.5	22	19	118	133	212	67	25	19
17	22	18	1.0	9.0	22	19	116	147	212	69	25	19
18	16	18	11	9.0	22	19	114	150	212	70	24	19
19	17	13	11	8.5	22	21	114	144	218	67	25	19
20	17	8.0	11	8.5	22	22	111	147	226	85	23	20
21	20	8.0	11	8.5	26	22	96	147	226	83	23	20
22	12	8.0	11	9.0	28	22	76	150	226	85	25	20
23	19	8.0	49	9.0	28	22	70	181	226	91	23	20
24	24	8.0	53	9.0	28	22	70	209	222	98	28	20
25	17	8.0	53	9.0	28	22	85	218	254	91	33	20
26	11	8.0	53	9.0	32	22	96	232	274	94	32	20
27	11	7.6	53	9.0	36	22	96	250	262	76	31	20
28	11	7.6	53	9.0	33	21	94	236	254	58	30	20
29	11	7.6	53	9.0	---	21	81	232	243	38	29	20
30	11	9.0	53	12	---	21	74	232	226	18	28	20
31	11	---	26	12	---	21	---	236	---	14	28	---
TOTAL	561	386.8	661.0	359.0	544.0	727	2751	4857	6907	3446	914	598
MEAN	18.1	12.9	21.3	11.6	19.4	23.5	91.7	157	230	111	29.5	19.9
MAX	26	19	53	14	36	33	144	250	274	229	50	23
MIN	11	7.6	1.0	8.5	5.0	19	21	91	212	14	15	17
AC-FT	1110	767	1310	712	1080	1440	5460	9630	13700	6840	1810	1190
CAL YR 1985	TOTAL	21225.8		MEAN	58.2	MAX	254	MIN	1.0	AC-FT	42100	
WTR YR 1986	TOTAL	22711.8		MEAN	62.2	MAX	274	MIN	1.0	AC-FT	45050	

PLATTE RIVER BASIN

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. Elevation of gage is 4,860 ft above National Geodetic Vertical Datum of 1929, 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.--Estimated daily discharges: Oct. 1-21, Nov. 27 to Jan. 8, Feb. 4-28, July 26-31. Records good except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--34 years (water years, 1928-49, 1952-55, 1979-86), 66.2 ft<sup>3</sup>/s; 47,960 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, 508 ft<sup>3</sup>/s at 2300 June 9, gage height, 2.86 ft; minimum daily, 3.0 ft<sup>3</sup>/s, May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	45	72	78	57	55	29	79	66	28	13	18
2	68	42	76	76	59	54	35	87	71	42	13	22
3	57	42	80	75	60	56	202	81	64	9.1	12	53
4	69	43	78	72	60	60	151	81	97	14	13	27
5	83	46	80	68	56	50	173	59	105	135	13	23
6	77	47	82	71	52	56	195	129	124	209	14	23
7	64	53	84	71	48	41	224	114	203	187	13	34
8	50	67	86	68	46	38	256	58	396	129	13	50
9	39	74	85	67	48	43	298	45	456	82	14	36
10	37	82	80	65	50	42	273	39	445	52	13	21
11	37	81	74	68	52	40	246	35	381	29	13	20
12	35	82	68	71	52	43	230	8.1	321	9.2	13	19
13	42	88	69	68	49	43	208	15	314	32	13	17
14	50	85	78	69	49	41	192	11	328	46	14	13
15	40	92	75	71	53	51	181	3.0	352	50	17	17
16	36	90	78	71	56	50	169	74	344	14	20	20
17	34	90	87	71	63	50	176	137	383	27	19	23
18	37	92	97	63	68	51	156	114	384	62	20	21
19	39	88	100	67	60	48	135	102	380	56	21	29
20	34	85	96	71	56	47	126	79	400	37	20	20
21	30	79	92	69	60	46	122	72	337	66	21	23
22	26	78	86	61	65	46	109	44	256	27	26	24
23	27	84	84	61	70	42	123	35	191	32	42	42
24	38	78	83	58	78	35	120	37	163	52	46	37
25	40	82	82	56	82	24	126	34	112	45	54	38
26	32	82	82	52	82	23	122	35	80	36	43	23
27	30	79	80	52	76	23	124	39	79	30	34	18
28	34	72	80	53	60	21	109	39	16	25	35	19
29	35	72	80	64	---	17	105	76	10	18	33	14
30	37	72	80	65	---	15	91	71	30	12	26	10
31	38	---	78	60	---	21	---	60	---	12	19	---
TOTAL	1369	2192	2532	2052	1667	1272	4806	1892.1	6888	1604.3	680	754
MEAN	44.2	73.1	81.7	66.2	59.5	41.0	160	61.0	230	51.8	21.9	25.1
MAX	83	92	100	78	82	60	298	137	456	209	54	53
MIN	26	42	68	52	46	15	29	3.0	10	9.1	12	10
AC-FT	2720	4350	5020	4070	3310	2520	9530	3750	13660	3180	1350	1500
CAL YR 1985	TOTAL	23642.9		MEAN	64.8	MAX	402	MIN	5.2	AC-FT	46900	
WTR YR 1986	TOTAL	27708.4		MEAN	75.9	MAX	456	MIN	3.0	AC-FT	54960	

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)
OCT 22...	0900	31	950	8.0	7.5	10.2	43	290	320
NOV 27...	1045	81	650	8.0	4.0	9.5	160	390	190
DEC 19...	1145	99	460	8.3	2.0	10.6	K140	280	150
JAN 08...	1440	50	600	7.8	1.0	--	K220	970	200
FEB 04...	1220	61	600	8.8	4.0	13.2	51	79	170
MAR 04...	1030	139	700	8.0	8.0	14.0	64	400	190
APR 02...	1030	34	600	8.1	14.0	14.2	55	530	190
MAY 06...	1125	120	410	8.0	14.0	17.2	88	250	130
JUN 03...	1005	62	500	7.7	19.0	8.4	K600	930	160
AUG 01...	1010	12	971	8.6	22.0	12.2	120	280	380
20...	1020	15	746	8.5	20.5	12.4	K60	160	280
SEP 24...	1020	37	718	8.3	16.0	10.1	170	430	250

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 22...	58	43	85	2	4.8	249	210	36	1.3
NOV 27...	39	23	47	2	5.2	139	100	26	0.7
DEC 19...	30	18	37	1	4.5	109	82	23	0.7
JAN 08...	37	26	50	2	4.9	147	120	24	0.7
FEB 04...	32	23	47	2	4.4	129	110	26	0.7
MAR 04...	36	24	56	2	8.7	115	120	53	1.2
APR 02...	37	24	53	2	4.6	127	110	26	0.8
MAY 06...	27	15	32	1	3.0	93	83	13	0.4
JUN 03...	33	20	40	1	3.7	114	94	16	0.7
AUG 01...	58	56	75	2	3.0	212	310	17	1.1
20...	49	38	55	1	3.3	187	170	19	0.9
SEP 24...	44	33	57	2	4.9	172	130	28	0.9

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	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 22...	2.3	590	0.8	49	--	1.10	32	30
NOV 27...	8.0	330	0.45	73	1.80	0.88	86	99
DEC 19...	6.0	270	0.36	71	1.50	0.82	66	64
JAN 08...	7.0	360	0.49	48	2.00	0.86	480	82
FEB 04...	5.0	330	0.44	53	1.80	0.91	70	50
MAR 04...	5.3	370	0.51	140	2.70	2.60	130	98
APR 02...	5.8	340	0.46	31	2.10	1.10	77	88
MAY 06...	5.3	230	0.32	76	1.30	0.85	120	33
JUN 03...	6.6	280	0.38	47	1.70	0.60	120	35
AUG 01...	1.9	650	0.88	22	0.96	0.15	10	15
SEP 20...	3.3	450	0.61	18	1.20	0.30	14	5
SEP 24...	2.9	400	0.55	40	3.30	0.90	21	9

PLATTE RIVER BASIN

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 above 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.--Estimated daily discharges: Nov. 10, 11, Nov. 14 to Dec. 26, and Feb. 6-15. Records good except for estimated daily discharges, which are fair. Diversion from Colorado River basin passed this station from Aug. 10, 1947 to Aug. 2, 1950. Small power developments and small diversions for irrigation and municipal use above station. Diversions upstream from station from Wind River to Lake Estes (bypassing this station) were 2,000 acre-ft during current year.

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

AVERAGE DISCHARGE.--40 years, 128 ft<sup>3</sup>/s; 92,740 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; maximum natural discharge, 1,660 ft<sup>3</sup>/s June 18, 1949, gage height, 3.16 ft, site and datum then in use; maximum known gage height, 6.89 ft, June 17, 1965; minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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 20	0400	*1,180	*5.93	No other peak greater than base discharge.			
Minimum daily, 10 ft <sup>3</sup> /s, Feb. 9-11.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	31	24	13	14	22	64	128	463	716	201	142
2	48	30	24	13	16	23	70	161	519	674	201	135
3	45	32	24	12	18	23	64	201	610	632	209	121
4	44	30	24	12	18	24	64	238	811	660	201	108
5	40	30	25	12	14	23	60	275	853	805	200	104
6	40	22	25	12	13	23	61	210	972	714	182	99
7	56	30	24	13	12	22	69	178	1030	583	181	100
8	64	30	23	13	11	23	68	171	1020	542	179	114
9	54	24	22	13	10	26	70	143	1030	481	201	115
10	61	24	21	13	10	22	66	128	846	463	195	108
11	68	24	20	12	10	23	64	124	583	423	174	102
12	61	33	18	13	11	22	61	136	579	443	171	90
13	61	30	16	12	12	23	65	139	660	467	184	83
14	55	28	16	11	13	22	57	166	657	461	175	75
15	50	26	16	12	14	20	57	166	702	449	160	69
16	51	27	16	12	14	20	58	188	820	449	147	65
17	50	27	16	12	13	20	60	170	905	451	143	61
18	50	23	16	12	17	23	57	171	889	433	143	59
19	46	22	16	13	18	24	52	182	1020	404	144	59
20	45	22	16	14	17	19	51	230	1040	348	155	56
21	45	21	16	11	16	25	54	323	963	326	172	52
22	45	22	16	11	16	20	74	381	836	292	178	52
23	36	22	16	13	17	22	111	342	772	295	168	56
24	36	25	16	13	18	24	124	318	814	321	156	59
25	35	29	16	12	21	24	126	334	754	321	148	61
26	36	30	16	13	25	23	118	392	737	277	153	64
27	36	29	16	14	25	26	99	415	805	254	139	62
28	35	27	14	14	26	33	87	364	781	238	126	61
29	36	26	15	15	---	41	85	383	814	221	130	64
30	34	24	15	14	---	47	99	326	787	212	147	61
31	35	---	14	15	---	60	---	359	---	207	147	---
TOTAL	1446	800	572	394	439	792	2215	7442	24072	13562	5210	2457
MEAN	46.6	26.7	18.5	12.7	15.7	25.5	73.8	240	802	437	168	81.9
MAX	68	33	25	15	26	60	126	415	1040	805	209	142
MIN	34	21	14	11	10	19	51	124	463	207	126	52
AC-FT	2870	1590	1130	781	871	1570	4390	14760	47750	26900	10330	4870

CAL YR 1985	TOTAL	42741	MEAN	117	MAX	1110	MIN	10	AC-FT	84780
WTR YR 1986	TOTAL	59401	MEAN	163	MAX	1040	MIN	10	AC-FT	117800

## PLATTE RIVER BASIN

06734900 OLYMPUS TUNNEL AT LAKE ESTES, CO

LOCATION.--Lat 40°22'30", long 105°29'13", in SE1/4NW1/4 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT											
22...	1145	3.8	40	7.3	7.5	8.5	--	--	16	4.5	1.1
NOV											
27...	1500	475	44	7.5	3.0	9.4	--	--	18	5.2	1.1
DEC											
19...	1415	402	47	7.1	2.0	9.6	--	--	20	6.0	1.2
JAN											
08...	1125	401	55	6.3	0.0	--	--	--	21	6.2	1.3
FEB											
05...	1145	402	65	6.9	2.0	10.0	--	--	23	6.9	1.3
MAR											
03...	1220	409	60	7.8	2.0	14.8	--	--	22	6.6	1.3
APR											
01...	1125	418	55	7.7	5.0	11.2	K2	45	20	6.1	1.2
MAY											
07...	1310	413	50	7.2	5.0	6.8	K<1	--	18	5.3	1.1
JUN											
02...	1315	417	<50	7.3	8.0	7.2	600	70	13	4.0	0.8
JUL											
31...	0900	515	27	7.2	15.0	7.3	1600	210	10	2.9	0.63
AUG											
21...	1130	407	28	7.5	15.5	7.0	K<4	200	11	3.4	0.73
SEP											
25...	1030	202	34	7.8	10.5	9.4	K2820	K<5	12	3.5	0.77

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)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT											
22...	2.0	0.2	0.7	15	5.2	0.7	0.2	4.1	28	0.04	0.28
NOV											
27...	2.0	0.2	--	15	4.9	1.1	0.2	4.5	--	--	--
DEC											
19...	2.1	0.2	0.6	20	5.9	0.8	0.1	4.2	33	0.05	36
JAN											
08...	2.2	0.2	0.8	21	5.2	0.4	0.1	4.0	33	0.05	36
FEB											
05...	2.1	0.2	1.0	20	4.1	0.5	0.1	4.1	32	0.04	35
MAR											
03...	2.1	0.2	0.9	21	4.5	0.7	0.1	4.4	33	0.05	37
APR											
01...	1.9	0.2	0.8	21	5.4	0.5	0.1	4.2	33	0.05	37
MAY											
07...	1.9	0.2	0.8	18	6.7	0.7	<0.1	5.2	33	0.04	36
JUN											
02...	1.9	0.2	0.7	13	5.9	0.6	0.1	5.2	27	0.04	31
JUL											
31...	1.1	0.2	0.3	10	3.5	0.5	0.1	3.5	19	0.02	26
AUG											
21...	1.3	0.2	0.6	13	4.0	0.5	0.1	3.6	22	0.03	24
SEP											
25...	1.4	0.2	0.6	15	5.9	0.4	0.2	3.3	25	0.03	14

K BASED ON NON-IDEAL COLONY COUNT.

## 06734900 OLYMPUS TUNNEL AT LAKE ESTES, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	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 22...	0.47	0.01	0.48	0.06	0.04	0.07	76	3	--	--
NOV 27...	--	<0.01	<0.10	0.05	0.03	0.01	62	5	--	--
DEC 19...	--	<0.01	<0.10	--	--	0.01	59	3	--	--
JAN 08...	--	<0.01	<0.10	0.04	0.02	0.01	42	<1	--	--
FEB 05...	--	<0.01	<0.10	0.05	0.02	<0.01	56	4	--	--
MAR 03...	--	<0.01	<0.10	0.01	0.03	0.01	54	3	--	--
APR 01...	--	<0.01	<0.10	0.02	0.02	<0.01	70	4	112	26900
MAY 07...	--	<0.01	<0.10	0.02	0.02	0.02	140	13	55	9900
JUN 02...	--	<0.01	<0.10	0.04	0.02	0.01	91	8	68	43600
JUL 31...	--	<0.01	<0.10	0.04	0.06	0.09	130	4	--	--
AUG 21...	--	--	<0.10	0.16	0.03	0.01	82	3	97	4600
SEP 25...	--	<0.01	<0.10	0.03	0.03	0.01	74	<1	375	9100



## 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 above 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.--Estimated daily discharges: Mar. 19, 22, and Apr. 1-2. Records good. Low flow regulated by Lake Estes since Nov. 30, 1948. Diversion from Colorado River basin to Big Thompson River basin upstream from 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 (264,000 during current year) has also been diverted through Olympus tunnel and returned to the river downstream from the station at mouth of canyon, near Drake. Small power developments and small diversions for irrigation and municipal use 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.

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, 1,020 ft<sup>3</sup>/s at 0130 June 2, gage height, 5.70 ft; minimum daily, 7.1, ft<sup>3</sup>/s, Feb. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	24	30	14	14	26	201	267	508	925	139	89
2	44	24	29	14	14	24	203	293	603	864	139	87
3	45	24	29	14	14	24	209	348	718	817	138	86
4	42	24	29	11	14	24	203	525	648	778	138	85
5	40	25	29	10	14	26	204	521	781	805	138	85
6	33	29	29	10	14	25	201	449	730	998	138	85
7	25	23	30	11	14	26	297	387	728	864	138	86
8	25	34	28	10	14	26	215	348	775	730	138	86
9	25	30	28	11	14	26	209	328	763	690	138	86
10	25	23	28	10	12	28	213	295	778	617	138	87
11	24	21	28	13	13	26	210	277	639	588	136	83
12	24	24	20	14	13	26	206	268	402	551	136	76
13	24	32	20	14	13	24	207	283	385	561	136	75
14	24	33	19	13	13	28	302	287	457	590	136	76
15	25	30	19	13	13	26	254	311	459	581	136	74
16	25	30	19	13	13	24	203	341	504	570	112	51
17	25	29	20	13	13	26	200	337	796	570	111	51
18	25	28	20	12	13	24	201	321	885	628	111	50
19	24	28	18	12	13	25	209	325	871	711	111	51
20	24	26	18	12	13	25	206	334	976	590	111	51
21	26	24	18	12	13	21	201	379	1000	477	112	50
22	24	24	18	11	8.4	24	204	471	955	457	111	50
23	25	25	18	11	7.1	22	227	531	840	439	111	50
24	25	25	18	13	8.4	23	265	498	775	437	111	50
25	25	25	18	15	8.0	24	282	471	882	314	112	50
26	25	24	18	15	8.9	24	288	487	843	359	297	50
27	24	25	20	14	10	134	277	544	833	318	248	50
28	25	29	20	15	24	168	257	561	885	295	404	50
29	25	30	20	15	---	179	246	566	867	278	375	50
30	24	29	20	14	---	185	247	683	893	262	262	50
31	24	---	15	15	---	197	---	489	---	250	120	---
TOTAL	866	801	693	394	355.8	1510	6847	12525	22179	17914	4881	2000
MEAN	27.9	26.7	22.4	12.7	12.7	48.7	228	404	739	578	157	66.7
MAX	46	34	30	15	24	197	302	683	1000	998	404	89
MIN	24	21	15	10	7.1	21	200	267	385	250	111	50
AC-FT	1720	1590	1370	781	706	3000	13580	24840	43990	35530	9680	3970
CAL YR 1985	TOTAL	42188.3		MEAN	116	MAX	955	MIN	5.1	AC-FT	83680	
WTR YR 1986	TOTAL	70965.8		MEAN	194	MAX	1000	MIN	7.1	AC-FT	140800	

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.

RESERVOIR ELEVATIONS AND 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 above National Geodetic Vertical Datum of 1929.

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, 7,003 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 provided 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, 132,500 acre-ft, June 30, elevation, 5,421.28 ft; minimum, observed, 73,970 acre-ft, Oct. 1, elevation, 5,386.38 ft.

MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	5,386.18	73,680	-
Oct. 31. . . . .	5,390.12	79,480	+5,800
Nov. 30. . . . .	5,392.53	83,120	+3,640
Dec. 31. . . . .	5,398.17	91,950	+8,830
CAL YR 1985. . . . .	-	-	+13,950
Jan. 31. . . . .	5,405.04	103,300	+11,350
Feb. 28. . . . .	5,411.19	113,900	+10,600
Mar. 31. . . . .	5,418.46	127,200	+13,300
Apr. 30. . . . .	5,420.24	130,500	+3,300
May 31. . . . .	5,407.98	108,300	-22,200
June 30. . . . .	5,421.28	132,500	+24,200
July 31. . . . .	5,409.62	111,200	-21,300
Aug. 31. . . . .	5,394.36	85,940	-25,260
Sept. 30. . . . .	5,392.24	82,680	+3,260
WTR YR 1986. . . . .			+9,000

## 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 1983 TO SEPTEMBER 1984

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)
APR 1984		
17...	1100	<0.03
17...	1124	<0.03
JUL		
11...	1100	<0.03
11...	1105	<0.03
11...	1119	<0.03
SEP		
11...	1115	<0.03
11...	1131	<0.03

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
14...	1055	0.1	70	--	10.5	9.4
14...	1056	5.0	70	--	10.0	9.6
14...	1057	10.0	70	--	10.0	9.6
14...	1058	20.0	79	--	9.5	10.4
14...	1059	25.0	78	--	9.5	10.6
14...	1100	30.0	76	--	9.5	10.6
14...	1101	40.0	73	--	9.0	10.2
14...	1102	50.0	70	--	8.5	9.4
14...	1103	60.0	68	--	8.0	9.4
14...	1104	70.0	65	--	7.5	9.4
14...	1105	75.0	64	--	7.5	9.4
14...	1106	80.0	63	--	7.5	9.1
14...	1107	90.0	61	--	7.5	9.0
14...	1108	100	59	--	7.5	8.0
14...	1109	110	58	--	7.0	7.8
14...	1110	120	57	--	7.0	7.6
14...	1111	125	57	--	7.0	7.6
14...	1112	130	56	--	7.0	7.5
14...	1113	140	55	--	7.0	7.2
14...	1114	150	54	--	7.0	4.6
JUL						
22...	0945	0.1	--	--	21.0	7.3
22...	0946	5.0	--	--	20.0	7.1
22...	0947	10.0	--	--	19.5	7.0
22...	0948	20.0	--	--	19.0	6.8
22...	0949	25.0	--	--	17.0	6.9
22...	0950	30.0	--	--	16.5	6.9
22...	0951	40.0	--	--	15.0	7.0
22...	0952	50.0	--	--	12.5	7.1
22...	0953	60.0	--	--	11.5	7.4
22...	0954	70.0	--	--	10.5	7.4
22...	0955	75.0	--	--	10.5	7.5
22...	0956	80.0	--	--	10.0	7.4
22...	0957	90.0	--	--	10.0	7.5
22...	0958	100	--	--	9.5	7.4
22...	0959	110	--	--	9.5	7.5
22...	1000	120	--	--	9.5	7.4
22...	1001	125	--	--	9.5	7.3
SEP						
16...	1055	0.1	55	7.9	17.5	7.2
16...	1056	5.0	55	7.9	17.5	7.3
16...	1057	10.0	55	7.9	17.5	7.2
16...	1058	20.0	56	7.9	17.5	7.2
16...	1059	25.0	56	7.9	17.5	7.1
16...	1100	30.0	55	7.8	17.0	7.0
16...	1101	40.0	54	7.8	17.0	7.0
16...	1102	50.0	54	7.7	17.0	6.5
16...	1103	60.0	58	7.6	16.0	5.2
16...	1104	70.0	60	7.6	15.0	4.8
16...	1105	75.0	62	7.6	14.5	4.1
16...	1106	80.0	62	7.5	14.0	3.9
16...	1107	90	62	7.5	13.0	3.5
16...	1108	100	62	7.4	12.0	2.9
16...	1109	110	62	7.3	11.0	2.5
16...	1110	120	62	7.1	10.0	1.7
16...	1111	125	62	7.0	10.0	1.5

06737500 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	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)	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 14	1055	0.1	52.0	--	--	--	--	--	--	--	--	--
JUL 22...	1010	0.1	44.0	K2	K6	34	0.02	0.13	0.02	0.02	37	74100
JUL 22...	1020	125	--	--	--	38	0.02	0.20	0.02	0.02	--	--
SEP 16...	1055	0.1	73.0	--	--	--	--	--	--	--	--	--

K BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

403147105083800 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1983 to current year.

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 1983 TO SEPTEMBER 1984

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)
APR 1984		
17...	1435	<0.03
17...	1454	<0.03
JUL		
11...	1530	<0.03
11...	1535	<0.03
11...	1549	<0.03
SEP		
11...	1530	<0.03
11...	1545	<0.03

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
14...	1231	0.1	70	--	10.5	10.0
14...	1232	5.0	82	--	10.0	10.2
14...	1233	10.0	81	--	9.5	10.1
14...	1234	20.0	77	--	9.0	10.0
14...	1235	25.0	76	--	8.5	10.0
14...	1236	30.0	75	--	8.0	10.0
14...	1237	40.0	72	--	8.0	10.0
14...	1238	50.0	69	--	8.0	10.0
14...	1239	60.0	67	--	7.5	9.8
14...	1240	70.0	65	--	7.5	9.6
14...	1241	75.0	64	--	7.5	9.4
14...	1242	80.0	63	--	7.5	9.4
14...	1243	90.0	61	--	6.5	9.4
14...	1244	100	60	--	6.5	8.8
14...	1245	110	58	--	6.5	8.6
14...	1246	120	57	--	6.5	5.2
JUL						
22...	1030	0.1	--	--	20.0	--
22...	1031	5.0	--	--	19.5	--
22...	1032	10.0	--	--	19.5	--
22...	1033	20.0	--	--	18.5	--
22...	1034	25.0	--	--	18.0	--
22...	1035	30.0	--	--	17.0	--
22...	1036	40.0	--	--	13.5	--
22...	1037	50.0	--	--	12.0	--
22...	1038	60.0	--	--	11.0	--
22...	1039	70.0	--	--	10.5	--
22...	1040	75.0	--	--	10.0	--
22...	1041	80.0	--	--	9.5	--
22...	1042	90.0	--	--	8.5	--
22...	1043	100	--	--	8.0	--
22...	1044	110	--	--	8.0	--
22...	1045	120	--	--	7.5	--
SEP						
16...	1245	0.1	58	7.4	18.0	7.6
16...	1246	5.0	58	7.3	17.5	7.6
16...	1247	10.0	58	7.4	17.5	7.4
16...	1248	20.0	57	7.4	17.0	7.2
16...	1249	25.0	57	7.4	17.0	7.1
16...	1250	30.0	57	7.5	17.0	7.1
16...	1251	40.0	56	7.5	17.0	7.2
16...	1252	50.0	56	7.6	16.5	7.2
16...	1253	60.0	59	7.6	16.0	7.1
16...	1254	70.0	63	7.6	11.5	5.5
16...	1255	75.0	64	7.5	10.0	5.7
16...	1256	80.0	66	7.4	8.5	5.6
16...	1257	90.0	70	7.4	8.0	5.2
16...	1258	100	72	7.3	8.0	4.0

403147105083800 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	COLI- FORM, TOTAL, IMMED. PER (COLS. 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 180 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 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 14...	1231	0.1	52.0			--	--	--	--	--	--	--
JUL 22...	1050	0.1	38.0	K1	K1	38	0.02	0.13	0.03	0.02	52	49900
22...	1100	120	--	--	--	38	0.02	0.22	0.01	0.02	--	--
SEP 16...	1245	0.1	63.0	--	--	--	--	--	--	--	--	--

BASED ON NON-IDEAL COLONY COUNT.

## PLATTE RIVER BASIN

403317105090000 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1983 to current year.

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 1983 TO SEPTEMBER 1984

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)
APR 1984		
17...	1300	<0.03
17...	1319	<0.03
JUL		
11...	1315	<0.03
11...	1320	<0.03
11...	1333	<0.03
SEP		
11...	1350	<0.03
11...	1407	<0.03

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
14...	1321	0.1	80	--	10.0	10.0
14...	1322	5.0	81	--	10.0	10.2
14...	1323	10.0	70	--	10.0	10.2
14...	1324	20.0	78	--	10.0	10.8
14...	1325	25.0	78	--	9.5	11.0
14...	1326	30.0	77	--	9.5	10.6
14...	1327	40.0	73	--	8.5	9.6
14...	1328	50.0	70	--	8.0	9.6
14...	1329	60.0	67	--	7.5	9.2
14...	1330	70.0	65	--	7.5	9.0
14...	1331	75.0	64	--	7.5	8.8
14...	1332	80.0	64	--	7.5	8.3
14...	1333	90.0	62	--	7.5	8.2
14...	1334	100	60	--	7.0	7.8
14...	1336	120	57	--	7.0	7.0
JUL						
22...	1105	0.1	--	--	20.5	--
22...	1106	5.0	--	--	20.0	--
22...	1107	10.0	--	--	20.0	--
22...	1108	20.0	--	--	19.0	--
22...	1109	25.0	--	--	18.5	--
22...	1110	30.0	--	--	16.5	--
22...	1111	40.0	--	--	14.0	--
22...	1112	50.0	--	--	12.0	--
22...	1113	60.0	--	--	11.0	--
22...	1114	70.0	--	--	11.0	--
22...	1115	75.0	--	--	10.0	--
22...	1116	80.0	--	--	10.0	--
22...	1117	90.0	--	--	9.5	--
22...	1118	100	--	--	9.0	--
22...	1119	110	--	--	8.5	--
22...	1120	120	--	--	8.5	--
22...	1121	125	--	--	8.5	--
SEP						
16...	1334	0.1	57	7.3	18.0	7.3
16...	1335	5.0	57	7.4	17.5	7.3
16...	1336	10.0	57	7.3	17.0	7.2
16...	1337	20.0	56	7.4	17.0	7.0
16...	1338	25.0	56	7.5	17.0	7.0
16...	1339	30.0	54	7.5	17.0	7.0
16...	1340	40.0	53	7.5	17.0	7.0
16...	1341	50.0	53	7.5	17.0	7.0
16...	1342	60.0	56	7.5	16.0	6.7
16...	1343	70.0	56	7.5	13.5	5.7
16...	1344	75.0	56	7.6	11.0	6.1
16...	1345	80.0	61	7.6	10.0	6.5
16...	1346	90.0	63	7.6	9.0	6.5
16...	1347	100	67	7.6	8.5	6.0

403317105090000 HORSETOOTH RESERVOIR NEAR FORT COLLINS, CO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	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)	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 14...	1321	0.1	60.0	K2	K2	50	<0.01	0.15	<0.01	0.02	56	12200
JUL 22...	1130	0.1	--	--	--	34	0.02	0.13	0.03	0.01	36	102000
JUL 22...	1140	125	--	K1	K1	40	0.02	0.21	0.02	0.02	--	--
SEP 16...	1334	0.1	66.0	K1	K1	40	<0.01	<0.10	0.02	0.01	68	104000

K BASED ON NON-IDEAL COLONY COUNT.



## PLATTE RIVER BASIN

06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO

## WATER-QUALITY RECORDS

LOCATION.--Lat 40°24'02", long 105°07'20", in SW¼NE¼ 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.

## MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO. (LAT 40 24 02N LONG 105 07 20W)							
OCT 1983				OCT 1984			
25...	1430	<0.03	--	24...	1000	<0.03	--
DEC				NOV			
01...	1030	<0.03	--	29...	0930	<0.03	--
29...	1030	<0.03	--	DEC			
JAN 1984				28...	1000	0.07	--
24...	0930	<0.03	--	JAN 1985			
FEB				24...	1100	<0.03	20
23...	1030	<0.03	--	FEB			
MAR				21...	1000	<0.03	--
22...	1100	0.07	--	APR			
APR				02...	1000	<0.03	10
18...	1430	<0.03	--	17...	1000	<0.03	--
MAY				MAY			
24...	1030	<0.03	--	14...	0900	0.03	50
JUN				JUN			
25...	1430	<0.03	--	19...	1000	0.03	--
JUL				JUL			
17...	1030	<0.03	--	23...	0830	<0.03	<10
AUG				AUG			
21...	1100	<0.03	--	15...	0830	<0.03	--
SEP				SEP			
25...	1000	<0.03	--	27...	1215	<0.03	30

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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									
26...	0930	13	850	7.8	10.0	9.8	370	110	23
NOV									
26...	1400	13	800	8.4	1.0	11.8	450	130	30
DEC									
28...	1200	8.7	1000	8.1	1.0	13.2	490	140	33
JAN									
17...	1015	11	950	8.2	2.0	12.7	480	140	31
FEB									
23...	1000	7.4	950	8.3	5.0	10.5	480	140	32
MAR									
20...	1100	3.5	1150	8.1	7.0	12.7	630	180	43
APR									
24...	1330	141	130	8.2	11.0	10.8	38	11	2.5
MAY									
28...	1630	219	135	9.0	14.0	9.4	44	13	2.9
JUN									
18...	0915	443	25	8.4	11.0	10.2	19	5.8	1.2
JUL									
03...	1100	709	35	8.1	13.0	11.3	15	4.5	0.88
AUG									
20...	1400	98	380	7.9	19.0	10.0	160	44	11
SEP									
09...	0915	63	425	8.1	14.0	9.3	170	48	12

PLATTE RIVER BASIN

109

06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 26...	--	--	--	138	--	--	0.4	7.0	--
NOV 26...	--	--	--	154	--	--	0.4	9.0	--
DEC 28...	--	--	--	169	--	--	0.4	9.8	--
JAN 17...	--	--	--	165	--	--	0.4	9.3	--
FEB 23...	--	--	--	165	--	--	0.4	10	--
MAR 20...	--	--	--	170	--	--	0.4	9.0	--
APR 24...	--	--	--	33	--	--	0.2	6.4	--
MAY 28...	3.3	0.2	0.7	28	28	1.1	0.2	6.8	73
JUN 18...	--	--	--	13	--	--	0.1	5.4	--
JUL 03...	--	--	--	11	--	--	0.1	4.3	--
AUG 20...	--	--	--	75	--	--	0.2	5.7	--
SEP 09...	--	--	--	78	--	--	0.3	6.7	--

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	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 26...	--	--	<0.01	--	0.80	0.6	0.01	--
NOV 26...	--	--	0.01	--	0.08	0.3	0.04	<0.01
DEC 28...	--	--	<0.01	--	0.08	0.2	0.01	--
JAN 17...	--	--	0.01	--	0.05	0.4	<0.01	--
FEB 23...	--	--	0.01	--	0.05	0.4	<0.01	<0.01
MAR 20...	--	--	0.01	--	0.05	0.5	<0.01	--
APR 24...	--	--	<0.01	--	0.03	0.4	0.02	--
MAY 28...	0.1	43	<0.01	<0.10	0.01	0.4	0.01	<0.01
JUN 18...	--	--	<0.01	--	0.05	0.4	0.02	--
JUL 03...	--	--	<0.01	--	0.03	0.5	0.01	--
AUG 20...	--	--	0.01	--	0.06	0.4	0.01	<0.01
SEP 09...	--	--	<0.01	--	0.03	0.8	0.01	--

## PLATTE RIVER BASIN

06741480 BIG THOMPSON RIVER ABOVE LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	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)
OCT									
26...	0930	30	10	--	2	6	3	--	34
NOV									
26...	1400	--	--	<1	<1	9	4	100	21
DEC									
28...	1200	20	--	--	<1	4	4	--	27
JAN									
17...	1015	10	<10	--	<1	30	1	--	20
FEB									
23...	1000	--	--	<1	<1	13	3	60	21
MAR									
20...	1100	30	<10	--	<1	12	2	--	21
APR									
24...	1330	340	--	--	<1	7	7	--	92
MAY									
28...	1630	--	90	<1	<1	3	3	400	95
JUN									
18...	0915	790	--	--	<1	10	5	--	110
JUL									
03...	1100	360	60	--	<1	10	7	--	71
AUG									
20...	1400	--	--	<1	<1	3	<1	1200	43
SEP									
09...	0915	1500	--	--	<1	8	6	--	220

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 AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
26...	3	--	67	--	--	--	<0.03	<10
NOV								
26...	<1	60	40	0.1	10	7	<0.03	30
DEC								
28...	<5	--	50	--	--	--	0.12	10
JAN 1986								
17...	<1	--	43	--	--	--	0.05	<10
FEB								
23...	<1	50	34	<0.1	16	12	0.03	80
MAR								
20...	1	--	48	--	--	--	<0.03	20
APR								
24...	2	--	6	--	--	--	0.05	10
MAY								
28...	<1	30	6	<0.1	50	<1	0.11	<10
JUN								
18...	<5	--	5	--	--	--	<0.03	<10
JUL								
03...	7	--	7	--	--	--	0.04	20
AUG								
20...	<5	40	18	<0.1	2	2	<0.03	10
SEP								
09...	<5	--	15	--	--	--	0.07	60

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

06741510 BIG THOMPSON RIVER AT LOVELAND, CO

LOCATION.--Lat 40°22'43", long 105°03'38", in SE1/4 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 downstream 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. Elevation of gage is 4,906 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 9 to Dec. 22, 24, 25. Records good except for estimated daily discharges, which are poor. 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, 707 ft<sup>3</sup>/s at 1215 July 6, gage height, 4.79 ft; minimum daily, 4.6 ft<sup>3</sup>/s, May 1,

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	14	8.4	20	26	8.1	5.8	4.6	89	361	40	107
2	18	13	8.6	18	25	7.9	5.7	4.8	97	519	52	108
3	18	13	10	22	25	7.8	12	221	114	519	77	81
4	18	13	9.8	22	24	7.6	8.6	482	107	526	66	49
5	16	13	9.6	26	23	7.4	7.1	526	191	541	55	45
6	16	12	10	23	22	7.2	6.7	516	195	647	46	55
7	16	12	9.8	23	21	6.7	6.6	493	187	587	53	69
8	16	12	9.6	22	21	6.5	7.6	510	214	463	65	53
9	19	10	8.6	22	25	6.3	9.1	436	316	424	152	39
10	18	10	8.0	21	33	6.1	9.6	407	464	434	221	36
11	18	11	7.8	21	26	6.0	7.3	343	398	475	211	42
12	17	11	8.2	21	25	5.8	6.8	302	222	462	200	34
13	17	10	9.0	20	24	5.6	6.2	355	129	454	182	33
14	15	10	11	20	21	5.5	6.2	392	151	490	163	30
15	11	11	11	20	18	7.7	7.6	399	160	316	197	28
16	10	11	10	21	16	7.2	7.2	424	147	170	143	30
17	9.7	11	11	15	15	7.1	8.9	371	216	182	61	27
18	9.0	10	12	17	16	7.2	6.9	302	260	173	54	24
19	8.3	9.4	11	16	14	7.0	6.6	256	266	147	50	27
20	7.9	9.4	12	16	13	6.8	6.6	185	307	180	45	30
21	7.6	10	12	16	12	6.4	16	168	295	209	41	22
22	6.9	11	11	16	11	6.0	29	221	209	164	38	19
23	8.3	13	11	16	10	5.7	23	156	175	125	48	24
24	8.4	14	10	16	10	5.8	24	100	162	93	46	31
25	7.4	12	10	17	9.8	6.0	26	101	115	115	38	26
26	8.3	11	11	21	9.4	5.7	26	116	108	126	51	28
27	9.0	11	11	27	9.0	5.2	25	122	116	102	49	30
28	9.0	10	19	30	8.5	5.1	17	92	97	89	71	32
29	9.5	9.0	28	29	---	5.1	8.5	83	98	67	59	26
30	10	8.2	17	28	---	5.1	4.8	66	133	42	75	11
31	12	---	16	27	---	5.3	---	86	---	43	98	---
TOTAL	393.3	335.0	351.4	649	512.7	198.9	348.4	8240.4	5738	9245	2747	1196
MEAN	12.7	11.2	11.3	20.9	18.3	6.42	11.6	266	191	298	88.6	39.9
MAX	19	14	28	30	33	8.1	29	526	464	647	221	108
MIN	6.9	8.2	7.8	15	8.5	5.1	4.8	4.6	89	42	38	11
AC-FT	780	664	697	1290	1020	395	691	16340	11380	18340	5450	2370
CAL YR 1985	TOTAL	23776.2		MEAN	65.1	MAX	445	MIN	6.8	AC-FT	47160	
WTR YR 1986	TOTAL	29955.1		MEAN	82.1	MAX	647	MIN	4.6	AC-FT	59420	

## PLATTE RIVER BASIN

06741510 BIG THOMPSON RIVER AT LOVELAND, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1979 to current year.

## MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06741510 BIG THOMPSON RIVER AT LOVELAND, CO. (LAT 40 22 43N LONG 105 03 38W)							
OCT 1983				NOV 1984			
25...	1200	<0.03	--	29...	1200	<0.03	--
DEC				DEC			
01...	1300	<0.03	--	28...	1300	0.10	--
29...	1430	<0.03	--	JAN 1985			
JAN 1984				24...	1330	<0.03	10
24...	1100	<0.03	--	FEB			
FEB				21...	1300	<0.03	--
23...	1230	<0.03	--	APR			
MAR				02...	1230	<0.03	10
22...	1230	0.04	--	17...	1230	<0.03	--
APR				MAY			
18...	1200	--	--	14...	1100	0.03	20
MAY				JUN			
24...	1400	0.03	--	19...	1200	0.03	--
JUN				JUL			
25...	1200	<0.03	--	23...	1115	<0.03	30
JUL				AUG			
17...	1300	0.09	--	15...	1115	0.08	--
AUG				SEP			
21...	1300	0.04	--	28...	1230	<0.03	20
SEP							
25...	1200	<0.03	--				
OCT							
24...	1300	<0.03	--				

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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									
26...	1315	9.2	1280	8.3	12.0	11.0	590	150	52
NOV									
24...	1300	17	900	8.6	0.0	12.5	440	120	33
DEC									
28...	1400	19	1100	--	0.0	13.3	490	130	40
JAN									
20...	1045	16	1030	7.5	2.0	13.6	490	130	40
FEB									
22...	1200	11	1000	8.3	5.0	13.8	490	130	40
MAR									
20...	1300	6.7	1300	8.3	9.0	13.0	640	160	58
APR									
27...	1730	24	1450	8.6	18.0	9.8	670	140	78
MAY									
26...	1130	137	220	8.7	13.0	10.2	84	23	6.4
JUN									
18...	1230	279	90	8.2	14.0	11.2	33	9.1	2.5
JUL									
02...	1230	504	60	8.4	14.0	11.8	21	5.9	1.5
AUG									
20...	1230	45	535	7.7	20.0	10.1	240	59	23
SEP									
09...	1130	38	500	--	15.0	10.4	210	52	19

06741510 BIG THOMPSON RIVER AT LOVELAND. CO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
OCT 26...	--	--	--	165	--	--	0.4	6.0	--
NOV 24...	--	--	--	74	--	--	0.4	8.0	--
DEC 28...	--	--	--	169	--	--	0.4	7.4	--
JAN 20...	--	--	--	169	--	--	0.4	6.9	--
FEB 22...	--	--	--	166	--	--	0.4	8.2	--
MAR 20...	--	--	--	169	--	--	0.5	5.7	--
APR 27...	--	--	--	142	--	--	0.5	3.3	--
MAY 26...	7.3	0.4	0.9	44	56	2.0	0.2	7.6	130
JUN 18...	--	--	--	18	--	--	0.1	5.6	--
JUL 02...	--	--	--	14	--	--	0.1	4.4	--
AUG 20...	--	--	--	90	--	--	0.3	5.3	--
SEP 09...	--	--	--	91	--	--	0.4	6.2	--

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, 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 26...	--	--	<0.10	--	0.08	0.6	<0.10	--
NOV 24...	--	--	0.01	--	0.09	0.3	0.04	<0.01
DEC 28...	--	--	<0.01	--	0.11	0.4	0.02	--
JAN 20...	--	--	0.01	--	0.07	0.5	<0.01	--
FEB 22...	--	--	0.01	--	0.07	0.6	0.01	<0.01
MAR 20...	--	--	0.01	--	0.03	0.5	0.02	--
APR 27...	--	--	<0.01	--	0.11	0.3	0.02	--
MAY 26...	0.18	48	<0.01	0.11	0.02	0.5	0.01	<0.01
JUN 18...	--	--	<0.01	--	0.03	0.4	0.02	--
JUL 02...	--	--	<0.01	--	0.03	0.5	0.01	--
AUG 20...	--	--	0.01	--	0.04	0.3	0.01	<0.01
SEP 09...	--	--	<0.01	--	0.03	0.6	0.01	--

## PLATTE RIVER BASIN

06741510 BIG THOMPSON RIVER AT LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	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)
OCT									
26...	1315	40	<10	--	2	8	4	--	65
NOV									
24...	1300	--	--	<1	<1	7	3	170	37
DEC									
28...	1400	80	--	--	<1	4	5	--	36
JAN									
20...	1045	30	20	--	<1	6	1	--	39
FEB									
22...	1200	--	--	<1	<1	11	3	120	47
MAR									
20...	1300	60	<10	--	<1	7	3	--	31
APR									
27...	1730	220	--	--	<1	7	7	--	22
MAY									
26...	1130	--	40	<1	<1	5	4	450	53
JUN									
18...	1230	650	--	--	<1	11	10	--	70
JUL									
02...	1230	730	50	--	<1	32	6	--	60
AUG									
20...	1230	--	--	<1	<1	5	<1	470	8
SEP									
09...	1130	790	--	--	<1	5	5	--	8

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 AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
26...	4	--	70	--	--	--	0.29	20
NOV								
24...	2	50	26	0.1	24	6	0.03	30
DEC								
28...	<1	--	36	--	--	--	--	10
JAN								
20...	<1	--	48	--	--	--	0.06	10
FEB								
22...	<1	50	40	0.2	15	9	<0.03	20
MAR								
20...	1	--	34	--	--	--	<0.03	40
APR								
27...	1	--	26	--	--	--	0.19	10
MAY								
26...	1	30	8	<0.1	60	<1	<0.03	<10
JUN								
18...	<5	--	4	--	--	--	<0.03	<10
JUL								
02...	6	--	4	--	--	--	<0.03	10
AUG								
20...	<5	30	10	<0.1	5	2	<0.03	<10
SEP								
09...	<5	--	16	--	--	--	0.08	80

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

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 10190006, 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.

MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06741520 BIG THOMPSON RIVER BELOW LOVELAND, CO. (LAT 40 23 00N LONG 105 01 45W)							
OCT 1983				OCT 1984			
25...	1000	<0.03	--	24...	1500	0.05	--
DEC				NOV			
01...	1430	--	--	29...	1400	<0.03	--
29...	1700	<0.03	--	DEC			
JAN 1984				28...	1500	0.14	--
24...	1400	--	--	JAN 1985			
FEB				24...	1500	0.08	20
23...	1430	0.05	--	FEB			
MAR				21...	1500	0.10	--
22...	1500	0.05	--	APR			
APR				02...	1500	<0.03	20
18...	1000	<0.03	--	17...	1500	<0.03	--
MAY				MAY			
24...	1200	0.04	--	14...	1300	0.03	20
JUN				JUN			
25...	1000	<0.03	--	19...	1530	0.03	--
JUL				JUL			
17...	1500	<0.03	--	23...	1300	0.04	20
AUG				AUG			
21...	1500	<0.03	--	15...	1300	0.10	--
SEP				SEP			
25...	1400	<0.03	--	27...	1500	0.03	30

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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									
26...	1515	24	1200	8.6	15.0	13.6	450	110	42
NOV									
27...	1030	25	1050	8.3	1.0	11.5	430	110	38
DEC									
29...	1300	29	1000	--	3.0	14.1	470	120	41
JAN									
17...	1200	25	1200	8.2	5.0	13.0	500	120	49
FEB									
23...	1130	18	1100	8.5	6.0	12.8	500	120	48
MAR									
27...	1330	18	1050	8.0	18.0	10.5	450	100	49
APR									
24...	1500	35	1500	8.2	19.0	8.7	660	140	76
MAY									
26...	1330	154	300	8.5	16.0	10.8	110	29	9.9
JUN									
19...	1000	250	130	8.2	13.0	11.2	47	12	4.1
JUL									
02...	1400	518	80	8.1	16.0	10.0	29	7.7	2.4
AUG									
20...	1030	52	600	7.7	20.0	8.2	260	61	25
SEP									
08...	1630	69	490	--	18.5	9.0	210	56	18



## PLATTE RIVER BASIN

06741520 BIG THOMPSON RIVER BELOW LOVELAND. CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 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 SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT									
26...	--	--	--	144	--	--	0.9	5.9	--
NOV									
27...	--	--	--	167	--	--	0.6	7.0	--
DEC									
29...	--	--	--	164	--	--	0.6	8.2	--
JAN									
17...	--	--	--	159	--	--	0.7	6.2	--
FEB									
23...	--	--	--	171	--	--	0.6	5.7	--
MAR									
27...	--	--	--	135	--	--	1.0	6.0	--
APR									
24...	--	--	--	157	--	--	0.8	5.2	--
MAY									
26...	15	0.6	1.4	52	89	4.9	0.3	7.8	190
JUN									
19...	--	--	--	22	--	--	0.2	5.7	--
JUL									
02...	--	--	--	17	--	--	0.1	4.5	--
AUG									
20...	--	--	--	99	--	--	0.5	5.4	--
SEP									
08...	--	--	--	88	--	--	0.4	6.1	--

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									
26...	--	--	--	0.50	--	1.00	2.0	1.00	--
NOV									
27...	--	--	--	0.10	--	0.92	1.9	1.20	<0.01
DEC									
29...	--	--	--	0.09	--	0.58	1.5	1.60	--
JAN									
17...	--	--	--	0.14	--	1.10	2.1	2.00	--
FEB									
23...	--	--	--	0.07	--	0.32	1.1	1.10	<0.01
MAR									
27...	--	--	--	0.20	--	0.52	2.2	3.10	--
APR									
24...	--	--	--	0.17	--	0.74	2.1	1.20	--
MAY									
26...	0.26	79	0.71	0.05	0.76	0.31	0.8	0.37	0.02
JUN									
19...	--	--	--	0.02	--	0.18	0.7	0.15	--
JUL									
02...	--	--	--	0.02	--	0.09	0.9	0.10	--
AUG									
20...	--	--	--	0.09	--	0.44	1.7	0.77	<0.01
SEP									
08...	--	--	--	0.08	--	0.33	1.1	0.73	--

PLATTE RIVER BASIN

06741520 BIG THOMPSON RIVER BELOW LOVELAND, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	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)
OCT									
26...	1515	50	10	--	2	7	4	--	35
NOV									
27...	1030	--	--	<1	1	9	6	170	36
DEC									
29...	1300	90	--	--	<1	5	8	--	31
JAN									
17...	1200	70	30	--	<1	5	4	--	30
FEB									
23...	1130	--	--	<1	<1	19	3	210	38
MAR									
27...	1330	290	20	--	1	6	14	--	41
APR									
24...	1500	1300	--	--	<1	8	16	--	20
MAY									
26...	1330	--	70	<1	<1	3	5	590	76
JUN									
19...	1000	1700	--	--	<1	15	11	--	64
JUL									
02...	1400	730	60	--	<1	14	7	--	59
AUG									
20...	1030	--	--	1	<1	2	4	2300	12
SEP									
08...	1630	450	--	--	<1	4	5	--	8

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 AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
26...	4	--	33	--	--	--	0.11	20
NOV								
27...	2	50	38	0.2	19	5	<0.03	40
DEC								
29...	1	--	36	--	--	--	--	20
JAN								
17...	1	--	47	--	--	--	0.09	20
FEB								
23...	1	80	62	<0.1	9	6	0.06	20
MAR								
27...	8	--	53	--	--	--	0.29	80
APR								
24...	8	--	60	--	--	--	0.28	40
MAY								
26...	<1	40	11	0.1	10	1	0.09	10
JUN								
19...	<5	--	7	--	--	--	<0.03	20
JUL								
02...	<5	--	6	--	--	--	0.03	80
AUG								
20...	<5	90	45	<0.1	8	2	<0.03	40
SEP								
08...	<5	--	8	--	--	--	0.08	40

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

PLATTE RIVER BASIN

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 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
15...	0956	0.1	--	8.4	11.0	9.2
15...	0957	5.0	--	8.3	10.5	9.0
15...	0958	10.0	--	8.2	10.5	9.0
15...	0959	20.0	--	8.1	10.0	9.0
15...	1000	25.0	--	8.1	8.0	9.1
15...	1001	30.0	--	8.0	8.0	9.0
15...	1002	40.0	--	7.9	7.0	9.0
15...	1003	50.0	--	7.8	6.5	9.0
15...	1004	60.0	--	7.7	6.0	9.0
15...	1005	70.0	--	7.6	6.0	8.9
15...	1006	75.0	--	7.5	6.0	8.9
15...	1007	80.0	--	7.5	5.5	8.9
15...	1008	90.0	--	7.4	5.5	8.9
15...	1009	100	--	7.4	5.5	8.9
15...	1010	110	--	7.4	5.5	8.9
15...	1011	120	--	7.3	5.5	8.8
15...	1012	125	--	7.3	5.5	8.8
15...	1013	130	--	7.4	5.5	8.9
15...	1014	140	--	7.4	5.5	8.7
15...	1015	150	--	7.4	5.5	8.6

JUL 1986						
23...	0930	0.1	--	--	20.5	--
23...	0931	5.0	--	--	20.0	--
23...	0932	10.0	--	--	20.0	--
23...	0933	20.0	--	--	19.5	--
23...	0934	25.0	--	--	18.0	--
23...	0935	30.0	--	--	16.0	--
23...	0936	40.0	--	--	9.5	--
23...	0937	50.0	--	--	8.0	--
23...	0938	60.0	--	--	7.5	--
23...	0939	70.0	--	--	7.5	--
23...	0940	75.0	--	--	7.5	--
23...	0950	80.0	--	--	7.0	--
23...	0951	90.0	--	--	7.0	--
23...	0952	100	--	--	7.0	--
23...	0953	110	--	--	7.0	--
23...	0954	120	--	--	7.0	--
23...	0955	125	--	--	7.0	--
23...	0956	130	--	--	6.5	--

SEP						
17...	0920	0.1	81	8.4	17.0	7.6
17...	0921	5.0	81	8.4	17.0	7.6
17...	0922	10.0	80	8.2	17.0	7.6
17...	0923	20.0	80	8.1	17.0	7.6
17...	0924	25.0	80	8.1	17.0	7.6
17...	0925	30.0	77	8.0	16.5	7.4
17...	0926	40.0	76	7.9	12.0	5.7
17...	0927	50.0	69	7.8	9.0	6.0
17...	0928	60.0	68	7.7	8.5	5.9
17...	0929	70.0	68	7.7	8.0	6.0
17...	0930	75.0	68	7.6	8.0	5.9
17...	0931	80.0	67	7.6	8.0	5.8
17...	0932	90.0	67	7.5	7.5	5.6
17...	0933	100	67	7.5	7.5	5.1
17...	0934	110	67	7.5	7.0	4.6

DATE	TIME	SAM- PLING DEPTH (FEET)	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)	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												
15...	0955	0.1	110	--	--	--	--	--	--	--	--	--
JUL												
23...	1000	0.1	84.0	K1	K1	40	0.02	<0.10	0.01	0.02	34	2700
23...	1010	--	--	--	--	36	0.02	0.17	0.01	0.01	--	--
SEP												
17...	0915	0.1	120	--	--	--	--	--	--	--	--	--

K BASED ON NON-IDEAL COLONY COUNT.

402053105125800 CARTER LAKE NEAR BERTHOUD, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1983 to current year.

REMARKS.--Samples collected at various depths near north end of reservoir. A complete taxonomic identification with cell counts for phytoplankton available in district office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
15...	1056	0.1	--	8.2	11.5	9.4
15...	1057	5.0	--	8.2	11.0	9.0
15...	1058	10.0	--	8.1	11.0	9.0
15...	1059	20.0	--	8.1	10.0	8.9
15...	1100	25.0	--	8.0	9.5	8.9
15...	1101	30.0	--	7.9	8.5	8.9
15...	1102	40.0	--	7.8	7.0	9.0
15...	1103	50.0	--	7.8	6.5	9.0
15...	1104	60.0	--	7.7	6.0	9.0
15...	1105	70.0	--	7.6	6.0	9.0
15...	1106	75.0	--	7.5	6.0	9.0
15...	1107	80.0	--	7.5	5.5	9.0
15...	1108	90.0	--	7.4	5.5	9.0
15...	1109	100	--	7.4	5.5	8.9
15...	1110	110	--	7.4	5.5	8.8
15...	1111	120	--	7.3	5.5	8.8
15...	1112	125	--	7.3	5.5	8.7
15...	1113	130	--	7.3	5.5	8.7
15...	1114	140	--	7.3	5.5	8.6
15...	1115	150	--	7.2	5.0	8.5
JUL						
23...	1105	0.1	--	7.8	21.0	--
23...	1106	5.0	--	7.8	21.0	--
23...	1107	10.0	--	7.8	20.5	--
23...	1108	20.0	--	7.8	20.0	--
23...	1109	25.0	--	7.8	14.0	--
23...	1110	30.0	--	7.8	11.5	--
23...	1111	40.0	--	7.7	9.5	--
23...	1112	50.0	--	7.6	8.0	--
23...	1113	60.0	--	7.6	7.5	--
23...	1114	70.0	--	7.5	7.5	--
23...	1115	75.0	--	7.4	7.5	--
23...	1116	80.0	--	7.4	7.5	--
23...	1117	90.0	--	7.3	7.5	--
23...	1118	100	--	7.2	7.5	--
23...	1119	110	--	7.2	7.5	--
23...	1120	120	--	7.2	7.5	--1
SEP						
17...	1205	0.1	87	7.7	18.0	7.6
17...	1206	5.0	87	7.6	18.0	7.6
17...	1207	10.0	87	7.7	18.0	7.6
17...	1208	20.0	86	7.7	17.0	7.5
17...	1209	25.0	87	7.7	17.0	7.4
17...	1210	30.0	81	7.7	17.0	7.3
17...	1211	40.0	75	7.7	13.0	5.8
17...	1212	50.0	70	7.7	9.5	5.9
17...	1213	60.0	69	7.7	8.5	6.0
17...	1214	70.0	69	7.6	8.0	6.0
17...	1215	75.0	68	7.6	8.0	5.9

DATE	TIME	SAM- PLING DEPTH (FEET)	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)	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												
15...	1055	0.1	96.0	--	--	--	--	--	--	--	--	--
JUL												
23...	1130	0.1	92.0	K1	K1	35	0.02	<0.10	0.01	0.01	44	7200
23...	1140	--	--	K1	K1	33	0.02	0.13	0.03	0.01	--	--
SEP												
17...	1200	0.1	126	--	--	--	--	--	--	--	--	--

K BASED ON NON-IDEAL COLONY COUNT.

PLATTE RIVER BASIN

402009105130700 CARTER LAKE NEAR BERTHOUD, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1983 to current year.

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 1985 TO SEPTEMBER 1986

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY						
15...	1034	0.1	--	8.2	11.0	9.5
15...	1035	5.0	--	8.2	11.0	9.1
15...	1036	10.0	--	8.1	10.5	9.0
15...	1037	20.0	--	8.1	10.5	8.9
15...	1038	25.0	--	8.1	10.0	8.9
15...	1039	30.0	--	8.0	9.0	9.0
15...	1040	40.0	--	7.9	7.0	9.0
15...	1041	50.0	--	7.8	7.0	8.9
15...	1042	60.0	--	7.7	6.5	8.9
15...	1043	70.0	--	7.6	6.0	8.9
15...	1044	75.0	--	7.6	6.0	8.9
15...	1045	80.0	--	7.5	6.0	9.0
15...	1046	90.0	--	7.5	5.5	8.9
15...	1047	100	--	7.4	5.5	8.9
15...	1048	110	--	7.4	5.5	8.8
15...	1049	120	--	7.3	5.5	8.8
15...	1050	125	--	7.3	5.5	8.7
15...	1051	130	--	7.3	5.0	8.7
15...	1052	140	--	7.2	5.0	8.6
15...	1053	150	--	7.2	5.0	8.5

JUL 1986

23...	1015	0.1	--	--	21.0	--
23...	1016	5.0	--	--	20.5	--
23...	1017	10.0	--	--	20.0	--
23...	1018	20.0	--	--	19.5	--
23...	1019	25.0	--	--	17.0	--
23...	1020	30.0	--	--	12.5	--
23...	1021	40.0	--	--	9.0	--
23...	1022	50.0	--	--	8.0	--
23...	1023	60.0	--	--	7.5	--
23...	1024	70.0	--	--	7.5	--
23...	1025	75.0	--	--	7.5	--
23...	1026	80.0	--	--	7.5	--
23...	1027	90.0	--	--	7.0	--
23...	1028	100	--	--	7.0	--
23...	1029	110	--	--	7.0	--
23...	1030	120	--	--	7.0	--
23...	1031	125	--	--	7.0	--
23...	1032	130	--	--	7.0	--

SEP

17...	1025	0.1	85	7.7	17.5	7.6
17...	1026	5.0	85	7.7	17.5	7.6
17...	1027	10.0	86	7.7	17.0	7.6
17...	1028	20.0	86	7.8	17.0	7.5
17...	1029	25.0	86	7.8	17.0	7.5
17...	1030	30.0	79	7.8	17.0	7.4
17...	1031	40.0	74	7.8	12.5	5.9
17...	1032	50.0	69	7.7	9.5	6.1
17...	1033	60.0	69	7.7	8.5	6.2
17...	1034	70.0	69	7.7	8.0	6.4
17...	1035	75.0	67	7.6	8.0	6.4
17...	1036	80.0	67	7.6	7.5	6.1
17...	1037	90.0	67	7.6	7.5	6.4
17...	1038	100	67	7.6	7.0	5.2

DATE	TIME	SAM- PLING DEPTH (FEET)	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)	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												
15...	1030	0.1	120	K1	K1	49	<0.01	<0.10	<0.01	0.02	53	6100
JUL												
23...	1040	0.1	88.0	K1	K1	40	0.02	<0.10	0.01	<0.01	49	8100
23...	1050	130	--	--	--	40	0.02	0.12	0.02	<0.01	--	--
SEP												
17...	1025	0.1	124	K1	K1	58	<0.01	<0.10	<0.01	<0.01	65	8800

K BASED ON NON-IDEAL COLONY COUNT.

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. Elevation of gage is 9,990 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 3-14, Nov 4 to Mar. 20, Apr. 1-5, 14-20, 23-28, May 3-6, 19-22, June 2, 6. Records good except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 7.21 ft<sup>3</sup>/s; 5,220 acre-ft/yr.

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, 76 ft<sup>3</sup>/s at 1630 June 26, gage height, 1.32 ft; maximum gage height, 3.11 ft at 2000 June 2 (backwater from ice); minimum daily discharge 0.35 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	1.2	1.0	.64	.46	.82	.98	3.4	33	43	9.5	6.2
2	.53	1.0	1.0	.62	.46	.82	.96	4.3	35	39	8.9	6.1
3	1.2	.98	1.1	.62	.46	.82	1.0	5.4	37	37	9.7	5.1
4	1.3	1.0	1.1	.60	.45	.80	1.1	6.0	40	37	8.6	4.4
5	1.4	.96	1.0	.58	.45	.78	1.0	6.6	43	38	7.6	4.1
6	1.6	.94	.98	.56	.45	.78	1.0	4.0	47	33	7.0	3.9
7	1.5	.92	.96	.56	.45	.78	1.1	2.2	51	29	6.4	4.4
8	1.4	.90	.94	.56	.45	.78	1.2	1.9	51	26	6.1	4.2
9	1.3	.90	.92	.56	.45	.74	1.2	1.6	48	24	5.9	4.2
10	1.5	.90	.88	.56	.45	.74	1.2	1.5	37	22	5.1	4.6
11	1.6	.90	.86	.56	.45	.74	1.2	2.2	33	20	4.9	4.2
12	1.5	.92	.84	.54	.45	.74	1.2	2.6	35	19	6.2	3.9
13	1.6	1.0	.82	.54	.45	.74	1.1	2.7	34	18	5.3	3.6
14	1.6	1.0	.80	.52	.46	.74	1.0	3.6	37	25	4.7	3.3
15	1.5	.98	.78	.52	.47	.74	1.0	3.0	43	30	4.2	3.1
16	1.6	.94	.76	.50	.48	.70	.98	2.6	50	29	3.8	3.0
17	1.8	.94	.74	.48	.50	.68	.98	2.3	53	28	3.6	2.8
18	1.6	.92	.72	.48	.54	.68	.98	2.8	57	26	3.3	3.8
19	1.5	.94	.70	.48	.58	.68	1.0	4.5	59	23	3.3	4.7
20	1.5	.96	.70	.48	.62	.68	1.1	6.0	56	22	4.4	4.5
21	1.5	.96	.70	.48	.66	.70	1.1	9.4	55	21	6.0	4.4
22	1.1	.96	.68	.48	.72	.78	1.3	12	52	20	5.9	4.3
23	1.2	1.0	.68	.48	.76	.78	1.7	16	53	19	5.4	4.7
24	1.4	1.0	.66	.48	.80	.85	1.5	15	56	20	5.3	5.0
25	1.5	.84	.66	.48	.82	.86	1.4	20	53	20	6.0	5.4
26	1.4	.86	.66	.48	.82	.81	1.4	22	57	18	5.2	5.4
27	1.6	.92	.66	.48	.82	.80	1.5	26	54	16	4.4	5.4
28	1.6	.96	.66	.48	.82	1.0	1.6	24	55	14	4.1	5.3
29	1.5	1.0	.66	.48	---	1.2	1.7	27	54	12	7.5	5.1
30	1.5	1.0	.64	.48	---	1.2	2.1	27	49	11	7.7	4.7
31	1.4	---	.64	.46	---	1.2	---	30	---	10	5.8	---
TOTAL	43.68	28.70	24.90	16.22	15.75	25.16	36.58	297.6	1417	749	181.8	133.8
MEAN	1.41	.96	.80	.52	.56	.81	1.22	9.60	47.2	24.2	5.86	4.46
MAX	1.8	1.2	1.1	.64	.82	1.2	2.1	30	59	43	9.7	6.2
MIN	.45	.84	.64	.46	.45	.68	.96	1.5	33	10	3.3	2.8
AC-FT	87	57	49	32	31	50	73	590	2810	1490	361	265
CAL YR 1985	TOTAL	2150.36		MEAN	5.89	MAX	76	MIN	.35	AC-FT	4270	
WTR YR 1986	TOTAL	2970.19		MEAN	8.14	MAX	59	MIN	.45	AC-FT	5890	

## 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 1978 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 9,710 ft, above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 13-20, Oct. 22 to May 6, and June 11-30. Records good except for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 12.0 ft<sup>3</sup>/s; 8,690 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 145 ft<sup>3</sup>/s, June 30, 1978, gage height, 2.46 ft; minimum daily, 0.22 ft<sup>3</sup>/s, Apr. 14, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum recorded discharge, 120 ft<sup>3</sup>/s at 1130 June 10, and Sept. 21 at 1300, gage height, 2.25 ft; minimum daily, 0.30 ft<sup>3</sup>/s, Feb. 9-15, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.90	.80	.68	.39	.40	.60	1.1	7.7	86	19	12
2	1.4	.90	.80	.66	.38	.40	.60	1.2	9.6	84	19	12
3	1.3	.90	.80	.64	.37	.40	.60	1.3	11	66	14	11
4	1.1	.90	.80	.62	.36	.40	.60	1.4	11	60	12	6.2
5	1.1	.90	.80	.60	.35	.40	.60	1.5	12	63	13	3.2
6	1.1	.90	.80	.60	.33	.40	.60	1.6	13	68	13	6.1
7	1.0	.90	.80	.60	.32	.40	.60	1.7	13	71	13	29
8	1.0	.90	.80	.60	.31	.40	.60	1.7	62	70	14	61
9	1.0	.90	.80	.60	.30	.40	.60	1.7	110	52	13	66
10	1.0	.90	.80	.60	.30	.40	.60	1.7	117	38	13	57
11	1.0	.90	.78	.60	.30	.40	.60	1.8	100	64	11	64
12	1.0	.92	.76	.60	.30	.40	.60	1.8	90	80	8.0	77
13	1.0	.92	.74	.60	.30	.40	.60	1.9	80	61	7.7	86
14	1.0	.92	.72	.60	.30	.40	.60	2.4	80	51	7.3	89
15	1.0	.92	.70	.60	.30	.40	.60	2.2	80	50	7.3	89
16	1.0	.92	.70	.58	.31	.41	.60	2.0	80	50	7.3	93
17	1.0	.92	.70	.56	.30	.44	.60	1.8	80	50	7.3	98
18	1.0	.90	.70	.52	.30	.45	.60	1.8	80	50	7.3	100
19	1.0	.90	.70	.51	.31	.48	.60	2.2	80	49	6.9	104
20	1.0	.90	.70	.50	.32	.50	.60	3.6	80	44	9.7	110
21	1.0	.90	.70	.48	.33	.50	.66	5.2	80	29	11	113
22	1.0	.90	.70	.46	.35	.50	.74	5.6	80	24	11	66
23	1.0	.90	.70	.45	.36	.50	.82	5.0	80	24	11	.56
24	.98	.90	.70	.43	.37	.50	.82	4.6	80	20	11	.53
25	.98	.90	.70	.41	.38	.50	.78	5.5	80	20	11	.56
26	.97	.88	.70	.40	.39	.54	.76	6.3	80	33	11	.55
27	.96	.84	.70	.40	.40	.57	.74	6.3	80	38	8.0	.56
28	.94	.80	.70	.40	.40	.60	.78	6.2	80	32	6.2	.56
29	.92	.80	.70	.40	---	.60	.90	6.1	80	16	6.5	.56
30	.90	.80	.70	.40	---	.60	1.0	6.2	80	19	9.1	.56
31	.90	---	.70	.40	---	.60	---	6.9	---	21	12	---
TOTAL	31.95	26.74	22.90	16.50	9.43	14.29	20.00	100.3	1996.3	1483	330.6	1356.94
MEAN	1.03	.89	.74	.53	.34	.46	.67	3.24	66.5	47.8	10.7	45.2
MAX	1.4	.92	.80	.68	.40	.60	1.0	6.9	117	86	19	113
MIN	.90	.80	.70	.40	.30	.40	.60	1.1	7.7	16	6.2	.53
AC-FT	63	53	45	33	19	28	40	199	3960	2940	656	2690
CAL YR 1985	TOTAL	4109.75	MEAN	11.3	MAX	116	MIN	.22	AC-FT	8150		
WTR YR 1986	TOTAL	5408.95	MEAN	14.8	MAX	117	MIN	.30	AC-FT	10730		

06752000 CACHE LA POUVRE 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. Elevation of gage is 5,220 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 20 to Feb. 26, and June 18-20. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by transbasin and transmountain diversions (see elsewhere in this report), diversions upstream from station for irrigation of about 50,000 acres, most of which is downstream from station, 76,200 acre-ft diverted during current year, and diversions for municipal use, 10,310 acre-ft diverted during current year.

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, 3,920 ft<sup>3</sup>/s at 0500 June 7, gage height, 6.25 ft; minimum daily, 8.0 ft<sup>3</sup>/s, Feb. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	48	30	36	20	27	111	384	1580	1900	329	162
2	55	37	25	37	19	29	85	455	1640	1700	285	146
3	51	34	28	38	19	49	95	546	2130	1660	334	140
4	49	42	36	38	18	89	58	500	2590	1660	373	103
5	49	45	38	37	17	162	85	572	2820	1730	373	81
6	42	63	40	38	15	217	108	592	3100	1820	356	51
7	44	40	44	37	13	208	118	520	3470	1480	390	32
8	63	60	48	36	9.0	212	128	507	3490	1300	340	31
9	67	60	46	35	8.0	204	149	431	3440	1150	384	100
10	58	31	46	35	8.0	199	169	373	3260	1060	346	128
11	68	27	38	33	10	194	217	340	2940	935	425	55
12	79	44	35	31	12	159	226	285	2720	971	437	26
13	70	427	35	30	13	74	265	255	2680	890	390	32
14	74	287	39	29	12	67	226	356	2470	866	362	42
15	58	30	42	30	11	72	186	494	2560	842	334	55
16	52	58	43	30	14	72	190	500	2840	1020	318	67
17	52	68	42	28	18	68	204	390	3070	989	270	61
18	52	58	43	26	22	72	186	340	2710	989	324	67
19	52	48	45	27	21	82	208	329	2900	842	329	74
20	46	45	48	26	24	158	328	507	2790	908	302	79
21	449	43	47	25	28	169	373	585	2630	834	356	79
22	386	40	48	23	30	172	456	692	2330	670	390	87
23	48	38	46	21	33	172	507	778	2190	708	340	76
24	40	38	44	22	37	169	494	722	2240	678	351	65
25	45	35	42	21	39	169	494	746	2070	715	368	87
26	42	33	38	20	39	162	572	882	2140	613	390	79
27	45	32	39	19	40	47	592	1050	2220	585	351	87
28	46	30	38	17	33	108	449	1050	2160	526	334	79
29	45	30	37	17	---	111	431	1130	2240	540	318	87
30	434	30	37	19	---	118	368	1100	2180	500	312	83
31	394	---	36	20	---	120	---	1290	---	401	194	---
TOTAL	3109	1901	1243	881	582.0	3931	8078	18701	77600	31482	10705	2341
MEAN	100	63.4	40.1	28.4	20.8	127	269	603	2587	1016	345	78.0
MAX	449	427	48	38	40	217	592	1290	3490	1900	437	162
MIN	40	27	25	17	8.0	27	58	255	1580	401	194	26
AC-FT	6170	3770	2470	1750	1150	7800	16020	37090	153900	62440	21230	4640
CAL YR 1985	TOTAL	97841		MEAN	268	MAX	2980	MIN	24	AC-FT	194100	
WTR YR 1986	TOTAL	160554.0		MEAN	440	MAX	3490	MIN	8.0	AC-FT	318500	



PLATTE RIVER BASIN

06752258 CACHE LA Poudre 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.

MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06752258 CACHE LA Poudre R A SHIELDS ST A FT COLLINS, CO. (LAT 40 36 11N LONG 105 05 43)							
OCT 1983				OCT 1984			
05...	1310	<0.03	--	23...	1040	<0.03	--
NOV				NOV			
09...	1400	<0.03	--	08...	1145	<0.03	--
DEC				DEC			
15...	1245	<0.03	--	05...	1700	<0.03	--
JAN 1984				JAN 1985			
24...	1540	<0.03	--	29...	1100	0.03	20
FEB				FEB			
22...	1615	<0.03	--	27...	1040	<0.03	--
MAR				MAR			
29...	1550	<0.03	--	26...	1300	<0.03	--
APR				APR			
30...	1220	<0.03	--	23...	1440	<0.03	--
MAY				MAY			
29...	1700	<0.03	--	24...	1230	<0.03	110
JUN				JUN			
21...	1145	<0.03	--	20...	1000	0.03	--
JUL				JUL			
26...	1215	<0.03	--	16...	1715	0.03	70
AUG				AUG			
17...	0900	<0.03	--	15...	1400	<0.03	100
SEP				SEP			
21...	1000	<0.03	--	13...	1230	<0.03	30

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT												
14...	13:30	4.9	440	8.1	12.0	10.2	200	57	13	--	--	--
NOV												
08...	14:15	58	280	7.8	7.0	10.0	140	42	9.0	--	--	--
DEC												
23...	13:15	42	280	--	0.0	12.3	140	40	8.8	--	--	--
JAN												
14...	10:15	29	385	8.8	0.5	12.3	170	48	11	--	--	--
FEB												
04...	11:00	21	340	8.3	4.0	12.1	170	49	11	--	--	--
MAR												
11...	16:00	176	240	9.1	7.0	10.8	110	31	8.0	--	--	--
APR												
16...	16:00	175	150	8.9	11.0	10.4	110	29	8.1	--	--	--
MAY												
19...	14:00	111	80	8.3	16.0	9.2	36	11	2.1	3.0	0.2	1.0
JUN												
17...	13:30	2380	40	7.4	12.0	12.1	16	4.6	1.0	--	--	--
JUL												
11...	10:00	750	60	8.3	12.0	10.8	24	7.3	1.5	--	--	--
AUG												
19...	14:30	73	95	9.0	21.0	8.2	41	12	2.7	--	--	--
SEP												
05...	09:30	42	120	9.3	17.0	9.0	160	43	13	--	--	--

06752258 CACHE LA POUFRE RIVER AT SHIELDS STREET AT FT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)
OCT 14...	168	--	--	0.5	10	--	--	--	--	0.05	<0.01
NOV 08...	63	--	--	0.3	8.6	--	--	--	--	0.06	0.01
DEC 23...	98	--	--	0.3	8.1	--	--	--	--	0.02	<0.01
JAN 14...	112	--	--	0.4	7.7	--	--	--	--	0.05	<0.01
FEB 04...	107	--	--	0.2	6.1	--	--	--	--	0.06	0.02
MAR 11...	104	--	--	1.0	9.0	--	--	--	--	0.02	<0.01
APR 16...	72	--	--	0.4	10	--	--	--	--	0.11	0.05
MAY 19...	35	8.6	1.1	0.2	7.1	55	0.08	17	0.10	0.05	0.01
JUN 17...	16	--	--	0.1	7.7	--	--	--	--	0.08	0.02
JUL 11...	24	--	--	0.1	5.7	--	--	--	--	0.02	0.10
AUG 19...	39	--	--	0.2	5.8	--	--	--	--	0.02	0.01
SEP 05...	40	--	--	0.2	6.4	--	--	--	--	0.02	0.02

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 14...	13:30	60	10	--	<1	6	8	--	18
NOV 08...	14:15	--	--	<1	<1	9	1	110	25
DEC 23...	13:15	<10	<10	--	<1	5	5	--	35
JAN 14...	10:15	50	10	--	<1	2	2	--	35
FEB 04...	11:00	--	--	<1	<1	4	2	80	34
MAR 11...	16:00	100	10	--	1	18	1	--	18
APR 16...	16:00	640	--	--	<1	6	7	--	98
MAY 19...	14:00	--	110	<1	<1	8	15	1100	180
JUN 17...	13:30	1000	--	--	1	10	14	--	130
JUL 11...	10:00	300	30	--	<1	23	6	--	32
AUG 19...	14:30	--	--	<1	<1	6	4	200	31
SEP 05...	09:30	170	--	--	<1	3	6	--	42

## PLATTE RIVER BASIN

06752258 CACHE LA POUVRE RIVER AT SHIELDS STREET AT FT COLLINS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
14...	2	--	7	--	--	--	<0.03	10
NOV								
08...	1	10	10	0.1	3	--	<0.03	90
DEC								
23...	<1	--	17	--	--	--	<0.03	10
JAN								
14...	1	--	19	--	--	--	<0.03	20
FEB								
04...	5	40	24	0.2	3	<1	<0.03	10
MAR								
11...	1	--	5	--	--	--	<0.03	50
APR								
16...	7	--	16	--	--	--	<0.03	30
MAY								
19...	5	40	18	<0.1	5	<1	<0.03	10
JUN								
17...	6	--	5	--	--	--	0.16	20
JUL								
11...	<5	--	2	--	--	--	<0.03	<10
AUG								
19...	<5	10	4	<0.1	8	<1	<0.03	<10
SEP								
05...	<5	--	13	--	--	--	<0.03	30

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

06752260 CACHE LA POUFRE 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. Elevation of gage is 4,940 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 9-16, July 22 to Aug. 1 and Aug 13 to Sept. 30. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions upstream from 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, 3,430 ft<sup>3</sup>/s at 0800 June 7, gage height, 5.15 ft; minimum daily, 4.1 ft<sup>3</sup>/s, Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	8.1	37	39	37	49	122	185	639	367	16	22
2	5.7	20	49	37	32	37	111	148	640	346	63	20
3	5.3	39	45	33	37	47	121	117	1190	345	32	19
4	5.3	50	62	28	25	87	97	265	1800	392	15	22
5	6.1	49	69	25	26	123	92	470	2370	519	10	18
6	8.3	70	57	25	29	170	126	452	2660	674	9.8	20
7	7.2	55	53	35	22	172	139	365	3020	423	17	16
8	7.9	54	53	29	19	175	151	397	2940	294	20	11
9	7.8	74	44	31	17	173	169	302	2860	299	20	9.6
10	7.9	46	48	32	18	172	177	295	2940	605	13	9.0
11	20	33	49	34	17	172	207	290	2740	689	12	9.0
12	8.3	31	48	36	16	169	224	300	2560	1180	12	9.0
13	12	83	48	35	12	98	254	409	2490	841	12	9.0
14	8.7	68	48	32	12	89	242	468	2280	462	12	9.5
15	8.0	4.3	48	31	19	98	202	511	2330	248	15	10
16	7.4	17	48	29	47	97	194	587	2130	66	18	11
17	7.6	55	48	27	51	94	211	401	2130	50	20	11
18	8.1	60	48	33	50	95	210	126	1710	137	19	11
19	7.3	47	48	35	48	93	217	87	1820	297	18	10
20	7.7	27	47	36	50	140	295	253	1660	260	19	9.0
21	40	19	47	40	50	156	267	306	1430	50	19	8.4
22	79	16	47	25	46	158	234	329	1060	40	19	8.0
23	4.9	14	48	21	36	160	338	456	748	43	19	9.6
24	4.4	26	50	38	38	160	325	379	703	54	19	13
25	4.2	58	49	29	42	160	387	282	497	25	24	12
26	4.1	69	48	18	43	160	499	246	504	28	12	11
27	5.0	56	45	19	47	78	519	327	532	22	12	9.2
28	6.0	46	42	24	52	105	381	297	443	16	12	8.5
29	4.7	40	43	33	---	122	339	273	538	18	13	8.5
30	47	36	48	30	---	112	238	164	463	16	14	8.5
31	59	---	42	25	---	115	---	310	---	11	15	---
TOTAL	420.9	1270.4	1506	944	938	3836	7088	9797	49827	8817	550.8	361.8
MEAN	13.6	42.3	48.6	30.5	33.5	124	236	316	1661	284	17.8	12.1
MAX	79	83	69	40	52	175	519	587	3020	1180	63	22
MIN	4.1	4.3	37	18	12	37	92	87	443	11	9.8	8.0
AC-FT	835	2520	2990	1870	1860	7610	14060	19430	98830	17490	1090	718
CAL YR 1985	TOTAL	41447.4		MEAN	114	MAX	1870	MIN	2.0	AC-FT	82210	
WTR YR 1986	TOTAL	85356.9		MEAN	234	MAX	3020	MIN	4.1	AC-FT	169300	

## PLATTE RIVER BASIN

06752260 CACHE LA POUFRE RIVER AT FORT COLLINS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to current year.

MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06752260 CACHE LA POUFRE RIVER AT FORT COLLINS, CO. (LAT 40 35 17N LONG 105 04 08W)							
OCT 1983				OCT 1984			
04...	1620	<0.03	--	19...	1100	<0.03	--
NOV				NOV			
09...	0930	<0.03	--	08...	1430	<0.03	--
DEC				DEC			
15...	1430	<0.03	--	06...	0930	<0.03	--
JAN 1984				JAN 1985			
25...	1610	<0.03	--	23...	1400	<0.03	20
FEB				FEB			
24...	1210	<0.03	--	26...	1510	<0.03	--
MAR				MAR			
29...	1100	<0.03	--	27...	0930	<0.03	--
APR				APR			
25...	1230	<0.03	--	23...	1300	<0.03	--
MAY				MAY			
25...	1100	0.04	--	20...	1445	<0.03	130
JUN				JUN			
20...	1500	<0.03	--	20...	1545	0.03	--
JUL				JUL			
25...	1140	<0.03	--	17...	0855	0.03	30
AUG				AUG			
16...	1000	<0.03	--	15...	1110	<0.03	40
SEP				SEP			
20...	1000	<0.03	--	14...	1115	<0.03	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
12...	16:30	7.4	520	8.0	14.0	9.8	230	65	17
NOV									
08...	11:45	47	360	8.6	8.0	11.6	150	44	10
DEC									
22...	14:45	45	340	--	0.0	15.4	150	45	10
JAN									
14...	15:30	32	360	8.7	1.0	14.3	170	49	12
FEB									
04...	14:00	24	365	8.6	6.0	13.2	180	52	12
MAR									
11...	14:00	172	290	8.7	7.0	10.9	120	33	8.2
APR									
12...	12:00	222	175	9.0	12.0	10.6	63	18	4.3
MAY									
19...	11:00	88	115	8.3	13.0	12.0	47	14	3.0
JUN									
17...	10:30	2380	40	8.1	12.0	12.2	16	4.7	1.0
JUL									
11...	12:30	538	55	8.2	14.0	11.3	25	7.6	1.5
AUG									
19...	10:30	18	150	8.2	19.0	10.4	72	20	5.4
SEP									
30...	09:30	8.6	400	--	10.5	9.0	220	61	16

06752260 CACHE LA POUFRE RIVER AT FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 SI02)
OCT 12...	--	--	--	176	--	--	0.5	10
NOV 08...	--	--	--	111	--	--	0.4	8.3
DEC 22...	--	--	--	106	--	--	0.4	9.3
JAN 14...	--	--	--	121	--	--	0.4	7.1
FEB 04...	--	--	--	117	--	--	0.3	6.1
MAR 11...	--	--	--	108	--	--	0.9	8.4
APR 12...	--	--	--	55	--	--	0.3	11
MAY 19...	4.6	0.3	1.5	41	11	1.9	0.2	7.4
JUN 17...	--	--	--	16	--	--	0.2	7.8
JUL 11...	--	--	--	25	--	--	0.1	5.7
AUG 19...	--	--	--	62	--	--	0.3	6.1
SEP 30...	--	--	--	177	--	--	0.5	8.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	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 12...	--	--	--	0.01	--	0.05	0.5	0.01
NOV 08...	--	--	--	<0.01	--	0.06	0.6	0.01
DEC 22...	--	--	--	0.01	--	0.06	1.7	0.01
JAN 14...	--	--	--	0.01	--	0.03	0.3	0.01
FEB 04...	--	--	--	0.01	--	0.02	0.4	0.01
MAR 11...	--	--	--	<0.01	--	<0.01	0.2	<0.01
APR 12...	--	--	--	<0.01	--	0.03	0.4	0.02
MAY 19...	69	0.09	16	<0.01	0.14	0.03	0.4	0.01
JUN 17...	--	--	--	<0.01	--	0.02	0.4	0.02
JUL 11...	--	--	--	<0.01	--	0.02	0.3	0.01
AUG 19...	--	--	--	<0.01	--	0.01	0.4	0.01
SEP 30...	--	--	--	0.01	--	0.03	0.4	0.02

## PLATTE RIVER BASIN

06752260 CACHE LA POUFRE RIVER AT FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	ALUM-	ALUM-	ARSENIC	CADMIUM	CHRO-	COPPER,	IRON,	IRON,
		TOTAL	INUM,		TOTAL	MIUM,		TOTAL	
		RECOV-	DIS-	TOTAL	RECOV-	TOTAL	RECOV-	RECOV-	SOLVED
		ERABLE	SOLVED	(UG/L	ERABLE	ERABLE	ERABLE	ERABLE	(UG/L
		(UG/L	(UG/L	AS AS)	(UG/L	(UG/L	(UG/L	(UG/L	AS FE)
		AS AL)	AS AL)	AS AS)	AS CD)	AS CR)	AS CU)	AS FE)	AS FE)
OCT									
12...	16:30	90	10	--	<1	7	6	--	74
NOV									
08...	11:45	--	--	<1	<1	6	2	110	36
DEC									
22...	14:45	160	<10	--	<1	6	5	--	32
JAN									
14...	15:30	50	10	--	<1	5	2	--	33
FEB									
04...	14:00	--	--	<1	<1	4	2	130	60
MAR									
11...	14:00	220	<10	--	1	19	3	--	15
APR									
12...	12:00	470	--	--	<1	6	4	--	95
MAY									
19...	11:00	--	160	<1	<1	7	9	1200	300
JUN									
17...	10:30	1000	--	--	1	11	7	--	93
JUL									
11...	12:30	300	30	--	<1	10	7	--	33
AUG									
19...	10:30	--	--	<1	<1	6	1	170	53
SEP									
30...	09:30	40	--	--	<1	7	6	--	78

DATE	*LEAD,	MANGA-	MANGA-	MERCURY	NICKEL,	SELE-	SILVER,	ZINC,
	TOTAL	NESE,	NESE,	TOTAL	TOTAL		TOTAL	TOTAL
	RECOV-	TOTAL	DIS-	RECOV-	RECOV-	NIUM,	RECOV-	RECOV-
	ERABLE	ERABLE	SOLVED	ERABLE	ERABLE	TOTAL	ERABLE	ERABLE
	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L
	AS PB)	AS MN)	AS MN)	AS HG)	AS NI)	AS SE)	AS AG)	AS ZN)
OCT								
12...	5	--	27	--	--	--	<0.03	20
NOV								
08...	4	10	13	0.2	5	--	<0.03	<10
DEC								
22...	<1	--	17	--	--	--	<0.03	20
JAN								
14...	2	--	15	--	--	--	<0.03	10
FEB								
04...	2	40	23	0.2	1	<1	<0.03	10
MAR								
11...	3	--	7	--	--	--	<0.03	40
APR								
12...	10	--	6	--	--	--	<0.03	20
MAY								
19...	2	20	20	0.2	8	<1	0.03	<10
JUN								
17...	6	--	4	--	--	--	<0.03	20
JUL								
11...	<5	--	3	--	--	--	<0.03	10
AUG								
19...	<5	30	15	<0.1	1	<1	<0.03	<10
SEP								
30...	<5	--	25	--	--	--	<0.03	180

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

PLATTE RIVER BASIN

06752270 CACHE LA POUVRE 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.

MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06752270 CACHE LA POUVRE RIVER BELOW FORT COLLINS, CO. (LAT 40 34 01N LONG 105 01 36W)							
OCT 1983				OCT 1984			
04...	1420	<0.03	--	23...	1250	<0.03	--
NOV				NOV			
08...	1220	<0.03	--	09...	1330	<0.03	--
DEC				DEC			
16...	1200	<0.03	--	06...	1215	<0.03	--
JAN 1984				JAN 1985			
25...	1320	<0.03	--	23...	1530	<0.03	20
FEB				FEB			
22...	1430	<0.03	--	26...	1345	<0.03	--
MAR				MAR			
30...	1300	<0.03	--	26...	1145	0.06	--
APR				APR			
30...	1405	<0.03	--	24...	1010	<0.03	--
MAY				MAY			
30...	0810	<0.03	--	24...	1030	<0.03	120
JUN				JUN			
21...	1305	<0.03	--	19...	1530	0.03	--
JUL				JUL			
25...	1630	<0.03	--	16...	1415	0.04	40
AUG				AUG			
16...	1445	<0.03	--	15...	1650	0.06	20
SEP				SEP			
20...	1130	<0.03	--	13...	1445	<0.03	20

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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									
14...	11:00	25	770	7.7	11.0	8.8	300	81	24
NOV									
08...	16:30	5.4	760	8.4	7.0	11.0	94	24	8.2
DEC									
22...	12:00	8.2	800	8.0	4.0	12.5	350	94	29
JAN									
16...	10:30	44	520	8.1	1.0	12.6	230	63	18
FEB									
05...	13:30	41	550	8.7	5.0	14.7	250	67	20
MAR									
12...	15:30	197	260	8.7	8.0	12.0	130	37	9.5
APR									
15...	10:30	206	225	8.4	7.0	12.3	67	19	4.7
MAY									
20...	10:30	266	125	8.5	13.0	10.6	47	14	2.9
JUN									
16...	16:30	2700	60	7.7	13.5	11.5	21	6.1	1.4
JUL									
09...	14:00	370	110	8.2	15.0	11.0	39	11	2.7
AUG									
18...	12:30	26	650	8.3	23.0	14.4	250	65	22
SEP									
04...	13:30	46	400	8.6	21.0	12.4	48	14	3.1



## PLATTE RIVER BASIN

06752270 CACHE LA POUVRE RIVER BELOW FORT COLLINS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 14...	--	--	--	188	--	--	0.6	9.4	--
NOV 08...	--	--	--	250	--	--	0.8	2.8	--
DEC 22...	--	--	--	243	--	--	0.6	11	--
JAN 16...	--	--	--	149	--	--	0.5	7.3	--
FEB 05...	--	--	--	158	--	--	0.4	5.7	--
MAR 12...	--	--	--	117	--	--	1.0	8.2	--
APR 15...	--	--	--	57	--	--	0.3	11	--
MAY 20...	6.2	0.4	1.1	43	13	4.6	0.2	7.7	76
JUN 16...	--	--	--	20	--	--	0.1	8.2	--
JUL 09...	--	--	--	33	--	--	0.1	6.5	--
AUG 18...	--	--	--	169	--	--	0.6	5.9	--
SEP 04...	--	--	--	111	--	--	0.4	5.4	--

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)
OCT 14...	--	--	--	0.09	--	1.10	1.9	0.56
NOV 08...	--	--	--	0.03	--	0.06	0.8	0.02
DEC 22...	--	--	--	0.03	--	0.12	0.6	0.03
JAN 16...	--	--	--	0.03	--	0.35	0.8	0.16
FEB 05...	--	--	--	0.04	--	0.56	1.0	0.25
MAR 12...	--	--	--	0.02	--	0.23	0.6	0.08
APR 15...	--	--	--	<0.01	--	<0.01	0.4	0.02
MAY 20...	0.1	55	0.16	0.02	0.18	0.18	0.8	0.06
JUN 16...	--	--	--	<0.01	--	0.08	0.5	0.03
JUL 09...	--	--	--	<0.01	--	0.05	0.3	0.04
AUG 18...	--	--	--	0.22	--	0.08	1.1	0.29
SEP 04...	--	--	--	0.13	--	0.30	1.0	0.24

PLATTE RIVER BASIN

06752270 CACHE LA POUDRE RIVER BELOW FORT COLLINS, CO--Continued

WATER QUALITY DATE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	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)
OCT									
14...	11:00	260	10	--	<1	4	9	--	46
NOV									
08...	16:30	--	--	1	<1	6	1	230	7
DEC									
22...	12:00	470	<10	--	<1	5	8	--	12
JAN									
16...	10:30	90	10	--	1	5	2	--	52
FEB									
05...	13:30	--	--	<1	<1	6	4	190	66
MAR									
12...	15:30	230	10	--	1	23	2	--	19
APR									
15...	10:30	540	--	--	<1	4	6	--	260
MAY									
20...	10:30	--	70	<1	<1	7	13	1700	85
JUN									
16...	16:30	690	--	--	1	15	8	--	140
JUL									
09...	14:00	250	40	--	<1	11	5	--	43
AUG									
18...	12:30	--	--	<1	<1	1	1	300	76
SEP									
04...	13:30	180	--	--	<1	<1	5	--	60

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 AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
14...	2	--	54	--	--	--	0.07	20
NOV								
08...	<1	40	8	<0.1	3	2	<0.03	40
DEC								
22...	3	--	41	--	--	--	<0.03	30
JAN								
16...	2	--	34	--	--	--	<0.03	20
FEB								
05...	7	50	32	0.1	7	1	<0.03	10
MAR								
12...	1	--	8	--	--	--	<0.03	30
APR								
15...	8	--	19	--	--	--	<0.03	20
MAY								
20...	4	60	9	<0.1	4	<1	<0.03	20
JUN								
16...	5	--	5	--	--	--	<0.03	20
JUL								
09...	<5	--	4	--	--	--	<0.03	10
AUG								
18...	<5	70	29	<0.1	5	1	<0.03	10
SEP								
04...	<5	--	6	--	--	--	0.05	20

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

PLATTE RIVER BASIN

06752280 CACHE LA POUUDRE 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. Elevation of gage is 4,860 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: June 6-16. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions upstream from 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, 1.6 ft<sup>3</sup>/s, Sept. 29, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined; minimum daily, 1.6 ft<sup>3</sup>/s, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	7.7	4.4	6.4	7.0	6.9	77	225	455	569	16	13
2	6.4	7.7	4.9	6.4	7.0	9.8	64	170	479	529	66	6.0
3	6.4	7.7	5.0	6.4	7.0	11	66	62	962	523	22	6.3
4	7.0	7.7	5.0	6.4	6.4	11	72	170	1490	601	6.7	15
5	7.0	7.7	5.0	6.4	6.4	15	49	412	2200	760	6.0	8.4
6	7.0	7.7	5.0	5.7	6.4	61	72	424	2600	947	4.9	18
7	6.6	7.7	5.0	5.7	6.4	68	92	321	3100	718	4.4	7.7
8	7.0	9.0	5.0	5.7	6.4	68	115	374	3000	470	4.9	5.5
9	7.0	10	5.0	5.7	6.4	68	155	255	2900	392	6.7	2.9
10	5.7	11	5.0	6.4	5.7	68	162	249	2960	768	5.5	2.5
11	8.4	11	5.0	6.4	5.7	68	186	216	2760	856	4.4	2.5
12	8.0	11	5.0	6.4	5.7	88	200	232	2600	1260	4.1	2.5
13	6.4	11	5.0	6.4	5.7	60	216	389	2550	1070	4.1	2.9
14	5.7	11	5.0	6.4	5.7	28	228	516	2450	636	4.1	2.9
15	5.7	11	5.6	6.4	5.7	47	186	564	2550	421	4.4	3.1
16	5.0	9.0	5.7	6.1	5.5	38	155	654	2520	84	4.9	3.3
17	5.0	8.3	5.7	5.7	5.7	30	155	464	2520	65	5.5	3.3
18	5.0	8.3	5.7	6.4	5.7	31	158	68	2050	135	4.8	3.1
19	5.7	8.3	5.7	6.4	5.7	29	147	32	2040	378	4.4	3.1
20	5.7	6.5	5.7	6.4	5.7	63	243	192	1890	365	4.9	2.9
21	6.4	5.7	5.7	6.4	5.7	95	265	249	1670	117	5.5	2.5
22	13	5.0	5.7	6.4	5.7	100	186	228	1360	41	6.7	2.1
23	11	5.0	5.7	6.4	5.7	100	340	304	1050	41	7.3	2.5
24	7.7	5.0	5.7	6.4	6.4	118	385	262	968	57	7.2	4.4
25	7.0	5.0	5.7	6.4	7.7	127	439	164	764	36	9.9	3.5
26	6.4	4.4	5.7	6.4	8.3	124	570	110	754	33	4.1	2.6
27	6.0	4.4	5.7	6.4	8.3	56	626	192	801	36	3.8	2.1
28	11	4.4	6.3	6.4	7.7	42	475	169	688	18	3.8	1.8
29	10	4.4	6.4	7.0	---	82	445	162	761	17	4.1	1.6
30	12	4.4	6.4	7.0	---	74	321	61	695	16	4.4	1.8
31	11	---	6.4	7.0	---	70	---	160	---	7.4	5.5	---
TOTAL	227.9	227.0	168.8	196.4	177.4	1856.7	6850	8050	53587	11966.4	251.0	139.8
MEAN	7.35	7.57	5.45	6.34	6.34	59.9	228	260	1786	386	8.10	4.66
MAX	13	11	6.4	7.0	8.3	127	626	654	3100	1260	66	18
MIN	5.0	4.4	4.4	5.7	5.5	6.9	49	32	455	7.4	3.8	1.6
AC-FT	452	450	335	390	352	3680	13590	15970	106300	23740	498	277
CAL YR 1985	TOTAL	33403.1		MEAN	91.5	MAX	2360	MIN	3.7	AC-FT	66260	
WTR YR 1986	TOTAL	83698.4		MEAN	229	MAX	3100	MIN	1.6	AC-FT	166000	

06752280 CACHE LA POUFRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1979 to current year.

MISCELLANEOUS STATION ANALYSES, WATER YEARS OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	DATE	TIME	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
06752280 CACHE LA POUFRE R AB BOXELDER C, NR TIMNATH, CO. (LAT 40 32 56N LONG 105 00 28)							
OCT 1983				OCT			
04...	1230	0.09	--	19...	1340	<0.03	--
NOV				NOV			
08...	1015	0.07	--	09...	1045	<0.03	--
DEC				DEC			
16...	1045	<0.03	--	06...	1430	<0.03	--
JAN 1984				JAN 1985			
24...	0945	0.06	--	23...	1130	<0.03	20
FEB				FEB			
24...	0900	<0.03	--	26...	1130	0.25	--
MAR				MAR			
30...	1045	0.14	--	26...	1015	0.10	--
APR				APR 1985			
25...	1515	<0.03	--	23...	1030	<0.03	--
MAY				MAY			
29...	1320	<0.03	--	20...	1150	<0.03	50
JUN				JUN			
20...	1100	<0.03	--	19...	1145	0.03	--
JUL				JUL			
25...	1430	<0.03	--	16...	1145	0.20	20
AUG				AUG			
17...	1130	0.03	--	16...	1000	0.29	20
SEP				SEP			
20...	1310	0.07	--	11...	1100	0.08	30

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	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									
12...	1015	7.0	1700	7.2	7.0	6.6	800	210	66
NOV									
25...	1600	4.5	1950	8.1	1.0	13.4	1000	240	100
DEC									
23...	1100	19	2200	7.9	2.0	11.8	1400	300	150
JAN									
16...	1300	5.6	2000	7.9	1.0	14.0	970	230	96
FEB									
06...	1130	6.1	1900	8.1	2.0	11.3	920	230	84
MAR									
17...	1130	31	500	8.4	7.0	10.3	280	74	23
APR									
13...	1200	223	260	8.5	10.0	10.3	86	24	6.3
MAY									
20...	1330	214	180	7.4	14.0	10.4	67	19	4.8
JUN									
16...	1115	2710	95	8.0	13.0	12.7	29	8.3	2.1
JUL									
09...	1100	361	160	8.2	15.0	10.8	57	16	4.2
AUG									
18...	1000	5.6	1200	7.9	23.0	8.4	560	140	51
SEP									
04...	1100	16	2180	7.8	19.0	8.4	1400	330	130

## PLATTE RIVER BASIN

06752280 CACHE LA POUFRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT									
12...	--	--	--	189	--	--	0.8	9.3	--
NOV									
25...	--	--	--	231	--	--	1.1	11	--
DEC									
23...	--	--	--	270	--	--	0.9	12	--
JAN									
16...	--	--	--	221	--	--	1.0	9.5	--
FEB									
06...	--	--	--	204	--	--	0.8	7.4	--
MAR									
17...	--	--	--	128	--	--	0.9	6.1	--
APR									
13...	--	--	--	71	--	--	0.4	10	--
MAY									
20...	8.1	0.4	1.3	50	30	5.0	0.3	7.5	110
JUN									
16...	--	--	--	22	--	--	<0.1	8.4	--
JUL									
09...	--	--	--	39	--	--	0.2	6.6	--
AUG									
18...	--	--	--	155	--	--	0.7	5.4	--
SEP									
04...	--	--	--	199	--	--	1.2	6.5	--

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)
OCT								
12...	--	--	--	0.06	--	0.41	0.9	0.07
NOV								
25...	--	--	--	0.03	--	0.35	0.8	0.07
DEC								
23...	--	--	--	0.08	--	0.92	1.7	0.23
JAN								
16...	--	--	--	0.02	--	0.17	0.6	0.03
FEB								
06...	--	--	--	0.02	--	0.24	0.6	0.01
MAR								
17...	--	--	--	0.04	--	0.16	0.5	0.08
APR								
13...	--	--	--	0.02	--	0.20	0.6	0.07
MAY								
20...	0.14	61	0.20	0.02	0.22	0.15	0.6	0.06
JUN								
16...	--	--	--	<0.01	--	0.05	0.5	0.03
JUL								
09...	--	--	--	0.01	--	0.01	0.3	0.04
AUG								
18...	--	--	--	0.05	--	0.06	1.0	0.03
SEP								
04...	--	--	--	0.06	--	0.18	1.3	0.02

PLATTE RIVER BASIN

06752280 CACHE LA POUDRE RIVER ABOVE BOX ELDER CREEK NEAR TIMNATH, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	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)
OCT									
12...	1015	200	20	--	<1	5	7	--	49
NOV									
25...	1600	--	--	<1	<1	6	5	240	30
DEC									
23...	1100	430	<10	--	<1	4	6	--	50
JAN									
16...	1300	40	<10	--	<1	8	1	--	60
FEB									
06...	1130	--	--	<1	<1	6	3	270	10
MAR									
17...	1130	270	<10	--	1	18	2	--	39
APR									
13...	1200	360	90	--	<1	10	3	--	90
MAY									
20...	1330	--	40	<1	<1	8	13	1200	33
JUN									
16...	1115	880	--	--	1	14	33	--	140
JUL									
09...	1100	480	40	--	<1	15	6	--	41
AUG									
18...	1000	--	--	1	<1	2	2	440	79
SEP									
04...	1100	270	--	--	<1	6	5	--	140

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 AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
12...	<1	--	95	--	--	--	0.29	20
NOV								
25...	2	90	70	0.1	11	13	0.04	30
DEC								
23...	1	--	100	--	--	--	0.43	10
JAN								
16...	2	--	80	--	--	--	0.15	20
FEB								
06...	5	140	120	0.1	3	12	0.07	30
MAR								
17...	2	--	40	--	--	--	<0.03	70
APR								
13...	6	--	9	--	--	--	<0.03	20
MAY								
20...	1	50	17	<0.1	4	<1	<0.03	<10
JUN								
16...	11	--	8	--	--	--	<0.03	30
JUL								
09...	<5	--	14	--	--	--	<0.03	20
AUG								
18...	<5	210	130	<0.1	8	3	0.03	10
SEP								
04...	<5	--	130	--	--	--	0.04	20

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

## PLATTE RIVER BASIN

06752500 CACHE LA POUFRE 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. Elevation of gage is 4,610 ft, from topographic map. See WSP 1710 or 1730 for history of changes prior to Dec. 14, 1933.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by transmountain and transbasin diversions, storage reservoirs, power developments, diversion for municipal supply, diversions upstream from 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.--67 years (water years 1915-19, 1925-86), 134 ft<sup>3</sup>/s; 97,080 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, 3,360 ft<sup>3</sup>/s at 2030 June 10, gage height, 7.62 ft; minimum daily, 27 ft<sup>3</sup>/s, Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	153	146	135	205	155	372	184	124	184	27	46
2	84	146	167	144	205	159	386	121	471	244	40	53
3	105	146	178	142	207	163	404	64	558	310	122	54
4	133	146	189	135	205	165	435	48	981	238	84	52
5	142	155	180	128	200	161	376	126	1790	355	68	59
6	142	153	182	147	200	107	342	310	2140	428	52	68
7	144	149	171	149	200	128	376	286	2680	443	50	79
8	151	155	171	138	189	138	410	254	3110	424	43	78
9	153	163	144	147	184	153	495	235	3030	424	39	82
10	157	159	163	157	178	169	503	175	3170	348	34	88
11	195	161	157	153	163	173	491	144	2980	386	43	86
12	159	163	142	153	175	167	507	131	2700	455	54	88
13	146	180	147	149	198	175	313	108	2490	668	51	84
14	146	178	147	146	193	98	320	202	2470	410	45	90
15	147	178	147	153	198	143	304	323	2400	372	51	81
16	151	171	147	159	195	191	263	483	2460	208	43	79
17	151	167	149	161	200	191	251	700	2200	126	33	84
18	144	173	157	159	198	189	240	218	2030	111	34	85
19	142	175	155	157	169	189	215	81	1670	124	35	90
20	137	165	157	163	151	191	230	52	1580	218	30	88
21	130	161	155	163	155	263	342	52	1320	258	37	86
22	126	155	151	157	149	301	274	74	966	97	53	94
23	146	169	155	161	144	304	274	173	690	64	56	91
24	155	178	153	163	144	323	410	186	535	56	54	102
25	146	180	153	155	142	396	345	113	393	52	59	105
26	142	180	151	155	144	451	443	81	271	45	51	105
27	137	182	146	161	138	435	582	56	277	40	54	108
28	142	171	138	167	151	332	535	64	243	35	56	110
29	142	169	142	180	---	362	407	61	173	29	56	114
30	142	153	146	193	---	372	277	63	230	33	64	121
31	147	---	142	203	---	365	---	51	---	30	50	---
TOTAL	4370	4934	4828	4833	4980	7109	11122	5219	46132	7215	1568	2550
MEAN	141	164	156	156	178	229	371	168	1538	233	50.6	85.0
MAX	195	182	189	203	207	451	582	700	3170	668	122	121
MIN	84	146	138	128	138	98	215	48	124	29	27	46
AC-FT	8670	9790	9580	9590	9880	14100	22060	10350	91500	14310	3110	5060
CAL YR 1985	TOTAL	55802		MEAN	153	MAX	2150	MIN	25	AC-FT	110700	
WTR YR 1986	TOTAL	104860		MEAN	287	MAX	3170	MIN	27	AC-FT	208000	

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.--12,175 mi<sup>2</sup> (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1976 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,450 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 10-20, Apr. 6-21. Records good except for estimated daily discharges and for computed daily discharges from unreliable record, May 5 to June 2, 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.

AVERAGE DISCHARGE.--9 years (water years 1978-86), 1,170 ft<sup>3</sup>/s; 847,700 acre-ft/yr.

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, 7,540 ft<sup>3</sup>/s at 1130 June 12, gage height, 7.52 ft; minimum daily, 21 ft<sup>3</sup>/s, Mar. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	522	1430	926	788	128	155	598	865	284	431	674
2	1230	622	1400	909	820	109	269	448	936	325	391	666
3	1090	337	1490	900	851	108	557	268	1120	472	362	837
4	886	186	1540	883	843	90	610	175	1160	668	362	903
5	775	92	1490	831	754	82	1250	151	1740	677	335	839
6	767	111	1420	883	717	67	2000	181	3230	759	447	770
7	753	198	1350	999	674	56	2600	231	4190	1160	511	761
8	732	231	1290	927	692	56	2500	271	4700	1310	539	843
9	721	329	1330	875	745	52	2300	306	5440	1230	518	950
10	802	500	1360	900	771	46	2400	352	6060	946	488	858
11	866	740	1350	900	742	38	2600	403	6680	868	488	775
12	1130	780	1130	866	802	24	2600	421	7230	796	459	767
13	1160	710	1190	875	832	23	2700	420	6620	751	448	811
14	878	670	1030	820	708	22	2500	399	5500	705	442	781
15	933	670	1140	841	718	22	2000	382	5330	879	358	736
16	986	680	1330	859	583	23	1700	390	5290	789	405	725
17	1030	690	1360	875	430	30	1600	744	5190	752	469	752
18	1090	740	1410	897	400	28	1400	1500	4850	580	493	818
19	770	900	1360	892	369	21	1300	1120	4550	574	420	827
20	746	930	1120	909	319	23	1400	649	4020	585	366	845
21	725	850	1080	914	276	27	1500	519	3650	689	360	843
22	697	1100	1090	804	324	29	1280	540	3160	719	417	809
23	649	1490	1030	795	237	27	1120	615	2560	697	461	858
24	567	1510	1030	822	207	30	1000	603	1780	719	678	900
25	524	1510	1010	819	183	72	1010	657	1300	574	838	1000
26	533	1490	961	781	166	74	965	669	913	527	666	969
27	536	1620	926	769	146	78	1040	648	523	536	562	947
28	506	1560	884	788	120	79	1090	624	380	503	596	926
29	470	1520	859	827	---	63	981	642	289	494	628	943
30	476	1510	903	829	---	69	783	693	288	427	602	934
31	506	---	926	819	---	95	---	759	---	420	647	---
TOTAL	24654	24798	37219	26734	15217	1691	45210	16378	99544	21415	15187	25067
MEAN	795	827	1201	862	543	54.5	1507	528	3318	691	490	836
MAX	1230	1620	1540	999	851	128	2700	1500	7230	1310	838	1000
MIN	470	92	859	769	120	21	155	151	288	284	335	666
AC-FT	48900	49190	73820	53030	30180	3350	89670	32490	197400	42480	30120	49720
CAL YR 1985	TOTAL	371065	MEAN	1017	MAX	4280	MIN	30	AC-FT	736000		
WTR YR 1986	TOTAL	353114	MEAN	967	MAX	7230	MIN	21	AC-FT	700400		



## PLATTE RIVER BASIN

06756995 SOUTH PLATTE RIVER AT MASTERS, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to September 1979. March 1982 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
23...	1245	637	1460	8.2	12.5	8.0	11.0
NOV							
20...	1040	781	1300	8.1	0.5	19	11.0
DEC							
16...	1130	1230	1410	8.1	0.5	--	10.7
JAN							
08...	1015	948	1350	7.6	0.0	16	11.2
FEB							
06...	1200	728	1450	8.1	6.0	11	9.4
MAR							
20...	1300	22	1380	8.6	13.5	1.7	18.4
APR							
22...	1445	1330	1090	8.0	19.5	33	7.5
JUN							
03...	1330	1120	927	8.0	22.5	66	7.2
23...	1515	2520	560	7.7	23.0	47	6.6
JUL							
29...	1330	464	1420	8.0	25.5	20	7.5
AUG							
18...	1400	483	1520	8.2	26.0	18	9.2
SEP							
09...	1230	931	1330	8.3	19.0	62	7.6

DATE	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, 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							
23...	900	K40	1200	6.00	1.4	7.4	0.97
NOV							
20...	K2400	290	--	5.40	2.8	8.2	1.30
DEC							
16...	110	K22	270	--	--	--	--
JAN							
08...	630	K52	K60	6.00	4.1	10	1.40
FEB							
06...	370	K25	180	5.90	2.0	7.9	1.10
MAR							
20...	120	26	130	3.30	0.9	4.2	0.41
APR							
22...	240	K30	96	5.10	1.4	6.5	1.20
JUN							
03...	1100	470	830	3.50	1.8	5.3	0.96
23...	1100	390	630	2.00	1.2	3.2	0.50
JUL							
29...	100	110	140	3.90	1.4	5.3	0.42
AUG							
18...	--	K69	110	4.30	1.2	5.5	0.42
SEP							
09...	--	470	810	4.70	1.7	6.4	0.58

K Based on non-ideal colony count.

PLATTE RIVER BASIN

141

06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1967 to September 1968, October 1971 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARDNESS (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)
OCT 24...	1050	923	1550	8.3	10.0	9.4	560	130	57
NOV 20...	1300	970	1420	8.1	1.0	11.6	510	120	50
DEC 16...	1415	E1250	1650	8.1	0.0	11.0	510	120	51
JAN 09...	1105	1200	1430	8.2	1.0	11.0	520	120	53
FEB 05...	1120	923	1470	8.2	4.0	10.4	530	120	55
MAR 19...	1120	145	1810	8.4	4.5	13.3	680	160	68
APR 23...	1120	938	1190	8.3	19.5	7.8	390	92	38
JUN 02...	1110	641	1290	8.4	21.0	8.5	420	97	42
JUN 25...	1015	653	806	7.9	21.5	7.0	270	67	26
JUL 30...	1100	281	1440	8.1	24.0	8.1	520	120	53
AUG 19...	1130	392	1500	8.3	25.0	8.6	500	110	54
SEP 11...	1120	1000	1350	8.5	17.0	8.6	460	100	51

DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 24...	140	3	7.0	230	500	68	1.0	12
NOV 20...	130	3	6.5	221	400	65	1.0	13
DEC 16...	130	3	7.6	252	470	73	0.3	14
JAN 09...	130	2	7.0	228	450	70	1.0	14
FEB 05...	130	2	6.6	231	490	74	1.0	13
MAR 19...	160	3	7.1	257	660	70	0.9	16
APR 23...	93	2	5.8	183	340	55	1.2	11
JUN 02...	100	2	5.7	202	420	54	1.0	9.4
JUN 25...	61	2	4.2	126	210	31	0.6	11
JUL 30...	120	2	6.5	205	460	49	0.9	12
AUG 19...	120	2	7.1	219	490	60	1.0	10
SEP 11...	120	3	7.6	204	410	57	0.9	10

E ESTIMATED.

## PLATTE RIVER BASIN

06758500 SOUTH PLATTE RIVER NEAR WELDONA, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	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)	ALGAL GROWTH POTEN- TIAL, BOTTLE TEST (MG/L)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 24...	1100	1.4	2620	6.20	0.00	--	7	31
NOV 20...	940	1.2	240	5.60	0.74	--	13	26
DEC 16...	1000	1.4	--	5.50	1.00	--	180	18
JAN 09...	980	1.3	3180	5.40	0.91	--	24	23
FEB 05...	1000	1.4	2560	6.50	1.00	--	12	14
MAR 19...	1300	1.8	507	5.60	0.21	--	15	19
APR 23...	750	1.0	1890	5.00	0.74	123	14	7
JUN 02...	850	1.2	1470	3.20	0.40	39	12	8
JUN 25...	490	0.66	858	1.90	0.24	72	23	14
JUL 30...	940	1.3	716	3.00	0.20	32	<3	18
AUG 19...	980	1.3	1040	2.80	0.17	23	6	21
SEP 11...	880	1.2	2370	2.80	0.36	3.9	11	9

PLATTE RIVER BASIN

06759100 BIJOU CREEK NEAR FORT MORGAN, CO

LOCATION.--Lat 40°16'58", long 103°52'31", in NW¼SE¼ 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. Elevation of gage is 4,302 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Apr. 7-23. Records fair except for estimated daily discharges, which are 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 140 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, 108 ft<sup>3</sup>/s at 0900 July 2, gage height, 1.68 ft; minimum daily, 5.3 ft<sup>3</sup>/s, July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	6.4	14	9.4	30	9.8	11	35	15	16	13	11
2	18	7.4	13	7.8	37	10	12	32	15	30	13	11
3	16	9.8	14	7.1	31	9.8	12	32	17	9.7	13	11
4	15	8.2	15	7.1	12	10	12	32	17	9.0	13	14
5	15	8.8	15	7.1	12	23	12	30	18	8.6	14	12
6	14	8.6	14	7.2	12	35	12	27	15	8.0	14	14
7	14	7.8	12	8.2	11	13	12	26	16	7.8	15	12
8	14	7.8	14	9.0	11	12	14	26	42	7.8	14	15
9	14	7.4	16	9.4	12	13	14	25	60	7.2	16	14
10	13	7.1	17	9.0	12	12	16	24	75	7.4	17	28
11	14	8.2	16	9.8	12	12	16	24	63	7.4	18	35
12	13	8.4	11	9.0	12	12	20	32	27	6.5	17	16
13	12	8.2	10	8.3	11	12	20	36	18	6.7	15	16
14	15	8.6	9.8	9.8	10	12	19	22	17	6.7	12	17
15	16	7.8	10	8.2	11	12	18	20	16	5.7	12	17
16	12	7.8	9.7	11	23	12	17	20	17	6.0	14	18
17	12	7.1	11	11	9.9	13	17	19	16	6.4	14	17
18	13	6.7	11	12	9.8	12	17	24	16	5.7	14	18
19	12	6.5	9.8	11	9.4	12	16	28	16	5.6	13	19
20	13	8.6	11	11	9.3	11	15	23	16	5.3	13	17
21	13	9.4	10	11	9.8	12	17	18	16	6.0	14	15
22	13	12	9.8	9.8	9.4	12	17	18	15	6.2	14	16
23	12	20	10	7.8	8.6	12	17	19	14	6.0	14	16
24	8.9	22	9.8	7.4	9.2	12	14	19	15	5.7	15	16
25	8.2	29	9.0	7.1	9.0	12	13	18	16	5.8	13	15
26	8.2	21	9.1	7.1	9.0	12	21	16	17	9.8	9.4	15
27	6.4	16	9.4	9.0	9.4	12	41	16	16	11	13	15
28	6.7	17	8.6	12	9.5	12	47	16	16	12	11	13
29	8.7	15	8.6	12	---	12	49	16	16	13	12	12
30	8.2	14	8.6	11	---	12	43	15	17	14	12	10
31	7.8	---	9.8	22	---	12	---	16	---	13	11	---
TOTAL	436.1	332.6	356.0	298.6	371.3	399.6	581	724	670	276.0	422.4	475
MEAN	14.1	11.1	11.5	9.63	13.3	12.9	19.4	23.4	22.3	8.90	13.6	15.8
MAX	70	29	17	22	37	35	49	36	75	30	18	35
MIN	6.4	6.4	8.6	7.1	8.6	9.8	11	15	14	5.3	9.4	10
AC-FT	865	660	706	592	736	793	1150	1440	1330	547	838	942
CAL YR 1985	TOTAL	6824.7	MEAN	18.7	MAX	152	MIN	5.3	AC-FT	13540		
WTR YR 1986	TOTAL	5342.6	MEAN	14.6	MAX	75	MIN	5.3	AC-FT	10600		

PLATTE RIVER BASIN

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO

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.

DRAINAGE AREA.--23,193 mi<sup>2</sup> (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1902 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as "near Julesburg" 1903-8, 1915-16, and as "at Ovid" 1922-24.

REVISED RECORDS.--WSP 1310: 1902, 1906-7, 1948(P). WSP 1440: 1903-4. WSP 1730: Drainage area.

GAGE.--Two water-stage recorders. Datum of gages is 3,446.76 ft above 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.

REMARKS.--Estimated daily discharges: Oct. 1 to Feb. 25, Mar. 5, 19-23, Mar. 29 to Apr. 2, May 9 to June 7, July 4-13, July 16 to Aug. 1, Aug. 19-23, and 26-29. Records poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of 1,200,000 acres upstream from station, and return flow from irrigated areas.

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

AVERAGE DISCHARGE.--84 years, 543 ft<sup>3</sup>/s; 393,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,600 ft<sup>3</sup>/s, June 20, 1965, gage height, 10.44 ft, from floodmarks in gage well; no flow, Aug. 18-20, 1902, July 25 to Aug. 7, 1903.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined; minimum daily, 34 ft<sup>3</sup>/s, Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	805	520	560	1200	1400	530	450	1400	100	280	58	190
2	910	510	560	1200	1300	500	560	1340	120	215	62	280
3	915	500	560	1200	1200	490	680	1060	130	164	77	315
4	920	490	560	1200	1140	460	900	810	170	140	100	350
5	960	480	560	1200	1100	430	1040	670	200	135	86	410
6	955	460	575	1200	1040	430	1140	550	240	130	75	470
7	935	430	620	1200	1010	400	1250	410	490	127	63	580
8	880	410	680	1220	900	380	1900	330	1240	125	55	680
9	820	400	760	1240	840	375	2670	310	2370	126	90	740
10	765	390	840	1260	820	360	2700	280	3800	127	94	760
11	740	400	900	1280	800	360	2750	260	5800	130	92	820
12	740	410	980	1300	780	350	2750	250	6000	140	64	940
13	735	420	1040	1330	800	350	2800	240	6150	172	60	960
14	725	435	1050	1350	840	345	2800	210	6600	173	58	960
15	720	455	1060	1370	900	305	2700	210	6200	115	58	960
16	720	490	1060	1400	940	295	2600	205	5500	82	50	955
17	740	505	1070	1400	1000	255	2500	200	4650	80	47	940
18	740	520	1080	1400	1030	235	2400	197	4200	76	44	900
19	740	490	1090	1400	1050	235	2300	193	4050	74	40	840
20	760	490	1100	1400	1050	240	2170	190	3750	72	40	820
21	765	500	1110	1400	1050	260	2060	185	3500	72	36	800
22	745	520	1120	1400	1040	270	1950	183	3300	74	36	820
23	685	520	1130	1430	1000	280	1860	180	3000	72	35	870
24	640	520	1140	1450	950	310	1800	150	2800	70	34	990
25	620	520	1150	1450	900	325	1700	130	2500	70	43	1100
26	620	520	1160	1450	700	330	1650	120	1760	72	43	1070
27	600	540	1160	1450	640	335	1600	110	1240	72	43	1050
28	580	540	1170	1440	570	345	1530	100	800	70	45	1040
29	540	540	1180	1440	---	360	1460	96	540	66	48	1030
30	530	560	1190	1440	---	370	1430	96	350	62	53	1020
31	520	---	1200	1420	---	380	---	97	---	60	150	---
TOTAL	23070	14485	29415	41520	26790	10890	56100	10762	81550	3443	1879	23660
MEAN	744	483	949	1339	957	351	1870	347	2718	111	60.6	789
MAX	960	560	1200	1450	1400	530	2800	1400	6600	280	150	1100
MIN	520	390	560	1200	570	235	450	96	100	60	34	190
AC-FT	45760	28730	58340	82350	53140	21600	111300	21350	161800	6830	3730	46930
CAL YR 1985	TOTAL	283191		MEAN	776	MAX	2460	MIN	20	AC-FT	561700	
WTR YR 1986	TOTAL	323564		MEAN	886	MAX	6600	MIN	34	AC-FT	641800	

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 TEMPERATURE: Water years 1945-49, October 1950 to September 1981 (discontinued).

INSTRUMENTATION.--Water-quality monitor from July 1973 to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,270 micromhos Jan. 12, 1971; minimum daily, 348 micromhos Aug. 15, 1968.

WATER TEMPERATURE: 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)
DEC 17...	1230	1400	1750	8.0	0.5	6.0	10.8	K33	84	640	160
MAR 18...	1345	228	1960	8.4	5.5	6.1	10.8	42	76	720	190
JUN 24...	0945	2350	852	8.0	23.0	130	6.9	400	920	290	73
SEP 10...	0930	881	1780	8.5	18.5	82	8.4	420	820	620	150

DATE	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WHOLE WATER TOTAL FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
DEC 17...	57	160	3	12	247	640	85	0.90	19	1340
MAR 18...	59	180	3	14	251	760	87	0.80	23	1530
JUN 24...	25	66	2	5.6	123	230	33	0.60	12	570
SEP 10...	59	160	3	15	256	590	71	0.80	17	1420

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)
DEC 17...	1300	1.8	5070	4.40	0.640	0.640	0.66	1.3	0.41	0.39
MAR 18...	1500	2.1	942	3.60	0.100	0.090	0.60	0.70	0.240	0.220
JUN 24...	520	0.78	3620	1.80	0.050	0.040	1.5	1.6	0.700	0.260
SEP 10...	1200	1.9	3380	2.20	0.080	0.040	2.3	2.4	0.420	0.090

DATE	TIME	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHROMIUM, 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)
DEC 17...	1230	<10	3	49	<0.5	<1	<1	<3	6	6	2
MAR 18...	1345	10	4	68	<0.5	<1	<1	<3	3	10	1
JUN 24...	0945	140	3	35	0.6	1	<1	<3	4	170	<5
SEP 10...	0930	70	3	66	<0.5	<1	<1	<3	6	87	<5

K. BASED ON NON-IDEAL COLONY COUNT.

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

PLATTE RIVER BASIN

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	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)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 17...	51	9	<0.1	<10	6	5	<1	1700	<6	14
MAR 18...	59	7	<0.1	<10	1	4	<1	2000	<6	14
JUN 24...	26	14	0.1	<10	2	2	<1	760	<6	8
SEP 10...	56	12	<0.1	10	4	3	<1	1700	<6	17

RADIO CHEMICAL ANALYSES, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	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)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
DEC 17...	1230	--	--	--	--	--	--	--	--
MAR 18...	1345	--	--	--	--	--	--	--	--
JUN 24...	0945	20	13	11	21	8.1	19	0.08	15
SEP 10...	0930	--	--	--	--	--	--	--	--

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
DEC 17...	1230	1400	59	223
MAR 18...	1345	228	42	26
JUN 24...	0945	2350	475	3010
SEP 10...	0930	881	271	645

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 above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1934, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 29 to Dec. 6, Dec. 10-16, Jan. 5, and Feb. 10-14. Records good except for periods of estimated record, which are fair. Natural flow affected by diversion in Pioneer Canal for irrigation of about 2,700 acres in Colorado and Nebraska.

AVERAGE DISCHARGE.--56 years, 47.1 ft<sup>3</sup>/s; 34,120 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.--Peak discharges greater than base discharge of 130 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 10	0800	*129	1.52	Dec. 4	0800	--	*a2.17

Minimum daily, 5.5 ft<sup>3</sup>/s, June 27-29.  
a Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	57	46	58	61	58	53	55	33	7.0	9.0	21
2	50	57	42	58	61	56	53	56	33	6.3	9.0	35
3	48	57	48	58	62	58	64	54	33	6.3	9.6	39
4	44	58	54	58	62	57	82	49	34	5.9	9.9	32
5	42	58	70	58	65	57	81	50	31	5.9	10	35
6	38	60	60	58	65	56	66	49	29	7.1	11	34
7	36	60	57	58	63	55	62	49	26	8.8	9.6	39
8	35	60	57	58	62	55	61	51	24	16	9.1	38
9	42	59	58	58	61	56	61	33	31	25	9.4	45
10	53	57	58	60	52	55	59	23	42	88	11	46
11	57	57	56	61	50	55	61	14	40	66	10	45
12	61	59	45	62	47	55	62	12	37	52	9.5	45
13	57	62	47	61	54	56	59	9.0	36	48	11	41
14	58	63	52	61	58	56	59	9.1	38	59	10	34
15	57	64	66	61	60	57	59	8.4	34	52	11	32
16	57	64	60	61	65	61	59	28	21	44	10	32
17	57	66	57	61	63	61	60	31	17	39	11	32
18	60	64	57	60	62	58	61	11	16	30	12	32
19	65	62	57	60	61	57	58	8.5	13	20	11	32
20	59	60	57	60	60	57	60	7.6	9.9	12	12	31
21	57	60	60	60	60	57	60	7.3	8.8	11	13	31
22	57	61	61	61	61	57	60	7.1	7.4	11	12	31
23	56	60	62	61	61	56	60	6.9	6.9	11	11	33
24	58	57	61	59	60	57	59	6.8	8.0	10	11	36
25	59	58	60	58	60	60	59	6.6	5.9	9.7	10	34
26	59	61	60	57	59	57	59	6.9	5.7	10	10	32
27	57	61	59	58	58	56	62	8.4	5.5	10	9.8	26
28	57	60	60	61	57	57	61	8.0	5.5	9.5	10	23
29	59	56	58	60	---	56	59	11	5.5	9.2	9.0	24
30	56	54	59	60	---	55	57	19	6.5	11	9.6	23
31	57	---	59	61	---	54	---	32	---	10	13	---
TOTAL	1658	1792	1763	1846	1670	1758	1836	727.6	643.6	710.7	323.5	1013
MEAN	53.5	59.7	56.9	59.5	59.6	56.7	61.2	23.5	21.5	22.9	10.4	33.8
MAX	65	66	70	62	65	61	82	56	42	88	13	46
MIN	35	54	42	57	47	54	53	6.6	5.5	5.9	9.0	21
AC-FT	3290	3550	3500	3660	3310	3490	3640	1440	1280	1410	642	2010

CAL YR 1985	TOTAL	15616.9	MEAN	42.8	MAX	81	MIN	8.6	AC-FT	30980
WTR YR 1986	TOTAL	15741.4	MEAN	43.1	MAX	88	MIN	5.5	AC-FT	31220



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 National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Oct. 1, 1967, nonrecording gage at present 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.--Capacity tables provided 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 were attained, 22,520 acre-ft, Oct. 6-14, 1952, elevation, 3,661.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 38,480 acre-ft, Apr. 13, elevation, 3,670.57 ft; minimum, 32,480 acre-ft, Sept. 30, elevation, 3,667.34 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

3,671.0	39,330
3,667.3	32,410

CONTENTS, IN ACRE FEET, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
INSTANTEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34400	34900	35500	35800	36300	37100	37900	38200	38000	37600	35600	33800
2	34400	34900	35500	35800	36300	37100	37900	38300	38100	37500	35600	33700
3	34400	34900	35500	35800	36400	37200	38100	38300	38100	37500	35700	33600
4	34300	34900	35600	35800	36400	37200	38200	38200	38100	37500	35600	33600
5	34300	34900	35600	35800	36500	37300	38200	38200	38100	37300	35600	33600
6	34300	34900	35600	35800	36500	37100	38200	38100	38100	37100	35600	33500
7	34300	35000	35600	35800	36600	37300	38300	38100	38100	37400	35500	33500
8	34300	34900	35600	35800	36600	37300	38400	38000	38100	37300	35400	33400
9	34400	34900	35700	35800	36600	37400	38400	38000	38100	37200	35400	33400
10	34400	34900	35700	35900	36600	37400	38400	37900	38200	37200	35300	33400
11	34500	35000	35700	35900	36600	37400	38500	37900	38300	37100	35200	33400
12	34600	35000	35700	35900	36600	37400	38500	37800	38300	37100	35200	33300
13	34600	35000	35700	35800	36600	37400	38400	37800	38300	37000	35100	33300
14	34600	35100	35700	35800	36700	37400	38400	37700	38200	37000	35000	33300
15	34600	35200	35600	35800	36700	37600	38400	37900	38200	36900	35000	33300
16	34600	35200	35600	35900	36800	37600	38400	38000	38200	36800	35000	33200
17	34700	35200	35600	35800	36800	37600	38400	38000	38100	36700	34900	33200
18	34700	35200	35500	35900	36900	37600	38400	38000	38000	36600	34800	33200
19	34700	35300	35700	35800	36900	37600	38400	38000	38100	36500	34700	33100
20	34800	35300	35700	35900	36900	37700	38300	38000	38100	36400	34600	33100
21	34800	35300	35700	36000	36900	37700	38400	37900	38000	36300	34500	33100
22	34800	35300	35700	36000	37000	37700	38300	37900	38000	36300	34500	33000
23	34800	35300	35700	36000	37000	37800	38400	37800	38000	36300	34400	33000
24	34700	35400	35700	36100	37000	37800	38300	37800	38100	36100	34300	33000
25	34700	35400	35800	36100	37000	37800	38300	37800	38100	36100	34300	32900
26	34700	35400	35800	36100	37100	37800	38300	37800	37900	36000	34200	32900
27	34600	35400	35800	36200	37100	37900	38200	37800	37800	35900	34100	32800
28	34700	35400	35800	36200	37100	37900	38300	37900	37700	35900	34000	32800
29	34800	35400	35800	36200	---	37900	38300	37900	37700	35800	34000	32800
30	34900	35500	35800	36300	---	37900	38300	37900	37600	35700	33900	32500
31	34900	---	35800	36300	---	37900	---	38000	---	35600	33900	---
MAX	34900	35500	35800	36300	37100	37900	38500	38300	38300	37600	35700	33800
MIN	34300	34900	35500	35800	36300	37100	37900	37700	37600	35600	33900	32500
WTR YR 1986	MAX	38500	MIN	32500								

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 September 1986 (discontinued).

GAGE.--Water-stage recorder and concrete control. Elevation 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.--Estimated daily discharges: Dec. 8 to Jan. 19. Records good except for estimated daily discharges, which are poor. Flow regulated by Bonny Reservoir since July 6, 1950 (station 06826000). Many diversions upstream from station for irrigation. Water diverted by Hale ditch from Bonny Reservoir bypasses station (2,980 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 provided by State Engineer of Colorado.

AVERAGE DISCHARGE.--35 years (water years 1952-86), 19.3 ft<sup>3</sup>/s; 13,980 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, 4.93 ft, Jan. 24, 1986, (backwater from ice), present site and datum; 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, unknown, maximum gage height, 4.93 ft, Jan. 24, (backwater from ice); minimum daily discharge, 2.8 ft<sup>3</sup>/s, Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	3.6	4.9	24	8.6	6.5	4.9	6.3	3.9	7.2	6.4	5.9
2	4.8	3.6	4.9	24	8.4	6.1	4.9	6.6	6.9	6.8	6.2	6.6
3	4.6	3.6	4.9	24	8.4	6.5	7.8	6.6	4.4	6.1	7.6	6.3
4	4.5	3.6	4.9	24	9.2	6.1	6.5	6.5	3.8	6.3	7.6	5.8
5	4.3	3.6	4.9	24	8.9	6.4	4.8	6.4	3.6	5.7	6.3	5.8
6	4.3	3.6	6.0	24	8.9	6.3	4.6	6.3	3.8	5.9	5.9	6.0
7	4.3	3.6	8.8	24	8.3	6.4	5.2	6.6	3.8	8.6	5.8	6.2
8	4.3	3.6	19	24	8.3	6.7	8.5	6.7	4.1	12	6.5	6.4
9	4.3	3.6	19	24	8.5	6.6	4.9	6.5	6.4	8.2	6.7	6.2
10	4.3	3.6	21	24	8.5	5.9	4.7	6.3	6.8	8.1	6.5	5.5
11	5.6	3.6	24	24	8.5	5.9	4.6	5.9	5.9	7.9	7.1	5.5
12	4.6	3.6	29	24	8.1	6.0	4.6	5.6	5.1	7.7	7.2	5.1
13	4.6	3.6	29	24	7.6	6.0	4.6	5.8	4.8	7.4	6.6	5.2
14	4.5	3.9	29	24	7.2	6.0	4.5	5.6	4.8	7.2	6.6	5.1
15	3.9	3.6	29	24	7.7	8.0	4.3	7.1	4.8	7.0	7.0	5.2
16	3.9	3.6	29	24	8.1	8.8	4.6	8.9	4.8	6.7	6.2	5.3
17	4.0	3.6	29	24	8.1	8.5	4.7	5.8	4.8	6.5	5.8	5.1
18	4.3	3.6	25	16	8.1	7.6	4.8	5.1	4.9	6.6	5.7	5.1
19	4.0	3.6	22	16	8.2	6.1	4.8	4.9	7.7	5.9	5.4	5.1
20	4.1	3.6	22	16	7.9	6.6	4.9	4.5	7.4	6.0	5.6	5.1
21	4.2	3.6	22	16	7.7	6.1	4.9	4.5	6.0	6.0	12	5.0
22	4.2	4.3	22	15	7.7	6.0	5.0	4.3	5.5	5.9	13	5.2
23	3.9	4.3	22	16	7.9	6.0	5.1	4.1	6.5	5.6	12	5.3
24	3.9	4.5	22	16	7.9	6.0	5.1	3.9	7.5	5.4	6.6	5.1
25	3.8	4.6	22	16	8.0	6.0	5.2	3.6	6.7	5.3	8.8	5.0
26	3.7	4.6	22	17	7.3	6.0	5.6	4.1	6.9	5.4	8.9	4.9
27	3.9	4.9	22	17	6.4	5.4	6.6	4.4	6.6	5.6	4.5	4.9
28	3.9	4.9	24	12	6.0	4.9	6.5	4.8	6.4	6.2	3.3	4.9
29	3.7	5.2	24	8.1	---	4.9	6.7	4.7	6.9	5.7	3.2	4.9
30	3.7	5.2	24	8.3	---	4.9	6.5	4.1	7.1	5.3	2.8	5.1
31	3.6	---	24	8.3	---	4.9	---	3.9	---	6.4	4.0	---
TOTAL	130.6	118.4	615.3	605.7	224.4	194.1	160.4	170.4	168.6	206.6	207.8	162.8
MEAN	4.21	3.95	19.8	19.5	8.01	6.26	5.35	5.50	5.62	6.66	6.70	5.43
MAX	5.6	5.2	29	24	9.2	8.8	8.5	8.9	7.7	12	13	6.6
MIN	3.6	3.6	4.9	8.1	6.0	4.9	4.3	3.6	3.6	5.3	2.8	4.9
AC-FT	259	235	1220	1200	445	385	318	338	334	410	412	323
CAL YR 1985	TOTAL	4231.6	MEAN	11.6	MAX	83	MIN	3.6	AC-FT	8390		
WTR YR 1986	TOTAL	2965.1	MEAN	8.12	MAX	29	MIN	2.8	AC-FT	5880		

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 current year.

REMARKS.--Samples are collected by the Bureau of Reclamation and analysed by the U.S.Geological Survey.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM TOTAL RECOVERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	ALKALINITY LAB (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
OCT 07...	1200	4.6	751	6.9	91	41	4.0	1.2	128	260	1.0	4
NOV 04...	1300	4.6	767	6.9	27	25	4.0	1.4	130	280	1.5	10
DEC 03...	1030	4.5	776	6.9	100	46	4.0	1.4	136	280	1.6	1
JAN 06...	1045	4.3	809	6.9	95	41	4.0	1.3	138	310	0.9	2
FEB 03...	1115	4.2	822	6.9	89	43	4.0	1.4	139	320	1.9	4
MAR 03...	1100	4.0	823	6.9	100	43	3.0	1.5	140	300	1.4	2
APR 07...	1145	3.8	833	6.9	100	45	4.5	1.5	143	290	1.5	2
MAY 05...	1415	3.9	873	6.8	20	--	3.7	1.5	126	370	1.8	8
JUN 02...	1130	3.9	830	6.7	97	47	3.7	1.6	121	330	1.4	11
JUL 07...	1115	4.2	642	7.0	70	31	3.0	1.3	127	240	1.4	3
AUG 04...	1145	4.2	611	6.9	80	36	3.1	1.1	132	210	1.4	1
SEP 03...	1130	4.3	665	7.0	75	34	4.0	1.2	134	230	1.5	1

DATE	TIME	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	*LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
OCT 07...	1200	13	20	1700	7	1400	0.18	3500
NOV 04...	1300	15	10	1600	5	1400	0.21	3600
DEC 03...	1030	14	10	1700	6	1400	0.18	3500
JAN 06...	1045	13	<10	1800	7	1300	--	3700
FEB 03...	1115	10	10	1800	10	1500	0.17	3700
MAR 03...	1100	12	<10	2000	6	1500	<0.03	4000
APR 07...	1145	10	<10	1800	8	1400	0.20	3500
MAY 05...	1415	30	30	2000	7	3800	0.15	9800
JUN 02...	1130	40	10	2200	2	3900	0.18	10000
JUL 07...	1115	23	10	1600	6	1600	0.18	4700
AUG 04...	1145	13	<10	1300	7	1100	0.15	3000
SEP 03...	1130	12	10	1400	14	1100	0.20	3200

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

07079300 EAST FORK ARKANSAS RIVER AT US HIGHWAY 24, NEAR LEADVILLE, CO

WATER-QUALITY RECORDS

LOCATION.--Lat 39°16'21", long 106°18'21", in NW¼ 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 current year.

REMARKS.--Samples are collected by the Bureau of Reclamation and analysed by the U.S. Geological Survey.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	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- LINITY 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											
07...	1215	299	7.8	35	15	2.0	0.9	87	55	0.6	1
NOV											
04...	1345	368	7.9	36	44	3.0	0	97	83	0.8	3
DEC											
03...	1045	354	7.9	40	17	--	1.1	100	72	1.0	1
JAN											
06...	1100	384	7.8	43	18	3.0	0.9	103	89	0.3	5
FEB											
03...	1130	408	7.8	40	18	3.0	1.1	111	110	1.1	4
MAR											
03...	1115	426	8.0	48	19	3.0	1.2	110	100	0.9	3
APR											
07...	1200	359	8.0	40	20	2.5	1.2	102	62	1.0	5
MAY											
05...	1430	220	7.7	35	10	2.0	1.2	65	41	0.8	12
JUN											
02...	1145	150	7.5	20	7.0	1.5	1.0	53	19	0.3	13
JUL											
07...	1130	128	7.6	15	6.0	1.0	0.6	51	16	0.3	1
AUG											
04...	1200	203	7.8	23	10	1.4	0.8	75	28	0.5	1
SEP											
03...	1145	251	7.8	26	12	3.0	0.9	85	43	0.6	1

DATE	TIME	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)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT								
07...	1215	1	<10	300	1	200	<0.03	510
NOV								
04...	1345	4	<10	290	1	290	<0.03	720
DEC								
03...	1045	3	--	320	<1	280	<0.03	740
JAN								
06...	1100	3	<10	280	3	300	<0.03	830
FEB								
03...	1130	3	<10	380	6	380	<0.03	1000
MAR								
03...	1115	3	<10	330	2	370	0.19	920
APR								
07...	1200	3	<10	480	2	270	<0.03	560
MAY								
05...	1430	3	10	950	8	280	<0.03	460
JUN								
02...	1145	2	<10	400	2	120	<0.03	260
JUL								
07...	1130	1	<10	310	<5	80	<0.03	130
AUG								
04...	1200	1	<10	270	<5	110	<0.03	250
SEP								
03...	1145	2	<10	250	<5	140	<0.03	350

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

## 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 above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation); gage readings have been reduced to elevations above National Geodetic Vertical Datum of 1929.

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 provided 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, 128,750 acre-ft, Aug. 7, elevation, 9,869.04 ft; minimum, 116,280 acre-ft, May 22, elevation, 9,861.95 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	9,867.01	125,140	-
Oct. 31. . . . .	9,866.96	125,060	-80
Nov. 30. . . . .	9,866.06	123,470	-1,590
Dec. 31. . . . .	9,865.34	122,200	-1,270
CAL YR 1985 . . . . .			-3,800
Jan. 31. . . . .	9,864.92	121,460	-740
Feb. 28. . . . .	9,864.65	120,990	-470
Mar. 31. . . . .	9,864.03	119,900	-1,090
Apr. 30. . . . .	9,863.99	119,830	-70
May 31. . . . .	9,863.14	118,350	-1,480
June 30. . . . .	9,868.76	128,250	+9,900
July 31. . . . .	9,868.61	127,990	-260
Aug. 31. . . . .	9,868.80	128,330	+340
Sept. 30. . . . .	9,868.73	128,200	-130
WTR YR 1986 . . . . .			+3,060

07083000 HALFMoon CREEK NEAR MALTA, CO

(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. Elevation of gage is 9,830 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 19, 1966, at sites 1.4 mi downstream at different datums.

REMARKS.--Estimated daily discharges: Oct. 20 to Nov. 1, Nov. 20 to Feb.5, Feb. 11-18. Records good except those for periods of estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--40 years, 29.5 ft<sup>3</sup>/s; 21,370 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 615 ft<sup>3</sup>/s, June 30, 1984, gage height, 3.77 ft, from rating curve extended above 300 ft<sup>3</sup>/s; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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 6	2100	*260	*3.27	June 27	0030	212	3.15
June 16	2230	215	3.16	July 5	2030	209	3.14
June 19	2130	223	3.18				

Minimum daily discharge, 5.1 ft<sup>3</sup>/s, Mar. 14, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	12	9.0	7.5	9.0	7.5	8.9	24	83	144	54	36
2	15	12	9.0	7.5	9.0	7.4	8.6	32	77	146	52	36
3	16	11	9.0	7.5	8.8	7.7	7.8	37	107	151	50	33
4	16	10	9.0	7.2	8.5	7.1	7.8	44	139	152	50	30
5	15	11	9.0	7.2	8.0	7.3	7.3	45	154	182	46	29
6	14	8.6	9.0	7.0	7.6	6.9	7.5	37	195	164	50	27
7	16	13	8.5	6.8	7.3	6.5	8.2	31	203	164	45	28
8	14	10	8.0	6.6	7.8	6.3	8.1	27	188	134	46	34
9	13	8.6	7.5	6.6	8.1	6.1	8.1	23	173	131	47	35
10	13	10	7.0	6.4	7.9	6.0	8.1	21	125	121	41	39
11	13	9.6	6.5	6.2	7.6	5.4	8.2	21	106	111	38	39
12	12	8.4	6.5	6.0	7.5	5.8	8.3	25	117	114	42	40
13	12	7.0	6.8	6.0	7.2	5.4	7.8	32	139	114	41	38
14	12	8.7	7.0	6.0	7.0	5.1	8.2	35	153	107	37	36
15	12	7.9	7.5	6.0	7.0	5.4	8.0	32	169	101	35	34
16	11	8.7	8.0	6.0	7.2	5.3	8.4	30	178	113	33	32
17	11	8.5	8.5	6.0	7.4	5.8	8.1	29	184	103	32	30
18	11	8.2	9.0	6.5	7.8	5.4	7.6	28	172	107	31	29
19	11	7.5	9.0	6.8	8.0	5.4	7.3	33	191	101	31	28
20	11	7.0	9.0	7.0	8.0	5.7	7.5	50	190	101	36	26
21	11	7.0	9.0	7.2	8.1	5.1	9.0	64	178	95	44	25
22	11	7.5	9.0	7.5	7.6	5.4	13	68	171	110	40	26
23	11	8.0	9.0	7.5	8.2	5.8	17	66	172	108	39	26
24	12	9.0	9.0	7.2	8.8	5.8	20	64	171	107	46	26
25	12	9.5	9.0	6.5	8.7	6.1	19	69	154	99	41	25
26	12	10	9.0	6.8	8.2	6.0	18	86	170	87	37	25
27	13	10	9.0	7.4	7.8	6.3	15	93	181	76	35	24
28	13	9.5	8.5	7.6	7.1	6.7	14	95	178	70	34	24
29	13	9.5	8.0	8.0	---	7.7	14	88	167	65	35	24
30	13	9.0	8.0	8.5	---	8.6	18	77	156	60	34	23
31	13	---	7.8	9.0	---	9.4	---	82	---	57	34	---
TOTAL	396	276.7	258.1	216.0	221.2	196.4	316.8	1488	4741	3495	1256	907
MEAN	12.8	9.22	8.33	6.97	7.90	6.34	10.6	48.0	158	113	40.5	30.2
MAX	16	13	9.0	9.0	9.0	9.4	20	95	203	182	54	40
MIN	11	7.0	6.5	6.0	7.0	5.1	7.3	21	77	57	31	23
AC-FT	785	549	512	428	439	390	628	2950	9400	6930	2490	1800
CAL YR 1985	TOTAL	13723.8		MEAN	37.6	MAX	384	MIN	2.5	AC-FT	27220	
WTR YR 1986	TOTAL	13768.2		MEAN	37.7	MAX	203	MIN	5.1	AC-FT	27310	

## 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 TEMPERATURE: May 1967 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.0°C Aug. 16, 1980; minimum, 0.0°C on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)
OCT 31...	1230	13	74	7.6	2.5	0.50	--	<2	37	40	9.7	3.7
DEC 31...	1430	7.8	102	8.1	0.0	--	--	--	<1	--	--	--
FEB 06...	1400	7.9	90	7.7	0.0	0.40	9.8	<1	K3	46	11	4.5
APR 30...	1330	16	71	8.0	10.0	1.0	7.3	<1	<1	38	9.1	3.7
JUN 25...	1100	142	51	7.6	5.0	1.2	8.4	<1	<1	24	6.2	2.0
AUG 27...	0830	36	58	8.1	6.5	--	8.2	<1	<1	--	--	--

DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, LAB AS (MG/L AS CaCO3)	SULFATE, DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, 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 CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
OCT 31...	1.8	0.1	0.80	34	5.9	0.30	<0.10	5.7	50	49	0.07	1.8
FEB 06...	1.9	0.1	0.80	41	2.4	0.80	0.20	7.3	61	54	0.08	1.3
APR 30...	1.5	0.1	0.70	37	5.8	0.40	0.10	5.7	51	49	0.07	2.2
JUN 25...	0.80	0.1	0.40	22	3.6	0.30	<0.10	3.7	29	30	0.04	11

DATE	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)
OCT 31...	0.150	0.030	0.020	--	<0.20	<0.010	<0.010	<1	29	<0.5	<1	--
DEC 31...	0.170	0.040	0.040	--	<0.20	0.010	0.010	--	--	--	--	--
FEB 06...	0.191	0.010	0.021	0.19	0.20	0.010	0.010	<1	26	<0.5	<1	<1
APR 30...	0.180	0.020	<0.010	0.38	0.40	0.010	0.010	--	--	--	--	--
JUN 25...	0.130	0.030	0.010	0.17	0.20	0.010	<0.010	<1	14	<0.5	<1	<1
AUG 27...	0.170	0.010	<0.010	0.29	0.30	0.010	0.040	--	--	--	--	--

DATE	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)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY, DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 31...	<3	--	57	--	3	0.1	<10	--	<1	--	<6	8
FEB 06...	<3	<1	64	<1	5	<0.1	<10	1	<1	<1	<6	5
JUN 25...	<3	2	42	<5	5	<0.1	<10	2	<1	<1	<6	11

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

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. Elevation 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.--Estimated daily discharges, Oct. 17-28, and Oct. 30 to Apr.16. Records are fair. No diversion upstream from station. Records include inflow from Roaring Fork River in Colorado River basin through Twin Lakes tunnel.

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

AVERAGE DISCHARGE.--38 years (water years 1947-62, 1964-85), 167 ft<sup>3</sup>/s; 121,000 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 CURRENT YEAR.--Maximum discharge, 1,620 ft<sup>3</sup>/s at 2130 June 7, gage height, 5.02 ft; minimum daily, 8.0 ft<sup>3</sup>/s, Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	40	21	14	8.0	11	11	65	260	246	180	40
2	49	40	20	13	8.5	11	11	100	298	264	181	46
3	49	40	19	14	8.5	11	12	215	362	283	242	55
4	57	40	18	15	8.5	10	12	366	405	310	215	59
5	60	40	18	15	9.0	10	12	370	558	306	145	56
6	85	40	18	15	9.0	10	12	366	785	302	122	65
7	96	40	18	15	9.5	10	12	375	1020	286	117	54
8	74	39	19	15	9.5	10	12	400	946	257	115	56
9	54	37	19	15	10	10	12	437	808	272	107	53
10	54	36	19	14	11	10	11	443	558	324	109	52
11	53	36	19	13	10	9.5	10	348	370	309	105	58
12	61	36	19	12	10	9.5	11	222	385	390	105	75
13	124	36	19	12	11	9.5	12	174	485	455	96	70
14	109	34	19	12	11	9.5	16	171	597	390	91	67
15	46	33	19	13	11	9.5	30	150	673	316	88	68
16	46	32	19	13	11	10	35	199	702	293	79	66
17	46	32	19	13	11	10	33	171	748	285	75	60
18	46	32	19	13	11	11	44	193	725	297	82	65
19	46	30	19	13	11	11	53	275	638	281	74	70
20	70	28	19	13	11	11	50	352	604	404	69	66
21	100	28	19	13	11	11	44	290	617	508	68	65
22	50	28	19	13	11	11	42	306	584	479	67	69
23	45	28	19	12	11	12	42	362	533	431	64	68
24	40	28	19	11	11	12	34	497	473	370	62	67
25	40	26	19	11	11	12	34	870	552	326	60	67
26	45	24	19	12	11	12	25	725	425	260	58	65
27	55	22	19	12	11	12	27	762	310	326	52	66
28	70	22	19	12	11	11	35	800	272	306	53	74
29	74	22	19	12	---	11	40	449	275	260	51	69
30	40	22	17	10	---	10	44	390	253	135	49	62
31	40	---	15	9.0	---	10	---	314	---	231	44	---
TOTAL	1873	971	582	399.0	287.5	327.5	778	11157	16221	9902	3025	1873
MEAN	60.4	32.4	18.8	12.9	10.3	10.6	25.9	360	541	319	97.6	62.4
MAX	124	40	21	15	11	12	53	870	1020	508	242	75
MIN	40	22	15	9.0	8.0	9.5	10	65	253	135	44	40
AC-FT	3720	1930	1150	791	570	650	1540	22130	32170	19640	6000	3720
CAL YR 1984	TOTAL	55877		MEAN	153	MAX	815	MIN	10	AC-FT	110800	
WTR YR 1985	TOTAL	47396.0		MEAN	130	MAX	1020	MIN	8.0	AC-FT	94010	



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 above 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.--Estimated daily discharges: Water year 1985, Nov. 17 to Feb. 27, Mar. 3-7, June 29 to July 2, 24-30, and Sept. 10-24. Records good except for estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 6,700 acres. Turquoise Lake and Twin Lakes Reservoir, on tributaries upstream from station, have a combined capacity of 269,700 acre-ft. Transmountain diversions from Colorado River basin to Arkansas River basin enter upstream from this station.

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

AVERAGE DISCHARGE.--75 years (water years 1911-85), 384 ft<sup>3</sup>/s; 278,200 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 WATER YEAR 1985.--Maximum discharge, 3,320 ft<sup>3</sup>/s at 1400 June 9, gage height, 5.72 ft; minimum daily, 110 ft<sup>3</sup>/s, Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	250	165	125	500	498	741	768	1120	1200	510	370
2	274	244	165	120	500	504	777	849	1030	1100	559	305
3	286	244	160	120	520	500	665	948	1040	1120	531	266
4	350	226	155	125	520	370	350	1060	1080	1140	510	270
5	438	223	155	125	500	180	335	1200	1330	1170	474	270
6	432	220	160	125	500	175	320	1260	1710	1360	420	266
7	408	205	170	125	500	175	300	1280	2150	1490	408	266
8	390	202	175	120	520	176	295	1300	2730	1470	402	266
9	360	202	180	120	540	182	290	1330	3080	1350	390	258
10	305	200	175	115	560	184	305	1280	2950	1390	600	245
11	300	190	185	115	550	187	315	1200	2300	1280	370	230
12	295	190	180	115	540	187	330	957	1960	1130	370	220
13	300	195	170	120	540	187	330	705	1710	1230	360	200
14	315	200	165	130	550	184	340	573	1710	1180	385	200
15	295	205	170	150	560	472	380	517	1750	1140	402	200
16	295	210	165	150	560	669	402	510	1810	1150	390	150
17	300	200	160	160	550	669	414	552	1770	1140	380	140
18	315	200	160	160	540	687	468	612	1750	1090	380	140
19	320	190	165	170	520	687	486	620	1710	1120	385	140
20	330	170	160	180	540	705	408	604	1640	1170	370	140
21	320	155	150	300	540	705	380	580	1590	1670	350	130
22	300	155	130	540	520	705	365	559	1600	1930	345	150
23	266	160	120	540	520	705	340	538	1540	1930	505	170
24	258	160	120	530	520	705	325	604	1380	1600	612	190
25	262	160	110	540	520	723	515	644	1350	1500	414	214
26	258	160	115	540	500	714	644	885	1270	1400	274	205
27	274	155	120	550	495	714	669	903	1160	1300	315	193
28	262	155	130	550	504	732	705	1290	1250	1300	380	202
29	262	160	130	560	---	750	705	1600	1300	1000	370	217
30	254	160	125	540	---	741	687	1540	1200	640	360	196
31	250	---	130	520	---	732	---	1320	---	559	370	---
TOTAL	9544	5746	4720	8380	14729	15504	13586	28588	49970	39249	12891	6409
MEAN	308	192	152	270	526	500	453	922	1666	1266	416	214
MAX	438	250	185	560	560	750	777	1600	3080	1930	612	370
MIN	250	155	110	115	495	175	290	510	1030	559	274	130
AC-FT	18930	11400	9360	16620	29210	30750	26950	56700	99120	77850	25570	12710
CAL YR 1984	TOTAL	260502	MEAN	712	MAX	2940	MIN	75	AC-FT	516700		
WTR YR 1985	TOTAL	209316	MEAN	573	MAX	3080	MIN	110	AC-FT	415200		

07086500 CLEAR CREEK ABOVE CLEAR CREEK RESERVOIR, CO

LOCATION.--Lat 39°01'05", long 106°16'38", in SE¼ sec.12, T.12 S., R.80 W., Chaffee County, Hydrologic Unit 11020001, on right bank 0.5 mi upstream from water line of Clear Creek Reservoir at elevation 8,875 ft, 1.5 mi downstream from unnamed tributary, and 1.9 mi southwest of Granite.

DRAINAGE AREA.--67.1 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1946 to September 1983. Monthly discharge only for some periods, published in WSP 1241, and 1311.

REVISED RECORDS.--WSP 2121: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 8,885 ft, from topographic map. May 7, 1946, to Apr. 20, 1954, water-stage recorder at site 133 ft upstream at different datum. Apr. 21 1954, to May 28, 1958, water-stage recorder 333 ft upstream at different datum. Datum raised 2.19 ft, Apr. 21, 1954.

REMARKS.--Estimated daily discharges: Water Year 1984, Oct. 16-23, Nov. 9-10, 15-17, Nov. 19 to Mar. 24, 26-28, 31, Apr. 2-5, 12, 14, 27-29, May 15-16, and July 26-27. Water year 1985, Oct. 1-10, 19, 25-26, Nov. 2, 4-5, 9-10, 12-13, Nov. 15 to Apr. 4, and July 2. Water Year 1986, Nov. 13 to Mar. 16, Mar. 18-21, and Apr. 4-5. Records good except for estimated daily discharges, which are poor. Diversions for irrigation of about 250 acres upstream from station.

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

AVERAGE DISCHARGE.--38 years (water years 1947-62, 1964-84), 67.7 ft<sup>3</sup>/s; 49,050 acre-ft/yr: 39 years (water years 1947-62, 1964-85), 68.1 ft<sup>3</sup>/s; 49,340 acre-ft/yr: 40 years (1947-62, 1964-86), 69.1 ft<sup>3</sup>/s; 50,060 acre-ft year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,300 ft<sup>3</sup>/s, June 29, 1957, maximum gage height recorded, 4.34 ft, June 16, 1952, site and datum then in use; minimum discharge, not determined.

EXTREMES FOR WATER YEAR 1984.--Maximum discharge, 689 ft<sup>3</sup>/s at 0230 May 25, gage height, 4.73 ft; minimum daily, 8.9 ft<sup>3</sup>/s, Apr. 1, 7, 13.

EXTREMES FOR WATER YEAR 1985.--Maximum discharge, 1,110 ft<sup>3</sup>/s at 0230 June 9, gage height, 5.21 ft; minimum daily, 11 ft<sup>3</sup>/s, Feb. 12.

EXTREMES FOR WATER YEAR 1986.--Maximum discharge, 882 ft<sup>3</sup>/s at 0130 June 28, gage height, 5.04 ft; minimum daily, 10 ft<sup>3</sup>/s, Mar. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	27	19	16	13	12	8.9	14	434	434	186	179
2	40	30	19	16	13	12	9.0	16	375	386	186	151
3	39	28	19	17	13	12	9.0	16	375	380	186	129
4	39	26	19	17	13	11	9.0	16	345	365	186	118
5	36	28	18	17	13	10	10	19	325	350	186	106
6	35	26	17	17	13	10	11	19	272	335	205	98
7	36	26	17	16	13	10	8.9	18	276	320	182	92
8	35	29	18	16	13	11	9.8	16	233	295	162	89
9	39	28	18	16	13	11	11	19	219	310	156	85
10	37	27	19	16	13	11	11	26	208	365	153	80
11	37	25	19	16	13	11	12	37	208	345	134	78
12	36	25	19	16	13	11	11	52	222	312	143	75
13	36	26	19	15	13	12	8.9	73	272	272	151	68
14	39	26	18	15	13	12	10	106	345	290	136	66
15	38	26	18	14	13	12	12	130	380	280	131	66
16	37	26	18	14	12	12	14	150	440	256	162	70
17	36	26	17	14	12	12	18	165	380	240	186	65
18	35	26	17	14	12	11	21	162	365	212	176	64
19	35	25	17	13	12	11	19	148	398	216	176	61
20	34	24	17	13	11	11	16	176	416	202	165	55
21	34	22	17	13	11	11	13	264	475	195	156	55
22	33	21	17	13	11	11	14	365	526	186	186	55
23	32	20	17	14	11	11	14	454	526	179	165	50
24	30	19	17	14	11	11	16	542	496	176	179	47
25	29	19	18	14	11	11	18	590	496	183	199	44
26	29	19	18	13	11	10	16	503	472	175	199	44
27	29	19	18	13	11	9.8	15	428	461	175	167	44
28	30	19	18	13	11	10	15	416	489	189	153	44
29	28	19	18	13	12	11	14	428	454	183	143	32
30	29	19	17	13	---	11	14	468	447	183	131	32
31	27	---	17	13	---	10	---	461	---	189	131	---
TOTAL	1072	726	554	454	354	341.8	388.5	6297	11330	8178	5157	2242
MEAN	34.6	24.2	17.9	14.6	12.2	11.0	12.9	203	378	264	166	74.7
MAX	43	30	19	17	13	12	21	590	526	434	205	179
MIN	27	19	17	13	11	9.8	8.9	14	208	175	131	32
AC-FT	2130	1440	1100	901	702	678	771	12490	22470	16220	10230	4450
CAL YR 1983	TOTAL	25822.0		MEAN	70.7	MAX	440	MIN	6.0	AC-FT	51220	
WTR YR 1984	TOTAL	37094.3		MEAN	101	MAX	590	MIN	8.9	AC-FT	73580	

## ARKANSAS RIVER BASIN

07086500 CLEAR CREEK ABOVE CLEAR CREEK RESERVOIR, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	38	21	17	11	16	13	52	222	186	112	44
2	34	37	21	16	11	16	15	68	216	200	110	47
3	35	36	21	16	12	15	17	91	248	216	102	48
4	40	35	21	16	12	15	17	114	260	219	96	51
5	44	34	21	17	13	15	17	118	345	219	83	48
6	46	34	22	17	13	15	18	127	447	216	75	44
7	47	31	22	17	13	15	18	116	582	205	73	46
8	48	31	23	17	14	16	19	129	689	179	71	44
9	48	30	23	17	14	16	20	154	780	179	70	42
10	48	30	23	16	14	16	21	153	644	183	70	40
11	47	30	23	16	14	16	21	140	398	170	68	44
12	47	29	22	16	14	15	23	122	398	176	65	59
13	47	27	21	16	14	14	25	108	454	208	59	50
14	50	24	21	16	14	13	28	98	489	179	56	43
15	50	24	21	17	15	13	32	94	482	153	51	44
16	50	24	21	18	16	13	38	96	489	145	48	48
17	50	25	20	18	16	13	43	98	461	148	46	43
18	56	26	19	18	16	13	48	108	468	167	48	44
19	46	25	19	18	16	14	50	120	434	170	48	51
20	40	25	19	18	17	14	41	116	398	189	42	47
21	40	25	19	19	17	14	36	120	398	248	41	46
22	40	25	19	19	17	13	32	116	370	244	40	47
23	42	25	19	19	17	13	29	122	335	202	38	44
24	41	24	20	20	17	13	29	159	315	176	41	44
25	40	23	20	20	16	13	30	219	392	156	43	46
26	39	22	20	19	16	13	28	248	285	143	43	42
27	38	22	20	18	16	13	28	248	212	136	44	42
28	40	21	21	17	16	12	37	300	202	131	46	47
29	40	21	21	16	---	12	41	320	212	127	46	47
30	38	21	20	15	---	12	41	295	195	122	44	41
31	38	---	19	13	---	13	---	256	---	114	43	---
TOTAL	1342	824	642	532	411	434	855	4625	11820	5506	1862	1373
MEAN	43.3	27.5	20.7	17.2	14.7	14.0	28.5	149	394	178	60.1	45.8
MAX	56	38	23	20	17	16	50	320	780	248	112	59
MIN	33	21	19	13	11	12	13	52	195	114	38	40
AC-FT	2660	1630	1270	1060	815	861	1700	9170	23440	10920	3690	2720
CAL YR 1984	TOTAL	37550.3		MEAN	103	MAX	590	MIN	8.9	AC-FT	74480	
WTR YR 1985	TOTAL	30226		MEAN	82.8	MAX	780	MIN	11	AC-FT	59950	

07086500 CLEAR CREEK ABOVE CLEAR CREEK RESERVOIR, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	29	22	17	24	17	25	66	260	489	148	73
2	40	30	22	17	23	19	25	81	244	518	140	68
3	37	30	22	16	21	18	25	96	315	518	134	65
4	38	28	21	15	19	17	22	112	365	518	124	62
5	37	30	20	15	19	17	21	116	416	671	116	59
6	36	29	20	15	19	17	23	106	518	574	134	58
7	47	24	19	15	17	17	26	92	644	542	122	58
8	46	29	18	16	17	18	29	80	566	440	110	65
9	42	29	17	17	13	16	28	73	503	534	110	66
10	41	29	15	18	12	15	28	65	365	454	114	83
11	44	32	14	18	12	15	29	64	315	370	110	68
12	38	30	15	18	13	15	30	66	345	360	112	68
13	38	28	15	18	13	15	31	70	416	355	106	66
14	37	26	15	18	14	15	29	81	447	340	100	65
15	34	26	17	18	14	14	27	87	475	325	92	62
16	35	28	18	17	13	14	30	81	534	380	91	56
17	35	27	18	18	14	12	30	78	599	320	87	55
18	35	26	18	18	15	11	28	78	550	315	85	53
19	32	24	18	20	15	10	25	85	550	276	83	52
20	34	24	19	20	14	10	26	108	534	276	104	51
21	36	24	21	20	14	11	30	138	542	256	124	48
22	35	27	20	19	15	12	37	167	526	290	106	51
23	32	27	19	19	16	13	46	176	558	285	92	59
24	34	30	18	19	17	14	47	176	566	248	89	61
25	34	29	19	17	17	14	48	186	550	226	87	56
26	34	27	20	19	16	14	47	226	626	208	91	55
27	34	25	19	20	15	16	41	244	680	195	85	53
28	34	25	19	21	16	18	41	240	698	186	80	53
29	34	25	20	23	---	20	46	236	635	183	80	55
30	32	25	18	24	---	20	53	212	566	162	76	52
31	32	---	17	24	---	24	---	230	---	159	73	---
TOTAL	1137	822	573	569	447	478	973	3916	14908	10973	3205	1796
MEAN	36.7	27.4	18.5	18.4	16.0	15.4	32.4	126	497	354	103	59.9
MAX	47	32	22	24	24	24	53	244	698	671	148	83
MIN	32	24	14	15	12	10	21	64	244	159	73	48
AC-FT	2260	1630	1140	1130	887	948	1930	7770	29570	21760	6360	3560
CAL YR 1985	TOTAL	29950		MEAN	82.1	MAX	780	MIN	11	AC-FT	59410	
WTR YR 1986	TOTAL	39797		MEAN	109	MAX	698	MIN	10	AC-FT	78940	

## 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 September 1986 (discontinued). 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.--Estimated daily discharges: Jan. 8-9, Feb. 14 to Mar.13, May 13-20, June 3 and, June 26 to July 7. Records good except those for period of estimated daily discharges, which are poor. Several small diversions upstream from station for irrigation. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--50 years (water years 1911-23, 1950-86), 56.1 ft<sup>3</sup>/s; 40,640 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 greater than base discharge 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 7	0400	*363	*2.72	June 17	0330	305	2.57
June 9	0430	323	2.62				

Minimum daily discharge, 21 ft<sup>3</sup>/s, Feb. 15-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	35	30	25	23	22	25	83	198	220	99	53
2	46	35	30	25	23	22	24	68	221	220	98	52
3	44	36	30	25	23	22	25	50	200	230	97	53
4	43	35	30	24	22	23	24	43	197	245	99	50
5	42	37	29	24	22	23	25	49	221	250	102	49
6	42	36	30	24	22	23	26	56	283	240	115	47
7	45	34	29	24	22	23	27	62	315	230	98	46
8	48	36	29	24	22	23	26	61	303	224	90	48
9	48	36	29	24	22	23	26	57	302	256	91	51
10	47	36	28	24	22	23	26	55	227	237	86	78
11	54	36	28	24	22	24	25	52	177	213	83	65
12	48	37	28	23	22	24	26	54	191	205	82	55
13	47	34	28	23	22	24	25	54	210	202	79	59
14	47	31	28	22	22	24	25	56	245	199	76	57
15	41	33	27	22	21	25	25	65	261	180	73	54
16	44	33	27	23	21	24	24	70	282	184	70	52
17	43	33	27	23	21	25	24	82	287	183	69	49
18	42	34	27	23	21	25	24	90	259	180	67	52
19	41	31	27	23	21	24	26	90	258	164	69	58
20	40	32	27	23	21	26	33	70	234	185	70	49
21	40	33	27	23	21	25	34	81	238	172	86	46
22	41	32	26	23	21	26	36	101	240	158	74	46
23	39	32	25	23	21	26	32	110	235	149	77	49
24	39	32	25	23	22	26	30	107	209	148	76	52
25	38	33	26	23	22	26	29	121	214	133	68	52
26	39	32	26	23	22	26	32	144	230	129	67	52
27	38	31	26	23	22	25	40	137	240	121	64	64
28	38	31	26	23	22	26	52	125	250	114	61	57
29	38	31	25	23	---	26	62	136	240	111	53	56
30	38	31	25	23	---	25	73	147	230	98	55	52
31	38	---	25	23	---	25	---	153	---	100	54	---
TOTAL	1323	1008	850	725	610	754	931	2629	7197	5680	2448	1603
MEAN	42.7	33.6	27.4	23.4	21.8	24.3	31.0	84.8	240	183	79.0	53.4
MAX	54	37	30	25	23	26	73	153	315	256	115	78
MIN	38	31	25	22	21	22	24	43	177	98	53	46
AC-FT	2620	2000	1690	1440	1210	1500	1850	5210	14280	11270	4860	3180
CAL YR 1985	TOTAL	23801	MEAN	65.2	MAX	364	MIN	18	AC-FT	47210		
WTR YR 1986	TOTAL	25758	MEAN	70.6	MAX	315	MIN	21	AC-FT	51090		

07093740 BADGER CREEK, UPPER STATION, NEAR HOWARD, CO

LOCATION.--Lat 38°39'25", long 105°48'45", in SE¼NE¼ sec.24, T.51 N., 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. Elevation of gage is 8,780 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 12 and Mar. 31 to Apr. 3. Records good except those between 20 and 250 ft<sup>3</sup>/s, which are fair, and those for estimated daily discharges, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--5 years, 5.89 ft<sup>3</sup>/s; 4,270 acre-ft/yr.

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, 2.8 ft<sup>3</sup>/s, Jan. 29 to Mar. 2, 1984, Dec. 1, 1984, Jan. 31 to Feb. 1, and Feb. 11, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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	0045	26	5.13	July 9	0515	*42	5.47
June 6	0515	34	5.24	Aug. 24	0300	23	*5.58

Minimum daily discharge, 4.6 ft<sup>3</sup>/s, Oct. 1-2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	6.4	8.5	6.2	6.5	7.0	8.5	6.1	7.3	8.6	8.4	8.0
2	4.6	6.5	8.8	5.9	6.6	7.1	8.5	6.1	7.6	8.4	8.6	7.5
3	4.7	6.6	8.6	5.9	6.8	7.1	8.5	6.1	8.3	8.3	8.7	6.9
4	4.8	6.6	8.4	5.8	6.7	7.0	8.4	6.1	7.9	8.4	8.7	6.3
5	5.0	6.9	8.4	5.7	6.6	7.1	8.3	6.0	17	8.4	8.7	6.3
6	5.2	6.9	8.6	5.6	6.6	7.0	8.4	6.0	20	9.0	8.7	6.3
7	5.4	6.9	8.5	5.6	6.6	7.1	8.3	6.0	9.3	8.5	8.7	9.0
8	5.6	7.1	8.7	5.4	6.6	7.2	7.9	6.0	7.1	8.4	9.3	12
9	5.4	7.4	8.7	5.3	6.5	7.1	7.7	5.9	6.8	21	10	12
10	5.5	7.4	8.6	5.2	6.5	6.5	7.4	5.9	8.2	9.2	9.3	11
11	5.8	7.7	8.2	5.2	6.4	6.5	7.2	5.8	7.4	8.4	9.1	11
12	5.9	7.9	7.8	5.2	6.4	6.5	7.1	5.6	6.3	7.8	9.0	9.9
13	5.7	7.3	7.8	5.1	6.4	6.6	7.1	5.6	5.7	7.5	9.4	9.7
14	6.0	7.2	7.9	5.1	6.5	6.5	6.5	5.5	5.3	7.8	9.2	9.5
15	5.8	7.7	8.3	5.1	6.5	6.6	6.6	5.4	5.3	7.8	9.0	9.2
16	5.7	7.3	8.0	5.1	6.5	6.6	6.8	5.6	5.2	7.4	9.0	9.0
17	5.7	7.5	7.6	5.2	6.6	6.7	6.9	5.9	5.3	7.6	9.0	8.8
18	5.6	7.5	7.4	5.3	6.8	6.7	6.6	6.5	6.9	8.0	9.4	8.5
19	5.6	7.3	7.3	5.4	7.0	6.4	6.6	6.3	7.1	8.6	9.1	8.2
20	5.6	7.5	7.2	5.6	7.2	6.8	6.6	5.9	7.0	9.5	9.5	8.0
21	5.7	7.7	7.0	5.7	6.9	7.0	6.4	5.8	6.5	8.8	12	7.6
22	5.8	7.8	7.0	5.8	7.0	7.8	6.4	5.8	6.3	8.3	11	7.4
23	5.7	8.1	6.9	5.8	7.0	8.4	6.4	5.9	6.0	8.1	11	7.3
24	5.8	8.2	6.8	5.9	7.3	9.0	6.4	6.0	5.9	8.1	15	7.7
25	5.7	8.3	6.6	5.9	7.8	8.6	6.4	6.1	6.1	8.1	12	7.6
26	5.9	8.6	6.6	6.0	8.2	7.9	6.4	6.0	6.4	8.1	11	7.7
27	5.9	8.9	6.6	6.0	8.1	8.2	6.2	6.0	7.0	8.1	9.6	7.4
28	5.9	9.0	6.4	6.1	7.1	8.4	6.3	6.0	7.3	8.1	8.8	7.3
29	6.1	9.0	6.3	6.2	---	8.6	6.3	8.5	7.4	8.1	8.4	7.4
30	6.1	8.8	6.3	6.3	---	8.6	6.1	10	7.9	8.1	8.3	7.3
31	6.4	---	6.3	6.5	---	8.5	---	8.0	---	8.2	8.5	---
TOTAL	173.2	228.0	236.1	175.1	191.7	227.1	213.2	192.4	227.8	268.7	296.4	251.8
MEAN	5.59	7.60	7.62	5.65	6.85	7.33	7.11	6.21	7.59	8.67	9.56	8.39
MAX	6.4	9.0	8.8	6.5	8.2	9.0	8.5	10	20	21	15	12
MIN	4.6	6.4	6.3	5.1	6.4	6.4	6.1	5.4	5.2	7.4	8.3	6.3
AC-FT	344	452	468	347	380	450	423	382	452	533	588	499
CAL YR 1985	TOTAL	2696.6	MEAN	7.39	MAX	55	MIN	2.8	AC-FT	5350		
WTR YR 1986	TOTAL	2681.5	MEAN	7.35	MAX	21	MIN	4.6	AC-FT	5320		

## ARKANSAS RIVER BASIN

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.

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 1986 is considered fair.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily, 25,800 mg/L Aug. 20, 1982; minimum daily, 5 mg/L July 12, 1983.  
 SEDIMENT LOAD: Maximum daily, 15,600 tons Aug. 14, 1983; minimum daily, 0.05 ton Sept. 20-22, 1981,  
 July 12, 1983.

EXTREMES FOR 1985 WATER YEAR.--

SEDIMENT CONCENTRATION: Maximum daily, 5,380 mg/L July 9; minimum daily, 7 mg/L Aug. 6.  
 SEDIMENT LOAD: Maximum daily, 305 tons July 9; minimum daily, 0.17 tons Aug. 6.

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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				
09...	1300	7.6	226	4.6	01...	1120	8.5	23	0
18...	1240	7.1	116	2.2	21...	1225	9.1	32	0
MAY					AUG				
01...	1300	6.1	26	0.43	04...	1100	8.7	23	0
16...	1035	5.6	28	0.42	14...	1140	9.3	13	0
22...	1730	5.8	84	1.3	26...	1050	11	48	1
30...	1045	10	203	5.5	SEP				
JUN					04...	1230	6.4	11	0
03...	1320	9.2	79	2.0	23...	1400	7.3	26	0
10...	1505	8.2	139	3.1					
20...	1045	7.2	63	1.2					

07093740 BADGER CREEK, UPPER STATION, NEAR HOWARD, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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									
1	7.8	291	6.2	6.1	40	.67	7.3	91	1.8
2	7.2	---	6.2	6.1	---	.60	7.6	93	1.9
3	7.0	---	5.6	6.1	---	.56	8.3	86	1.9
4	8.0	344	7.8	6.1	---	.54	7.9	169	3.7
5	8.3	---	8.0	6.0	---	.53	17	971	46
6	8.4	---	7.3	6.0	---	.95	20	1170	63
7	8.3	---	7.7	6.0	---	1.2	9.3	460	12
8	7.9	---	7.3	6.0	---	1.2	7.1	139	2.7
9	7.7	368	7.7	5.9	48	.77	6.8	113	2.1
10	7.4	277	5.5	5.9	31	.49	8.2	137	3.0
11	7.2	---	4.8	5.8	40	.63	7.4	92	1.8
12	7.1	---	4.8	5.6	46	.70	6.3	---	.98
13	7.1	---	4.9	5.6	47	.71	5.7	---	.88
14	6.5	---	4.8	5.5	---	.43	5.3	---	.82
15	6.6	---	5.0	5.4	38	.55	5.3	---	.82
16	6.8	400	7.4	5.6	32	.49	5.2	---	.81
17	6.9	---	6.1	5.9	34	.55	5.3	---	.82
18	6.6	283	5.1	6.5	---	1.1	6.9	85	1.6
19	6.6	---	5.3	6.3	---	1.1	7.1	74	1.4
20	6.6	---	4.9	5.9	---	1.1	7.0	72	1.4
21	6.4	---	3.6	5.8	---	1.0	6.5	---	1.1
22	6.4	---	3.5	5.8	67	1.0	6.3	---	.97
23	6.4	---	3.5	5.9	---	1.1	6.0	---	.84
24	6.4	200	3.5	6.0	---	1.1	5.9	---	.73
25	6.4	---	3.6	6.1	---	1.0	6.1	---	.66
26	6.4	---	2.4	6.0	---	1.0	6.4	---	.60
27	6.2	---	2.6	6.0	---	1.0	7.0	---	.54
28	6.3	---	2.3	6.0	---	1.0	7.3	---	.45
29	6.3	---	1.6	8.6	179	4.2	7.4	---	.34
30	6.1	---	1.1	10	236	6.4	7.9	14	.29
31	---	---	---	8.0	124	2.7	---	---	---
TOTAL	209.3	---	150.1	192.5	---	36.37	227.8	---	155.95
JULY									
1	8.5	26	.61	8.4	---	1.0	8.0	---	.97
2	8.5	---	.53	8.6	---	1.0	7.5	---	.61
3	8.6	---	.53	8.8	---	1.0	6.9	---	.42
4	9.0	---	.56	8.7	41	.97	6.3	16	.28
5	9.3	28	.69	8.7	---	.51	6.3	---	.26
6	9.9	---	.69	8.7	7	.17	6.3	---	.26
7	9.9	32	.86	8.7	---	.21	9.0	232	5.6
8	10	35	.94	9.3	130	3.3	12	336	11
9	21	5380	305	10	1150	31	12	76	2.5
10	9.2	488	12	9.3	---	6.8	11	---	1.7
11	8.5	---	6.6	9.1	---	2.7	11	---	1.4
12	7.8	---	3.6	9.0	---	1.7	9.9	---	.94
13	7.5	---	1.9	9.4	68	1.7	9.7	33	.86
14	7.8	51	1.1	9.2	23	.58	9.5	---	.77
15	7.8	---	.79	9.0	---	.66	9.2	---	.75
16	7.4	---	.75	9.0	---	.66	9.0	---	.63
17	7.6	---	.66	9.0	---	.66	8.8	---	.62
18	8.0	44	.94	9.4	---	2.3	8.5	---	.55
19	8.7	128	3.0	9.1	59	1.5	8.2	---	.49
20	9.5	---	4.1	9.5	45	1.2	8.0	20	.43
21	8.8	102	2.4	12	113	3.7	7.7	---	.45
22	8.3	---	1.7	11	---	2.2	7.4	---	.48
23	8.1	---	1.3	11	54	1.6	7.3	26	.51
24	8.1	47	1.0	15	1150	47	7.7	---	.73
25	8.1	---	.98	12	282	9.1	7.6	---	.62
26	8.1	---	.98	11	90	2.7	7.7	---	.42
27	8.1	---	.98	9.6	---	1.3	7.4	17	.34
28	8.1	---	.98	8.8	---	1.2	7.3	---	.30
29	8.1	---	.98	8.4	---	1.0	7.4	---	.30
30	8.1	---	.98	8.3	---	1.5	7.3	---	.49
31	8.2	---	1.0	8.5	---	1.4	---	---	---
TOTAL	274.6	---	359.13	296.5	---	132.32	251.9	---	35.68
YEAR	2667.7	---	869.55						



## ARKANSAS RIVER BASIN

07093775 BADGER CREEK, LOWER STATION NEAR HOWARD, CO

LOCATION.--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. Elevation of gage is 6,780 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 19, 1983, at site 360 ft downstream at datum 5.07 ft, lower.

REMARKS.--Estimated daily discharges: Dec. 9-18, 27, Jan. 1, 5, 8-10, 13-14, 22 25-27, and Feb. 4-12. Records good except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--5 years (water years 1982-86) 9.27 ft<sup>3</sup>/s; 6,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,470 ft<sup>3</sup>/s, July 28, 1984, gage height, 8.05 ft, (from floodmark) from rating curve extended above 1,950 ft<sup>3</sup>/s; minimum daily, 0.56 ft<sup>3</sup>/s, Feb. 4, 5, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 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	2000	*988	*7.06	No other peak greater than base discharge			
Minimum daily discharge, 5.7 ft <sup>3</sup> /s, Sept. 6.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	10	8.9	8.0	6.6	18	16	8.1	10	7.5	6.0	7.5
2	9.3	10	11	8.2	6.5	19	15	7.8	11	6.7	6.4	6.9
3	8.7	9.9	9.4	9.6	6.2	20	13	8.0	12	6.2	6.7	6.5
4	8.6	9.9	9.4	10	6.6	20	11	7.9	12	6.6	7.2	6.2
5	8.6	10	11	12	7.2	21	12	8.3	29	7.0	7.2	5.8
6	8.3	9.6	11	11	7.8	20	13	8.1	17	8.2	6.5	5.7
7	8.6	9.8	9.9	9.7	7.8	20	13	8.6	10	6.6	7.1	5.8
8	9.0	9.7	8.6	12	9.0	22	12	8.7	8.8	6.2	7.6	7.6
9	8.9	9.5	8.6	11	10	22	12	8.9	8.4	10	8.5	7.5
10	8.8	9.5	8.6	9.5	10	19	11	8.7	9.8	12	7.7	7.9
11	9.0	10	7.0	9.4	11	19	11	8.5	9.1	8.6	7.0	7.6
12	9.6	10	6.1	9.3	11	19	11	8.3	7.7	7.3	6.9	6.9
13	10	9.6	6.4	10	11	18	11	8.5	7.2	6.9	6.7	6.5
14	11	9.1	6.8	10	11	18	9.9	8.3	6.7	7.3	6.7	6.3
15	11	9.7	7.2	9.4	11	17	9.3	8.6	6.5	7.4	6.3	6.2
16	10	9.8	7.6	8.8	11	17	10	9.4	7.4	7.3	6.0	6.3
17	11	9.8	7.8	8.5	10	19	11	11	7.7	7.9	6.2	6.6
18	11	9.3	7.8	8.1	10	18	10	11	10	8.4	6.6	6.4
19	11	9.2	7.8	7.6	11	18	10	11	9.8	9.5	6.5	6.6
20	9.5	12	7.8	7.7	13	15	9.7	10	9.9	13	7.0	6.6
21	9.6	7.8	7.8	7.8	13	15	9.3	9.6	9.3	10	7.7	6.2
22	9.5	11	7.8	9.0	13	15	8.9	9.2	8.0	8.5	8.0	6.1
23	9.5	8.0	7.8	7.7	14	14	8.9	8.8	7.6	7.8	7.7	6.5
24	9.5	8.1	7.8	7.3	14	15	9.0	8.4	7.5	7.3	9.7	7.0
25	9.2	7.8	8.1	6.8	15	14	8.8	8.4	7.5	6.7	10	7.6
26	9.4	7.8	8.1	7.4	18	13	9.2	7.9	7.9	6.6	15	7.4
27	9.6	8.1	8.5	8.0	20	13	8.9	7.6	8.6	6.3	10	7.2
28	9.7	8.7	8.6	7.8	19	14	8.5	7.9	6.8	6.3	9.3	7.2
29	9.6	8.9	8.7	7.3	---	14	8.2	9.8	6.5	6.2	8.6	8.4
30	9.6	9.1	8.2	6.6	---	15	7.8	11	7.5	5.9	8.5	8.1
31	9.8	---	7.9	6.6	---	15	---	11	---	6.0	8.2	---
TOTAL	296.1	281.7	258.0	272.1	313.7	536	318.4	277.3	287.2	238.2	239.5	205.1
MEAN	9.55	9.39	8.32	8.78	11.2	17.3	10.6	8.95	9.57	7.68	7.73	6.84
MAX	11	12	11	12	20	22	16	11	29	13	15	8.4
MIN	8.3	7.8	6.1	6.6	6.2	13	7.8	7.6	6.5	5.9	6.0	5.7
AC-FT	587	559	512	540	622	1060	632	550	570	472	475	407
CAL YR 1985	TOTAL	4490.4		MEAN	12.3	MAX	77	MIN	3.5	AC-FT	8910	
WTR YR 1986	TOTAL	3523.3		MEAN	9.65	MAX	29	MIN	5.7	AC-FT	6990	

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily, 15,400 mg/L (estimated) Aug. 21, 1982; minimum daily, 1 mg/L, Sept. 22, 1981 and many days in 1986.

SEDIMENT LOAD: Maximum daily, 31,500 tons (estimated) July 28, 1984; minimum daily, no load Sept. 12-30, 1981.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily, 4,680 mg/L June 5; minimum daily, 1 mg/L on many days.

SEDIMENT LOAD: Maximum daily, 1,810 tons June 5; minimum daily, 0.02 tons on many days.

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
MAR					JUN				
20...	1445	8.9	8	0.19	03...	1530	12	34	1.1
24...	1340	14	5	0.19	16...	1250	8.6	22	0.51
APR					JUL				
04...	1400	11	0	0.0	20...	1315	10	13	0.35
09...	1500	11	0	0.0	AUG				
18...	1500	9.4	2	0.05	02...	1600	10	9	0.24
MAY					10...	1220	11	44	1.3
01...	0930	8.3	10	0.22	18...	1300	8.6	6	0.14
19...	1435	10	43	1.2	SEP				
30...	1440	12	84	2.7	04...	1325	7.8	26	0.55
					11...	1330	6.9	13	0.24
					23...	1130	6.5	10	0.18

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
MARCH									
1							18	---	---
2							19	---	---
3							20	---	---
4							20	---	---
5							21	---	---
6							20	---	---
7							20	---	---
8							22	---	---
9							22	---	---
10							19	---	---
11							19	---	---
12							19	---	---
13							18	---	---
14							18	---	---
15							17	---	---
16							17	---	---
17							19	---	---
18							18	---	---
19							18	---	---
20							15	8	.32
21							15	---	.32
22							15	---	.28
23							14	---	.23
24							15	5	.20
25							14	---	.19
26							13	---	.14
27							13	---	.14
28							14	---	.15
29							14	---	.11
30							15	---	.12
31							15	---	.12
TOTAL							536	---	---

## ARKANSAS RIVER BASIN

07093775 BADGER CREEK, LOWER STATION, NEAR HOWARD, CO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
1	16	---	.09	8.1	10	.22	10	---	1.3
2	15	8	.32	7.8	---	.17	11	---	1.4
3	13	---	.07	8.0	---	.26	12	35	1.1
4	11	1	.03	7.9	---	.17	12	---	.90
5	12	---	.03	8.3	---	.27	29	4680	1810
6	13	---	.04	8.1	---	.22	17	---	2.0
7	13	---	.04	8.6	15	.35	10	---	.68
8	12	---	.03	8.7	16	.38	8.8	---	.57
9	12	1	.03	8.9	16	.38	8.4	---	.50
10	11	---	.03	8.7	16	.38	9.8	---	.79
11	11	---	.03	8.5	---	.32	9.1	---	.69
12	11	---	.03	8.3	---	.27	7.7	27	.56
13	11	---	.03	8.5	14	.32	7.2	26	.51
14	9.9	---	.03	8.3	---	.22	6.7	---	.43
15	9.3	---	.03	8.6	---	.28	6.5	---	.40
16	10	---	.05	9.4	25	.63	7.4	22	.44
17	11	---	.06	11	32	.95	7.7	---	.31
18	10	2	.05	11	32	.95	10	---	.81
19	10	---	.05	11	26	.77	9.8	---	.40
20	9.7	---	.03	10	---	.68	9.9	13	.35
21	9.3	1	.03	9.6	---	.65	9.3	---	.30
22	8.9	---	.02	9.2	---	.40	8.0	---	.43
23	8.9	---	.02	8.8	14	.33	7.6	---	.31
24	9.0	8	.19	8.4	---	.27	7.5	12	.24
25	8.8	---	.12	8.4	---	.27	7.5	---	.24
26	9.2	---	.05	7.9	---	.21	7.9	16	.34
27	8.9	---	.07	7.6	---	.16	8.6	13	.30
28	8.5	---	.09	7.9	---	.21	6.8	---	.37
29	8.2	5	.11	9.8	35	.93	6.5	---	.26
30	7.8	---	.11	11	82	2.4	7.5	---	.20
31	---	---	---	11	---	2.1	---	---	---
TOTAL	318.4	---	1.91	277.3	---	16.12	287.2	---	1827.13
		JULY			AUGUST			SEPTEMBER	
1	7.5	---	.20	6.0	---	.08	7.5	---	.16
2	6.7	9	.16	6.4	6	.10	6.9	---	.15
3	6.2	---	.15	6.7	---	.29	6.5	8	.14
4	6.6	---	.16	7.2	26	.51	6.2	---	.13
5	7.0	22	.58	7.2	---	.38	5.8	---	.13
6	8.2	---	.27	6.5	---	.09	5.7	---	.12
7	6.6	---	.18	7.1	---	.19	5.8	---	.13
8	6.2	---	.13	7.6	1	.02	7.6	---	.16
9	10	52	1.9	8.5	---	.03	7.5	---	.16
10	12	52	1.7	7.7	---	.02	7.9	---	.17
11	8.6	---	.53	7.0	13	.02	7.6	8	.16
12	7.3	13	.26	6.9	---	.04	6.9	---	.15
13	6.9	8	.15	6.7	---	.04	6.5	---	.14
14	7.3	8	.16	6.7	---	.04	6.3	---	.14
15	7.4	14	.28	6.3	1	.04	6.2	---	.13
16	7.3	18	.35	6.0	---	.30	6.3	---	.14
17	7.9	18	.38	6.2	---	.45	6.6	---	.14
18	8.4	25	.57	6.6	---	.02	6.4	---	.14
19	9.5	37	1.5	6.5	---	.02	6.6	---	.14
20	13	26	.91	7.0	---	.25	6.6	---	.14
21	10	---	.35	7.7	---	.23	6.2	---	.15
22	8.5	4	.09	8.0	---	.23	6.1	---	.15
23	7.8	---	.08	7.7	---	.20	6.5	10	.18
24	7.3	---	.08	9.7	11	.29	7.0	---	.19
25	6.7	---	.07	10	15	.41	7.6	---	.21
26	6.6	---	.07	15	14	.57	7.4	---	.20
27	6.3	---	.07	10	11	.30	7.2	---	.19
28	6.3	---	.07	9.3	---	.25	7.2	---	.19
29	6.2	---	.07	8.6	---	.23	8.4	---	.23
30	5.9	---	.05	8.5	---	.23	8.1	---	.22
31	6.0	---	.06	8.2	---	.20	---	---	---
TOTAL	238.2	---	11.58	239.5	---	6.07	205.1	---	4.78
YEAR	3010.5		1866.71						

ARKANSAS RIVER BASIN

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>.

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. Elevation of gage is 5,720 ft, from topographic map. Prior to Oct. 1, 1964, at site 600 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, diversions for irrigation of about 35,000 acres upstream from station, and return flow from irrigated areas.

AVERAGE DISCHARGE.--32 years (water years 1946-55, 1965-86), 818 ft<sup>3</sup>/s; 592,600 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, 9.13 ft, June 9, 1985; minimum daily discharge, 200 ft<sup>3</sup>/s, Jan. 5-7, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,670 ft<sup>3</sup>/s at 1230 June 8, gage height, 7.30 ft; minimum daily, 334 ft<sup>3</sup>/s, Dec. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	534	609	540	463	438	421	421	577	1920	3840	1190	797
2	520	573	529	457	437	421	433	649	2000	3370	1170	795
3	515	565	538	466	435	421	433	792	2310	3320	1170	759
4	514	567	530	466	416	419	437	998	2880	3220	1140	731
5	531	558	514	434	395	414	424	1110	3280	3300	1110	747
6	483	559	504	451	405	418	413	1420	3670	3600	1100	688
7	473	541	511	477	410	406	409	1110	4150	3750	1110	663
8	513	510	509	466	385	397	418	874	4560	3690	1080	669
9	556	526	513	460	406	395	436	1150	4500	3460	1060	687
10	560	534	501	479	369	402	423	1250	4070	3070	1020	727
11	569	536	378	480	363	393	410	1130	3260	2770	986	802
12	591	564	343	479	367	385	406	1060	2740	2670	968	788
13	602	572	334	464	437	392	403	1060	2620	2390	949	771
14	632	558	416	454	465	381	398	1290	2850	2370	915	749
15	645	555	466	458	464	377	365	1510	3050	2330	904	724
16	626	587	474	458	456	374	564	1680	3270	2060	841	681
17	646	560	482	462	441	376	659	1830	3670	2010	803	654
18	650	606	504	460	440	402	651	1800	3910	2130	968	633
19	600	596	540	460	439	405	638	1660	4210	2190	794	616
20	596	513	552	458	439	405	628	1630	4520	2300	755	592
21	585	531	549	461	437	411	638	2030	4400	2260	807	573
22	581	523	532	424	417	406	669	2030	4220	2180	868	569
23	602	532	519	426	406	406	698	2100	4050	1970	1070	564
24	607	542	511	436	412	402	723	2110	3980	1950	1010	565
25	601	555	503	425	417	394	548	2120	3900	1880	919	599
26	592	563	492	408	421	384	589	2190	3900	1740	954	620
27	592	551	491	422	430	379	618	2420	4060	1620	953	665
28	584	537	490	431	433	382	564	2400	4140	1570	861	706
29	572	540	473	435	---	391	532	2260	4090	1470	818	728
30	571	552	476	436	---	405	537	1960	4000	1330	844	742
31	573	---	484	440	---	417	---	1820	---	1220	817	---
TOTAL	17816	16615	15198	13996	11780	12381	15485	48020	108180	77030	29954	20604
MEAN	575	554	490	451	421	399	516	1549	3606	2485	966	687
MAX	650	609	552	480	465	421	723	2420	4560	3840	1190	802
MIN	473	510	334	408	363	374	365	577	1920	1220	755	564
AC-FT	35340	32960	30150	27760	23370	24560	30710	95250	214600	152800	59410	40870
CAL YR 1985	TOTAL	392786	MEAN	1076	MAX	5800	MIN	316	AC-FT	779100		
WTR YR 1986	TOTAL	387059	MEAN	1060	MAX	4560	MIN	334	AC-FT	767700		

## ARKANSAS RIVER BASIN

07095000 GRAPE CREEK NEAR WESTCLIFFE, CO

LOCATION.--Lat 38°11'10", long 105°28'59", in NW¼NW¼ sec.31, T.21 S., R.72 W., Custer County, Hydrologic Unit 11020001, on left bank 0.5 mi upstream from water line of De Weese Reservoir at elevation 7,665 ft, 0.5 mi downstream from Swift Creek, and 3.6 mi northwest of Westcliffe.

DRAINAGE AREA.--320 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to September 1961, October 1962 to September 1984. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1241: 1950 (M). WSP 1311: 1927 (M).

GAGE.--Water-stage recorder. Elevation of gage is 7,690 ft, from topographic map. Prior to Mar. 17, 1939, at site 30 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Water year 1985, Oct. 1-26, Nov. 30, Dec. 1-10, 12, Dec. 24 to Mar. 6, Mar. 14, 15, 17, 20-23, Mar. 28 to Apr. 11, and Aug. 12-19. Water Year 1986, Nov. 19, 20, Nov. 22 to Mar. 20, May 18-20, Aug. 28 to Sept. 6, and Sept 18-30. Water year 1986, Oct. 7-9, Nov. 1 to Mar. 26, Apr. 3, 4, and Sept. 6-9. Records good except for estimated daily discharges, which are poor. Diversions for irrigation of about 250 acres upstream from station.

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

AVERAGE DISCHARGE.--60 years (water years 1925-61, 1963-85), 33.1 ft<sup>3</sup>/s; 23,980 acre-ft/yr: 61 years (water years 1925-61, 1963-86), 33.5 ft<sup>3</sup>/s; 24,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,460 ft<sup>3</sup>/s, Aug. 2, 1966, gage height, 8.45 ft, from rating curve extended above 320 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 0.1 ft<sup>3</sup>/s, June 19-22, 1936.

EXTREMES FOR WATER YEAR 1985.--Peak discharges greater than base discharge of 250 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. 29	0700	461	2.65	June 11	1030	*493	*2.73
May 22	2100	369	2.40				

Minimum daily discharge, 6.4 ft<sup>3</sup>/s, Sept. 7-10.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 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 30	0400	358	2.30	June 7	2030	*615	*2.87

Minimum daily discharge, 9.8 ft<sup>3</sup>/s, May 14.

ARKANSAS RIVER BASIN

07095000 GRAPE CREEK NEAR WESTCLIFFE, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	26	18	14	8.0	23	36	151	158	55	85	7.4
2	10	25	18	10	8.5	25	37	108	134	60	103	7.4
3	11	22	16	10	8.5	25	40	89	137	56	86	8.0
4	50	20	13	11	8.5	40	105	156	49	89	9.8	
5	60	21	12	12	9.0	25	40	132	190	47	75	9.8
6	55	24	13	12	9.0	25	38	144	190	43	67	7.4
7	50	22	14	12	9.5	28	42	154	203	40	55	6.4
8	40	22	14	12	12	32	47	154	263	36	49	6.4
9	35	20	13	12	16	46	54	161	355	44	50	6.4
10	35	19	13	11	16	56	60	168	414	85	46	6.4
11	35	22	14	10	16	55	66	166	465	54	43	7.4
12	35	24	14	10	18	35	60	146	362	43	40	12
13	40	24	12	11	20	36	52	156	305	43	37	12
14	45	20	12	12	22	35	51	132	266	121	34	12
15	48	17	13	13	23	36	52	92	238	67	30	12
16	50	17	13	13	22	49	51	78	211	68	27	14
17	49	20	13	13	22	72	51	85	203	55	24	9.8
18	48	20	13	13	22	84	50	166	219	61	20	9.8
19	46	16	13	13	22	68	49	128	211	97	19	13
20	45	15	14	12	21	51	40	123	249	105	16	16
21	42	14	13	11	21	54	29	185	185	104	16	26
22	40	14	13	11	21	46	26	299	156	151	15	17
23	38	16	14	12	20	41	24	266	139	92	13	15
24	35	17	14	12	20	41	19	196	123	71	13	12
25	35	14	13	12	21	44	30	163	139	67	12	11
26	35	13	20	12	22	47	60	170	158	78	12	12
27	45	19	25	11	22	35	119	193	112	63	12	12
28	39	21	25	11	22	35	178	196	85	54	12	16
29	34	19	23	11	---	35	383	193	68	128	12	26
30	31	18	20	10	---	30	194	173	59	168	8.9	27
31	29	---	16	10	---	35	---	154	---	117	8.0	---
TOTAL	1200	581	471	359	482.0	1274	2018	4826	6153	2322	1128.9	367.4
MEAN	38.7	19.4	15.2	11.6	17.2	41.1	67.3	156	205	74.9	36.4	12.2
MAX	60	26	25	14	23	84	383	299	465	168	103	27
MIN	10	13	12	10	8.0	23	19	78	59	36	8.0	6.4
AC-FT	2380	1150	934	712	956	2530	4000	9570	12200	4610	2240	729
CAL YR 1984	TOTAL	20172.9		MEAN	55.1	MAX	563	MIN	8.0	AC-FT	40010	
WTR YR 1985	TOTAL	21182.3		MEAN	58.0	MAX	465	MIN	6.4	AC-FT	42020	

## ARKANSAS RIVER BASIN

07095000 GRAPE CREEK NEAR WESTCLIFFE, CO

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	28	24	17	31	29	25	44	123	163	24	30
2	20	28	24	18	31	29	34	52	240	130	19	30
3	18	29	23	18	30	28	26	61	227	103	19	29
4	16	29	23	18	29	29	35	84	284	89	20	27
5	16	30	22	18	29	29	72	72	302	85	19	27
6	16	28	22	18	29	30	123	47	433	101	18	26
7	17	24	21	18	27	30	139	38	505	106	16	24
8	18	25	20	17	23	30	78	39	590	96	17	22
9	16	26	19	18	20	29	68	38	523	117	20	20
10	15	23	14	18	17	28	49	36	461	137	24	32
11	22	23	12	18	18	28	41	27	400	114	24	40
12	19	23	13	18	21	26	36	15	330	94	21	35
13	20	24	14	18	23	24	34	12	287	79	19	32
14	34	22	15	17	23	25	29	9.8	275	68	19	34
15	30	23	16	18	24	25	30	18	269	58	17	29
16	24	24	16	18	24	25	31	30	257	49	13	29
17	21	25	15	18	25	25	59	77	235	44	11	29
18	21	24	16	18	25	22	46	97	227	41	18	27
19	21	23	17	20	26	22	66	67	224	40	13	25
20	21	24	17	22	24	23	104	54	216	71	15	22
21	20	23	18	21	23	24	56	63	196	144	29	21
22	20	22	19	20	24	24	47	51	178	144	28	19
23	18	24	20	22	24	24	47	49	166	114	26	18
24	18	25	19	21	27	24	49	50	158	97	35	19
25	18	27	19	20	30	23	51	49	158	86	31	21
26	19	27	19	22	30	22	61	50	156	77	39	20
27	19	27	18	25	28	22	63	52	196	67	40	20
28	20	26	18	27	29	22	50	56	180	56	34	18
29	20	26	19	30	---	22	39	190	166	47	31	19
30	19	25	18	32	---	22	34	266	170	38	30	27
31	27	---	17	31	---	22	---	154	---	30	30	---
TOTAL	625	757	567	634	714	787	1622	1947.8	8132	2685	719	771
MEAN	20.2	25.2	18.3	20.5	25.5	25.4	54.1	62.8	271	86.6	23.2	25.7
MAX	34	30	24	32	31	30	139	266	590	163	40	40
MIN	15	22	12	17	17	22	25	9.8	123	30	11	18
AC-FT	1240	1500	1120	1260	1420	1560	3220	3860	16130	5330	1430	1530
CAL YR 1985	TOTAL	20879.3		MEAN	57.2	MAX	465	MIN	6.4	AC-FT	41410	
WTR YR 1986	TOTAL	19960.8		MEAN	54.7	MAX	590	MIN	9.8	AC-FT	39590	

07096000 ARKANSAS RIVER AT CANON CITY, CO

LOCATION.--Lat 38°26'02", long 105°15'24", in SE¼SE¼ sec.31, T.18 S., R.72 W., Fremont County, Hydrologic Unit 11020002, on right bank 800 ft upstream from Sand Creek, 0.7 mi downstream from Grape Creek, and 0.7 mi upstream from First Street Bridge in Canon City.

DRAINAGE AREA.--3,117 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1888 to September 1984. Monthly discharge only for some periods, published in WSP 1311. Published as "near Canyon" 1900-1906.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1311: 1897-98.

GAGE.--Water-stage recorder. Datum of gage is 5,342.13 ft above National Geodetic Vertical Datum of 1929. See WSP 1711 or 1731 for history of changes prior to Oct. 1, 1957. Oct. 1, 1957, to Nov. 15, 1962, water-stage recorder at present site at datum 1.49 ft higher.

REMARKS.--No estimated daily discharges during water year 1985. Estimated daily discharges: Water year 1986, Jan. 20 to Mar. 11. Records good except for estimated daily discharges, which are poor. Diversions for irrigation of about 250 acres upstream from station.

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

AVERAGE DISCHARGE.--97 years, 729 ft<sup>3</sup>/s, 528,200 acre-ft/yr: 98 years, 731 ft<sup>3</sup>/s; 529,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft<sup>3</sup>/s, Aug. 2, 1921, gage height, 10.7 ft, site and datum then in use, from floodmark, from rating curve extended above 5,000 ft<sup>3</sup>/s; minimum daily, 69 ft<sup>3</sup>/s, May 13, 1959.

EXTREMES FOR WATER YEAR 1985.--Maximum discharge, not determined; minimum daily, 340 ft<sup>3</sup>/s, Mar. 9.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined; minimum daily, 240 ft<sup>3</sup>/s, Apr. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	470	860	484	457	759	687	843	1350	2610	2000	1380	470
2	451	711	491	393	727	679	878	1400	2410	1930	1290	451
3	444	671	477	351	818	655	959	1470	2280	1840	1320	438
4	743	711	477	381	834	631	1010	1610	2340	1770	1270	405
5	826	695	484	399	834	608	663	1860	2550	1750	1160	387
6	735	679	457	418	826	431	519	2170	3080	1790	1070	387
7	809	687	451	431	818	351	484	2220	3890	1920	950	381
8	860	639	464	431	818	345	585	2240	5270	1960	887	381
9	834	608	505	457	852	340	655	2310	6810	1850	843	381
10	809	593	519	444	826	345	655	2340	7580	1790	800	381
11	751	593	519	412	826	375	585	2280	6670	1770	932	381
12	727	608	519	387	826	412	585	2200	5190	1670	775	484
13	679	608	519	369	719	412	578	1860	4730	1620	719	505
14	600	600	491	387	735	375	593	1550	4510	1710	671	484
15	671	593	491	399	784	363	593	1330	4510	1720	671	484
16	727	548	505	405	809	431	647	1180	4510	1750	655	464
17	767	585	491	399	809	784	663	1150	4470	1700	608	405
18	818	585	491	425	809	826	671	1290	4290	1720	578	363
19	932	578	477	451	792	860	703	1480	4150	1830	563	363
20	1050	555	470	451	784	869	719	1510	3940	2150	563	375
21	1040	540	464	418	784	860	600	1600	3580	2220	548	418
22	1040	526	444	431	767	860	540	1660	3420	2730	563	418
23	995	533	425	775	784	809	505	1520	3280	2950	563	387
24	809	563	431	735	711	809	464	1460	3050	2760	615	393
25	759	570	418	759	703	818	451	1430	3000	2360	743	405
26	751	563	425	826	711	809	655	1560	3080	2150	663	418
27	775	519	438	843	695	792	923	1960	2700	1900	498	418
28	818	491	470	860	695	800	1040	2150	2340	1740	491	399
29	800	526	484	834	---	852	1350	2920	2220	1860	519	425
30	843	498	470	809	---	809	1430	3030	2150	1800	498	477
31	959	---	451	767	---	818	---	2890	---	1550	464	---
TOTAL	24292	18036	14702	16304	21855	19815	21546	56980	114610	60260	23870	12528
MEAN	784	601	474	526	781	639	718	1838	3820	1944	770	418
MAX	1050	860	519	860	852	869	1430	3030	7580	2950	1380	505
MIN	444	491	418	351	695	340	451	1150	2150	1550	464	363
AC-FT	48180	35770	29160	32340	43350	39300	42740	113000	227300	119500	47350	24850
CAL YR 1984	TOTAL	485744	MEAN	1327	MAX	5950	MIN	280	AC-FT	963500		
WTR YR 1985	TOTAL	404798	MEAN	1109	MAX	7580	MIN	340	AC-FT	802900		



## ARKANSAS RIVER BASIN

## 07096000 ARKANSAS RIVER AT CANON CITY, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	484	570	555	387	370	340	334	387	1770	3720	950	687
2	464	526	533	381	370	340	351	444	1920	3230	932	687
3	451	512	540	387	360	350	357	585	2180	3110	932	655
4	444	519	540	375	350	350	369	923	2740	3000	914	631
5	457	519	526	369	350	340	345	1040	3230	3010	914	671
6	425	519	505	387	340	340	340	1360	3700	3330	869	600
7	412	505	505	375	340	330	375	1120	4430	3450	887	578
8	431	470	512	387	330	330	405	800	4850	3470	860	578
9	484	451	512	393	330	330	405	1090	4940	3280	843	600
10	491	451	512	399	320	340	363	1280	4510	2980	809	623
11	491	451	464	387	310	350	318	1140	3500	2700	784	679
12	512	477	381	375	300	345	290	1040	2950	2550	751	679
13	526	484	363	369	310	357	280	959	2740	2320	735	655
14	548	484	393	375	310	345	270	1140	2900	2220	695	639
15	555	477	451	381	320	345	240	1410	3110	2180	695	608
16	548	491	438	369	330	345	369	1570	3310	1920	639	563
17	600	491	444	369	340	329	498	1750	3670	1790	593	540
18	615	519	464	369	340	345	498	1700	3920	1860	803	512
19	585	526	512	369	350	345	498	1550	4250	1970	639	498
20	563	484	548	375	360	345	498	1450	4650	2110	585	470
21	548	491	533	360	350	351	505	1760	4490	2200	631	444
22	540	512	519	335	350	345	519	1850	4230	2140	695	425
23	548	526	491	340	360	340	548	1920	3980	1930	929	418
24	563	533	491	350	360	334	570	1920	3870	1810	923	405
25	555	563	464	340	360	318	425	1890	3770	1760	800	418
26	548	578	438	325	370	307	399	1930	3740	1600	860	438
27	533	585	438	330	360	301	451	2150	3980	1460	834	470
28	526	563	425	350	350	301	438	2180	4100	1360	735	526
29	519	555	405	360	---	301	393	2080	4040	1270	687	540
30	519	570	412	360	---	318	369	1930	3890	1130	727	570
31	526	---	405	370	---	329	---	1770	---	1000	703	---
TOTAL	16011	15402	14719	11398	9590	10386	12020	44118	109360	71860	24353	16807
MEAN	516	513	475	368	343	335	401	1423	3645	2318	786	560
MAX	615	585	555	399	370	357	570	2180	4940	3720	950	687
MIN	412	451	363	325	300	301	240	387	1770	1000	585	405
AC-FT	31760	30550	29200	22610	19020	20600	23840	87510	216900	142500	48300	33340
CAL YR 1985	TOTAL	393900		MEAN	1079	MAX	7580	MIN	340	AC-FT	781300	
WTR YR 1986	TOTAL	356024		MEAN	975	MAX	4940	MIN	240	AC-FT	706200	

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.

REVISED RECORDS.--WDR CO-84-1: 1982(M), 1983 (M); WDR CO-85-1: 1984 (M).

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1974. Elevation of gage is 5,254 ft, above National Geodetic Vertical Datum of 1929 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.--Estimated daily discharges: Oct. 20 to Nov. 20, Dec. 2 to Jan. 7, Jan. 21 to Feb. 2, Feb. 10-12, and Mar. 8-17. Records good except those for periods of estimated daily discharges, which are poor. Diversions for irrigation of about 500 acres upstream from station. Water imported to basin from Arkansas River for irrigation of a few small orchards upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--20 years (water years 1949-53, 1972-86), 29.6 ft<sup>3</sup>/s; 21,440 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 greater than base discharge 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)
Aug. 25	2030	*738	*4.23	No other peak greater than base discharge.			
Minimum daily, 5.7 ft <sup>3</sup> /s, Sept. 18.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	50	25	20	15	12	40	23	18	11	9.6	11
2	50	54	24	20	15	13	42	25	21	11	16	11
3	50	50	24	20	15	14	39	25	19	11	17	11
4	48	47	23	20	14	17	39	19	21	11	14	18
5	52	44	22	20	13	13	39	21	20	13	12	21
6	48	43	21	20	14	12	37	28	22	13	13	20
7	45	42	20	20	14	12	33	32	20	13	11	19
8	43	40	19	20	14	13	28	35	18	14	12	20
9	45	40	18	19	14	14	35	32	17	16	12	20
10	54	39	16	19	9.4	17	35	31	21	17	15	16
11	65	38	14	19	10	20	39	25	24	11	11	16
12	64	38	14	20	10	25	39	14	22	10	8.4	17
13	58	37	16	19	17	45	40	11	20	10	9.5	14
14	59	37	18	18	16	40	42	10	16	13	13	14
15	63	45	20	18	16	36	40	9.9	15	9.1	14	9.6
16	63	52	23	18	16	33	37	16	12	8.7	17	6.4
17	64	50	23	18	14	34	36	23	14	9.0	18	6.5
18	71	47	23	17	16	35	35	21	15	11	14	5.7
19	64	44	22	17	19	34	35	19	14	13	9.6	10
20	56	42	22	17	19	32	38	15	18	17	9.6	12
21	54	36	21	16	18	33	35	12	14	19	11	8.7
22	52	34	21	13	15	36	32	11	13	17	11	7.7
23	55	31	21	15	16	34	28	11	12	18	28	10
24	53	30	21	17	15	34	29	13	11	11	12	8.2
25	52	31	21	15	16	34	29	16	12	12	46	7.1
26	50	31	21	13	17	34	33	14	12	13	42	11
27	48	29	20	15	14	35	34	12	11	14	17	9.9
28	46	28	20	17	14	35	35	12	12	14	14	12
29	44	27	20	16	---	32	32	13	11	13	16	16
30	43	26	20	15	---	34	26	15	12	10	12	17
31	42	---	20	15	---	38	---	15	---	9.9	9.3	---
TOTAL	1652	1182	633	546	415.4	850	1061	578.9	487	392.7	474.0	385.8
MEAN	53.3	39.4	20.4	17.6	14.8	27.4	35.4	18.7	16.2	12.7	15.3	12.9
MAX	71	54	25	20	19	45	42	35	24	19	46	21
MIN	42	26	14	13	9.4	12	26	9.9	11	8.7	8.4	5.7
AC-FT	3280	2340	1260	1080	824	1690	2100	1150	966	779	940	765
CAL YR 1985	TOTAL	32316	MEAN	88.5	MAX	900	MIN	14	AC-FT	64100		
WTR YR 1986	TOTAL	8657.8	MEAN	23.7	MAX	71	MIN	5.7	AC-FT	17170		

## ARKANSAS RIVER BASIN

## 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 above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1974, at site 400 ft downstream at datum 0.03 ft, lower.

REMARKS.--Estimated daily discharges: Water year 1985, Jan. 2-4, Feb. 1-7, and Feb. 18-19. Records good except for estimated daily discharges, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions upstream from 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.--24 years (water years 1940-52, 1975-85), 790 ft<sup>3</sup>/s; 572,400 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 WATER YEAR 1985.--Maximum discharge, 8,460 ft<sup>3</sup>/s at 2000 July 23, gage height, 8.93 ft; minimum daily, 356 ft<sup>3</sup>/s, Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	555	1260	500	587	810	670	951	1980	3020	2050	1630	490
2	515	1020	525	490	815	670	964	1980	2670	2010	1540	465
3	510	938	485	495	820	658	1050	2050	2610	1930	1530	460
4	1270	984	505	520	830	658	1240	2210	2700	1990	1560	412
5	1080	964	480	520	835	636	925	2420	2860	1970	1350	412
6	918	944	475	535	840	424	729	2800	3450	2020	1220	408
7	970	958	515	545	845	368	717	2980	4310	2160	1090	412
8	1110	866	530	560	850	360	840	2870	5500	2200	990	404
9	1090	802	582	570	840	356	886	2880	6460	2070	944	400
10	1050	783	604	530	828	368	958	2930	7010	1980	990	404
11	964	783	604	500	802	420	906	2860	6560	1880	795	400
12	964	808	631	475	785	530	899	2630	5100	1800	886	592
13	880	808	631	485	745	587	886	2290	4560	1760	821	587
14	854	771	565	470	711	438	892	1860	4280	1860	795	565
15	964	711	598	475	687	416	899	1560	4230	1930	777	535
16	1080	636	620	470	705	443	925	1390	4230	1870	735	510
17	1090	675	587	465	705	480	938	1350	4270	1800	664	434
18	1180	664	587	535	735	783	944	1500	4160	1790	631	404
19	1260	664	555	535	765	808	964	1690	4080	2070	620	434
20	1500	620	540	525	834	854	984	1760	3920	3240	598	452
21	1500	592	520	490	840	918	834	2040	3660	2760	582	515
22	1500	565	535	505	854	912	753	2300	3470	3280	620	495
23	1480	582	565	795	854	886	735	2110	3340	3980	626	456
24	1180	620	570	866	705	866	670	2030	3100	3340	681	460
25	1100	631	555	880	653	873	681	1990	3050	2930	821	495
26	1070	614	565	814	670	886	886	2130	3150	2590	711	515
27	1100	550	587	783	653	906	1140	2560	2780	2210	510	495
28	1180	525	620	753	670	918	1250	2680	2400	1980	530	465
29	1130	587	598	729	---	970	1780	3470	2290	2130	555	525
30	1190	525	576	765	---	925	2050	3640	2210	2110	525	604
31	1340	---	565	765	---	906	---	3450	---	1800	470	---
TOTAL	33574	22450	17375	18432	21686	20893	29276	72390	115430	69490	26797	14205
MEAN	1083	748	560	595	775	674	976	2335	3848	2242	864	474
MAX	1500	1260	631	880	854	970	2050	3640	7010	3980	1630	604
MIN	510	525	475	465	653	356	670	1350	2210	1760	470	400
AC-FT	66590	44530	34460	36560	43010	41440	58070	143600	229000	137800	53150	28180
CAL YR 1984	TOTAL	514512		MEAN	1406	MAX	5740	MIN	300	AC-FT	1021000	
WTR YR 1985	TOTAL	461998		MEAN	1266	MAX	7010	MIN	356	AC-FT	916400	

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 temperature record Jan. 7-8 and no specific conductance record Jan. 6-9, Sept. 16-17 and Sept. 23-26.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,380 micromhos Sept. 30, 1981; minimum daily, 111 micromhos June 22, 1984.  
WATER TEMPERATURE: Maximum, 24.0°C Aug. 21-22, 31, 1985; minimum, 0.0°C many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 669 micromhos Apr. 16; minimum daily, 147 micromhos June 23.  
WATER TEMPERATURE: Maximum, 23.0°C Aug. 16-19, 21; minimum, 0.0°C many days during the winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, SOLVED (MG/L)	HARDNESS (MG/L AS CaCO3)	CALCIUM, SOLVED (MG/L AS Ca)	MAGNESIUM, SOLVED (MG/L AS Mg)	SODIUM, SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	
OCT 1985													
30...	1135	525	468	8.3	9.0	4.0	11.1	190	51	15	23	0.8	
DEC 04...	1100	587	492	8.4	3.0	3.0	11.6	210	55	17	24	0.8	
FEB 1986													
11...	1130	412	545	8.2	0.0	2.0	12.8	230	59	20	28	0.8	
APR 29...	1100	424	478	8.4	13.0	5.0	9.7	190	51	16	24	0.8	
JUN 25...	1100	3850	159	8.1	16.0	32	8.2	66	19	4.5	5.2	0.3	
AUG 27...	1130	997	386	8.2	20.0	--	7.6	--	--	--	--	--	
DATE		POTASSIUM, SOLVED (MG/L AS K)	ALKALINITY (MG/L AS CaCO3)	SULFATE, SOLVED (MG/L AS SO4)	CHLORIDE, SOLVED (MG/L AS CL)	FLUORIDE, SOLVED (MG/L AS F)	SILICA, SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
OCT 1985													
30...	2.7	130	95	8.4	0.60	12	293	290	0.40	415	0.111	0.041	
DEC 04...	2.8	138	100	8.8	0.60	13	290	300	0.39	460	0.300	0.020	
FEB 1986													
11...	2.6	147	130	11	0.70	14	365	350	0.50	406	0.820	0.041	
APR 29...	2.3	119	120	9.1	0.50	11	311	310	0.42	356	0.370	0.030	
JUN 25...	1.1	52	24	1.8	0.30	7.1	99	95	0.13	1030	0.120	0.020	
AUG 27...	--	--	--	--	--	--	--	--	--	--	0.300	<0.010	
DATE		NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	
OCT 1985													
30...	0.041	0.36	0.40	0.041	0.021	<1	61	<0.5	<1	<1	<3		
DEC 04...	0.020	0.38	0.40	0.070	0.030	--	--	--	--	--	--		
FEB 1986													
11...	0.050	0.36	0.40	0.090	0.061	<1	66	<0.5	<1	<1	<3		
APR 29...	0.030	0.37	0.40	0.120	0.060	--	--	--	--	--	--		
JUN 25...	0.040	0.48	0.50	0.080	0.020	<1	35	<0.5	<1	<1	<3		
AUG 27...	<0.010	--	0.70	0.050	0.040	--	--	--	--	--	--		

ARKANSAS RIVER BASIN

07097000 ARKANSAS RIVER AT PORTLAND, CO--Continued

DATE	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	*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 NI)	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)
OCT 1985 30...	2	24	<1	17	0.2	<10	2	2	<1	<6	16
FEB 1986 11...	1	18	<1	31	<0.1	<10	1	4	<1	<6	37
JUN 25...	4	74	<5	14	<0.1	<10	1	<1	<1	<6	14

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 1985 30...	1135	525	15	21	44
DEC 04...	1100	587	28	44	42
FEB 1986 11...	1130	412	53	59	--
APR 29...	1100	424	53	61	31
JUN 25...	1100	3850	184	1910	--
AUG 27...	1130	997	270	727	--

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	505	536	491	500	544	537	579	504	205	153	285	400
2	507	486	497	503	536	540	577	462	257	154	355	397
3	509	481	502	510	533	544	570	415	248	154	380	372
4	513	475	492	508	541	537	575	339	217	157	362	390
5	514	471	496	521	567	544	571	305	208	168	347	496
6	526	461	502	---	562	543	577	276	208	164	350	441
7	526	476	494	---	564	546	565	250	197	161	344	419
8	510	492	489	---	565	550	550	291	177	164	333	419
9	504	495	483	---	546	548	554	284	196	172	326	413
10	500	489	463	543	529	538	489	236	216	178	327	396
11	510	492	486	536	536	547	575	242	200	182	330	384
12	492	486	505	532	548	553	575	244	189	180	336	376
13	486	483	454	542	529	541	585	254	190	187	352	375
14	499	479	535	555	494	558	598	247	179	189	398	386
15	487	501	515	551	491	547	633	220	175	192	446	406
16	480	503	513	548	494	539	633	207	167	204	444	---
17	474	518	520	549	493	560	515	204	167	208	457	---
18	466	501	507	547	498	562	490	205	164	185	457	472
19	475	486	479	548	507	554	504	209	165	171	487	452
20	484	501	452	550	507	552	506	213	161	190	429	444
21	493	514	457	553	510	548	498	196	157	207	418	454
22	484	474	472	558	521	555	495	192	150	220	379	483
23	464	504	482	573	532	560	480	179	147	219	359	---
24	464	503	485	560	533	572	468	168	153	228	417	---
25	460	517	482	554	533	580	483	171	157	237	411	---
26	466	513	494	573	538	590	505	171	160	236	401	---
27	470	497	491	569	528	594	484	166	159	247	379	480
28	477	499	490	558	532	583	484	169	155	251	377	461
29	486	509	495	559	---	587	508	183	150	246	387	489
30	480	494	499	551	---	582	516	204	153	253	384	447
31	486	---	502	556	---	576	---	203	---	261	375	---
MEAN	490	495	491		529	557	540	245	181	197	382	

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.



## ARKANSAS RIVER BASIN

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. Elevation of gage is 6,420 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 10-11, 13-24, 27-30, Dec. 1-21, 25-31, Jan. 1-16, 21-28, Feb. 1-15, 28, Mar. 1, 17-18, Apr. 17, June 25-26, and Aug. 2-3, 10-11. Records fair except those for periods of estimated daily discharges and those above 150 ft<sup>3</sup>/s, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 2.18 ft<sup>3</sup>/s; 1,580 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 greater than base discharge 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)
Aug. 31	1630	*296	*3.62	No other peak greater than base discharge			
No flow many days.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.50	.40	.54	.38	.30	.63	.51	.19	.00	.00	2.8
2	.70	.54	.35	.52	.36	.31	.49	.50	.19	.00	.05	1.3
3	.62	.63	.35	.48	.34	.32	.42	.37	.16	.00	.02	.74
4	.62	.84	.36	.44	.30	.32	.64	.27	.08	.00	.00	.33
5	.62	.86	.38	.44	.28	.33	.41	.16	.16	.01	.00	.00
6	.62	.72	.41	.50	.26	.32	.34	.19	.08	.19	.00	.00
7	.57	.84	.40	.46	.24	.27	.29	.19	.06	.02	.00	.00
8	.55	.81	.37	.44	.22	.23	.32	.28	.06	.16	.00	.01
9	.55	.81	.35	.48	.21	.23	.26	.31	.06	.00	.00	.19
10	.55	.70	.32	.50	.20	.23	.23	.33	.04	.00	.07	.18
11	.68	.74	.30	.52	.20	.32	.23	.32	.03	.00	.05	.14
12	.69	.80	.30	.54	.20	.41	.19	.27	.03	.00	.02	.13
13	.62	.84	.35	.55	.20	.43	.23	.23	.02	.00	.00	.10
14	.80	.80	.40	.56	.21	.49	.39	.19	.02	.01	.00	.05
15	.80	.76	.45	.56	.21	.41	.69	.16	.02	.02	.00	.02
16	.72	.82	.48	.50	.22	.36	.54	.19	.02	.02	.00	.02
17	.70	.78	.50	.43	.23	.30	.50	.43	.02	.03	.00	.03
18	.62	.74	.54	.36	.23	.25	.58	.32	.03	.04	.00	.06
19	.56	.68	.55	.37	.24	.37	.59	.27	.06	.06	.00	.04
20	.56	.60	.56	.43	.32	.55	.61	.23	.04	.08	.00	.00
21	.56	.74	.58	.38	.37	.43	.54	.16	.08	.10	.00	.00
22	.54	.72	.62	.35	.38	.42	.48	.10	.08	.31	.00	.00
23	.53	.70	.55	.36	.32	.45	.47	.08	.04	.06	.00	.00
24	.56	.74	.51	.35	.35	.53	.46	.10	.06	.03	.00	.00
25	.56	.80	.50	.36	.37	.50	.58	.08	.03	.00	.00	.00
26	.55	.90	.52	.37	.40	.47	.31	.08	.01	.00	.00	.00
27	.50	.80	.49	.40	.42	.49	.43	.19	.00	.00	.00	.00
28	.50	.70	.48	.43	.28	.54	.50	.16	.00	.00	.00	.00
29	.50	.60	.52	.47	---	.56	.40	.27	.00	.00	.00	.00
30	.50	.50	.54	.52	---	.50	.38	.23	.00	.00	.00	.00
31	.50	---	.56	.42	---	.65	---	.16	---	.00	8.2	---
TOTAL	18.67	22.01	13.99	14.03	7.94	12.29	13.13	7.33	1.67	1.14	8.41	6.14
MEAN	.60	.73	.45	.45	.28	.40	.44	.24	.06	.04	.27	.20
MAX	.80	.90	.62	.56	.42	.65	.69	.51	.19	.31	8.2	2.8
MIN	.50	.50	.30	.35	.20	.23	.19	.08	.00	.00	.00	.00
AC-FT	37	44	28	28	16	24	26	15	3.3	2.3	17	12
CAL YR 1985	TOTAL	1336.81	MEAN	3.66	MAX	62	MIN	.00	AC-FT	2650		
WTR YR 1986	TOTAL	126.75	MEAN	.35	MAX	8.2	MIN	.00	AC-FT	251		

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. Elevation of gage is 6,395 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Mar. 11 to Apr. 16. Records good except those for periods of estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 1.46 ft<sup>3</sup>/s; 1,060 acre-ft/yr.

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 greater than base discharge 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)
Aug. 31	1800	*16	*1.44	No other peak greater than base discharge.			
No flow many days.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.17	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.01	.00
24	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.23	.00
26	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.65	---
TOTAL	.00	.00	.00	.00	.00	.00	1.26	.06	.00	.00	.89	.00
MEAN	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.03	.00
MAX	.00	.00	.00	.00	.00	.00	.17	.02	.00	.00	.65	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	2.5	.1	.00	.00	1.8	.00
CAL YR 1985	TOTAL	891.69		MEAN	2.44	MAX	36	MIN	.00	AC-FT	1770	
WTR YR 1986	TOTAL	2.21		MEAN	.01	MAX	.65	MIN	.00	AC-FT	4.4	



ARKANSAS RIVER BASIN

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. Elevation of gage is 5,520 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 2-3, Apr. 23-24, June 6-15, and Aug. 4-10. Records good except those above 100 ft<sup>3</sup>/s, which are fair, and those for period of estimated daily discharge, which are poor. Diversions upstream from gage for irrigation, amount unknown. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 5.06 ft<sup>3</sup>/s; 3,670 acre-ft/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 greater than base discharge 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)
Aug. 2	0315	159	9.45	Aug. 31	1815	*612	*b9.84
Aug. 24	0145	313	9.57				

b From rating curve extended above 100 ft<sup>3</sup>/s on basis of slope area measurement at gage height of 11.27 ft. Minimum daily discharge, 0.06 ft<sup>3</sup>/s, Aug. 20-22, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	2.0	1.2	1.3	1.2	1.3	1.0	.93	.47	.93	.07	.91
2	1.0	1.9	1.3	1.4	1.2	1.2	1.0	.93	.49	.74	6.4	.25
3	.93	1.9	1.4	1.4	1.2	1.2	.95	.93	.49	1.2	.22	.17
4	.83	2.0	1.4	1.3	1.2	1.3	.93	.88	.44	1.4	.17	.17
5	.95	2.0	1.3	1.4	1.2	1.2	.93	.83	.46	1.3	.15	.16
6	.97	1.9	1.4	1.5	1.2	1.2	.93	.93	.48	1.3	.14	.16
7	1.0	2.0	1.4	1.3	.98	1.2	.98	.93	.45	1.3	.14	.16
8	1.0	2.0	1.3	1.1	.87	1.2	1.1	.91	.43	.91	.13	.14
9	1.1	1.8	1.3	1.2	.83	1.2	1.2	1.0	.42	.73	.13	.14
10	1.1	1.8	1.1	1.3	.85	1.2	1.0	.98	.43	.60	.12	.14
11	1.2	1.8	1.1	1.3	.81	1.3	1.0	.93	.43	.61	.12	.14
12	1.1	1.8	.99	1.3	.91	1.2	1.0	.85	.43	.54	.10	.14
13	1.2	1.8	.95	1.4	1.2	1.3	1.0	.83	.41	.56	.08	.14
14	1.3	1.9	1.1	1.5	1.3	1.2	1.0	.83	.41	.56	.10	.14
15	1.3	2.1	1.2	1.5	1.3	1.2	.97	.83	.42	.52	.08	.14
16	1.3	2.2	1.2	1.3	1.2	1.2	1.1	.83	.42	.47	.08	.14
17	1.3	2.0	1.2	1.3	1.2	1.2	1.2	.74	.42	.47	.08	.13
18	1.2	1.9	1.1	1.3	1.2	1.1	1.0	.74	.42	.47	.08	.12
19	1.2	1.8	1.1	1.2	1.2	1.1	.98	.61	.42	.48	.08	.12
20	1.3	1.6	1.2	1.3	1.2	1.2	1.0	.60	.42	.55	.06	.12
21	1.3	1.7	1.2	1.4	1.2	1.1	1.1	.60	.42	.50	.06	.12
22	1.5	1.4	1.2	1.2	1.2	1.1	1.3	.89	.42	.47	.06	.12
23	1.5	1.4	1.3	1.3	1.2	1.1	.96	.74	.41	.39	.08	.12
24	1.6	1.5	1.2	1.2	1.2	1.0	.91	.60	.39	.33	26	.12
25	1.6	1.5	1.2	1.1	1.2	1.1	.83	.59	.39	.22	.08	.12
26	1.7	1.5	1.3	1.1	1.2	1.2	.83	.56	.46	.20	.08	.12
27	1.7	1.4	1.2	1.2	1.2	1.1	.83	.56	.51	.15	.07	.11
28	1.6	1.4	1.2	1.4	1.2	1.2	.83	.56	.65	.14	.06	.12
29	1.6	1.4	1.3	1.4	---	1.2	.90	.56	.59	.13	.06	.11
30	1.8	1.4	1.3	1.4	---	1.1	.93	.51	.74	.12	.06	.12
31	1.9	---	1.3	1.3	---	1.0	---	.50	---	.09	33	---
TOTAL	40.18	52.8	37.94	40.6	31.85	36.4	29.69	23.71	13.74	18.38	68.14	4.91
MEAN	1.30	1.76	1.22	1.31	1.14	1.17	.99	.76	.46	.59	2.20	.16
MAX	1.9	2.2	1.4	1.5	1.3	1.3	1.3	1.0	.74	1.4	.33	.91
MIN	.83	1.4	.95	1.1	.81	1.0	.83	.50	.39	.09	.06	.11
AC-FT	80	105	75	81	63	72	59	47	27	36	135	9.7
CAL YR 1985	TOTAL	2546.49		MEAN	6.98	MAX	271	MIN	.83	AC-FT	5050	
WTR YR 1986	TOTAL	398.34		MEAN	1.09	MAX	33	MIN	.06	AC-FT	790	

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. Elevation of gage is 5,453 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated contents (at 2400): Oct. 14-24, Dec. 14-15, Feb. 9-17, Apr. 3-13, and June 20 to July 23. Records good except for periods of estimated contents, 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 (at 2400) 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 (at 2400) FOR CURRENT YEAR.--Maximum contents, 1,370 acre-ft, Oct. 1, elevation, 85.57 ft; minimum contents, 679 acre-ft, Sept. 30, elevation, 80.23 ft.

RESERVOIR STORAGE ( AC-FT ) , WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	1280	1260	1240	1220	1190	1160	1060	984	915	802	757
2	1370	1280	1260	1240	1210	1190	1140	1060	982	910	813	758
3	1360	1280	1250	1230	1210	1190	1140	1060	980	905	811	757
4	1360	1270	1250	1230	1210	1190	1140	1050	979	900	809	755
5	1360	1270	1250	1240	1210	1180	1140	1050	976	895	807	754
6	1350	1270	1250	1240	1210	1180	1130	1040	974	890	804	749
7	1350	1260	1250	1240	1210	1180	1130	1040	974	885	799	747
8	1340	1260	1250	1240	1210	1170	1130	1040	972	880	796	747
9	1340	1250	1250	1240	1210	1170	1130	1040	974	875	793	744
10	1340	1250	1250	1240	1210	1170	1130	1030	974	870	790	739
11	1340	1250	1250	1240	1210	1170	1120	1030	974	870	788	736
12	1340	1250	1250	1240	1200	1170	1120	1020	974	865	787	734
13	1340	1260	1250	1230	1200	1170	1120	1020	974	860	784	733
14	1330	1260	1250	1230	1200	1170	1120	1020	974	860	782	731
15	1330	1260	1250	1230	1200	1170	1120	1020	974	855	780	725
16	1330	1260	1250	1230	1200	1170	1110	1020	972	850	778	722
17	1330	1260	1250	1230	1200	1170	1100	1020	972	845	773	719
18	1320	1260	1250	1230	1200	1170	1100	1020	972	840	771	716
19	1320	1260	1250	1230	1200	1170	1100	1020	971	840	767	713
20	1320	1260	1250	1230	1200	1170	1100	1010	970	840	761	710
21	1310	1260	1250	1220	1200	1170	1100	1010	965	850	759	709
22	1310	1260	1250	1220	1200	1170	1100	1000	960	840	756	707
23	1310	1260	1250	1220	1200	1170	1100	1000	955	835	758	704
24	1300	1260	1250	1220	1200	1170	1090	1000	950	830	758	695
25	1300	1260	1240	1220	1200	1170	1090	1000	945	828	756	693
26	1290	1260	1250	1220	1200	1160	1080	989	940	827	755	689
27	1290	1260	1240	1220	1200	1160	1080	987	935	823	751	687
28	1290	1260	1240	1220	1190	1160	1080	985	930	819	748	685
29	1280	1260	1240	1220	---	1160	1070	983	925	815	747	681
30	1280	1260	1240	1220	---	1160	1070	979	920	811	746	679
31	1280	---	1240	1220	---	1150	---	979	---	804	752	---
MAX	1370	1280	1260	1240	1220	1190	1160	1060	984	915	813	758
MIN	1280	1250	1240	1220	1190	1150	1070	979	920	804	746	679
CAL YR 1985	MAX	1820	MIN	1240								
WTR YR 1986	MAX	1370	MIN	679								

## 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 above National Geodetic Vertical datum of 1929.

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 provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 295,480 acre-ft, Feb. 12, 1985, elevation, 4,886.94 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, 279,940 acre-ft, Feb. 19, elevation, 4,883.75 ft; minimum, 243,540 acre-ft, May 8, elevation, 4,875.84 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	4,876.23	246,260	-
Oct. 31. . . . .	4,876.35	245,790	+530
Nov. 30. . . . .	4,880.20	263,220	+17,430
Dec. 31. . . . .	4,883.27	277,640	+14,420
CAL YR 1985 . . . . .			-12,620
Jan. 31. . . . .	4,883.47	278,600	+960
Feb. 28. . . . .	4,883.50	278,740	+140
Mar. 31. . . . .	4,882.05	271,860	-6,880
Apr. 30. . . . .	4,877.15	249,350	-22,510
May 31. . . . .	4,880.23	263,360	+14,010
June 30. . . . .	4,880.33	263,820	+460
July 31. . . . .	4,880.44	264,330	+510
Aug. 31. . . . .	4,878.03	253,300	-11,030
Sept. 30. . . . .	4,877.74	252,000	-1,300
WTR YR 1986 . . . . .			+6,740

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>.

WATER-DISCHARGE RECORDS

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. Elevation 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.-- Estimated daily discharges, Dec. 14-17. Records good except for estimated daily discharges, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions upstream from 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; 12 years (1975-86), 755 ft<sup>3</sup>/s; 547,000 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, 4,940 ft<sup>3</sup>/s at 1500 June 8, gage height, 6.92 ft; minimum daily, 86 ft<sup>3</sup>/s, Nov. 15-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	505	545	88	338	321	390	565	794	2190	3830	890	605
2	470	545	88	370	321	390	545	842	2220	3490	1170	635
3	425	545	88	430	338	386	510	911	2370	3180	1270	515
4	406	460	88	490	366	425	520	1010	2670	2920	1060	475
5	450	435	88	500	366	450	560	1120	3120	2760	854	655
6	465	460	88	525	398	495	585	1350	3500	2960	806	605
7	465	410	88	545	425	610	570	1310	4030	3160	806	485
8	420	370	88	555	430	670	600	1040	4690	3270	794	455
9	420	338	88	500	430	665	660	830	4770	3280	800	450
10	465	328	88	450	425	620	680	848	4470	3100	764	445
11	430	328	88	435	425	595	680	848	3740	2660	716	485
12	430	328	88	445	420	605	635	932	3010	2410	690	570
13	430	346	88	402	420	490	540	824	2710	2230	700	560
14	490	239	90	296	445	445	490	764	2730	2070	722	530
15	540	86	120	262	490	445	460	884	2970	1990	752	500
16	640	86	190	262	470	425	595	960	3240	2040	758	460
17	728	86	290	321	445	398	655	806	3330	1800	794	420
18	685	86	460	363	445	394	722	842	3770	1780	860	386
19	595	86	555	366	470	360	776	854	4250	2020	884	374
20	505	86	590	366	495	352	806	848	4610	2140	830	356
21	445	86	590	366	495	349	812	806	4550	2110	830	332
22	420	86	590	338	495	374	860	960	4250	2390	884	310
23	470	87	590	324	500	390	866	1160	3920	2070	904	335
24	530	87	590	338	500	374	848	1190	3790	1650	897	349
25	530	87	590	366	475	394	800	1250	3690	1590	967	342
26	530	87	670	366	410	402	854	1300	3690	1430	830	360
27	530	87	728	335	394	386	911	1540	3850	1260	665	415
28	450	88	728	321	390	366	878	1780	4060	1180	560	630
29	366	88	728	321	---	378	818	1720	4050	1060	515	615
30	398	88	645	321	---	455	788	1880	3960	974	535	685
31	495	---	495	321	---	525	---	2090	---	932	555	---
TOTAL	15128	7064	10383	11938	12004	14003	20589	34293	108200	69736	25062	14339
MEAN	488	235	335	385	429	452	686	1106	3607	2250	808	478
MAX	728	545	728	555	500	670	911	2090	4770	3830	1270	685
MIN	366	86	88	262	321	349	460	764	2190	932	515	310
AC-FT	30010	14010	20590	23680	23810	27770	40840	68020	214600	138300	49710	28440
CAL YR 1985	TOTAL	427195	MEAN	1170	MAX	5640	MIN	86	AC-FT	847300		
WTR YR 1986	TOTAL	342739	MEAN	939	MAX	4770	MIN	86	AC-FT	679800		

## ARKANSAS RIVER BASIN

07099400 ARKANSAS RIVER ABOVE PUEBLO, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1985 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1985 to September 1986.

WATER TEMPERATURE: December 1985 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Record is complete for period December 1985 to September 1986. Daily maximum and minimum specific conductance data available in the district office.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 726 microsiemens May 5; minimum 223 microsiemens July 13.

WATER TEMPERATURE: Maximum for period December 1985 to September 1986, 20.0°C Sept. 8; minimum 3.0°C Feb.13.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG C, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	487	501	525	537	552	553	284	247	304
2			---	492	505	525	538	551	553	270	247	309
3			513	492	510	525	540	551	551	261	251	314
4			521	492	508	524	541	552	551	257	252	318
5			517	492	517	528	542	562	550	253	258	318
6			513	492	525	526	541	551	547	251	259	324
7			513	492	526	524	542	554	543	257	259	329
8			513	492	531	524	541	559	541	246	261	334
9			513	424	529	524	541	555	529	248	261	323
10			513	486	526	525	542	552	521	243	262	328
11			513	486	535	528	543	553	513	246	265	330
12			518	495	530	527	544	552	506	238	266	336
13			508	494	528	532	547	556	497	232	266	340
14			513	502	528	530	549	557	495	234	266	352
15			503	508	517	530	549	555	476	236	268	364
16			473	492	519	532	547	556	466	236	269	369
17			474	491	520	534	546	558	458	235	270	373
18			473	489	521	533	546	556	442	234	272	374
19			463	490	520	536	547	555	424	233	276	376
20			463	492	521	536	547	555	403	232	277	377
21			463	493	522	536	546	556	386	233	278	379
22			463	494	521	535	547	555	366	230	279	381
23			463	495	522	536	547	555	367	234	282	379
24			473	495	521	536	548	555	356	236	285	368
25			473	494	523	536	547	555	349	236	285	356
26			472	499	525	537	546	555	335	239	289	356
27			465	505	526	538	548	554	320	242	293	357
28			463	500	525	538	551	554	320	244	293	354
29			463	499	---	537	551	554	311	245	296	360
30			472	500	---	536	551	554	288	246	298	366
31			492	501	---	535	---	553	---	248	301	---
MEAN				492	522	531	545	555	451	244	272	348

07099400 ARKANSAS RIVER ABOVE PUEBLO, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1					---	---	4.5	4.0	4.5	3.5	5.0	4.5
2					---	---	4.5	4.0	4.5	3.5	5.5	4.5
3					7.5	6.5	4.5	4.0	4.0	3.5	5.0	4.5
4					7.5	6.5	4.0	3.5	4.5	3.5	5.5	4.5
5					7.0	6.5	4.0	3.5	4.0	3.5	5.5	4.5
6					7.0	6.0	4.0	3.5	4.0	3.5	5.5	5.0
7					7.0	6.0	4.0	3.5	4.0	3.5	5.5	5.0
8					7.0	6.0	4.0	3.5	4.0	3.5	5.5	5.0
9					6.0	5.5	4.0	3.5	4.0	3.5	6.0	5.0
10					6.0	5.5	4.0	3.5	4.0	3.5	6.0	5.5
11					6.0	5.0	4.0	3.5	4.0	3.5	6.0	5.5
12					6.0	5.0	4.0	3.5	4.0	3.5	6.0	5.5
13					5.5	5.0	4.0	3.5	4.5	3.0	6.0	5.5
14					5.5	5.0	4.0	3.5	4.5	3.5	6.0	5.0
15					5.5	4.5	4.0	3.0	4.0	3.5	6.0	5.5
16					5.5	4.5	4.0	3.5	4.0	3.5	6.0	5.5
17					5.0	4.5	4.0	3.5	4.5	3.5	6.0	5.5
18					5.0	4.5	4.0	3.5	4.5	4.0	6.0	5.5
19					5.0	4.5	4.0	3.5	4.5	4.0	6.0	5.5
20					5.0	4.5	4.0	3.5	4.0	4.0	6.0	5.5
21					5.0	4.5	4.0	3.5	4.5	4.0	6.0	5.5
22					5.0	4.5	4.0	3.5	4.5	4.0	7.0	5.5
23					5.0	4.5	4.0	3.5	4.5	4.0	7.0	6.0
24					5.0	4.5	4.0	3.5	5.0	4.0	6.5	6.0
25					5.0	4.5	4.0	3.5	5.0	4.0	7.0	6.0
26					4.5	4.5	4.0	3.5	5.0	4.5	6.5	6.0
27					4.5	4.5	4.0	3.5	5.0	4.5	7.0	6.0
28					4.5	4.0	4.5	3.5	5.0	4.5	7.0	6.0
29					4.5	4.0	4.0	3.5	---	---	7.0	6.0
30					5.0	4.0	4.0	3.5	---	---	7.0	6.0
31					4.5	4.0	4.5	4.0	---	---	7.0	6.0
MONTH							4.5	3.0	5.0	3.0	7.0	4.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.0	6.0	10.0	9.5	12.0	11.5	16.5	16.0	18.5	17.5	19.5	19.0
2	7.0	6.5	10.0	9.5	12.0	12.0	16.5	16.0	18.5	17.5	19.5	19.0
3	7.0	6.0	10.0	9.5	12.5	12.0	16.5	16.0	18.0	17.5	19.5	19.0
4	8.0	6.5	10.0	9.5	12.5	12.0	16.5	16.0	18.5	17.5	19.5	19.0
5	8.0	7.0	11.5	9.5	12.5	12.0	17.0	16.5	18.5	17.5	20.0	19.0
6	8.0	7.0	10.5	9.5	12.5	12.0	17.0	16.5	18.5	17.5	19.5	19.0
7	8.0	7.0	10.5	10.0	13.0	12.0	17.0	16.5	18.5	17.5	19.5	19.0
8	7.5	7.0	10.5	10.0	13.0	12.5	17.0	16.5	18.5	18.0	20.0	19.0
9	8.0	7.0	10.5	10.0	13.5	12.5	17.0	17.0	18.5	18.0	19.5	19.0
10	8.0	7.0	11.0	10.0	13.5	13.0	17.5	17.0	18.5	18.0	19.5	19.0
11	8.0	7.0	11.0	10.0	14.0	13.5	17.5	17.0	18.5	18.0	19.5	19.0
12	7.5	7.0	11.0	10.0	14.0	13.5	17.5	17.0	19.0	18.0	19.5	19.0
13	9.5	7.0	11.5	10.0	14.0	13.5	17.5	17.0	19.0	18.0	19.5	19.0
14	9.0	8.0	11.0	10.5	14.0	13.0	17.5	17.0	19.0	18.0	19.5	19.0
15	8.5	8.0	11.5	10.0	14.5	13.5	17.5	17.0	19.0	18.0	19.0	18.5
16	8.5	8.0	11.5	10.5	14.5	14.0	18.0	17.0	19.0	18.0	19.5	18.5
17	9.5	8.5	11.5	10.5	14.5	14.0	17.5	17.0	19.0	18.5	19.0	18.5
18	9.5	9.0	11.5	10.5	14.5	14.0	17.5	17.0	19.0	18.5	19.0	18.5
19	9.5	9.0	12.0	11.0	14.5	14.5	17.5	17.0	19.5	18.5	19.0	18.5
20	9.0	9.0	12.0	10.5	14.5	14.5	17.5	17.5	19.5	18.5	19.0	18.5
21	9.5	8.5	11.5	10.5	15.0	14.5	18.0	17.5	19.5	18.5	19.0	18.5
22	9.5	9.0	11.5	11.0	15.0	14.5	18.0	17.5	19.5	18.5	19.0	18.5
23	9.0	8.5	11.5	11.0	15.0	14.5	18.0	17.5	19.0	19.0	19.0	18.5
24	9.0	9.0	11.5	11.0	15.0	14.5	18.0	17.5	19.5	19.0	19.0	18.5
25	9.5	9.0	12.0	11.0	15.5	15.0	18.5	17.5	19.5	19.0	19.0	18.0
26	9.5	9.0	12.0	11.5	15.5	15.0	18.5	17.5	19.0	19.0	19.0	18.5
27	10.0	9.0	12.0	11.0	15.5	15.0	18.5	17.5	19.5	19.0	18.5	18.0
28	9.5	9.0	12.0	11.5	16.0	15.5	18.5	17.5	19.5	19.0	18.5	18.0
29	10.0	9.0	12.0	11.5	16.0	15.5	18.5	17.5	19.5	19.0	18.0	17.5
30	10.0	9.5	12.0	11.5	16.5	15.5	18.5	18.0	19.5	19.0	18.0	17.5
31	---	---	12.0	11.5	---	---	18.5	18.0	19.5	19.0	---	---
MONTH	10.0	6.0	12.0	9.5	16.5	11.5	18.5	16.0	19.5	17.5	20.0	17.5

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. Elevation of gage is 6,110 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 2-6, 12-20, and Feb. 9-14. Records good except those for periods of estimated daily discharges, which are fair. 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.--28 years, 14.6 ft<sup>3</sup>/s; 10,580 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, 72 ft<sup>3</sup>/s at 2000 July 31, gage height, 2.94 ft; minimum daily, 6.6 ft<sup>3</sup>/s, July 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	17	10	12	15	14	14	9.3	12	9.9	21	8.7
2	20	16	12	12	15	14	13	9.2	21	10	15	12
3	19	16	15	12	15	14	12	8.8	16	8.7	13	10
4	19	16	16	11	14	13	11	10	19	8.5	13	11
5	19	17	15	11	13	13	11	8.4	26	15	13	11
6	18	16	15	13	14	14	11	13	20	18	11	9.9
7	19	17	15	12	14	13	12	16	15	12	10	14
8	18	15	14	12	13	13	13	9.5	14	12	11	15
9	19	15	14	12	12	13	12	10	14	13	11	8.8
10	19	14	11	12	10	13	11	10	16	11	11	8.8
11	22	16	7.8	13	9.4	14	10	9.8	14	10	11	8.6
12	19	14	8.0	13	10	15	11	9.2	14	9.5	11	8.1
13	19	14	9.6	13	11	14	11	9.3	10	11	11	7.7
14	20	14	11	13	12	13	10	8.9	11	12	16	7.8
15	19	15	12	15	15	13	10	9.0	11	10	16	7.3
16	19	15	12	16	14	12	11	11	11	8.3	15	7.2
17	17	15	11	16	15	13	11	12	9.2	8.3	17	7.0
18	16	15	12	16	16	12	10	11	11	19	14	7.5
19	16	14	13	15	16	12	11	11	15	19	8.9	7.7
20	17	12	14	15	14	12	10	11	14	14	8.6	7.3
21	17	14	14	16	13	11	10	10	12	13	13	7.2
22	16	13	14	14	13	12	10	9.0	11	14	12	7.7
23	16	16	14	17	14	11	9.9	9.4	11	11	12	7.8
24	15	19	14	15	15	14	9.6	9.7	11	9.7	10	7.9
25	15	17	14	14	14	12	9.8	9.1	11	9.6	8.9	7.4
26	17	16	14	15	15	14	9.8	9.2	12	12	10	7.1
27	23	16	13	17	15	12	9.6	9.3	11	9.7	8.1	7.2
28	25	16	14	17	14	11	9.3	9.2	10	8.8	8.2	7.2
29	17	16	13	17	---	12	9.6	10	9.8	7.7	8.6	7.6
30	15	14	13	17	---	11	9.2	9.9	12	6.6	8.1	8.6
31	17	---	13	16	---	12	---	9.3	---	15	8.2	---
TOTAL	567	460	397.4	439	380.4	396	321.8	310.5	404.0	356.3	364.6	261.1
MEAN	18.3	15.3	12.8	14.2	13.6	12.8	10.7	10.0	13.5	11.5	11.8	8.70
MAX	25	19	16	17	16	15	14	16	26	19	21	15
MIN	15	12	7.8	11	9.4	11	9.2	8.4	9.2	6.6	8.1	7.0
AC-FT	1120	912	788	871	755	785	638	616	801	707	723	518
CAL YR 1985	TOTAL	11174.4		MEAN	30.6	MAX	152	MIN	7.8	AC-FT	22160	
WTR YR 1986	TOTAL	4658.1		MEAN	12.8	MAX	26	MIN	6.6	AC-FT	9240	

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT 17...	1135	18	258	7.6	7.0	8.4	--	--	30
NOV 15...	1145	15	560	8.0	2.5	12.2	1.2	--	31
DEC 18...	1135	9.7	282	8.0	2.0	11.2	0.4	--	1
JAN 28...	1320	16	275	7.7	4.5	11.8	0.7	--	12
FEB 19...	1355	14	310	8.0	9.0	12.0	0.8	--	10
MAR 19...	1335	14	300	7.8	4.0	12.4	0.4	--	8
APR 16...	1340	9.8	330	8.1	12.0	12.1	E0.9	--	1
MAY 13...	1615	11	323	8.2	13.5	7.6	--	2.3	--
28...	1350	9.0	335	7.8	11.0	9.6	0.8	--	15
JUN 19...	1145	13	270	8.2	14.0	10.0	1.8	--	10
JUL 23...	1335	11	260	7.8	16.5	9.2	0.8	--	105
AUG 20...	1410	8.1	362	7.9	17.5	8.6	0.9	--	24
SEP 18...	1345	7.5	385	8.0	13.0	10.6	0.9	--	30

DATE	ALKALINITY LAB (MG/L AS CACO3)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
OCT 17...	92	0.030	<0.20	0.800	9.6	17	1	<10	2
NOV 15...	99	0.080	0.40	0.900	77	20	<1	<10	1
DEC 18...	104	0.030	<0.20	1.10	13	15	<1	<10	5
JAN 28...	95	0.090	0.50	1.00	9.1	13	<1	<10	<1
FEB 19...	99	0.030	0.30	1.00	11	16	<1	<10	2
MAR 19...	105	<0.010	<0.20	1.00	12	15	1	<10	3
APR 16...	121	0.020	0.60	0.700	15	16	<1	<10	3
MAY 13...	--	0.050	--	0.900	14	--	--	--	--
28...	125	0.050	0.40	1.00	13	19	<1	<10	4
JUN 19...	94	0.050	0.50	0.700	11	16	<1	<10	7
JUL 23...	108	0.030	0.40	0.800	11	17	<1	<10	6
AUG 20...	135	0.020	0.20	1.10	16	19	<1	<10	6
SEP 18...	144	<0.010	<0.20	1.10	17	19	<1	50	4

E Estimated.



## ARKANSAS RIVER BASIN

07103700 FOUNTAIN CREEK NEAR COLORADO SPRINGS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 17...	360	80	<1	60	50	<10	260	140	1000
NOV 15...	1200	40	6	100	60	50	K1200	84	130
DEC 18...	330	54	1	76	51	20	260	K24	50
JAN 28...	760	60	9	80	40	20	--	K4	K30
FEB 19...	500	--	1	70	60	20	--	K23	58
MAR 19...	390	30	2	70	40	10	--	K31	K36
APR 16...	190	--	5	60	50	10	--	K35	120
MAY 13...	--	--	--	--	--	--	--	260	380
28...	730	80	4	90	40	10	--	48	K440
JUN 19...	4600	80	10	190	20	30	--	K1400	1300
JUL 23...	3100	40	10	140	20	30	--	230	>400
AUG 20...	900	30	<5	80	30	10	--	100	220
SEP 18...	1100	70	<5	100	60	20	--	200	85

K BASED ON NON-IDEAL COLONY COUNT.

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

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 left 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>.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 6,950 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 19-23, 30, Dec. 1-2, 9-16, Jan. 4-9, 12-14, 21-27, Feb. 4-13, and Apr. 3-4. Records good except those for periods of estimated daily discharge, which are poor. Storage and diversions upstream from station for municipal supply of Palmer Lake.

AVERAGE DISCHARGE.--9 years (water years 1978-86), 7.69 ft<sup>3</sup>/s; 5,570 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, 28 ft<sup>3</sup>/s at 0300 June 5, gage height, 1.40 ft; maximum gage height, 2.23 ft at 0015 Apr. 4, (backwater from ice and snow); minimum daily discharge, 0.63 ft<sup>3</sup>/s, Aug. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.5	1.7	2.1	2.0	2.7	9.2	5.4	4.6	2.6	.77	.93
2	3.0	3.3	1.8	1.9	2.0	2.7	9.3	5.3	7.1	2.0	.79	.85
3	2.9	3.2	1.9	1.8	2.1	2.5	12	5.1	7.1	1.6	.81	.85
4	2.9	3.0	2.0	1.7	2.2	2.5	18	4.7	8.3	1.5	.78	.82
5	2.9	3.0	2.3	1.6	2.1	2.7	13	4.2	24	1.7	.83	.80
6	2.9	3.0	1.9	1.6	1.8	2.8	13	3.9	19	4.9	.80	.87
7	3.0	2.9	1.8	1.7	1.6	3.0	13	3.9	17	3.5	.81	.92
8	2.9	2.7	1.8	1.7	1.5	3.2	15	4.4	16	2.6	.82	.99
9	3.0	2.6	1.6	1.7	1.3	3.6	14	4.3	15	3.6	.77	1.1
10	3.0	2.3	1.4	1.7	1.2	3.6	14	3.8	21	2.8	.78	1.1
11	3.1	2.2	1.3	1.7	1.2	3.4	14	3.0	21	2.1	.74	1.0
12	3.2	2.4	1.3	1.9	1.3	3.6	15	2.5	18	1.6	.77	1.0
13	3.1	2.4	1.3	2.1	1.3	3.6	16	2.5	17	1.5	.74	.96
14	3.1	2.2	1.4	2.1	1.4	3.6	14	2.3	16	1.5	.76	.89
15	3.1	2.2	1.5	2.0	1.4	3.6	13	2.9	14	1.2	.73	.87
16	3.0	2.5	1.6	2.0	1.5	3.6	12	4.5	12	1.1	.66	.83
17	3.0	2.5	1.6	2.1	1.6	3.6	11	5.5	10	1.1	.64	.82
18	3.0	2.5	1.6	2.0	1.9	3.6	9.6	5.6	9.5	1.2	.64	.72
19	2.9	2.4	1.6	2.0	2.3	7.2	8.5	5.2	8.4	2.0	.63	.70
20	2.9	2.1	1.7	2.1	2.7	3.8	8.2	4.5	7.8	3.6	.70	.71
21	2.9	2.0	1.8	2.2	2.8	3.9	8.8	4.1	6.9	3.5	.73	.73
22	3.0	2.0	1.8	2.1	2.8	3.9	8.8	3.2	6.3	2.8	.81	.73
23	2.8	2.0	1.8	1.9	2.5	4.2	9.1	2.7	5.9	2.2	.97	.73
24	2.8	2.0	1.9	1.9	2.5	4.3	8.7	2.3	5.2	2.0	1.0	.70
25	2.8	2.2	1.9	2.0	2.7	4.3	8.0	2.2	4.8	1.7	1.0	.67
26	2.7	2.0	2.3	1.9	2.8	4.6	7.1	2.0	4.5	1.4	1.0	.69
27	2.7	2.0	1.9	1.9	3.0	5.2	6.7	2.1	3.8	1.3	1.0	.71
28	2.6	2.0	1.7	1.8	2.7	5.8	6.1	2.4	3.0	1.1	1.0	.72
29	2.6	1.9	1.7	1.7	---	5.8	5.8	5.7	2.3	.94	.95	.71
30	2.6	1.8	1.9	1.8	---	7.2	5.6	5.5	2.3	.81	.95	.69
31	3.1	---	2.5	1.9	---	8.6	---	4.4	---	.79	.97	---
TOTAL	90.5	72.8	54.3	58.6	56.2	126.7	326.5	120.1	317.8	62.24	25.35	24.81
MEAN	2.92	2.43	1.75	1.89	2.01	4.09	10.9	3.87	10.6	2.01	.82	.83
MAX	3.2	3.5	2.5	2.2	3.0	8.6	18	5.7	24	4.9	1.0	1.1
MIN	2.6	1.8	1.3	1.6	1.2	2.5	5.6	2.0	2.3	.79	.63	.67
AC-FT	180	144	108	116	111	251	648	238	630	123	50	49
CAL YR 1985 TOTAL	3713.3			MEAN	10.2	MAX	152	MIN	1.3	AC-FT	7370	
WTR YR 1986 TOTAL	1335.90			MEAN	3.66	MAX	24	MIN	.63	AC-FT	2650	

## ARKANSAS RIVER BASIN

07103747 MONUMENT CREEK AT PALMER LAKE, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1977 to September 1980; January 1984 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM. CARBON. 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	ALKALINITY WH WAT TOTAL FIELD (MG/L AS CAC03)
OCT 16...	1010	3.2	166	7.7	8.0	8.0	--	--	14	--
NOV 13...	1035	2.7	154	8.0	3.0	11.4	0.7	--	1	--
DEC 17...	1040	1.6	186	8.0	0.5	13.2	0.6	--	17	--
JAN 28...	0850	1.8	188	8.0	1.0	13.1	0.1	--	92	--
FEB 19...	0805	2.5	158	7.8	3.0	13.2	0.7	--	270	--
MAR 19...	0810	3.8	160	7.9	1.5	12.8	1.6	--	25	--
APR 16...	0750	12	110	8.1	4.0	12.8	0.7	--	11	--
MAY 14...	1140	2.3	141	7.7	12.0	9.1	--	2.1	--	48
28...	0750	2.1	145	8.1	10.0	10.0	0.9	--	6	--
JUN 18...	0930	10	124	8.1	13.0	9.8	1.3	--	6	--
JUL 23...	0750	2.2	160	8.4	15.5	8.1	0.5	--	14	--
AUG 20...	0750	0.64	210	8.2	16.0	7.8	0.7	--	6	--
SEP 18...	0755	0.64	220	8.6	12.0	8.4	0.8	--	1	--

DATE	ALKALINITY LAB (MG/L AS CAC03)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
OCT 16...	65	0.030	0.30	<0.100	3.2	10	1	<10	1
NOV 13...	63	0.040	0.20	0.100	3.3	11	<1	<10	4
DEC 17...	67	0.020	<0.20	0.200	3.9	12	<1	20	5
JAN 28...	73	0.050	0.30	0.300	3.5	11	<1	<10	<1
FEB 19...	61	0.040	0.20	0.200	3.9	11	<1	<10	2
MAR 19...	58	<0.010	<0.20	0.100	3.3	14	<1	<10	4
APR 16...	36	<0.010	0.30	0.100	1.8	9.8	<1	<10	4
MAY 14...	--	0.020	--	<0.100	2.0	--	--	--	--
28...	55	0.040	0.20	<0.100	2.2	9.6	<1	<10	3
JUN 18...	46	0.020	0.30	<0.100	1.6	8.4	<1	<10	2
JUL 23...	73	0.010	0.30	<0.100	2.6	8.6	<1	<10	3
AUG 20...	94	<0.010	<0.20	<0.100	3.6	8.7	<1	<10	3
SEP 18...	95	<0.010	<0.20	<0.100	3.8	9.7	<1	<10	3

E Estimated.

ARKANSAS RIVER BASIN

07103747 MONUMENT CREEK AT PALMER LAKE, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 16...	1400	110	1	140	60	30	--	--	K34
NOV 13...	270	110	1	70	60	30	K490	K10	44
DEC 17...	700	150	1	79	61	40	--	K10	K40
JAN 28...	2600	70	15	100	40	40	--	K2	K8
FEB 19...	7800	100	2	140	30	50	--	K3	180
MAR 19...	1300	70	1	70	40	20	--	--	K2
APR 16...	610	--	7	40	20	10	--	K5	K14
MAY 14...	--	--	--	--	--	--	--	K2	620
28...	320	120	2	60	50	<10	--	27	K520
JUN 18...	440	100	<5	50	30	<10	--	K11	220
JUL 23...	600	--	10	90	80	20	--	65	260
AUG 20...	560	200	8	130	100	10	--	36	420
SEP 18...	300	170	<5	100	90	--	--	K5	K32

K BASED ON NON-IDEAL COLONY COUNT.

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

07103780 MONUMENT CREEK ABOVE NORTH GATE BOULEVARD AT U.S. AIR FORCE ACADEMY, CO

LOCATION.--Lat 39°01'52", long 104°50'52", in SW¼SW¼ sec.1, T.12 S., R.67 W., El Paso County, Hydrologic Unit 11020003, on right bank, at U.S. Air Force Academy, 50 ft upstream from Denver and Rio Grande Western Railroad bridge, 0.8 mi upstream from North Gate Boulevard, and 1.5 mi downstream from Beaver Creek.

DRAINAGE AREA.--81.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,640 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 12-19, Dec. 25 to Jan. 15, and Feb. 6-11. Records good except for periods of estimated daily discharges, which are poor. Storage and diversions upstream from station for municipal supply of Monument and Palmer Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 372 ft<sup>3</sup>/s, Apr. 30, 1985, gage height, 6.05 ft; minimum daily, 1.1 ft<sup>3</sup>/s, Aug. 21, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 72 ft<sup>3</sup>/s at 2045 June 14, gage height, 4.58 ft; maximum gage height, 8.29 ft at 0015 Jan. 15 (backwater from ice); minimum daily discharge, 1.1 ft<sup>3</sup>/s, Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	11	9.6	9.8	9.0	8.0	6.7	16	13	5.2	1.4	2.0
2	10	9.9	9.4	9.3	7.5	8.6	7.0	16	17	2.8	1.5	2.2
3	7.0	10	11	9.1	7.0	9.0	15	16	16	2.6	1.9	2.3
4	8.5	8.6	9.9	7.5	8.6	6.0	38	16	15	2.2	1.9	2.0
5	4.6	9.0	10	7.8	11	5.2	30	15	34	2.8	1.8	7.3
6	4.9	9.7	9.7	8.0	7.0	5.3	26	7.9	45	4.1	1.8	8.2
7	4.9	14	9.7	8.0	6.4	4.9	30	7.4	21	4.3	1.6	7.6
8	4.9	14	10	8.0	6.2	5.5	35	6.3	30	3.8	1.5	4.2
9	5.2	11	9.2	8.7	6.2	5.6	39	7.1	26	7.1	1.9	6.3
10	4.8	9.6	9.1	8.6	6.2	11	37	9.0	24	15	2.0	2.8
11	5.7	8.5	8.5	9.4	6.2	4.9	37	7.6	24	6.3	1.7	2.0
12	6.7	8.6	7.8	9.8	7.4	4.9	35	7.5	22	7.0	1.8	1.9
13	5.5	8.7	7.2	9.6	9.8	5.0	33	6.7	21	6.3	1.7	1.9
14	8.5	8.2	7.2	9.8	8.8	5.2	33	7.1	28	5.7	1.7	1.9
15	6.5	8.6	7.4	9.8	10	5.2	26	6.7	33	5.0	1.7	1.7
16	6.7	8.9	7.6	10	9.2	5.2	22	12	23	3.6	1.5	1.7
17	13	8.2	7.7	8.8	9.0	5.9	22	19	16	2.7	1.4	1.8
18	20	8.2	7.7	10	8.1	5.3	21	22	15	5.0	1.4	1.8
19	20	8.8	7.6	9.3	9.8	11	20	21	11	4.2	1.8	1.8
20	20	9.0	7.5	11	9.0	6.0	20	9.9	6.1	12	1.2	4.1
21	20	9.0	8.0	10	11	6.8	20	8.4	5.8	11	1.1	4.6
22	18	9.4	11	10	16	6.0	20	7.6	5.6	16	1.7	5.3
23	15	8.7	10	10	9.4	6.0	21	6.5	6.1	4.9	2.7	4.4
24	13	8.9	10	11	8.8	6.0	20	6.3	5.2	3.9	2.7	2.0
25	7.4	8.8	9.9	11	9.7	6.4	16	6.8	8.7	2.9	5.6	1.9
26	7.5	8.2	9.8	11	11	5.7	15	5.8	16	2.8	10	2.0
27	7.3	8.8	8.8	10	10	6.5	15	5.1	17	2.3	3.9	2.2
28	7.5	9.0	9.2	11	9.4	7.3	14	5.5	12	2.1	2.4	2.5
29	7.3	8.2	9.4	9.8	---	7.5	13	8.9	6.8	1.9	2.0	2.3
30	7.5	9.5	9.8	9.8	---	6.8	13	15	5.9	1.6	1.9	2.5
31	9.1	---	9.4	9.0	---	6.7	---	13	---	1.4	1.9	---
TOTAL	301.0	281.0	279.1	294.9	247.7	199.4	699.7	325.1	529.2	158.5	69.1	95.2
MEAN	9.71	9.37	9.00	9.51	8.85	6.43	23.3	10.5	17.6	5.11	2.23	3.17
MAX	20	14	11	11	16	11	39	22	45	16	10	8.2
MIN	4.6	8.2	7.2	7.5	6.2	4.9	6.7	5.1	5.2	1.4	1.1	1.7
AC-FT	597	557	554	585	491	396	1390	645	1050	314	137	189
WTR YR 1986	TOTAL	3479.9		MEAN	9.53	MAX	45	MIN	1.1	AC-FT	6900	

07103780 MONUMENT CREEK ABOVE NORTH GATE BOULEVARDE AT U.S. AIR FORCE ACADEMY, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1984 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT									
16...	1140	6.7	221	8.5	7.0	8.3	--	--	6
NOV									
13...	1155	7.5	240	8.0	1.5	12.2	5.1	--	50
DEC									
17...	1220	18	262	7.6	0.0	13.4	3.6	--	11
JAN									
28...	1015	12	278	7.9	0.0	14.2	4.6	--	36
FEB									
19...	0930	9.0	245	7.8	3.5	13.8	3.7	--	16
MAR									
19...	0930	21	250	7.6	0.0	13.1	7.8	--	41
APR									
16...	0920	22	185	7.6	6.5	11.1	4.6	--	28
MAY									
14...	1000	6.7	208	8.2	10.0	--	--	8.2	--
28...	0930	4.9	228	7.6	11.5	9.9	6.6	--	15
JUN									
18...	1245	16	170	7.9	23.0	9.0	4.5	--	38
JUL									
23...	0925	4.4	214	8.3	16.5	9.0	3.1	--	27
AUG									
20...	0925	1.4	262	8.2	17.0	8.8	2.8	--	19
SEP									
18...	0925	1.8	278	8.3	11.5	8.9	4.6	--	14

DATE	ALKALINITY LAB (MG/L AS CACO3)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
OCT									
16...	--	0.310	1.0	0.600	8.2	23	1	<10	3
NOV									
13...	65	0.830	1.8	0.400	8.4	19	<1	<10	3
DEC									
17...	66	1.80	2.4	0.700	11	18	<1	<10	5
JAN									
28...	68	1.60	2.2	0.800	9.9	18	<1	<10	2
FEB									
19...	62	1.10	1.6	0.600	8.2	14	<1	<10	2
MAR									
19...	59	1.20	1.9	0.600	9.0	18	1	<10	2
APR									
16...	51	0.830	1.4	0.300	7.2	15	<1	<10	4
MAY									
14...	--	0.960	--	0.700	9.6	--	--	--	--
28...	58	1.30	2.0	1.00	8.4	24	<1	<10	4
JUN									
18...	54	0.480	1.4	0.900	6.1	15	<1	<10	11
JUL									
23...	70	0.040	0.90	0.500	6.9	17	<1	<10	2
AUG									
20...	85	0.030	0.80	0.700	11	20	<1	<10	3
SEP									
18...	80	<0.010	1.5	0.700	14	25	<1	<10	4

E Estimated.

## ARKANSAS RIVER BASIN

07103780 MONUMENT CREEK ABOVE NORTH GATE BOULEVARD AT U. S. AIR FORCE ACEDEMY, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, O.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 16...	430	110	2	50	40	<10	--	--	K35
NOV 13...	1800	70	<1	160	60	40	470	--	72
DEC 17...	610	120	<1	110	85	20	180	K30	150
JAN 28...	1500	90	17	120	70	40	--	K2	K17
FEB 19...	730	210	<1	110	90	20	--	K7	72
MAR 19...	1200	180	<1	160	100	20	--	K18	80
APR 16...	1000	250	5	120	70	20	--	K10	K24
MAY 14...	--	--	--	--	--	--	--	E4	710
MAY 28...	700	130	1	130	90	10	--	110	K710
JUN 18...	1100	90	<5	140	50	20	--	K38	160
JUL 23...	1100	70	18	160	100	20	--	150	210
AUG 20...	900	90	105	200	150	<10	--	140	K790
SEP 18...	1100	180	9	170	120	<10	--	78	200

E Estimated.

K BASED ON NON-IDEAL COLONY COUNT.

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

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. Elevation of gage is 7,180 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 11, 14-17, 19-23, Dec. 2-4, Jan. 4-5, 22, 25-27, and Feb. 6-15. Records good except those for periods of estimated daily discharges, 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.--16 years, 2.12 ft<sup>3</sup>/s; 1,540 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, 3.88 ft, Dec. 22, 1983 (backwater from ice); no flow many days in 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20 ft<sup>3</sup>/s at 0945 Mar. 31, gage height, 1.94 ft; minimum daily, 0.06 ft<sup>3</sup>/s, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	1.6	.43	.38	.30	.33	.79	.45	.57	.23	.64	.21
2	.86	.66	.37	.38	.32	.34	.48	.47	.87	.18	.32	.18
3	.82	.66	.42	.33	.32	.38	.48	.42	.58	.16	.31	.13
4	.79	.60	.40	.33	.34	.36	.60	.40	.62	.14	.28	.11
5	.78	.60	.38	.33	.38	.36	.66	.38	.99	.29	.22	.11
6	.76	.66	.38	.33	.33	.35	.79	.36	.68	.48	.18	.13
7	.75	.54	.38	.33	.29	.36	.87	.33	.55	.28	.35	.25
8	.74	.60	.38	.33	.22	.40	.84	.40	.49	.24	.55	.40
9	.79	.54	.38	.34	.18	.43	.78	.38	.57	.30	.36	.19
10	.77	.54	.38	.33	.18	.38	.73	.35	.73	.21	.29	.16
11	.86	.54	.38	.33	.16	.38	.66	.33	.57	.19	.25	.14
12	.76	.54	.38	.33	.16	.43	.65	.30	.46	.19	.21	.12
13	.74	.48	.33	.33	.18	.43	.63	.31	.45	.35	.16	.12
14	.79	.48	.33	.34	.20	.48	.55	.29	.44	.39	.18	.11
15	.74	.50	.33	.33	.21	.38	.52	.29	.41	.24	.16	.09
16	.72	.54	.33	.33	.21	.38	.53	.41	.33	.21	.11	.10
17	.73	.54	.33	.33	.20	.33	.51	.55	.28	.21	.10	.09
18	.71	.54	.33	.34	.24	.28	.48	.51	.35	2.3	.09	.09
19	.71	.48	.33	.35	.32	.28	5.6	.44	.34	2.3	.09	.10
20	.71	.50	.33	.36	.34	.33	6.1	.37	.36	.29	.11	.09
21	.70	.52	.33	.33	.28	.72	.61	.31	.34	.36	.18	.09
22	.66	.47	.33	.32	.32	.38	.54	.25	.29	.29	.26	.08
23	.64	.47	.33	.36	.29	.38	.57	.23	.26	.23	.26	.08
24	.61	.48	.38	.32	.33	.43	.55	.23	.23	.18	.22	.08
25	.60	.48	.38	.30	.37	.43	.51	.22	.22	.20	.16	.06
26	.60	.48	.33	.28	.40	.43	.49	.22	.26	.17	.15	.07
27	.61	.48	.33	.30	.39	.43	.47	.24	.24	.15	.15	.07
28	.60	.48	.33	.32	.38	.43	.46	.27	.20	.12	.14	.07
29	.60	.48	.38	.29	---	.43	.45	.37	.20	.11	.12	.08
30	.60	.48	.38	.31	---	.72	.43	.30	.26	.09	.10	.09
31	.66	---	.38	.33	---	13	---	.31	---	.17	.15	---
TOTAL	22.29	16.96	11.18	10.24	7.84	25.17	28.33	10.69	13.14	11.25	6.85	3.69
MEAN	.72	.57	.36	.33	.28	.81	.94	.34	.44	.36	.22	.12
MAX	.88	1.6	.43	.38	.40	.13	6.1	.55	.99	2.3	.64	.40
MIN	.60	.47	.33	.28	.16	.28	.43	.22	.20	.09	.09	.06
AC-FT	44	34	22	20	16	50	56	21	26	22	14	7.3
CAL YR 1985	TOTAL	846.02		MEAN	2.32	MAX	38	MIN	.33	AC-FT	1680	
WTR YR 1986	TOTAL	167.63		MEAN	.46	MAX	13	MIN	.06	AC-FT	332	



## ARKANSAS RIVER BASIN

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 400 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 January 1986 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 6,980 ft above National Geodetic Vertical Datum of 1929, from topographic map. May 1976 to Mar. 17, 1983 at datum 3.0 ft, lower.

REMARKS.--Estimated daily discharges: Oct. 1, 23-29, Nov. 1 to Jan.8. Records poor. No known diversion upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 1.28 ft<sup>3</sup>/s; 927 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.--Maximum discharge for period Oct. 1 to Jan. 8, 2.5 ft<sup>3</sup>/s at 0700 Oct. 11, gage height, 0.66 ft, no peak above base of 8.0 ft<sup>3</sup>/s; minimum daily, 0.27 ft<sup>3</sup>/s, Dec.11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.65	.46	.33								
2	.98	.61	.45	.32								
3	.99	.62	.45	.32								
4	1.3	.65	.44	.33								
5	1.1	.65	.41	.32								
6	1.1	.67	.40	.32								
7	1.2	.69	.39	.31								
8	1.3	.71	.37	.32								
9	1.3	.68	.33	---								
10	1.3	.62	.31	---								
11	2.0	.54	.27	---								
12	1.8	.54	.27	---								
13	1.9	.56	.27	---								
14	2.1	.54	.27	---								
15	2.1	.56	.28	---								
16	2.1	.60	.30	---								
17	2.0	.62	.31	---								
18	1.8	.62	.30	---								
19	1.9	.57	.30	---								
20	1.9	.53	.31	---								
21	1.7	.52	.32	---								
22	1.5	.52	.31	---								
23	1.1	.50	.31	---								
24	.90	.53	.32	---								
25	.66	.52	.33	---								
26	.62	.50	.33	---								
27	.64	.48	.32	---								
28	.64	.49	.31	---								
29	.62	.47	.32	---								
30	.62	.47	.33	---								
31	.69	---	.32	---								
TOTAL	41.06	17.23	10.41	---								
MEAN	1.32	.57	.34	---								
MAX	2.1	.71	.46	---								
MIN	.62	.47	.27	---								
AC-FT	81	34	21	---								
CAL YR 1985	TOTAL	859.05	MEAN	2.35	MAX	14	MIN	.27	AC-FT	1700		

07103990 COTTONWOOD CREEK AT MOUTH AT PIKEVIEW, CO

LOCATION.--Lat 38°55'41", long 104°38'35", in SW¼SW¼ sec.8, T. 13S, R.67W., El Paso County, Hydrologic Unit 11020003, on left bank 70 ft upstream from Vincent Drive bridge, 0.3 mi south of Woodman Valley Road, and 0.3 mi upstream from mouth.

DRAINAGE AREA.--18.7 MI<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1985 to September 1986.

GAGE.--Water-stage recorder. Elevation of gage is 6,265 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 31, Jan. 1, Jan. 28 to Feb. 4, and Aug. 21-22. Records good except those for periods of estimated daily discharges and those for discharges above about 60 ft<sup>3</sup>/s, which are poor. Natural flow of stream affected by storage reservoirs and runoff from industrial and residential areas of northeast Colorado Springs.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge during period December 1985 to September 1986, 830 ft<sup>3</sup>/s, at 2030 Aug. 21, gage height, 7.68 ft, from rating curve extended above about 60 ft<sup>3</sup>/s on the basis of computation of peak flow at width contraction; minimum daily, 1.5 ft<sup>3</sup>/s, Sept. 26, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	5.2	3.6	3.4	2.6	2.2	7.8	3.2	5.8	2.2
2			---	5.4	3.6	2.9	3.0	2.2	9.5	2.5	9.2	4.8
3			---	3.7	3.7	2.9	4.6	2.3	2.9	2.7	8.5	2.2
4			---	3.7	3.8	3.5	13	2.0	15	2.6	2.6	5.3
5			---	5.7	3.6	3.4	8.9	2.2	5.0	24	3.4	2.2
6			---	5.8	3.7	3.2	6.6	2.3	3.9	3.8	2.4	3.9
7			---	5.8	2.5	3.8	5.8	2.2	4.3	3.1	18	4.4
8			---	5.3	3.7	3.7	10	2.8	4.1	3.9	3.9	5.3
9			---	5.3	3.3	4.1	9.8	2.9	6.8	4.0	3.5	2.8
10			---	4.9	3.0	4.0	6.0	2.6	5.8	4.1	3.9	2.8
11			---	4.8	2.6	4.1	5.4	2.3	3.9	3.9	3.2	2.4
12			---	4.5	2.6	3.5	5.2	2.2	4.8	4.0	3.2	2.4
13			---	4.2	5.1	3.6	4.3	2.3	6.3	4.1	3.2	2.2
14			---	2.6	3.6	3.4	3.9	2.3	11	3.7	2.8	2.4
15			---	2.9	4.4	4.6	3.5	2.4	6.3	3.4	2.4	2.4
16			---	2.8	2.5	5.2	3.4	3.2	3.2	4.0	2.4	2.2
17			---	3.0	2.4	4.9	3.2	4.8	1.8	4.2	2.4	2.2
18			---	3.7	2.4	4.6	2.9	2.4	2.8	3.3	2.4	2.2
19			---	4.1	1.9	4.8	2.6	2.5	2.8	8.4	2.4	2.4
20			---	4.1	4.7	5.0	2.2	2.6	9.4	5.0	2.2	2.4
21			---	3.1	3.8	3.9	2.6	2.4	3.9	4.8	73	2.8
22			---	3.3	3.5	4.1	2.9	3.0	2.8	2.1	11	2.4
23			---	4.9	3.6	4.3	2.5	3.1	2.8	2.8	16	2.4
24			---	3.2	3.8	4.3	2.3	2.8	3.2	3.1	2.6	2.2
25			---	3.3	3.2	4.4	2.2	3.0	2.2	3.5	3.1	2.2
26			---	4.0	2.8	3.9	2.3	2.9	1.8	2.9	2.3	1.5
27			---	3.8	2.7	2.9	2.3	2.9	1.8	2.9	2.4	1.8
28			---	4.0	3.4	3.1	2.3	2.1	2.2	2.7	2.2	1.8
29			---	3.8	---	2.6	2.3	3.9	2.2	2.4	2.4	2.4
30			---	4.2	---	3.1	2.3	2.6	2.4	2.8	2.3	1.5
31			4.8	3.8	---	4.0	---	4.7	---	9.5	4.4	---
TOTAL			---	128.9	93.5	119.2	130.9	84.1	142.7	137.4	208.8	80.1
MEAN			---	4.16	3.34	3.85	4.36	2.71	4.76	4.43	6.74	2.67
MAX			---	5.8	5.1	5.2	13	4.8	15	24	73	5.3
MIN			---	2.6	1.9	2.6	2.2	2.0	1.8	2.1	2.2	1.5

## ARKANSAS RIVER BASIN

07104000 MONUMENT CREEK AT PIKEVIEW, CO

LOCATION.--Lat 38°55'04", long 104°49'05", in NW¼ 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 above National Geodetic Vertical Datum of 1929. September 1938 to October 1949, nonrecording gage at present site at datum 0.10 ft, lower.

REMARKS.--Estimated daily discharges: Oct. 25-28, Nov.19-27, Nov. 30 to Dec. 3, Dec.9 to Jan. 23, and Feb. 6-14. Records good except those for periods of estimated daily discharges and 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.--21 years (water years 1939-49, 1977-86), 28.4 ft<sup>3</sup>/s; 20,580 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, 1,340 ft<sup>3</sup>/s at 1530 July 5, gage height, 5.11 ft, from rating curve extended above 250 ft<sup>3</sup>/s, on basis of three slope-area measurements of peak flow; minimum daily, 8.3 ft<sup>3</sup>/s, July 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	25	29	35	33	22	20	21	35	15	31	15
2	34	24	28	35	37	21	18	23	41	11	20	20
3	32	24	31	30	33	22	23	23	31	9.8	33	14
4	33	25	33	24	35	22	56	24	56	8.3	13	19
5	32	25	32	25	34	20	40	23	50	125	12	14
6	32	25	37	25	29	21	34	22	54	15	13	20
7	32	26	36	25	25	22	32	22	40	15	45	19
8	32	27	37	26	22	22	35	20	41	15	11	29
9	31	26	32	27	20	21	34	18	43	15	12	17
10	28	26	29	26	19	19	29	18	43	17	11	18
11	30	25	27	26	19	20	28	17	41	16	11	14
12	30	27	24	27	19	19	31	18	37	15	10	11
13	29	30	22	27	21	20	32	20	36	15	10	12
14	32	32	22	25	24	18	29	20	64	15	11	13
15	32	35	22	23	26	21	28	21	54	15	9.4	13
16	32	35	23	24	25	21	26	23	34	16	10	12
17	32	37	23	23	25	18	27	29	28	16	11	12
18	33	34	23	22	24	20	23	26	35	17	10	11
19	30	34	22	21	25	18	23	26	37	21	10	11
20	32	33	24	24	24	23	28	23	59	46	12	12
21	31	34	28	21	24	22	25	22	29	28	48	12
22	27	33	35	20	22	25	23	22	25	32	21	11
23	26	32	34	25	22	20	27	23	23	24	47	13
24	25	33	34	28	22	21	24	22	21	24	16	13
25	24	34	34	32	25	20	21	22	20	22	12	12
26	23	34	33	28	25	18	22	20	27	17	12	13
27	23	33	30	29	23	18	21	21	28	15	13	11
28	24	32	31	32	21	18	23	20	22	12	14	13
29	23	32	32	32	---	18	23	25	13	11	13	12
30	20	31	34	32	---	18	21	31	13	9.0	13	12
31	25	---	34	31	---	19	---	32	---	18	18	---
TOTAL	901	903	915	830	703	627	826	697	1080	650.1	532.4	428
MEAN	29.1	30.1	29.5	26.8	25.1	20.2	27.5	22.5	36.0	21.0	17.2	14.3
MAX	34	37	37	35	37	25	56	32	64	125	48	29
MIN	20	24	22	20	19	18	18	17	13	8.3	9.4	11
CAL YR 1985	TOTAL	22122		MEAN	60.6	MAX	425	MIN	16			
WTR YR 1986	TOTAL	9092.5		MEAN	24.9	MAX	125	MIN	8.3			

07104000 MONUMENT CREEK AT PIKEVIEW, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	ALKALINITY WH WAT TOTAL FIELD (MG/L AS CaCO3)
OCT 16...	1300	28	386	8.1	13.0	7.6	--	--	612	--
NOV 13...	1320	33	590	8.0	5.5	10.8	15	--	996	--
DEC 17...	1340	36	388	7.9	0.0	14.0	3.3	--	135	--
JAN 28...	1110	33	398	7.7	1.0	15.0	2.0	--	390	--
FEB 19...	1030	26	385	8.0	7.0	12.0	1.9	--	244	--
MAR 19...	1045	16	410	8.1	4.5	11.6	2.7	--	217	--
APR 16...	1030	25	298	7.9	11.0	10.3	E1.8	--	250	--
MAY 14...	1035	23	360	8.2	15.0	7.6	--	3.4	--	92
28...	1045	21	363	7.9	16.0	8.0	1.5	--	96	--
JUN 18...	1515	34	290	8.1	22.0	6.8	1.8	--	191	--
JUL 23...	1040	22	--	8.3	22.5	6.9	2.1	--	214	--
AUG 20...	1050	12	415	8.1	20.5	7.5	2.2	--	752	--
SEP 18...	1045	11	471	8.3	15.0	8.9	1.3	--	99	--

DATE	ALKALINITY LAB (MG/L AS CaCO3)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CHLORIDE, DISSOLVED (MG/L AS CL)	SULFATE, DISSOLVED (MG/L AS SO4)	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
OCT 16...	102	0.160	1.2	1.80	13	63	6	<10	9
NOV 13...	97	0.280	1.5	1.90	69	55	<1	<10	22
DEC 17...	87	0.690	1.3	2.70	18	61	<1	<10	10
JAN 28...	94	0.230	1.0	2.60	11	60	<1	<10	4
FEB 19...	88	0.200	1.0	2.00	11	54	<1	<10	7
MAR 19...	97	0.130	0.60	2.20	13	68	1	<10	6
APR 16...	75	0.230	1.0	1.30	10	51	<1	<10	6
MAY 14...	--	0.040	--	1.80	12	--	--	--	--
28...	95	0.060	0.80	1.90	11	67	<1	<10	5
JUN 18...	81	0.030	0.60	1.50	9.9	48	<1	<10	18
JUL 23...	103	0.040	1.0	1.20	10	57	<1	<10	7
AUG 20...	112	0.030	0.80	1.50	13	75	<1	<10	14
SEP 18...	130	<0.010	0.40	1.80	16	81	<1	<10	6

E Estimated.

## ARKANSAS RIVER BASIN

07104000 MONUMENT CREEK AT PIKEVIEW, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 16...	7000	20	11	150	30	60	--	--	230
NOV 13...	22000	20	58	520	40	190	>1600	--	K1800
DEC 17...	3300	19	4	130	41	40	K60	K10	K47
JAN 28...	8400	--	15	210	40	60	--	K40	K140
FEB 19...	5100	--	<1	150	60	40	--	K10	K190
MAR 19...	3500	--	7	140	40	40	--	K40	200
APR 16...	5400	90	9	170	30	40	--	K10	K43
MAY 14...	--	--	--	--	--	--	--	K10	200
MAY 28...	2000	20	6	90	20	20	--	K30	640
JUN 18...	2900	20	10	100	<10	20	--	K87	860
JUL 23...	4600	10	9	140	10	30	--	--	K500
AUG 20...	9300	30	76	240	10	90	--	>300	>500
SEP 18...	2400	70	9	70	10	330	--	96	200

K BASED ON NON-IDEAL COLONY COUNT.

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

07104905 MONUMENT CREEK AT BIJOU STREET AT COLORADO SPRINGS, CO

LOCATION.--Lat 38°50'14", long 104°49'44", in NW1/4NW1/4 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	ALKALINITY LAB (MG/L AS CaCO3)
OCT 17...	1035	29	581	8.2	8.0	7.8	--	224	133
NOV 15...	1040	30	555	8.2	3.0	12.6	1.0	310	115
DEC 18...	1025	31	590	8.1	0.0	12.0	1.2	97	121
JAN 28...	1215	24	625	7.9	4.5	13.2	1.2	338	120
FEB 19...	1250	26	540	8.1	13.0	10.1	1.1	288	115
MAR 19...	1230	18	580	8.1	9.0	10.6	1.8	96	126
APR 16...	1225	36	430	8.1	16.0	9.1	5.3	296	88
MAY 28...	1240	20	545	8.4	20.0	7.7	1.8	202	125
JUN 18...	1715	26	415	8.2	22.0	7.8	2.3	261	103
JUL 23...	1230	20	480	8.3	26.5	6.8	1.5	196	120
AUG 20...	1255	15	596	8.1	25.0	7.0	1.4	800	139
SEP 18...	1240	12	687	8.2	16.5	9.0	0.7	115	154

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SULFATE, DIS-SOLVED (MG/L AS SO4)	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT 17...	0.110	0.50	2.80	17	130	<1	<10	8	5000
NOV 15...	0.170	0.80	2.10	35	99	<1	<10	8	7600
DEC 18...	0.470	0.90	3.60	27	110	<1	<10	9	3800
JAN 28...	0.110	0.70	3.70	15	140	<1	<10	5	9500
FEB 19...	0.070	0.80	2.80	15	110	<1	<10	7	650
MAR 19...	--	--	3.30	17	140	1	<10	5	3100
APR 16...	0.080	1.1	2.10	13	100	<1	<10	9	6200
MAY 28...	0.050	0.90	2.70	15	120	1	<10	8	4500
JUN 18...	0.050	0.60	2.00	12	94	<1	<10	12	5300
JUL 23...	0.040	0.90	1.70	12	100	<1	<10	9	5000
AUG 20...	0.060	0.30	2.40	16	140	<1	<10	18	10000
SEP 18...	0.010	0.40	3.00	20	160	<1	<10	5	3100

E Estimated.

## ARKANSAS RIVER BASIN

07104905 MONUMENT CREEK AT BIJOU STREET AT COLORADO SPRINGS, CO

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 17...	20	8	120	<10	60	1000	K360	620
NOV 15...	30	15	170	<10	50	K2700	--	820
DEC 18...	30	90	130	20	40	880	K55	150
JAN 28...	--	19	170	20	60	--	K7	310
FEB 19...	--	6	140	20	50	--	K50	K280
MAR 19...	30	8	90	<10	40	--	--	150
APR 16...	30	13	190	<10	40	--	K20	K100
MAY 28...	10	12	160	<10	30	--	340	K1700
JUN 18...	20	10	140	<10	30	--	370	1500
JUL 23...	--	25	150	<10	40	--	K190	790
AUG 20...	20	36	240	<10	80	--	K2700	>500
SEP 18...	10	14	80	<10	20	--	210	290

K BASED ON NON-IDEAL COLONY COUNT.

07105500 FOUNTAIN CREEK AT COLORADO SPRINGS, CO

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.

DRAINAGE AREA.--392 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1921 to September 1924, January 1976 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Elevation of gage is 5,900 ft above National Geodetic Verticle Datum of 1929, from topographic map. Prior to Oct. 1, 1972, nonrecording gage at same site at different datum.

REMARKS.--Estimated daily discharges: Feb. 6-12. Records good except for estimated daily discharges, 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.

AVERAGE DISCHARGE.--13 years (water years 1922-24, 1977-86), 64.0 ft<sup>3</sup>/s; 46,370 acre-ft/yr.

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, 1,260 ft<sup>3</sup>/s at 1630 July 5, gage height, 4.77 ft ; from rating curve extended on basis of slope-area measurement of peak flow; minimum daily, 12 ft<sup>3</sup>/s, Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	46	31	48	34	35	31	22	95	26	160	33
2	36	38	37	50	30	32	26	34	132	18	84	30
3	44	38	55	48	31	31	47	35	51	13	53	22
4	44	37	53	41	30	30	106	32	155	14	42	22
5	39	37	48	40	31	28	70	28	149	225	33	25
6	44	36	51	50	28	28	59	25	95	76	16	23
7	46	38	50	46	25	28	64	27	52	42	65	54
8	42	37	51	41	23	28	118	32	46	34	35	53
9	47	34	50	47	22	29	135	31	50	34	17	26
10	47	30	38	46	22	29	80	26	51	32	22	26
11	70	33	33	47	22	30	69	23	34	28	15	24
12	47	38	39	45	24	35	63	20	29	23	13	22
13	47	44	39	44	33	34	58	17	29	25	12	20
14	50	47	48	43	37	30	51	18	79	24	18	19
15	40	51	59	40	45	31	43	20	118	16	36	18
16	39	50	59	37	40	35	39	32	53	15	30	17
17	38	54	55	40	33	37	38	58	31	18	28	17
18	44	54	53	34	34	31	36	39	32	32	21	17
19	48	46	58	35	34	30	37	36	51	26	18	18
20	49	40	60	35	41	36	39	32	59	73	21	17
21	49	45	56	33	37	31	37	25	34	38	48	18
22	48	38	58	30	33	28	33	23	29	34	73	17
23	50	50	59	40	35	28	29	19	31	29	68	17
24	47	56	52	34	35	32	30	18	18	20	46	16
25	38	57	50	29	36	29	32	19	16	20	30	16
26	38	53	55	30	36	30	29	20	26	18	33	16
27	52	50	46	36	35	27	28	22	26	14	28	19
28	51	48	47	35	35	22	28	21	26	13	23	20
29	36	51	51	31	---	27	27	32	20	15	20	21
30	32	43	53	29	---	27	25	37	27	14	19	21
31	50	---	51	33	---	35	---	40	---	54	34	---
TOTAL	1397	1319	1545	1217	901	943	1507	863	1644	1063	1161	684
MEAN	45.1	44.0	49.8	39.3	32.2	30.4	50.2	27.8	54.8	34.3	37.5	22.8
MAX	70	57	60	50	45	37	135	58	155	225	160	54
MIN	32	30	31	29	22	22	25	17	16	13	12	16
AC-FT	2770	2620	3060	2410	1790	1870	2990	1710	3260	2110	2300	1360
CAL YR 1985	TOTAL	42182	MEAN	116	MAX	732	MIN	29	AC-FT	83670		
WTR YR 1986	TOTAL	14244	MEAN	39.0	MAX	225	MIN	12	AC-FT	28250		



## ARKANSAS RIVER BASIN

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	ALKA- LITY LAB (MG/L AS CACO3)
OCT									
17...	1220	40	608	8.0	11.5	8.0	--	107	125
NOV									
15...	1255	51	830	8.1	6.5	10.3	3.9	352	111
DEC									
18...	1240	58	570	8.0	3.0	11.4	1.8	120	122
JAN									
28...	1415	37	680	7.8	9.0	11.8	2.1	260	135
FEB									
19...	1445	33	560	8.0	14.0	10.2	1.0	192	126
MAR									
19...	1440	28	640	8.1	9.5	9.3	1.0	143	135
APR									
16...	1445	40	518	8.0	17.5	8.0	E8.1	260	95
MAY									
28...	1455	21	630	8.0	17.0	8.4	2.0	120	136
JUN									
19...	1315	46	385	8.2	25.0	7.0	8.8	182	96
JUL									
23...	1440	27	485	8.2	23.0	7.5	1.0	126	113
AUG									
20...	1515	18	685	7.9	24.0	6.7	0.9	381	150
SEP									
18...	1515	17	818	8.1	19.0	10.3	0.8	56	164

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SULFATE DIS- SOLVED (MG/L AS SO4)	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)
OCT									
17...	0.070	0.90	2.30	17	120	1	<10	5	3400
NOV									
15...	0.140	0.90	2.10	100	110	<1	<10	9	9000
DEC									
18...	0.270	1.0	3.00	27	110	<1	<10	8	4100
JAN									
28...	0.060	0.70	3.60	19	150	<1	10	3	7100
FEB									
19...	0.040	0.80	2.80	21	130	<1	<10	9	5100
MAR									
19...	0.020	0.90	3.00	21	150	1	<10	5	2500
APR									
16...	0.060	0.90	2.20	16	140	<1	<10	15	5000
MAY									
28...	0.070	0.80	2.60	19	160	<1	<10	5	2800
JUN									
19...	0.050	0.70	1.40	14	83	<1	<10	11	4900
JUL									
23...	0.040	0.50	1.60	14	100	<1	<10	7	3200
AUG									
20...	0.130	0.60	2.40	22	170	<1	<10	10	5900
SEP									
18...	0.010	0.50	3.00	27	210	1	<10	7	1600

E ESTIMATED

## 07105500 FOUNTAIN CREEK AT COLORADO SPRINGS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 17...	30	6	140	70	60	960	K280	320
NOV 15...	40	33	300	90	100	>1600	160	870
DEC 18...	24	22	220	70	70	370	58	150
JAN 28...	--	11	220	90	60	--	K1200	130
FEB 19...	--	8	230	80	70	--	K30	K90
MAR 19...	10	7	170	80	30	--	K17	130
APR 16...	<10	13	200	30	40	--	K25	180
MAY 28...	20	8	150	40	30	--	240	K1200
JUN 19...	20	10	160	10	30	--	1200	K1800
JUL 23...	<10	9	100	<10	40	--	K310	>500
AUG 20...	10	24	200	40	50	--	>150	K1600
SEP 18...	50	30	150	100	40	--	K330	120

K FROM NON-IDEAL COLONY COUNT

## 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
OCT							
18...	0950	116	840	7.8	11.5	8.4	--
NOV							
18...	1030	123	659	7.6	7.5	10.3	8.1
DEC							
19...	1015	150	720	7.6	6.0	7.8	17
JAN							
29...	1000	98	838	7.8	8.0	9.2	19
FEB							
19...	1610	84	830	7.6	13.0	9.6	17
MAR							
19...	1610	77	820	7.6	10.0	8.4	20
APR							
16...	1615	75	758	7.6	16.0	8.2	E16
MAY							
28...	1630	70	790	7.5	17.0	7.2	13
JUN							
19...	1515	83	738	7.8	21.0	6.2	9.0
JUL							
23...	1620	62	762	7.9	23.5	7.0	19
AUG							
20...	1645	48	889	7.8	21.5	6.8	28
SEP							
18...	1645	44	905	7.6	19.5	7.0	20

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT							
18...	426	7.40	11	1.70	5400	K200	1200
NOV							
18...	78	7.00	12	1.40	K10000	680	1700
DEC							
19...	112	9.60	13	1.70	3900	K340	880
JAN							
29...	57	11.0	12	1.60	--	K4300	K6300
FEB							
19...	88	10.0	13	1.40	--	K88	K2900
MAR							
19...	59	11.0	15	1.70	--	480	K4600
APR							
16...	142	7.50	11	1.90	--	K5	K160
MAY							
28...	46	10.0	11	1.30	--	220	1100
JUN							
19...	80	9.50	16	1.30	--	3600	8100
JUL							
23...	69	7.50	9.3	1.80	--	K2400	550
AUG							
20...	92	11.0	--	1.90	--	600	730
SEP							
18...	18	11.0	13	1.80	--	K360	300

E Estimated.  
K BASED ON NON-IDEAL COLONY COUNT.

07105780 B DITCH DRAIN NEAR SECURITY, CO

LOCATION.--Lat 38°45'09", long 104°45'43", in SW¼ 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. Elevation of gage is 5,724 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 5, Dec. 10-22, Feb. 8-10, 13-15. Records good except those for periods of estimated daily discharges, which are poor. Unknown amounts of flow are introduced to the stream from activities in the cantonment area of Fort Carson, upstream.

AVERAGE DISCHARGE.--5 years (water years 1982-86), 1.13 ft<sup>3</sup>/s; 819 acre-ft/yr.

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, 1,200 ft<sup>3</sup>/s at 0100 Aug. 2, gage height, 10.55 ft, from rating curve extended above 15 ft<sup>3</sup>/s, on basis of slope-area measurements of peak flow; minimum daily, 0.09 ft<sup>3</sup>/s, June 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.46	.30	.33	.40	.15	.17	.18	1.1	.11	1.3	.55
2	.36	.33	.30	.33	.40	.14	.16	.18	.74	.13	65	.36
3	.36	.32	.31	.33	.43	.14	.40	.20	.17	.11	3.4	.22
4	.36	.33	.31	.33	.44	.14	.27	.18	2.9	.11	.64	2.7
5	.39	.32	.31	.34	.44	.14	.22	.14	.78	.16	.51	.31
6	.49	.31	.31	.33	.40	.14	.21	.15	.40	.13	.50	.18
7	.43	.31	.34	.33	.34	.14	.21	.14	.36	.31	3.2	.55
8	.35	.32	.34	.34	.32	.15	.39	.38	.37	.18	.59	.40
9	.45	.30	.32	.38	.30	.17	.26	.20	5.1	.16	.38	.18
10	.37	.30	.31	.33	.25	.13	.23	.15	.35	.13	.55	.16
11	.63	.30	.30	.33	.23	.13	.25	.14	.17	.12	.47	.15
12	.37	.32	.30	.33	.22	.14	.26	.14	.15	.20	.47	.15
13	.35	.35	.30	.33	.35	.31	.24	.14	.17	.21	.43	.14
14	.36	.39	.40	.33	.25	.19	.22	.15	.17	.13	8.5	.15
15	.33	.36	.34	.35	.20	.17	.22	.15	.16	.10	.62	.14
16	.33	.40	.31	.33	.14	.18	.23	.54	.13	.13	.40	.13
17	.33	.37	.32	.34	.13	.18	.21	.42	.11	.12	.35	.14
18	.32	.35	.32	.34	.13	.16	.21	.17	2.9	.54	.32	.14
19	.31	.37	.33	.35	.13	.14	.22	.17	.22	38	.29	.13
20	.33	.36	.33	.36	.17	.19	.22	.17	.13	13	.26	.13
21	.33	.37	.33	.33	.17	.17	.22	.15	.12	.67	.35	.12
22	.33	.37	.33	.33	.16	.15	.22	.14	.10	.28	.46	.13
23	.29	.35	.32	.40	.14	.15	.24	.13	.10	.22	8.4	.21
24	.28	.35	.33	.38	.16	.14	.22	.13	.11	.21	.70	.17
25	.31	.35	.33	.42	.15	.15	.21	.13	.11	.21	.36	.17
26	.32	.35	.33	.43	.14	.13	.21	.13	.12	.20	.27	.18
27	.34	.34	.33	.52	.14	.14	.21	.12	.11	.20	.57	.19
28	.37	.35	.33	.48	.14	.15	.19	.13	.10	.21	.27	.19
29	.36	.34	.33	.41	---	.15	.19	.16	.09	.23	.25	.24
30	.35	.32	.33	.43	---	.15	.19	.14	.11	.22	.24	.17
31	.56	---	.33	.43	---	.16	---	.29	---	2.9	.47	---
TOTAL	11.41	10.36	10.02	11.32	6.87	4.87	6.90	5.74	17.65	59.63	100.52	8.78
MEAN	.37	.35	.32	.37	.25	.16	.23	.19	.59	1.92	3.24	.29
MAX	.63	.46	.40	.52	.44	.31	.40	.54	5.1	38	65	2.7
MIN	.28	.30	.30	.33	.13	.13	.16	.12	.09	.10	.24	.12
AC-FT	23	21	20	22	14	9.7	14	11	35	118	199	17
CAL YR 1985	TOTAL	319.73		MEAN	.88	MAX	22	MIN	.03	AC-FT	634	
WTR YR 1986	TOTAL	254.07		MEAN	.70	MAX	65	MIN	.09	AC-FT	504	

## 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT											
18...	1050	0.33	4590	8.3	9.5	13.8	--	20	0.300	1.4	17.0
NOV											
18...	1105	0.35	4200	8.1	4.0	15.5	1.8	47	0.180	1.8	17.0
DEC											
19...	1115	0.32	3840	7.9	0.0	13.0	8.7	7	4.20	5.5	12.0
JAN											
29...	1115	0.37	5650	7.9	3.0	14.8	1.9	18	1.50	3.8	22.0
FEB											
19...	1330	0.14	6800	8.5	12.5	15.5	3.0	22	0.131	1.9	27.0
MAR											
19...	1445	0.15	6900	8.2	10.0	10.1	E2.0	26	0.120	1.4	27.0
APR											
16...	1415	0.22	6370	8.6	19.0	12.0	E3.5	20	0.110	1.5	23.0
MAY											
28...	1545	0.14	7250	8.3	18.0	9.0	3.6	93	0.190	1.6	29.0
JUN											
20...	1300	0.13	5240	8.2	28.0	12.8	1.2	23	0.120	1.1	17.0
JUL											
23...	1500	0.22	5300	8.0	26.5	7.2	--	26	0.150	0.90	18.0
AUG											
20...	1400	0.27	7140	8.2	21.0	12.4	1.4	5	0.120	1.1	43.0
SEP											
18...	1430	0.15	7500	8.3	22.0	11.8	1.2	4	0.120	2.1	59.0

E Estimated.

07105800 FOUNTAIN CREEK AT SECURITY, CO

LOCATION.--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.

REVISED RECORDS.--WDR CO-85-1: 1984 (M).

GAGE.--Water-stage recorder. Elevation of gage is 5,640 ft above National Geodetic Vertical Datum of 1929, 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. Feb. 21, 1980 to June 30, 1986 at present site at datum 3.00 ft, higher.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 6, Feb. 6-12, July 20 to Aug. 3, and Aug. 21-26. Records good except those for Nov. 28 to Dec. 6, and Feb. 6-12, which are fair, and those for July 20 to Aug. 3, Aug. 21-26, and those above 2,000 ft<sup>3</sup>/s, which are poor. 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.

AVERAGE DISCHARGE.--22 years, 81.1 ft<sup>3</sup>/s; 58,760 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, 3,590 ft<sup>3</sup>/s at about 2130 Aug. 21, gage height, 7.37 ft, from floodmark, from rating curve based on slope-area measurements of peak flow; minimum daily, 51 ft<sup>3</sup>/s, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	131	90	116	68	97	106	74	135	65	200	125
2	108	89	88	120	69	91	87	78	204	74	350	104
3	122	83	94	120	70	91	139	80	97	65	150	90
4	114	85	100	114	71	85	161	76	148	66	99	88
5	104	77	105	106	64	80	117	79	283	319	76	105
6	104	77	110	115	68	79	107	80	178	127	64	99
7	119	85	124	110	62	66	110	86	128	80	158	167
8	116	90	122	101	58	59	152	104	109	69	129	135
9	129	91	127	118	58	60	162	99	192	71	74	67
10	128	86	100	126	56	62	109	86	137	70	76	69
11	162	86	96	123	56	59	101	84	119	71	87	71
12	107	84	122	114	70	73	103	77	111	68	79	88
13	99	95	126	113	93	72	93	75	101	72	78	80
14	110	108	132	107	107	78	80	79	110	81	311	76
15	99	107	139	93	114	79	74	80	176	71	148	69
16	94	99	139	80	109	77	76	104	99	71	84	68
17	99	106	143	76	92	76	71	150	86	77	87	69
18	105	107	142	72	97	76	76	104	103	96	78	72
19	118	102	159	76	93	87	80	95	136	141	76	72
20	123	88	171	88	104	107	77	89	116	210	77	72
21	122	87	168	80	99	98	77	84	110	130	420	74
22	111	85	163	79	91	92	70	80	98	90	200	73
23	107	103	164	87	91	91	68	74	112	80	110	77
24	97	127	159	89	93	95	67	76	93	74	150	62
25	89	131	149	76	96	87	70	78	91	70	130	51
26	94	113	157	78	98	89	74	80	100	68	110	58
27	110	101	147	76	96	87	73	90	97	64	93	62
28	116	96	154	74	104	72	71	84	97	64	81	65
29	84	94	150	75	104	84	74	104	69	70	81	76
30	81	92	151	67	---	88	68	114	69	80	73	69
31	101	---	133	71	---	97	---	102	---	140	113	---
TOTAL	3387	2905	4124	2940	2347	2534	2793	2745	3704	2894	4042	2453
MEAN	109	96.8	133	94.8	83.8	81.7	93.1	88.5	123	93.4	130	81.8
MAX	162	131	171	126	114	107	162	150	283	319	420	167
MIN	81	77	88	67	56	59	67	74	69	64	64	51
AC-FT	6720	5760	8180	5830	4660	5030	5540	5440	7350	5740	8020	4870
CAL YR 1985	TOTAL	65362		MEAN	179	MAX	846	MIN	77	AC-FT	129600	
WTR YR 1986	TOTAL	36868		MEAN	101	MAX	420	MIN	51	AC-FT	73130	

## ARKANSAS RIVER BASIN

07105820 CLOVER DITCH DRAIN NEAR WIDFIELD, CO

LOCATION.--Lat 38°43'07", long 104°43'43", in SW¼ 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. Elevation of gage is 5,620 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except 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, 1,030 ft<sup>3</sup>/s at 0145 Aug. 2, gage height, 8.73 ft, from rating curve extended above 50 ft<sup>3</sup>/s; minimum daily, 2.4 ft<sup>3</sup>/s, May 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	3.6	5.2	4.7	5.2	4.2	4.9	3.5	8.6	4.4	12	5.9
2	6.2	3.9	5.3	4.6	5.5	4.9	4.8	3.0	11	5.1	45	4.1
3	5.7	3.4	5.5	4.4	5.5	4.5	6.1	2.4	4.9	5.2	6.5	3.3
4	6.3	3.4	4.5	4.2	5.2	4.2	4.7	3.1	7.5	3.9	5.6	6.1
5	6.0	3.6	5.0	4.1	4.6	4.6	5.1	2.9	7.1	4.0	5.1	4.7
6	5.6	4.2	4.6	4.4	4.3	4.5	4.6	2.9	5.6	3.4	5.6	4.4
7	5.3	4.7	5.0	4.6	4.4	4.1	4.9	3.9	5.4	4.8	7.6	6.8
8	5.0	5.0	5.1	4.1	4.6	4.4	5.9	6.0	5.5	5.0	7.4	5.1
9	5.4	4.3	5.2	4.1	4.7	4.4	4.7	3.8	10	5.1	6.6	4.3
10	5.1	4.1	5.0	3.3	4.4	4.0	4.6	3.3	6.7	5.5	6.8	3.7
11	5.5	5.1	4.1	3.3	4.1	3.6	4.5	3.7	6.4	4.5	7.8	3.8
12	4.9	5.5	3.5	4.2	3.9	3.9	3.8	4.0	5.8	5.0	6.9	4.2
13	4.9	5.1	3.9	4.2	4.5	5.9	4.1	3.9	6.1	6.3	6.8	4.2
14	4.8	6.3	4.7	4.1	4.2	4.8	4.0	4.0	5.9	4.8	12	4.4
15	4.6	5.1	4.9	3.6	4.7	5.2	3.4	3.8	6.0	4.7	7.3	4.3
16	4.8	4.7	5.2	3.7	5.1	4.9	3.6	6.3	6.1	4.7	6.5	4.1
17	4.4	5.0	5.0	3.8	4.8	4.4	3.9	4.3	4.9	4.7	6.4	3.5
18	4.4	5.1	5.1	4.6	4.4	4.3	3.4	3.1	10	5.8	6.9	3.2
19	4.2	5.8	4.1	4.7	4.7	4.5	3.7	4.1	4.4	18	6.9	4.1
20	4.1	5.2	4.4	4.5	4.8	5.0	3.9	4.0	5.1	43	6.2	4.2
21	4.3	5.2	4.7	4.6	4.5	4.7	4.0	4.0	5.7	10	5.6	3.5
22	4.4	5.2	4.8	4.4	4.6	4.6	4.3	4.0	5.5	6.6	6.6	3.6
23	5.0	5.1	5.4	4.5	4.8	4.8	4.2	3.5	4.6	6.2	14	4.6
24	4.6	5.6	5.0	4.5	4.5	5.1	4.2	2.8	3.8	5.6	7.0	3.8
25	4.6	5.5	4.5	4.4	4.1	4.6	3.8	3.1	4.8	5.6	5.6	3.5
26	3.5	4.8	4.5	4.7	4.0	4.8	3.4	3.8	5.0	5.6	5.6	3.5
27	4.2	5.4	4.4	4.8	4.5	4.7	4.0	3.8	5.4	5.9	6.0	3.5
28	4.7	5.1	3.9	3.9	4.0	4.9	4.4	4.0	5.4	5.4	4.6	3.8
29	4.2	5.2	4.2	3.4	---	4.9	4.2	4.3	4.5	4.9	4.9	4.6
30	3.3	5.0	4.6	4.5	---	4.7	4.0	3.8	3.6	5.1	4.8	4.8
31	3.8	---	4.5	5.0	---	5.2	---	4.5	---	8.7	8.2	---
TOTAL	150.0	145.2	145.8	131.9	128.6	143.3	129.1	117.6	181.3	217.5	254.8	127.6
MEAN	4.84	4.84	4.70	4.25	4.59	4.62	4.30	3.79	6.04	7.02	8.22	4.25
MAX	6.3	6.3	5.5	5.0	5.5	5.9	6.1	6.3	11	43	45	6.8
MIN	3.3	3.4	3.5	3.3	3.9	3.6	3.4	2.4	3.6	3.4	4.6	3.2
AC-FT	298	288	289	262	255	284	256	233	360	431	505	253
CAL YR 1985	TOTAL	2060.7	MEAN	5.65	MAX	30	MIN	2.0	AC-FT	4090		
WTR YR 1986	TOTAL	1872.7	MEAN	5.13	MAX	45	MIN	2.4	AC-FT	3710		

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT											
18...	1140	4.4	1660	8.1	14.0	9.2	--	12	3.90	5.9	7.50
NOV											
18...	1140	5.0	1590	8.0	10.0	8.6	15	7	5.00	8.1	6.80
DEC											
19...	1145	3.3	1570	8.0	8.0	9.5	15	7	6.50	5.5	4.40
JAN											
29...	1140	2.5	1780	7.9	8.5	10.6	15	12	3.10	4.5	6.00
FEB											
19...	1430	4.3	1500	8.2	14.0	11.0	34	5	11.0	14	3.90
MAR											
19...	1615	5.4	1400	8.1	10.0	8.4	E18	9	7.70	11	6.40
APR											
16...	1500	4.5	1480	8.3	16.0	10.0	E25	5	7.10	11	6.20
MAY											
28...	1630	3.8	1480	8.1	17.5	8.0	20	10	3.30	4.9	4.90
JUN											
20...	1515	5.6	1330	7.9	25.0	7.3	E19	12	6.00	7.8	4.90
JUL											
23...	1600	5.9	1490	8.0	24.5	5.9	E21	26	6.10	8.9	10.0
AUG											
20...	1500	8.5	1410	8.1	21.0	8.1	13	1	5.00	6.7	6.10
SEP											
18...	1545	4.5	1620	8.3	20.0	9.8	16	14	3.40	7.4	8.90

E Estimated.



## ARKANSAS RIVER BASIN

07105900 JIMMY CAMP CREEK AT FOUNTAIN, CO

LOCATION.--Lat 38°41'04", long 104°41'17", in NW¼SE¼ sec.5, T.16 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. Elevation of gage is 5,530 ft above National Geodetic Vertical Datum of 1929, from topographic map. January 1976 to Sept. 3, 1986 at datum 4.0 ft, higher.

REMARKS.--Estimated daily discharges: Oct. 1-9, Nov. 8-13, 19-20, Nov. 30 to Dec. 3, 9-18, 27-30, Jan. 4-6, 22-23, 25-27, Feb. 7-13, and Aug.24 to Sept. 3. Records good except those for periods of estimated daily discharges, and those from 10 to 1,000 ft<sup>3</sup>/s, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 2.61 ft<sup>3</sup>/s; 1,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,600 ft<sup>3</sup>/s, July 28, 1985, gage height, 6.25 ft, from floodmark, from rating curve extended above 1,300 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 0.20 ft<sup>3</sup>/s, July 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,970 ft<sup>3</sup>/s at 2330 Aug. 23, gage height, 4.88 ft, from rating curve extended above 1,300 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 0.50 ft<sup>3</sup>/s, May 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.6	2.1	2.7	2.7	2.0	1.7	1.1	.88	.99	2.4	3.0
2	2.5	2.5	2.1	2.4	2.7	2.0	1.8	1.1	2.1	1.0	46	2.0
3	2.6	2.5	2.3	2.4	2.7	2.0	2.1	1.1	.81	.92	4.8	1.7
4	2.6	2.5	2.5	2.3	2.7	2.1	2.0	1.1	15	.87	3.6	1.6
5	2.6	2.4	2.4	2.3	2.5	2.1	2.0	1.1	2.8	.79	2.5	1.5
6	2.7	2.4	2.4	2.5	2.5	2.0	1.7	1.0	2.4	.82	2.0	1.3
7	2.5	2.4	2.4	2.9	2.2	2.0	1.7	1.1	2.6	.84	2.2	1.1
8	2.5	2.3	2.3	3.3	1.8	2.0	1.7	1.1	2.8	.79	4.5	.89
9	2.6	2.3	2.1	3.4	1.6	2.0	1.7	1.0	4.1	.82	2.8	.96
10	2.8	2.2	1.8	3.1	1.5	2.1	1.7	1.0	3.2	.90	2.5	.80
11	3.1	2.2	1.7	3.1	1.5	2.2	1.7	1.2	3.7	.80	2.5	.78
12	2.6	2.3	1.7	3.1	1.6	2.1	1.6	1.2	4.2	.79	2.4	.81
13	2.4	2.4	1.7	3.1	2.1	2.3	1.6	1.1	4.2	.93	2.6	.87
14	2.6	2.5	1.9	2.9	2.4	2.0	1.6	1.1	5.7	.86	3.2	.86
15	2.5	2.5	2.0	3.0	2.4	1.9	1.6	1.1	3.0	.72	3.2	.82
16	2.6	2.4	2.1	2.8	2.3	2.0	1.6	.96	2.7	.67	2.9	.83
17	2.6	2.4	2.2	2.8	2.3	2.0	1.5	.90	2.8	.75	3.5	.87
18	2.6	2.4	2.3	2.7	2.2	2.0	1.5	.87	2.9	.70	4.7	.88
19	2.5	2.2	2.5	2.6	2.1	2.1	1.4	.90	3.0	.70	4.3	.90
20	2.5	2.2	2.3	2.5	2.0	2.2	1.4	.86	3.0	1.7	3.9	.93
21	2.6	2.4	2.2	2.5	2.1	2.2	1.3	.81	2.8	1.4	5.6	.91
22	2.6	2.5	2.1	2.4	2.2	2.2	1.3	.79	2.6	1.1	16	.96
23	2.6	2.4	2.3	2.6	2.1	2.2	1.2	.69	2.5	.97	161	.96
24	2.6	2.4	2.3	2.7	2.2	2.2	1.3	.59	2.2	.95	20	.91
25	2.8	2.4	2.4	2.6	2.1	2.1	1.2	.62	1.9	1.0	7.0	.87
26	2.7	2.4	2.3	2.5	2.1	2.1	1.2	.67	1.7	1.5	4.0	.87
27	2.7	2.4	2.2	2.6	1.9	2.0	1.2	.68	1.6	1.6	3.0	.94
28	2.6	2.6	2.2	2.8	2.0	2.1	1.2	.65	1.3	1.8	2.5	.98
29	2.6	2.7	2.3	2.8	---	2.1	1.2	.64	1.1	2.0	2.2	1.2
30	2.5	2.2	2.4	2.8	---	1.7	1.2	.57	1.0	2.1	2.0	1.0
31	2.7	---	2.5	2.8	---	1.8	---	.50	---	5.9	4.0	---
TOTAL	80.9	72.0	68.0	85.0	60.5	63.8	45.9	28.10	90.59	37.68	333.8	33.00
MEAN	2.61	2.40	2.19	2.74	2.16	2.06	1.53	.91	3.02	1.22	10.8	1.10
MAX	3.1	2.7	2.5	3.4	2.7	2.3	2.1	1.2	15	5.9	161	3.0
MIN	2.4	2.2	1.7	2.3	1.5	1.7	1.2	.50	.81	.67	2.0	.78
AC-FT	160	143	135	169	120	127	91	56	180	75	662	65
CAL YR 1985	TOTAL	1450.90		MEAN	3.98	MAX	700	MIN	.42	AC-FT	2880	
WTR YR 1986	TOTAL	999.27		MEAN	2.74	MAX	161	MIN	.50	AC-FT	1980	

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
OCT							
18...	1240	77	1130	8.0	13.0	7.6	--
NOV							
18...	1245	110	930	7.8	9.0	9.6	12
DEC							
19...	1305	114	1030	7.9	7.0	7.8	14
JAN							
29...	1230	71	1090	7.8	8.5	9.2	17
FEB							
19...	1200	104	1040	8.0	11.0	9.6	E18
MAR							
19...	1200	96	1040	7.9	11.0	9.8	E30
APR							
16...	1145	76	970	8.0	16.0	8.6	E20
MAY							
28...	1130	55	1140	8.0	16.5	7.2	20
JUN							
20...	0930	61	1050	7.6	18.0	6.9	E17
JUL							
23...	1230	38	1130	8.0	25.5	7.1	E10
AUG							
20...	1130	14	1390	7.8	22.0	5.2	5.7
SEP							
18...	1200	80	1160	8.0	17.5	8.2	34

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT							
18...	54	1.20	2.1	5.00	2500	K100	K200
NOV							
18...	92	2.10	3.4	4.50	K11000	500	520
DEC							
19...	90	4.60	5.5	3.80	440	K20	K60
JAN							
29...	78	3.90	5.0	3.90	--	1700	950
FEB							
19...	122	5.00	7.4	3.70	--	K60	K67
MAR							
19...	21	0.020	0.50	2.90	--	K66	K130
APR							
16...	98	2.70	4.4	3.90	--	150	140
MAY							
28...	42	3.50	4.5	3.80	--	77	450
JUN							
20...	134	2.20	3.7	3.90	--	700	900
JUL							
23...	120	0.520	3.3	3.80	--	520	1400
AUG							
20...	22	0.180	1.0	3.20	--	180	260
SEP							
18...	109	3.10	4.8	4.20	--	440	170

E Estimated.  
K BASED ON NON-IDEAL COLONY COUNT

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, 0.7 mi 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 above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 3 to Jan. 25. Records good except for estimated daily discharges, which are poor. No diversions upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 5.79 ft<sup>3</sup>/s; 4,190 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 greater than base discharge 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)
Aug. 7	2115	*30	*1.51	Aug. 10	1915	14	1.14
Aug. 9	0015	14	1.14				

Minimum daily discharge, 0.90 ft<sup>3</sup>/s, Jan. 11-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.0	1.2	1.1	1.0	1.1	2.5	2.7	1.9	1.4	1.8	4.8
2	2.3	1.9	1.2	1.1	1.1	1.2	2.3	2.6	4.2	1.5	1.8	4.9
3	2.3	1.8	1.4	1.1	1.1	1.2	2.3	2.5	3.8	1.2	1.7	4.3
4	2.2	1.8	1.5	1.0	.99	1.1	2.2	2.5	3.7	1.1	1.7	4.3
5	2.1	1.9	1.5	1.0	1.0	1.1	2.3	2.2	4.4	1.4	1.5	4.2
6	2.1	1.8	1.5	1.0	.96	1.1	2.6	2.1	4.4	2.8	1.2	3.8
7	2.1	1.8	1.4	1.0	.96	1.1	2.7	2.1	4.3	2.0	3.8	3.9
8	2.0	1.9	1.2	1.0	.96	1.1	2.8	2.1	4.2	1.8	9.1	3.6
9	2.1	1.7	1.1	.95	.96	1.2	3.2	2.1	4.1	1.8	11	3.3
10	2.2	1.6	1.0	.95	.98	1.1	3.4	2.1	4.1	1.6	11	3.0
11	2.5	1.6	1.0	.90	1.0	1.1	3.5	2.0	3.8	1.6	12	2.8
12	2.5	1.6	1.0	.90	1.1	1.1	3.6	1.9	3.6	1.4	9.9	2.6
13	2.4	1.8	1.0	.95	1.1	1.2	3.7	1.8	3.4	2.0	8.7	2.4
14	2.5	1.7	1.1	1.1	1.1	1.3	3.4	1.7	3.2	2.0	8.1	2.2
15	2.2	1.7	1.1	1.1	1.2	1.2	3.3	1.6	3.1	1.7	8.2	1.7
16	2.1	1.9	1.1	1.1	1.2	1.2	3.2	1.8	2.9	1.6	6.8	1.9
17	2.1	1.9	1.1	1.1	1.2	1.2	3.2	2.0	2.7	1.5	5.8	1.8
18	2.1	1.9	1.1	1.0	1.1	1.1	3.1	1.9	2.7	1.5	5.0	1.6
19	2.0	1.6	1.1	1.0	1.1	1.2	3.0	2.2	3.2	2.3	4.8	1.6
20	2.0	1.5	1.1	1.0	1.1	1.2	3.0	2.1	2.7	3.3	4.2	1.5
21	2.0	1.7	1.1	1.0	1.1	1.3	2.9	2.1	2.5	3.8	4.1	1.4
22	1.9	1.7	1.1	1.0	1.3	1.3	3.0	1.9	2.2	3.5	3.8	1.5
23	1.8	1.5	1.1	1.0	1.1	1.3	3.0	1.8	2.1	3.1	4.0	1.5
24	1.8	1.9	1.1	1.0	1.1	1.6	2.9	1.8	2.0	3.0	5.0	1.4
25	1.8	1.9	1.0	1.0	1.1	1.7	2.9	1.7	1.9	2.7	4.2	1.5
26	1.8	1.8	1.0	1.0	1.1	1.8	2.8	1.7	1.9	2.4	4.7	1.3
27	1.8	1.8	1.0	.99	1.1	1.9	2.9	1.7	1.8	2.4	5.4	1.3
28	1.9	1.5	1.0	.96	1.1	2.0	2.9	1.5	1.7	2.0	5.0	1.3
29	1.8	1.3	1.1	.96	---	2.1	2.8	1.7	1.5	1.9	4.8	1.3
30	1.8	1.2	1.1	.96	---	2.1	2.8	1.7	1.5	1.7	4.4	1.3
31	1.8	---	1.1	.96	---	2.2	---	1.6	---	1.6	4.5	---
TOTAL	64.3	51.7	35.4	31.18	30.21	42.4	88.2	61.2	89.5	63.6	168.0	74.0
MEAN	2.07	1.72	1.14	1.01	1.08	1.37	2.94	1.97	2.98	2.05	5.42	2.47
MAX	2.5	2.0	1.5	1.1	1.3	2.2	3.7	2.7	4.4	3.8	12	4.9
MIN	1.8	1.2	1.0	.90	.96	1.1	2.2	1.5	1.5	1.1	1.2	1.3
AC-FT	128	103	70	62	60	84	175	121	178	126	333	147
CAL YR 1985	TOTAL	3182.4		MEAN	8.72	MAX	83	MIN	1.0	AC-FT	6310	
WTR YR 1986	TOTAL	799.69		MEAN	2.19	MAX	12	MIN	.90	AC-FT	1590	

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. Elevation of gage is 6,400 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 20 to Mar. 10 and Aug. 16-27. Records good except those for periods of estimated daily discharges, which are poor. 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.--8 years, 1.26 ft<sup>3</sup>/s; 913 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, 1.8 ft<sup>3</sup>/s, many days; minimum daily, 0.99 ft<sup>3</sup>/s, Apr. 18-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.5	1.4	1.4	1.4	1.2	1.0	1.0	1.3	1.8	1.4	1.4
2	1.3	1.5	1.4	1.4	1.4	1.3	1.0	1.0	1.6	1.8	1.4	1.4
3	1.3	1.5	1.4	1.4	1.4	1.3	1.0	1.0	1.7	1.8	1.4	1.4
4	1.4	1.5	1.4	1.4	1.4	1.2	1.0	1.0	1.7	1.8	1.4	1.4
5	1.3	1.5	1.4	1.4	1.4	1.2	1.0	1.0	1.7	1.8	1.4	1.4
6	1.3	1.5	1.4	1.4	1.4	1.2	1.0	1.0	1.7	1.8	1.4	1.3
7	1.4	1.5	1.4	1.4	1.4	1.2	1.0	1.0	1.8	1.8	1.4	1.3
8	1.4	1.5	1.4	1.4	1.3	1.2	1.0	1.0	1.7	1.8	1.4	1.3
9	1.3	1.5	1.4	1.4	1.3	1.3	1.0	1.0	1.7	1.8	1.4	1.3
10	1.3	1.5	1.3	1.4	1.3	1.2	1.0	1.0	1.7	1.8	1.4	1.3
11	1.3	1.5	1.3	1.4	1.3	1.1	1.0	1.0	1.7	1.8	1.4	1.3
12	1.4	1.5	1.3	1.4	1.3	1.1	1.0	1.1	1.8	1.8	1.4	1.3
13	1.4	1.5	1.3	1.4	1.3	1.1	1.0	1.1	1.7	1.7	1.4	1.3
14	1.3	1.5	1.3	1.4	1.3	1.1	1.0	1.1	1.7	1.7	1.4	1.3
15	1.3	1.5	1.3	1.4	1.3	1.1	1.0	1.1	1.7	1.7	1.4	1.3
16	1.4	1.5	1.3	1.4	1.3	1.1	1.0	1.1	1.7	1.6	1.4	1.3
17	1.4	1.5	1.3	1.4	1.2	1.1	1.0	1.1	1.7	1.6	1.4	1.3
18	1.4	1.5	1.3	1.4	1.3	1.1	.99	1.1	1.7	1.5	1.4	1.3
19	1.4	1.5	1.4	1.4	1.2	1.1	.99	1.1	1.7	1.4	1.4	1.3
20	1.4	1.5	1.4	1.4	1.2	1.1	.99	1.1	1.7	1.3	1.4	1.3
21	1.4	1.5	1.4	1.4	1.2	1.1	.99	1.1	1.7	1.3	1.4	1.3
22	1.4	1.5	1.4	1.4	1.2	1.1	.99	1.1	1.8	1.3	1.4	1.3
23	1.5	1.5	1.4	1.4	1.2	1.1	.99	1.1	1.7	1.3	1.4	1.3
24	1.5	1.5	1.4	1.4	1.2	1.1	1.0	1.1	1.8	1.3	1.4	1.3
25	1.5	1.5	1.4	1.4	1.2	1.1	1.1	1.1	1.8	1.3	1.3	1.3
26	1.5	1.5	1.4	1.4	1.2	1.1	1.1	1.1	1.8	1.3	1.3	1.3
27	1.5	1.4	1.4	1.4	1.2	1.1	1.0	1.1	1.8	1.3	1.3	1.3
28	1.5	1.4	1.4	1.4	1.2	1.1	1.0	1.1	1.8	1.3	1.3	1.3
29	1.5	1.4	1.4	1.4	---	1.1	1.0	1.1	1.8	1.3	1.3	1.3
30	1.5	1.4	1.4	1.4	---	1.1	1.0	1.2	1.8	1.3	1.3	1.3
31	1.5	---	1.4	1.4	---	1.1	---	1.3	---	1.3	1.4	---
TOTAL	43.3	44.6	42.5	43.4	36.0	35.4	30.14	33.3	51.5	48.4	42.8	39.5
MEAN	1.40	1.49	1.37	1.40	1.29	1.14	1.00	1.07	1.72	1.56	1.38	1.32
MAX	1.5	1.5	1.4	1.4	1.4	1.3	1.1	1.3	1.8	1.8	1.4	1.4
MIN	1.3	1.4	1.3	1.4	1.2	1.1	.99	1.0	1.3	1.3	1.3	1.3
AC-FT	86	88	84	86	71	70	60	66	102	96	85	78
CAL YR 1985	TOTAL	514.1		MEAN	1.41	MAX	1.6	MIN	1.3	AC-FT	1020	
WTR YR 1986	TOTAL	490.84		MEAN	1.34	MAX	1.8	MIN	.99	AC-FT	974	

## 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 mi<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. Elevation of gage is 6,360 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 12-13, 15-20, Dec. 2-4, 9-13 and 22-29. Records good except estimated daily discharges, which are fair. Womack Ditch diverts about 5.0 ft<sup>3</sup>/s from Keaton Reservoir upstream. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 4.79 ft<sup>3</sup>/s; 3,470 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 224 ft<sup>3</sup>/s, Oct. 4, 1984, gage height, 5.04 ft, from rating curve extended above 80 ft<sup>3</sup>/s; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13 ft<sup>3</sup>/s at 1015 Aug. 8, gage height, 2.75 ft; minimum daily, 0.03 ft<sup>3</sup>/s, July 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.98	.15	.25	.21	.15	2.0	1.5	1.1	.42	.55	4.2
2	1.7	.88	.15	.24	.17	.15	1.8	1.4	4.0	.07	.62	4.1
3	1.6	.80	.30	.21	.13	.16	1.7	1.4	3.3	.05	.49	3.5
4	1.6	.76	.40	.23	.12	.17	1.4	1.3	3.1	.03	.84	3.3
5	1.6	.73	.45	.16	.10	.23	1.6	1.2	4.0	.05	.26	3.1
6	1.6	.72	.40	.16	.09	.25	1.7	1.1	4.1	1.4	.25	2.6
7	1.6	.68	.37	.17	.08	.25	1.8	1.1	3.6	.77	1.1	2.7
8	1.4	.60	.34	.15	.07	.25	2.0	1.2	3.5	.61	7.9	2.5
9	1.5	.57	.25	.13	.07	.32	2.2	1.1	3.5	.54	8.9	2.1
10	1.6	.54	.20	.11	.07	.35	2.2	1.1	3.5	.41	8.7	1.8
11	1.9	.45	.15	.10	.08	.35	2.2	.91	3.1	.34	9.1	1.5
12	1.6	.50	.15	.11	.08	.39	2.2	.77	2.5	.25	8.5	1.3
13	1.7	.50	.20	.11	.08	.39	2.4	.75	2.2	.45	8.7	.97
14	1.7	.44	.26	.11	.07	.41	2.2	.66	2.0	.46	8.2	.81
15	1.6	.50	.26	.11	.11	.46	2.6	.64	1.7	.36	8.2	.41
16	1.6	.54	.25	.12	.10	.48	2.2	.88	1.5	.26	7.3	.47
17	1.4	.54	.25	.15	.09	.52	2.1	1.2	1.4	.16	6.5	.37
18	1.4	.50	.25	.18	.11	1.3	2.1	1.1	1.3	.65	5.8	.32
19	1.4	.40	.25	.14	.11	.58	2.1	1.3	1.9	.87	5.1	.31
20	1.3	.35	.25	.15	.12	.74	2.1	1.2	1.4	2.1	4.3	.31
21	1.3	.46	.26	.14	.13	.72	1.9	1.1	1.1	2.8	3.9	.18
22	1.3	.35	.30	.10	.13	.86	2.0	.88	.86	2.3	3.5	.25
23	1.1	.35	.30	.10	.13	.76	1.9	.84	.78	1.8	3.7	.30
24	1.0	.41	.27	.15	.13	.94	1.8	.82	.63	1.7	4.8	.25
25	.81	.52	.25	.12	.13	1.0	1.7	.74	.51	1.5	3.7	.21
26	.72	.45	.25	.10	.13	1.1	1.7	.66	.44	1.0	4.1	.22
27	.68	.45	.25	.14	.15	2.9	1.8	.67	.45	.89	4.6	.21
28	.71	.40	.25	.17	.15	1.6	1.7	.74	.32	.70	4.4	.19
29	.70	.35	.27	.21	---	1.0	1.6	.96	.23	.55	4.6	.23
30	.59	.28	.30	.21	---	1.6	1.6	.90	.21	.38	3.8	.30
31	.64	---	.27	.21	---	1.4	---	.67	---	.38	3.7	---
TOTAL	41.15	16.00	8.25	4.74	3.14	21.78	58.3	30.79	58.23	24.25	146.11	39.01
MEAN	1.33	.53	.27	.15	.11	.70	1.94	.99	1.94	.78	4.71	1.30
MAX	1.9	.98	.45	.25	.21	2.9	2.6	1.5	4.1	2.8	9.1	4.2
MIN	.59	.28	.15	.10	.07	.15	1.4	.64	.21	.03	.25	.18
AC-FT	82	32	16	9.4	6.2	43	116	61	115	48	290	77
CAL YR 1985	TOTAL	2838.96		MEAN	7.78	MAX	95	MIN	.15	AC-FT	5630	
WTR YR 1986	TOTAL	451.75		MEAN	1.24	MAX	9.1	MIN	.03	AC-FT	896	

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.

REVISED RECORDS.--WDR CO-85-1: 1984 (M).

GAGE.--Water-stage recorder. Elevation of gage is 5,560 ft above National Vertical Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 10-12, 16, 19-22, 28- Dec. 5, Dec. 9-19, Jan. 4-5, 8-9,19, 23, 25-28, 30-31, and Feb. 7-14. Records good except for estimated daily discharges, which are poor. Diversions upstream from station for irrigation, recreation, and municipal use, amount unknown. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 5.59 ft<sup>3</sup>/s; 4,050 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,290 ft<sup>3</sup>/s, Aug. 23, 1986, gage height, 8.47 ft, from rating curve extended above 100 ft<sup>3</sup>/s, on basis of computation of peak flow through a culvert at a gage height of 8.22 ft; no flow many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,290 ft<sup>3</sup>/s at 2030 Aug. 23, gage height, 8.47 ft, from rating curve extended above 100 ft<sup>3</sup>/s on basis of computation of peak flow through a culvert at a gage height of 8.22 ft; minimum daily, 0.03 ft<sup>3</sup>/s, July 16, 18, and 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.75	.45	.45	1.1	.56	.50	.72	.80	.49	13	4.5
2	1.7	.70	.45	.50	1.2	.53	.54	.72	.98	.13	91	3.3
3	1.6	.60	.55	.60	1.2	.50	.49	.72	.61	.07	.83	2.2
4	1.7	.57	.65	.55	1.3	.50	.54	.67	2.4	.06	.60	1.9
5	1.5	.59	.70	.50	1.3	.50	.56	.50	1.4	.05	.52	1.7
6	1.5	.50	.76	.57	.91	.55	.55	.50	.73	.07	.48	1.6
7	1.7	.60	.74	.43	.85	.60	.54	.52	.55	.07	.31	1.8
8	1.7	.67	.52	.45	.80	.60	.54	.57	.45	.08	.86	1.8
9	1.6	.56	.48	.48	.70	.60	.59	.61	.89	.10	.73	1.6
10	1.6	.50	.45	.49	.55	.50	.45	.59	1.9	.15	.62	1.6
11	1.6	.55	.40	.55	.45	.50	.43	.52	1.4	.12	.84	1.5
12	1.6	.72	.45	.48	.50	.50	.43	.44	.78	.07	.70	1.6
13	1.3	.79	.50	.60	.60	.61	.46	.43	.64	.07	.60	1.6
14	1.3	.89	.55	.63	.65	.55	.43	.46	1.1	.07	.55	1.6
15	1.2	.90	.65	.74	.78	.50	.43	.44	.54	.06	.42	1.5
16	1.2	.80	.60	.58	.69	.50	.51	.45	.31	.03	.35	1.5
17	1.2	.72	.58	.43	.65	.50	.50	.59	.26	.04	.24	1.5
18	1.0	.72	.55	.52	.57	.50	.50	.50	.28	.03	.20	1.5
19	1.0	.65	.62	.60	.50	.47	.50	.49	.25	.24	.18	1.5
20	1.0	.60	.69	.54	.50	.54	.50	.49	.24	31	.14	1.2
21	1.0	.90	.73	.75	.50	.48	.50	.45	.22	21	.59	1.2
22	.91	.80	.66	.88	.54	.50	.50	.39	.19	7.6	.35	1.2
23	.88	.53	.58	.90	.53	.45	.57	.39	.19	3.3	122	1.1
24	.85	.61	.45	.77	.50	.50	.60	.45	.18	.99	15	1.0
25	.83	.75	.40	.70	.50	.50	.60	.47	.16	.39	10	1.0
26	.83	.63	.43	.80	.50	.50	.60	.45	.17	.16	2.4	.99
27	.83	.60	.37	.90	.49	.50	.60	.46	.17	.09	1.8	.98
28	.83	.56	.54	.90	.50	.50	.71	.55	.13	.08	2.0	.96
29	.77	.52	.46	.89	---	.55	.68	.60	.12	.05	1.8	.99
30	.72	.48	.47	1.0	---	.50	.72	.59	.13	.05	1.7	1.0
31	.73	---	.43	.95	---	.49	---	.53	---	.03	35	---
TOTAL	37.88	19.76	16.86	20.13	19.86	16.08	16.07	16.26	18.17	66.74	305.81	47.42
MEAN	1.22	.66	.54	.65	.71	.52	.54	.52	.61	2.15	9.86	1.58
MAX	1.7	.90	.76	1.0	1.3	.61	.72	.72	2.4	31	122	4.5
MIN	.72	.48	.37	.43	.45	.45	.43	.39	.12	.03	.14	.96
AC-FT	75	39	33	40	39	32	32	32	36	132	607	94
CAL YR 1985	TOTAL	3257.60		MEAN	8.92	MAX	115	MIN	.37	AC-FT	6460	
WTR YR 1986	TOTAL	601.04		MEAN	1.65	MAX	122	MIN	.03	AC-FT	1190	

## 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.

REVISED RECORDS.--WRD CO-85-1: 1982.

GAGE.--Water-stage recorder. Elevation of gage is 6,390 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 2, Dec. 9-13, 27-28, Jan. 1-5, 22, 25-27, Feb. 5-16, May 17-19, and May 23 to June 4. Records good except those for periods of estimated daily discharges and those above 60 ft<sup>3</sup>/s, which are poor. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 3.08 ft<sup>3</sup>/s; 2,230 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 276 ft<sup>3</sup>/s, July 28, 1982, gage height, 4.73 ft, from rating curve extended above 60 ft<sup>3</sup>/s; no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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)
July 21	0015	*3.1	*1.98				

Minimum daily, 0.10 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.1	.78	.70	.72	.60	.91	.73	.52	.44	.44	.50
2	1.1	1.1	.69	.70	.74	.55	.90	.70	1.7	.41	.51	.56
3	1.1	1.1	.73	.72	.76	.52	.99	.68	1.6	.35	.42	.44
4	1.0	.98	.74	.74	.74	.51	.95	.65	1.5	.31	.40	.39
5	1.0	.94	.70	.76	.74	.49	.97	.60	1.4	.39	.32	.33
6	.91	.98	.67	.77	.74	.48	.99	.59	1.4	.69	.30	.35
7	1.1	.94	.66	.78	.70	.48	.96	.55	1.2	.70	.51	.48
8	1.3	.81	.68	.84	.70	.47	1.0	.66	1.2	.77	1.0	.47
9	1.5	.81	.70	.77	.77	.47	1.1	.67	1.4	.62	.87	.35
10	1.4	.75	.70	.70	.71	.46	1.2	.63	2.0	.55	.80	.31
11	1.6	.72	.61	.70	.67	.45	1.2	.55	1.7	.53	.79	.29
12	1.4	.76	.64	.70	.64	.48	1.2	.49	1.4	.61	.68	.26
13	1.3	.79	.68	.77	.69	.50	1.3	.47	1.3	.99	.68	.24
14	1.4	.70	.64	.77	.69	.45	1.3	.43	1.2	.77	.67	.21
15	1.4	.81	.60	.79	1.4	.48	1.3	.41	1.0	.59	.75	.17
16	1.2	.86	.59	.77	.98	.46	1.3	.54	.96	.50	.60	.15
17	1.1	.87	.61	.77	.62	.47	1.2	.67	.93	.46	.56	.13
18	1.1	.83	.61	.76	.66	.44	1.2	.70	1.0	.42	.50	.12
19	1.1	.72	.66	.77	.72	.40	1.2	.78	1.3	.82	.43	.12
20	1.1	.82	.66	.81	.70	.44	1.1	.66	1.1	1.7	.42	.11
21	1.1	.80	.67	.80	.67	.45	1.1	.66	1.0	2.1	.41	.10
22	1.2	.74	.68	.80	.63	.50	1.1	.60	.87	1.6	.43	.13
23	1.1	.75	.68	.80	.63	.55	.99	.58	.78	1.2	.55	.13
24	1.1	.75	.68	.76	.61	.61	.97	.58	.71	.89	.69	.14
25	1.0	.71	.66	.74	.61	.64	.88	.58	.65	.61	.48	.18
26	1.0	.75	.66	1.1	.60	.66	.84	.56	.62	.58	.48	.18
27	1.0	.81	.66	1.2	.60	.69	.86	.54	.56	.51	.57	.19
28	1.1	.79	.68	.76	.59	.75	.85	.43	.52	.41	.48	.19
29	1.1	.79	.70	.71	---	.78	.79	.58	.47	.34	.40	.24
30	1.0	.69	.70	.71	---	.77	.75	.58	.48	.29	.34	.29
31	.95	---	.70	.75	---	.82	---	.49	---	.28	.37	---
TOTAL	35.86	24.97	20.82	24.22	20.03	16.82	31.40	18.34	32.47	21.43	16.85	7.75
MEAN	1.16	.83	.67	.78	.72	.54	1.05	.59	1.08	.69	.54	.26
MAX	1.6	1.1	.78	1.2	1.4	.82	1.3	.78	2.0	2.1	1.0	.56
MIN	.91	.69	.59	.70	.59	.40	.75	.41	.47	.28	.30	.10
AC-FT	71	50	41	48	40	33	62	36	64	43	33	15
CAL YR 1985	TOTAL	1857.98		MEAN	5.09	MAX	66	MIN	.59	AC-FT	3690	
WTR YR 1986	TOTAL	270.96		MEAN	.74	MAX	2.1	MIN	.10	AC-FT	537	

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. Elevation of gage is 6,150 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Mar. 8-17. Records fair except for discharges above 50 ft<sup>3</sup>/s, which are poor. Some diversions upstream from station for irrigation and other uses, amounts unknown. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 2.35 ft<sup>3</sup>/s; 1,700 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, 1.8 ft<sup>3</sup>/s at 1330 Apr. 27, gage height, 3.48 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.00	.01	.00	.00	.01	.00	1.2	.09	.01	.00	.00
2	.12	.00	.01	.00	.00	.00	.00	1.0	.13	.01	.00	.00
3	.11	.00	.00	.00	.00	.00	.00	.89	.12	.01	.00	.00
4	.10	.00	.00	.00	.00	.00	.00	.89	.08	.01	.00	.00
5	.09	.00	.00	.00	.00	.00	.00	.87	.10	.01	.00	.00
6	.08	.00	.00	.00	.00	.00	.02	.96	.08	.00	.00	.00
7	.09	.00	.00	.00	.00	.00	.04	1.1	.05	.00	.00	.00
8	.08	.00	.00	.00	.00	.00	.05	1.1	.04	.00	.00	.00
9	.07	.00	.00	.00	.00	.00	.06	1.0	.03	.00	.00	.00
10	.07	.00	.00	.00	.01	.00	.07	.98	.03	.00	.00	.00
11	.07	.00	.00	.00	.02	.00	.07	.80	.02	.00	.00	.00
12	.07	.00	.00	.00	.02	.00	.07	.55	.01	.00	.00	.00
13	.07	.00	.00	.00	.02	.00	.08	.38	.00	.00	.00	.00
14	.07	.00	.00	.00	.02	.00	.10	.23	.01	.00	.00	.00
15	.07	.00	.00	.00	.00	.00	.10	.21	.01	.00	.00	.00
16	.07	.00	.00	.00	.00	.00	.11	.19	.02	.00	.00	.00
17	.07	.00	.02	.00	.00	.00	.17	.21	.03	.00	.00	.00
18	.06	.00	.02	.00	.00	.00	.25	.18	.03	.00	.00	.00
19	.04	.00	.02	.00	.00	.00	.30	.16	.04	.00	.00	.00
20	.04	.00	.02	.00	.00	.00	.41	.13	.04	.00	.00	.00
21	.03	.00	.01	.01	.00	.00	.45	.13	.03	.00	.00	.00
22	.03	.00	.00	.02	.00	.00	.70	.12	.03	.00	.00	.00
23	.03	.00	.00	.03	.00	.00	.96	.12	.02	.00	.00	.00
24	.03	.00	.00	.03	.00	.00	1.0	.11	.02	.00	.00	.00
25	.03	.00	.00	.03	.00	.00	1.2	.11	.02	.00	.00	.00
26	.02	.00	.00	.03	.01	.00	1.2	.11	.02	.00	.00	.00
27	.00	.00	.00	.03	.02	.00	1.4	.10	.02	.00	.00	.00
28	.00	.00	.00	.02	.02	.00	1.5	.10	.02	.00	.00	.00
29	.00	.01	.00	.01	---	.00	1.4	.09	.01	.00	.00	.00
30	.00	.01	.00	.00	---	.00	1.4	.09	.01	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.09	---	.00	.00	---
TOTAL	1.74	.02	.11	.21	.14	.01	13.11	14.20	1.16	.05	.00	.00
MEAN	.06	.00	.00	.01	.00	.00	.44	.46	.04	.00	.00	.00
MAX	.13	.01	.02	.03	.02	.01	1.5	1.2	.13	.01	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00
AC-FT	3.5	.04	.2	.4	.3	.02	26	28	2.3	.1	.00	.00
CAL YR 1985	TOTAL	1367.14		MEAN	3.75	MAX	50	MIN	.00	AC-FT	2710	
WTR YR 1986	TOTAL	30.75		MEAN	.08	MAX	1.5	MIN	.00	AC-FT	61	



## 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. Elevation of gage is 5,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except those above 50 ft<sup>3</sup>/s, which are poor. Diversions upstream from 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.--8 years, 2.85 ft<sup>3</sup>/s; 2,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 176 ft<sup>3</sup>/s, Aug. 2, 1986, gage height, 4.81 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, 176 ft<sup>3</sup>/s at 0300 Aug. 2, gage height, 4.81 ft, from rating curve extended above 50 ft<sup>3</sup>/s; minimum daily, 0.38 ft<sup>3</sup>/s, July 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.97	1.2	1.2	1.2	1.1	.89	.88	.84	.56	.52	1.8
2	1.3	.97	1.2	1.2	1.2	1.0	.92	.92	.94	.55	23	1.8
3	1.3	.97	1.2	1.2	1.2	1.0	.93	.92	.94	.54	1.3	1.7
4	1.3	.97	1.1	1.2	1.2	.97	.92	.87	1.0	.53	1.2	1.5
5	1.3	.97	1.1	1.2	1.2	.97	.92	.89	1.1	.49	1.1	1.4
6	1.2	.97	1.1	1.2	1.2	.96	.92	.90	1.1	.48	.97	1.3
7	1.3	.97	1.1	1.2	1.2	.96	.92	.93	1.0	.46	.94	1.3
8	1.3	.97	1.1	1.2	1.2	.97	.92	.94	.99	.49	.91	1.3
9	1.3	.97	1.2	1.2	1.2	.95	.92	.93	.99	.48	.90	1.2
10	1.4	.97	1.1	1.2	1.2	.92	.92	.90	.97	.46	.88	1.2
11	1.3	.99	1.1	1.3	1.1	.92	.92	.87	.96	.48	.85	1.2
12	1.3	.98	1.2	1.3	1.1	.92	.92	.87	.92	.46	.80	1.1
13	1.3	1.0	1.1	1.3	1.1	.93	.88	.84	.91	.47	.79	1.1
14	1.2	1.0	1.1	1.3	1.1	.94	.87	.87	.92	.47	.77	1.1
15	1.2	1.1	1.1	1.3	1.2	.94	.87	.87	.99	.44	.77	1.1
16	1.2	1.1	1.1	1.3	1.3	.95	.87	.87	.92	.43	.74	1.1
17	1.1	1.0	1.1	1.3	1.2	.94	.87	.82	.91	.43	.71	1.0
18	1.1	.98	1.1	1.2	1.2	.92	.87	.83	.88	.42	.67	1.0
19	1.1	.98	1.1	1.3	1.2	.92	.87	.86	.83	.44	.65	.98
20	1.1	.96	1.1	1.3	1.2	.92	.83	.85	.81	.73	.64	.99
21	1.1	.93	1.1	1.3	1.2	.94	.84	.81	.77	2.7	.66	.98
22	1.0	.93	1.1	1.5	1.2	.92	.87	.80	.76	.67	.71	.95
23	1.0	1.1	1.1	1.5	1.2	.91	.87	.81	.69	.58	13	.97
24	1.0	1.3	1.1	1.4	1.1	.91	.87	.79	.69	.54	7.1	.97
25	1.0	1.3	1.1	1.4	1.1	.87	.87	.77	.65	.51	2.8	.93
26	.98	1.3	1.1	1.3	1.1	.87	.87	.78	.66	.47	2.2	.92
27	.95	1.2	1.1	1.3	1.1	.87	.83	.80	.62	.45	1.9	.92
28	1.0	1.1	1.1	1.3	1.1	.87	.87	.76	.60	.42	1.8	.91
29	.89	1.2	1.1	1.2	---	.87	.87	.78	.58	.40	1.7	.87
30	.85	1.2	1.1	1.2	---	.87	.87	.80	.56	.38	1.5	.87
31	.94	---	1.1	1.2	---	.86	---	.80	---	.39	2.1	---
TOTAL	35.61	31.35	34.6	39.5	32.8	28.86	26.58	26.33	25.50	17.32	74.58	34.46
MEAN	1.15	1.04	1.12	1.27	1.17	.93	.89	.85	.85	.56	2.41	1.15
MAX	1.4	1.3	1.2	1.5	1.3	1.1	.93	.94	1.1	2.7	23	1.8
MIN	.85	.93	1.1	1.2	1.1	.86	.83	.76	.56	.38	.52	.87
AC-FT	71	62	69	78	65	57	53	52	51	34	148	68
CAL YR 1985	TOTAL	1871.48		MEAN	5.13	MAX	64	MIN	.78	AC-FT	3710	
WTR YR 1986	TOTAL	407.49		MEAN	1.12	MAX	23	MIN	.38	AC-FT	808	

07106000 FOUNTAIN CREEK NEAR FOUNTAIN, CO

LOCATION.--Lat 38°36'08", long 104°40'11", in SW¼NE¼ Sec.4, T.17 S., R.65 W., El Paso County, Hydrologic Unit 11020003, on right bank, 365 ft upstream from Denver & Rio Grande Railroad bridge, 0.75 mi downstream from Little Fountain Creek and 5.5 mi south of Fountain.

DRAINAGE AREA.--681 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1938 to March 1, 1940, monthly records only, March 2, 1940 to September 1954, at site 200 ft downstream at different datum, July 2, 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,355 ft above National Geodetic Vertical Datum of 1929, from topographic map. Sept. 18, 1938 to Mar. 1, 1940, nonrecording gage, and Mar. 2, 1940 to Sept. 30, 1954, recording gage, both at different datum and at site 200 ft downstream.

REMARKS.--Estimated daily discharges: Aug. 31 to Sept. 8. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, municipal use, and return flows from irrigation and sewage effluent discharges. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--17 years (water years 1938-54, 1985-86) 57.4 ft<sup>3</sup>/s, 41,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,100 ft<sup>3</sup>/s, May 28, 1940, gage height, 9.19 ft, at different datum, from rating curve extended above 3,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; no flow Sept. 24, 30, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 14.4 ft, at different datum, May 30, 1935, but was probably exceeded by the flood of June 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,400 ft<sup>3</sup>/s, at 2315, Aug. 21, gage height, 7.75 ft, from rating curve extended above 1,100 ft<sup>3</sup>/s on the basis of two slope-area measurements of peak flow; minimum daily, 17 ft<sup>3</sup>/s, Aug. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	165	134	136	70	88	81	50	92	51	225	150
2	92	111	146	140	79	88	66	55	180	43	703	70
3	107	107	191	135	80	89	123	48	81	38	207	60
4	107	115	170	129	83	85	162	45	103	33	169	50
5	94	118	153	121	70	82	131	46	315	199	82	80
6	101	116	157	146	84	85	98	49	152	152	81	70
7	108	124	160	136	74	83	100	61	137	59	121	100
8	106	128	164	119	72	73	121	77	122	49	344	230
9	112	137	174	133	76	73	155	77	230	42	95	87
10	124	131	151	139	76	80	101	42	130	43	74	95
11	187	134	144	138	69	74	92	36	114	56	145	92
12	134	135	142	134	70	78	92	33	120	42	130	136
13	138	139	149	135	87	88	84	49	89	47	133	128
14	143	154	166	126	137	89	78	56	111	56	344	118
15	121	153	149	118	122	85	71	57	142	58	240	110
16	107	139	157	99	119	107	75	70	59	50	30	98
17	114	149	149	93	99	113	71	123	54	53	24	105
18	117	149	151	86	100	106	72	66	47	63	33	102
19	122	142	152	83	94	103	75	54	95	148	21	100
20	130	133	169	97	100	108	74	52	62	255	17	96
21	133	127	168	89	111	104	79	49	83	230	281	99
22	123	128	163	81	98	94	70	53	56	78	374	101
23	123	131	162	82	98	94	67	50	77	68	203	99
24	116	162	155	93	103	96	62	52	55	49	698	83
25	104	165	139	78	96	95	65	60	54	42	227	60
26	102	151	151	78	94	87	61	63	59	42	183	67
27	118	137	141	81	91	91	58	70	58	35	79	69
28	132	144	140	81	91	81	66	63	53	58	62	90
29	104	151	148	77	---	72	63	79	52	71	53	67
30	108	148	156	72	---	71	59	91	46	62	52	37
31	107	---	153	79	---	68	---	76	---	106	50	---
TOTAL	3636	4123	4804	3334	2543	2730	2572	1852	3028	2378	5480	2849
MEAN	117	137	155	108	90.8	88.1	85.7	59.7	101	76.7	177	95.0
MAX	187	165	191	146	137	113	162	123	315	255	703	230
MIN	92	107	134	72	69	68	58	33	46	33	17	37
WTR YR 1986	TOTAL	39329	MEAN	108	MAX	703	MIN	17				

## ARKANSAS RIVER BASIN

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>.

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

REVISED RECORDS.--WDR CO-80-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,005 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Apr. 23, 1976, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 1-2, Nov. 20-22,29,30 to Dec. 3, Dec. 11-17, Feb. 6-13, June 18-29, July 2-5, 9-19, 23-28, Aug. 6-7, 20-21, 29-31, and Sept. 30. Records good except for periods of estimated daily discharge and discharges above about 1,500 ft<sup>3</sup>/s, which are poor. Natural flow of stream affected by storage reservoirs, power developments, transbasin and transmountain diversions municipal use, diversions upstream from station for irrigation of about 10,000 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.--13 years, 99.2 ft<sup>3</sup>/s; 71,870 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, 2,030 ft<sup>3</sup>/s at 0815 Aug. 2, gage height, 4.51 ft; minimum daily, 2.0 ft<sup>3</sup>/s, Aug. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	121	120	130	78	113	74	21	90	11	169	179
2	96	112	120	135	77	109	60	16	149	9.4	764	72
3	85	95	140	130	74	108	73	13	108	8.0	186	59
4	76	93	155	130	74	109	101	11	87	6.5	274	49
5	75	101	147	135	70	109	107	9.0	303	5.0	84	84
6	77	104	143	139	70	109	77	7.1	121	266	40	72
7	74	102	139	140	68	107	75	9.0	114	98	30	113
8	83	100	145	139	66	107	84	16	72	19	208	270
9	80	111	151	139	66	107	115	35	87	15	330	90
10	88	117	144	141	68	95	85	33	178	12	134	67
11	124	116	120	141	80	92	72	23	107	20	117	72
12	105	127	100	140	100	96	70	18	57	16	52	87
13	96	121	100	139	110	116	84	21	45	18	20	103
14	110	132	100	130	121	132	69	24	39	20	40	115
15	97	149	110	122	121	119	59	27	83	21	318	98
16	88	135	120	114	125	113	53	26	57	21	106	76
17	86	138	125	107	119	116	51	90	45	20	59	64
18	87	138	131	96	105	114	50	72	40	19	27	55
19	89	139	132	96	100	106	49	50	50	30	7.5	51
20	95	130	138	96	99	117	50	24	40	237	2.0	56
21	101	125	141	107	117	107	52	20	30	334	2.5	53
22	94	120	146	96	116	104	46	18	22	85	377	54
23	97	124	140	96	120	105	39	13	30	30	170	36
24	92	143	142	107	114	104	35	16	26	20	779	29
25	91	168	135	96	115	99	36	25	22	15	129	20
26	84	160	133	87	114	88	33	29	22	10	197	21
27	89	137	133	87	96	90	31	40	25	6.4	55	24
28	96	137	130	84	107	76	31	37	22	4.2	44	33
29	90	130	135	80	---	76	31	44	18	4.0	40	29
30	87	125	134	72	---	77	30	75	15	4.0	34	25
31	85	---	131	72	---	64	---	61	---	3.8	30	---
TOTAL	2809	3750	4080	3523	2690	3184	1822	923.1	2104	1388.3	4825.0	2156
MEAN	90.6	125	132	114	96.1	103	60.7	29.8	70.1	44.8	156	71.9
MAX	124	168	155	141	125	132	115	90	303	334	779	270
MIN	74	93	100	72	66	64	30	7.1	15	3.8	2.0	20
AC-FT	5570	7440	8090	6990	5340	6320	3610	1830	4170	2750	9570	4280
CAL YR 1985	TOTAL	78278.2	MEAN	214	MAX	2120	MIN	1.0	AC-FT	155300		
WTR YR 1986	TOTAL	33254.4	MEAN	91.1	MAX	779	MIN	2.0	AC-FT	65960		

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. Elevation of gage is 4,705 ft above National Geodetic Vertical Datum of 1929, 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.--Estimated daily discharges: Nov. 11-14, Nov.22 to Dec.3, Dec. 9-17, and Feb. 9-12. Records good except those for periods of estimated daily discharge, which are poor. 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 upstream from station and municipal use, and return flow from irrigated areas.

AVERAGE DISCHARGE.--43 years (water years 1923-25, 1941-65, 1972-86), 70.3 ft<sup>3</sup>/s; 50,930 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, 2,590 ft<sup>3</sup>/s at 2115 June 4, gage height, 5.76 ft; minimum daily, 3.1 ft<sup>3</sup>/s, July 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	137	140	119	79	117	78	31	45	9.5	41	95
2	106	109	140	127	77	118	76	28	95	6.5	614	87
3	97	102	160	145	77	109	81	21	110	5.4	156	55
4	96	102	185	146	78	106	111	19	258	3.8	197	53
5	93	113	160	142	77	114	120	19	301	3.1	83	78
6	96	128	136	153	75	113	99	18	152	130	61	49
7	83	134	155	184	77	101	86	20	145	85	35	44
8	93	149	152	154	75	98	83	28	112	42	116	126
9	92	167	140	159	70	109	112	39	116	21	270	118
10	99	167	120	172	68	103	118	39	219	14	72	64
11	149	160	100	176	65	104	103	29	137	11	40	56
12	136	170	100	177	70	103	98	19	92	19	26	61
13	112	160	100	183	79	98	106	20	64	20	14	72
14	112	180	105	171	99	107	97	21	67	19	13	54
15	104	176	110	148	113	101	77	25	102	17	206	45
16	106	167	110	129	110	96	76	25	118	14	75	39
17	107	158	115	147	107	105	73	55	68	12	42	40
18	114	158	116	130	106	108	67	64	66	12	28	41
19	133	149	124	113	102	109	71	35	74	17	12	39
20	140	144	129	107	115	105	63	29	56	103	7.3	39
21	124	134	136	103	116	101	68	26	34	251	17	36
22	100	140	137	95	123	110	64	21	26	72	434	41
23	90	130	144	85	118	107	50	14	29	48	186	46
24	85	150	126	94	113	106	43	13	42	34	792	44
25	99	190	127	90	109	106	40	18	30	30	135	42
26	94	170	108	90	113	99	37	20	23	24	181	29
27	119	160	111	81	118	99	34	24	21	14	86	33
28	126	150	113	85	119	94	37	33	18	8.6	66	34
29	117	145	125	82	---	88	31	38	11	7.9	60	36
30	108	140	129	75	---	84	35	47	11	8.4	46	35
31	105	---	129	75	---	81	---	31	---	7.9	37	---
TOTAL	3356	4439	3982	3937	2648	3199	2234	869	2642	1070.1	4148.3	1631
MEAN	108	148	128	127	94.6	103	74.5	28.0	88.1	34.5	134	54.4
MAX	149	190	185	184	123	118	120	64	301	251	792	126
MIN	83	102	100	75	65	81	31	13	11	3.1	7.3	29
AC-FT	6660	8800	7900	7810	5250	6350	4430	1720	5240	2120	8230	3240
CAL YR 1985	TOTAL	81594.6	MEAN	224	MAX	1670	MIN	7.6	AC-FT	161800		
WTR YR 1986	TOTAL	34155.4	MEAN	93.6	MAX	792	MIN	3.1	AC-FT	67750		

## ARKANSAS RIVER BASIN

07106500 FOUNTAIN CREEK AT PUEBLO, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1981 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1985 to September 1986.

WATER TEMPERATURE: December 1985 to September 1986.

INSTRUMENTATION.--Water- quality monitor.

REMARKS.--There was no specific conductance record Dec.19 to Jan. 8, Feb. 8-13, Apr. 22 to May 5, May 8-12, May 14-18, 24, 26, July 23-28, and Aug. 3-6, 18-20. There was no temperature record Dec. 19 to Jan. 8, Apr. 22 to May 28, July 23-27, Aug. 17-20 and Sept. 15-17. Daily maximum and minimum specific conductance available in district office.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 2,120 microsiemens, June 18; minimum, 440 microsiemens June 5 and Sept.22.

WATER TEMPERATURE: Maximum for period December 1985 to September 1986, 33.0°C Aug. 5; minimum, 0.0°C many days during winter.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
OCT							
18...	1405	128	1330	8.4	14.0	8.8	--
NOV							
18...	1400	158	1140	8.2	9.0	9.0	5.2
DEC							
19...	1425	149	1160	8.2	5.0	11.2	18
JAN							
29...	1345	82	1360	7.9	9.5	10.4	3.6
FEB							
19...	1010	104	1240	8.3	7.5	11.8	4.0
MAR							
19...	1000	110	1220	8.3	5.0	11.5	E7.1
APR							
16...	0945	73	1250	8.3	10.0	9.7	E6.0
MAY							
28...	0930	26	1470	8.4	14.0	8.9	3.0
JUN							
20...	0715	48	1480	8.2	15.5	8.6	6.6
JUL							
23...	1000	56	1360	8.4	21.0	7.0	E4.2
AUG							
20...	0930	7.9	1830	7.8	22.0	7.0	2.1
SEP							
18...	0945	46	1440	8.4	14.5	9.2	5.1

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	COLI- FORM, TOTAL, IMMED. TOTAL PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC CI FECAL, KF AGAR (COLS. PER 100 ML)
OCT							
18...	399	0.110	1.0	4.30	1600	--	240
NOV							
18...	352	0.360	1.9	5.90	2100	280	390
DEC							
19...	425	2.10	4.1	4.60	1100	120	320
JAN							
29...	80	0.071	0.90	6.10	--	--	K29
FEB							
19...	250	0.080	1.7	6.40	--	K20	170
MAR							
19...	194	0.100	1.8	6.00	--	K120	K130
APR							
16...	182	0.080	1.3	4.90	--	K50	200
MAY							
28...	86	0.080	1.0	5.40	--	150	780
JUN							
20...	564	0.090	1.0	5.00	--	320	1500
JUL							
23...	352	0.120	1.3	4.40	--	K60	2100
AUG							
20...	14	0.050	0.90	8.50	--	88	K400
SEP							
18...	258	0.050	0.80	4.50	--	230	380

E Estimated.

K BASED ON NON-IDEAL COLONY COUNT.

07106500 FOUNTAIN CREEK AT PUEBLO, CO--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	---	1280	1210	1330	---	1260	1840	1340	1130
2			---	---	1290	1220	1350	---	1110	1920	696	1220
3			---	---	1290	1220	1320	---	1090	1950	---	1290
4			---	---	1300	1230	1240	---	1240	1990	---	1300
5			1180	---	1290	1240	1150	---	925	2040	---	1280
6			1170	---	1300	1250	1150	1700	890	1060	---	1270
7			1070	---	1280	1260	1210	1730	1000	1060	1370	1340
8			963	---	---	1270	1230	---	1070	1400	1090	1100
9			872	1220	---	1280	1230	---	1150	1530	932	1120
10			816	1200	---	1280	1200	---	935	1410	1280	1270
11			852	1200	---	1280	1240	---	1160	1390	1330	1290
12			894	1190	---	1290	1260	---	1300	1700	1440	1300
13			933	1200	---	1270	1280	1700	1360	1720	1530	1280
14			887	1200	1270	1260	1280	---	1410	1730	1350	1320
15			848	1210	1260	1260	1300	---	1300	1680	948	1350
16			816	1230	1220	1250	1300	---	1260	1580	1200	1360
17			785	1250	1220	1220	1320	---	1400	1650	1310	1400
18			758	1240	1240	1200	1330	---	1520	1740	---	1400
19			---	1250	1250	1230	1330	1480	1470	1630	---	1410
20			---	1250	1230	1220	1320	1600	1420	1040	---	1400
21			---	1240	1200	1210	1330	1600	1480	900	1830	1400
22			---	1260	1210	1230	---	1530	1490	1190	801	1380
23			---	1260	1220	1240	---	1670	1510	---	830	1380
24			---	1270	1210	1250	---	---	1450	---	740	1400
25			---	1270	1200	1240	---	1620	1540	---	717	1430
26			---	1290	1210	1280	---	---	1570	---	894	1460
27			---	1200	1220	1280	---	1580	1600	---	1190	1460
28			---	1270	1220	1300	---	1470	1650	---	1260	1450
29			---	1280	---	1310	---	1430	1740	1970	1350	1430
30			---	1280	---	1320	---	1330	1760	1920	1380	1470
31			---	1290	---	1340	---	1360	---	1930	1330	---
MEAN						1260			1340			1340

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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

## ARKANSAS RIVER BASIN

07106500 FOUNTAIN CREEK AT PUEBLO, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	13.5	8.0	---	---	16.0	13.5	30.5	16.5	27.0	18.0	22.5	16.5
2	16.0	7.5	---	---	21.0	13.5	30.5	17.5	25.5	18.0	27.0	14.5
3	6.5	1.0	---	---	28.0	16.0	30.0	18.0	30.0	20.0	28.5	15.0
4	14.5	1.0	---	---	25.0	14.5	31.0	18.5	28.5	19.0	27.5	16.5
5	16.5	4.0	---	---	26.0	14.5	28.5	18.5	32.0	17.5	29.0	15.5
6	19.0	6.0	---	---	28.5	16.0	27.5	17.5	33.0	18.0	19.0	15.5
7	19.0	8.5	---	---	27.0	16.5	27.0	19.0	30.5	19.0	17.0	14.0
8	10.5	8.5	---	---	28.5	16.0	29.5	19.0	27.5	16.0	25.5	13.5
9	19.5	7.5	---	---	25.0	15.5	26.5	18.0	28.5	16.0	23.5	16.0
10	20.0	8.0	---	---	20.5	14.5	21.0	20.0	31.0	18.5	19.5	14.0
11	19.0	8.5	---	---	28.0	12.0	21.5	19.5	31.0	17.5	24.5	12.0
12	19.0	8.5	---	---	29.0	13.0	25.0	19.0	31.5	18.0	23.5	12.5
13	16.0	6.5	---	---	27.5	15.0	22.5	19.0	29.0	16.5	22.5	13.5
14	17.0	3.5	---	---	28.0	14.5	23.5	19.0	26.0	17.5	26.0	15.0
15	19.0	4.5	---	---	29.0	15.0	21.0	19.0	27.5	17.0	---	---
16	16.5	6.0	---	---	30.5	15.5	21.5	20.0	31.0	15.5	---	---
17	16.5	7.0	---	---	29.5	16.0	32.0	20.0	27.5	18.0	---	---
18	14.0	5.0	---	---	31.0	15.5	31.0	18.5	---	---	22.0	12.5
19	20.5	7.0	---	---	31.0	17.0	26.0	18.0	---	---	25.0	13.0
20	22.0	7.0	---	---	30.0	15.5	24.0	18.5	---	---	25.5	13.5
21	22.5	10.0	---	---	30.5	16.0	27.5	18.5	29.5	16.5	23.0	14.0
22	---	---	---	---	29.5	15.5	29.5	18.0	24.0	15.5	24.5	14.5
23	---	---	---	---	29.5	17.0	---	---	22.0	17.5	21.0	15.0
24	---	---	---	---	26.5	17.0	---	---	26.0	17.5	19.5	11.0
25	---	---	---	---	30.5	16.5	---	---	29.0	18.5	20.0	9.5
26	---	---	---	---	25.5	17.5	---	---	21.5	17.5	20.5	11.5
27	---	---	---	---	31.5	16.5	---	---	26.5	13.5	21.0	9.0
28	---	---	---	---	32.0	17.5	32.5	15.5	21.0	14.5	19.5	11.0
29	---	---	19.0	12.5	32.0	18.5	32.0	16.0	29.5	16.0	15.0	10.5
30	---	---	25.0	10.0	28.5	18.0	30.5	17.0	26.0	18.0	22.0	8.5
31	---	---	27.0	12.0	---	---	31.0	17.0	20.0	18.0	---	---
MONTH					32.0	12.0						

07108900 ST. CHARLES RIVER AT VINELAND, CO

LOCATION.--Lat 38°14'44", long 104°29'09", in NE1/4SW1/4 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 above National Geodetic Vertical Datum of 1929, (Colorado Division of Highways benchmark).

REMARKS.--Estimated daily discharges: Nov. 10-11, 22, Dec. 2-3, 6-21, 24-25, 28-31, Jan. 1-9, 15, 26-29, and Feb. 8-15. Records good except those for periods of estimated daily discharges, which are poor. Natural flow of stream affected by diversions upstream from 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.--8 years, 44.2 ft<sup>3</sup>/s; 32,020 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, 1,580 ft<sup>3</sup>/s, at 0630 June 6, gage height, 6.71 ft; minimum daily, 8.5 ft<sup>3</sup>/s, Dec. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	23	13	14	15	11	9.8	16	25	28	23	28
2	14	30	12	13	14	11	10	15	269	25	40	56
3	14	29	12	13	15	11	13	15	773	23	54	80
4	14	29	11	13	14	12	13	17	560	20	33	35
5	14	25	11	14	14	11	14	19	518	18	25	42
6	14	22	11	13	14	11	15	26	992	21	20	29
7	14	21	11	13	14	11	13	34	668	29	15	33
8	14	21	10	13	13	12	11	29	530	25	14	33
9	14	21	10	13	12	12	11	32	444	25	19	27
10	14	20	9.8	14	12	11	14	26	379	23	21	26
11	17	18	9.0	16	11	11	14	21	329	23	33	30
12	15	17	8.5	17	11	12	15	19	283	21	25	30
13	15	18	9.0	16	12	16	15	15	242	22	19	29
14	14	18	9.6	17	13	13	15	13	207	22	17	27
15	15	17	10	15	15	11	14	11	175	21	39	24
16	15	16	11	14	16	11	22	10	151	20	26	24
17	14	15	11	14	14	11	20	14	143	21	21	24
18	14	15	11	15	13	12	22	14	114	22	18	24
19	15	14	11	15	12	13	22	11	104	24	15	23
20	20	14	12	14	12	14	21	14	93	49	14	23
21	22	14	13	13	13	13	21	12	84	59	15	22
22	21	13	14	13	13	14	19	11	76	151	32	22
23	20	13	13	14	13	11	16	11	69	62	148	22
24	19	13	13	15	12	12	15	11	63	39	127	22
25	20	14	12	15	12	12	15	10	55	27	71	20
26	21	15	14	14	11	11	16	11	51	25	31	20
27	21	16	13	14	11	12	18	11	44	21	31	20
28	22	16	12	13	11	11	18	11	39	19	64	19
29	22	15	13	14	---	11	18	11	34	17	36	19
30	20	13	14	14	---	10	18	14	34	17	30	20
31	19	---	15	14	---	9.8	---	17	---	17	29	---
TOTAL	521	545	358.9	439	362	363.8	477.8	501	7548	936	1105	853
MEAN	16.8	18.2	11.6	14.2	12.9	11.7	15.9	16.2	252	30.2	35.6	28.4
MAX	22	30	15	17	16	16	22	34	992	151	148	80
MIN	14	13	8.5	13	11	9.8	9.8	10	25	17	14	19
AC-FT	1030	1080	712	871	718	722	948	994	14970	1860	2190	1690
CAL YR 1985	TOTAL	13639.7		MEAN	37.4	MAX	546	MIN	8.5	AC-FT	27050	
WTR YR 1986	TOTAL	14010.5		MEAN	38.4	MAX	992	MIN	8.5	AC-FT	27790	



ARKANSAS RIVER BASIN

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>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1939 to September 1951, February 1965 to current year.

REVISED RECORDS.--WSP 1087: 1942. WSP 1311: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,509.53 ft above National Geodetic Vertical Datum of 1929. Prior to February 1965, at site 550 ft downstream at datum 1.37 ft, lower.

REMARKS.--No estimated daily discharges. 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.

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; 12 years (water years 1975-86), 985 ft<sup>3</sup>/s; 713,600 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, 5,710 ft<sup>3</sup>/s at 0200 June 5, gage height, 4.96 ft; minimum daily, 319 ft<sup>3</sup>/s, Dec. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	696	736	330	628	499	566	681	886	2170	4250	1160	776
2	653	762	322	592	497	551	686	901	2450	3970	1740	971
3	648	743	329	634	497	562	712	976	3190	3580	1980	831
4	593	713	332	690	539	560	687	1050	3360	3320	1540	687
5	605	620	344	705	540	598	743	1130	4280	3090	1310	860
6	636	692	341	718	537	604	746	1260	4470	3340	1010	856
7	635	640	342	758	574	659	732	1500	4700	3640	966	749
8	624	603	338	750	574	774	737	1320	5300	3750	1020	736
9	604	580	347	740	578	770	834	978	5440	3800	1190	709
10	642	563	351	670	581	754	886	982	5240	3680	1070	662
11	697	557	327	661	580	710	852	958	4620	3250	958	657
12	680	548	319	651	579	727	826	991	3690	2780	885	705
13	642	550	326	657	587	718	725	998	3160	2630	836	766
14	663	618	351	584	602	629	677	845	2970	2430	856	706
15	704	413	371	493	653	612	600	931	3130	2250	1040	672
16	743	383	350	480	671	605	637	1050	3480	2310	980	629
17	910	369	420	476	650	569	737	991	3510	2240	901	581
18	881	358	587	551	647	596	805	982	3870	1980	926	560
19	807	357	683	552	639	565	866	950	4450	2280	983	534
20	726	347	757	553	664	553	908	935	4690	2770	933	504
21	674	340	765	563	675	542	898	884	4840	2840	933	485
22	642	337	775	553	672	541	956	885	4530	3020	1430	459
23	636	336	778	511	670	573	951	1110	4230	2840	1390	458
24	715	339	792	509	673	566	969	1160	4020	2090	1900	491
25	717	354	788	550	678	571	911	1190	3990	1930	1380	473
26	723	367	823	545	629	583	931	1230	3940	1810	1310	463
27	713	360	916	536	583	582	1000	1300	4070	1550	981	488
28	704	348	917	503	573	543	1010	1720	4330	1440	864	646
29	592	340	930	498	---	522	946	1690	4460	1320	727	711
30	589	338	908	498	---	558	901	1740	4340	1190	681	741
31	647	---	814	494	---	632	---	1960	---	1170	719	---
TOTAL	21141	14611	17073	18303	16841	18895	24550	35483	120920	82540	34599	19566
MEAN	682	487	551	590	601	610	818	1145	4031	2663	1116	652
MAX	910	762	930	758	678	774	1010	1960	5440	4250	1980	971
MIN	589	336	319	476	497	522	600	845	2170	1170	681	458
AC-FT	41930	28980	33860	36300	33400	37480	48690	70380	239800	163700	68630	38810
CAL YR 1985	TOTAL	554704	MEAN	1520	MAX	5990	MIN	319	AC-FT	1100000		
WTR YR 1986	TOTAL	424522	MEAN	1163	MAX	5440	MIN	319	AC-FT	842000		

## ARKANSAS RIVER BASIN

07109500 ARKANSAS RIVER NEAR AVONDALE, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to October 1976, April 1979 to September 1980, December 1985 to September 1986.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1979 to September 1980, December 1985 to September 1986.

WATER TEMPERATURE: July 1979 to September 1980, December 1985 to September 1986.

pH: July 1979 to September 1980.

DISSOLVED OXYGEN: July 1979 to September 1980.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--No specific conductance record Mar. 27 to Apr. 3, May 23-27, July 13 to Aug. 6 and Sept. 6-10. No water temperature record July 24 to Aug. 7. Daily maximum and minimum specific conductance data available in the district office.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,380 microsiemens Jan.24-25, 1980; minimum, 246 microsiemens June 16, 1980.

WATER TEMPERATURE: Maximum, 31.5°C Aug. 6, 1980; minimum, 0.0°C Dec. 10,15-17, 1985, Feb. 10-12, 1986.

pH: Maximum, 8.6 units July 20-21, 1980; minimum, 7.4 units May 13, 1980.

DISSOLVED OXYGEN: Not determined.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 1,240 microsiemens Dec. 13;

minimum, 300 microsiemens July 3-5, 8-9.

WATER TEMPERATURE: Maximum recorded for period December 1985 to September 1986, 26.0°C Aug. 17-18; minimum, 0.0°C Dec. 10, 15-17, Feb. 10-12.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV								
07...	1000	638	792	7.9	8.5	--	1.50	0.090
DEC								
10...	1100	350	1090	8.0	0.5	12.0	3.60	1.00
JAN								
08...	1300	737	755	7.9	3.0	11.0	1.90	0.250
FEB								
20...	1000	618	800	8.0	5.0	10.6	2.00	0.120
MAR								
19...	1500	580	845	8.2	8.5	11.0	2.20	0.110
APR								
16...	1330	574	820	8.1	13.0	8.5	1.40	0.090
MAY								
19...	1215	887	715	8.2	13.0	--	0.900	0.070
JUN								
11...	1400	4810	550	8.1	16.5	8.4	0.500	0.100
JUL								
09...	1130	3600	309	8.3	19.5	9.6	0.500	0.060
AUG								
12...	1330	834	508	8.2	22.5	8.6	0.800	<0.010
SEP								
11...	1300	645	687	8.1	19.0	8.4	1.30	<0.010

## ARKANSAS RIVER BASIN

07109500 ARKANSAS RIVER NEAR AVONDALE, CO--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	890	858	835	---	717	631	362	---	550
2			---	911	849	840	---	705	632	343	---	540
3			---	868	857	837	---	695	571	315	---	530
4			---	807	833	845	743	687	566	313	---	560
5			1130	788	834	823	721	681	584	311	---	550
6			1130	785	840	827	712	667	550	321	---	---
7			1130	764	825	802	710	657	537	331	470	---
8			1140	770	818	755	728	674	530	316	466	---
9			1140	760	812	751	733	719	540	311	478	---
10			1110	790	816	763	746	718	553	310	485	---
11			1150	801	786	783	750	709	558	320	515	694
12			1200	802	772	772	772	692	614	330	509	669
13			1200	800	786	783	804	682	611	---	508	649
14			1190	846	814	831	824	698	567	---	487	671
15			1150	872	788	830	836	682	554	---	485	688
16			1140	876	781	831	820	663	523	---	519	709
17			1020	876	797	854	779	672	514	---	503	730
18			903	845	803	851	762	686	498	---	510	740
19			807	841	805	857	751	722	482	---	470	761
20			771	848	797	870	743	728	475	---	460	774
21			776	860	799	877	744	743	449	---	470	793
22			765	851	794	872	732	707	430	---	480	829
23			756	864	787	852	726	---	418	---	480	848
24			767	872	783	855	719	---	424	---	470	805
25			770	847	781	841	722	---	415	---	486	780
26			775	847	815	830	724	---	405	---	507	774
27			750	850	841	---	713	---	403	---	566	754
28			746	870	838	---	708	640	388	---	570	667
29			753	867	---	---	717	645	375	---	570	645
30			769	857	---	---	726	650	360	---	580	644
31			819	854	---	---	---	635	---	---	560	---
MEAN				838	811				505			

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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

ARKANSAS RIVER BASIN

07109500 ARKANSAS RIVER NEAR AVONDALE, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	11.0	8.5	18.0	10.5	14.0	12.0	20.5	16.0	---	---	21.0	19.0
2	13.5	8.0	15.5	11.0	16.5	12.5	21.0	16.0	---	---	22.5	18.0
3	10.0	4.0	17.0	10.5	18.0	13.0	21.0	16.0	---	---	22.0	18.0
4	11.5	3.5	17.5	10.5	16.5	13.0	21.5	16.5	---	---	21.5	19.5
5	13.0	6.0	17.0	9.5	17.5	13.5	20.0	16.5	---	---	22.0	19.0
6	13.5	7.5	15.5	9.5	15.5	13.5	21.0	16.5	---	---	21.5	18.5
7	14.0	8.5	15.5	10.0	15.5	14.5	20.5	17.0	---	---	18.5	17.5
8	11.5	9.0	12.5	10.0	15.5	15.0	19.5	17.0	24.5	18.5	21.0	17.0
9	15.0	8.0	16.0	9.0	16.0	15.5	21.0	17.0	24.0	18.5	20.5	18.0
10	15.0	8.5	17.5	9.5	16.5	16.0	21.0	16.5	24.0	19.0	19.5	17.5
11	14.5	9.0	18.0	10.0	17.5	15.5	22.0	16.5	25.5	18.5	22.5	16.0
12	14.0	9.0	18.0	10.5	18.5	13.0	22.0	17.0	25.5	18.5	22.0	16.0
13	13.5	9.0	18.0	10.5	18.0	14.0	20.5	17.0	25.5	19.0	21.0	17.0
14	13.5	6.5	18.5	11.5	19.0	14.0	22.5	17.0	24.5	19.0	23.5	17.5
15	15.0	7.5	16.0	11.5	20.0	14.0	22.5	17.0	24.5	18.5	23.0	17.0
16	13.5	8.5	14.0	11.0	19.0	14.0	23.0	17.0	25.5	18.5	22.5	17.5
17	14.5	8.5	15.0	10.0	19.5	14.5	22.5	17.5	26.0	19.5	22.5	16.5
18	12.5	8.0	17.5	10.0	19.5	14.5	23.0	17.0	26.0	20.0	19.5	16.0
19	16.0	8.5	18.5	11.0	18.5	15.0	20.0	17.5	25.5	19.5	21.5	15.5
20	16.0	9.0	19.5	12.0	18.5	15.0	20.0	17.5	24.0	19.5	20.5	16.0
21	17.0	9.5	20.0	12.5	19.0	15.0	22.0	17.5	25.5	19.0	20.0	16.0
22	16.5	10.0	18.0	12.5	18.5	15.0	22.0	17.5	23.0	19.5	20.5	16.5
23	16.5	10.0	17.0	11.5	18.5	15.0	21.5	17.5	21.5	20.0	19.5	17.0
24	16.5	9.5	15.5	11.0	18.5	15.0	---	---	23.0	19.0	18.0	14.5
25	14.0	9.5	17.0	12.0	19.0	15.5	---	---	24.0	20.0	18.5	12.0
26	14.5	9.5	16.5	12.5	18.0	15.5	---	---	22.0	20.0	19.5	14.5
27	15.5	8.5	15.5	12.0	20.0	15.5	---	---	24.0	19.0	19.0	13.0
28	17.0	8.5	14.0	11.5	20.0	16.0	---	---	23.0	18.5	18.0	14.5
29	15.5	10.0	14.5	12.0	20.0	16.0	---	---	24.0	19.0	16.0	14.5
30	17.5	10.0	17.5	11.5	19.0	16.0	---	---	24.0	20.0	19.0	12.5
31	---	---	18.0	12.0	---	---	---	---	25.0	19.0	---	---
MONTH	17.5	3.5	20.0	9.0	20.0	12.0					23.5	12.0

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.61 W., 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 above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 22 to Dec. 6, Dec. 11-26, Jan. 8, 24, Feb. 7-15, and June 20 to July 7. Records good except for estimated daily discharges, 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.--10 years (water years 1923-25, 1980-86), 39.8 ft<sup>3</sup>/s; 28,840 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, 1,630 ft<sup>3</sup>/s at 0715 June 6, gage height, 9.40 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	55	28	19	30	13	7.6	1.8	16	.00	.00	11
2	14	70	27	18	29	11	7.2	2.0	28	.00	.00	114
3	9.6	59	29	19	28	11	23	2.2	38	.00	.00	88
4	4.3	45	31	26	28	11	36	1.7	41	.00	.00	18
5	4.0	41	32	24	25	12	12	1.2	41	.00	.00	12
6	4.3	41	33	21	25	13	8.2	1.3	507	.00	.00	9.5
7	3.5	45	37	17	21	12	5.6	1.4	105	.00	.00	17
8	3.9	39	38	15	20	13	5.2	1.5	122	.00	.00	48
9	8.3	29	36	13	18	10	6.1	2.2	99	.00	.00	51
10	9.6	38	35	13	16	9.5	5.3	1.7	95	.00	.00	31
11	22	53	20	15	15	10	4.4	1.1	89	.00	.00	19
12	26	63	15	14	15	9.4	3.8	1.2	74	.00	.00	18
13	30	62	10	12	16	10	3.3	1.3	54	.00	.00	23
14	35	58	10	12	19	11	3.2	1.1	16	.00	.00	25
15	29	52	10	13	22	49	3.5	1.6	17	.00	53	24
16	29	69	11	21	27	47	3.9	1.8	12	.00	.79	24
17	23	66	12	23	31	39	3.7	2.4	20	.00	.00	18
18	27	52	13	24	28	37	3.6	1.9	18	.00	.00	17
19	36	64	15	38	26	41	3.8	1.2	8.9	.00	.00	16
20	40	39	16	30	26	41	3.7	.77	5.0	8.0	.00	16
21	40	37	18	27	27	29	3.7	1.1	3.0	2.2	.00	18
22	36	32	20	22	27	19	4.2	.48	2.0	17	.03	19
23	37	32	21	24	24	18	4.1	.00	3.0	5.4	93	18
24	40	34	19	25	24	17	3.1	.00	2.0	1.4	59	8.1
25	45	35	18	26	14	15	3.0	.20	1.0	.00	16	3.8
26	47	36	22	25	12	14	2.8	.00	.00	.00	3.2	1.9
27	45	38	26	24	12	15	3.3	.00	.00	.00	58	1.6
28	56	35	25	27	13	14	2.8	1.2	.00	.00	70	1.4
29	49	32	24	24	---	13	2.4	3.7	.00	.00	23	1.8
30	41	30	20	28	---	10	2.1	6.6	.00	.00	5.9	1.8
31	44	---	19	28	---	8.6	---	8.4	---	.00	6.7	---
TOTAL	856.5	1381	690	667	618	582.5	184.6	53.05	1416.90	34.00	388.62	674.9
MEAN	27.6	46.0	22.3	21.5	22.1	18.8	6.15	1.71	47.2	1.10	12.5	22.5
MAX	56	70	38	38	31	49	36	8.4	507	17	93	114
MIN	3.5	29	10	12	12	8.6	2.1	.00	.00	.00	.00	1.4
AC-FT	1700	2740	1370	1320	1230	1160	366	105	2810	67	771	1340
CAL YR 1985	TOTAL	11752.66		MEAN	32.2	MAX	260	MIN	.00	AC-FT	23310	
WTR YR 1986	TOTAL	7547.07		MEAN	20.7	MAX	507	MIN	.00	AC-FT	14970	

## 07117000 ARKANSAS RIVER NEAR NEPESTA, CO

LOCATION.--Lat 38°11'03", long 104°10'22", in SW¼SW¼ sec.25, T.21 S., R.61 W., Pueblo County, Hydrologic Unit 110200005, on right bank 0.7 mi upstream from headgate of Oxford Farmers Co. canal, 1.9 mi northwest of Nepesta, 2.7 mi upstream from Kramer Creek, and 6.6 mi downstream from Huerfano River.

DRAINAGE AREA.--9,345 mi<sup>2</sup>, of which 54 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--April to October 1903, April to November 1912, October 1913 to September 1984. Monthly discharge only for some periods, published in WSP 1311. Records originally published for October 1933 to June 1936 did not include diversions to Oxford Farmers Co. canal, but monthly figures only for this period have been adjusted for diversion, and published in WSP 1311. Records for river below Oxford Farmers Co. canal (diversion to canal not included), published as "at Nepesta" September 1897 to October 1903 (irrigation seasons only), April to October 1904, June 1906 to September 1908 (irrigation seasons only), September 1909 to December 1910, February to September 1911 (gage heights and discharge measurements only), October 1913 to November 1912, March to August 1913 (discharge measurements only), October 1913 to September 1936. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1341: Drainage area, WDR CO-79-1: 1965.

GAGE.--Water-stage recorder. Elevation of gage is 4,385 ft, from topographic map. Prior to June 5, 1921, nonrecording gages or water-stage recorders at various sites within 4.5 mi upstream and 3.0 mi downstream at different datums. June 5, 1921, to Apr. 4, 1966, water-stage recorders at sites on river or river and canal within 0.7 mi downstream at various datums.

REMARKS.--Estimated daily discharges: Water year 1985, Oct. 7-10, 15, 16, Jan. 12-14, 29, Feb. 16 to Mar. 9, Mar. 27-31, June 11, 21, 22, 25, 26, and Aug. 9. Water year 1986, Oct. 28 to Nov. 1, Dec. 2-5, 12-23, and June 30 to Aug. 27. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation of about 230,000 acres, and return flow from irrigated areas. Flow partly 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.--60 Years (water years 1914-73), 684 ft<sup>3</sup>/s, 495,600 acre-ft/yr, prior to completion of Pueblo Dam; 11 years (water years 1975-85), 821 ft<sup>3</sup>/s, 594,800 acre-ft/yr, 12 years (water years 1975-86), 831 ft<sup>3</sup>/s, 602,000 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180,000 ft<sup>3</sup>/s, June 4, 1921, gage height not determined, by slope-area measurement of peak flow at a point 8 mi upstream; no flow at times in 1902, 1910, 1931, and 1934.

EXTREMES FOR WATER YEAR 1985.--Maximum discharge, 9,790 ft<sup>3</sup>/s at 0300 July 25, gage height, 8.23 ft ;minimum daily, 168 ft<sup>3</sup>/s, Aug. 18.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,300 ft<sup>3</sup>/s at 0100 June 10, gage height, 7.78 ft, minimum daily, 214 ft<sup>3</sup>/s, Jan. 30-31.

EXTREMES FOR WATER YEAR 1984.--Maximum discharge, 13,600 ft<sup>3</sup>/s at 1600 Aug. 22, gage height, 9.45 ft, minimum daily, 118 ft<sup>3</sup>/s, Feb. 26.

## ARKANSAS RIVER BASIN

07117000 ARKANSAS RIVER NEAR NEPESTA, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	488	1700	504	460	825	980	1100	3800	2870	956	1640	350
2	516	1650	472	416	900	1030	1040	3110	1840	1010	1240	300
3	558	1480	472	494	900	1020	1110	2370	1440	900	1280	389
4	1070	1250	460	642	940	1010	2010	2080	1790	832	1540	356
5	3060	1300	488	818	948	990	1910	2080	2100	818	1300	367
6	2490	1330	494	870	964	930	1350	2780	1870	855	690	367
7	2140	1390	466	862	956	820	1580	4630	1560	855	406	362
8	1820	1340	488	840	892	800	1540	4100	3740	908	191	340
9	1540	1240	472	840	948	790	1620	2870	4470	1020	360	285
10	1350	1120	444	769	1050	870	1740	2670	4900	1080	488	300
11	1120	1110	428	742	1020	956	2170	2450	4700	1130	642	315
12	1050	1110	411	760	1080	1100	1190	2450	4660	1330	494	692
13	964	1170	394	740	1190	1090	1850	2750	5040	1180	472	564
14	1010	1170	378	760	1360	998	2190	2170	5370	964	678	444
15	1280	948	394	776	1490	964	2170	1600	5760	940	660	400
16	1000	594	422	776	1320	924	1280	1170	4600	1040	528	422
17	1030	564	428	783	1300	908	980	636	3660	908	320	499
18	1700	546	416	804	1280	1020	1020	737	4040	948	168	528
19	1700	546	400	825	1290	1100	1360	1040	3860	1150	173	510
20	1790	540	428	783	1300	1080	1410	1820	3240	3390	320	482
21	1920	540	428	769	1350	1090	1090	2310	3010	7570	335	460
22	1520	522	416	769	1330	1110	885	4380	3000	6300	389	372
23	1430	522	367	762	1340	1150	748	3860	2650	6090	494	335
24	1440	522	389	989	1330	1270	848	2730	2670	6350	504	444
25	1270	534	400	1050	1290	1160	878	2410	2700	4800	540	460
26	1150	522	389	1160	1170	1140	1160	2450	2400	3600	528	330
27	1260	499	433	1170	1010	1200	1300	2540	2290	2290	466	290
28	1600	488	455	1150	990	1150	1020	2890	1580	1920	389	305
29	1680	499	455	1050	---	1200	1110	3160	1030	5520	340	310
30	1740	534	455	908	---	1250	2680	3660	848	3380	411	320
31	1730	---	455	825	---	1150	---	3800	---	2660	422	---
TOTAL	44416	27280	13501	25362	31763	32250	42339	81503	93688	72694	18408	11898
MEAN	1433	909	436	818	1134	1040	1411	2629	3123	2345	594	397
MAX	3060	1700	504	1170	1490	1270	2680	4630	5760	7570	1640	692
MIN	488	488	367	416	825	790	748	636	848	818	168	285
AC-FT	88100	54110	26780	50310	63000	63970	83980	161700	185800	144200	36510	23600
CAL YR 1984	TOTAL	500069		MEAN	1366	MAX	8770	MIN	118	AC-FT	991900	
WTR YR 1985	TOTAL	495102		MEAN	1356	MAX	7570	MIN	168	AC-FT	982000	

07117000 ARKANSAS RIVER NEAR NEPESTA, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	389	636	428	762	240	534	534	367	1820	3290	1370	762
2	394	690	412	648	245	528	552	362	1490	3020	1820	840
3	350	666	433	703	222	516	600	394	2330	2740	2480	618
4	340	642	447	762	222	499	690	433	2750	2300	1900	325
5	335	558	460	804	236	522	630	504	4160	1400	630	340
6	378	600	460	790	236	552	624	594	4730	2210	420	552
7	510	594	466	797	280	588	570	797	4970	3000	460	438
8	528	588	472	797	315	582	528	690	5880	3370	680	466
9	528	576	477	797	345	558	564	488	6260	3400	910	488
10	528	564	472	755	330	588	654	394	6180	3050	1130	428
11	570	570	438	729	472	546	642	384	5370	2410	740	422
12	494	570	427	716	564	564	624	422	3160	2060	550	466
13	438	552	430	716	648	582	558	416	1990	1770	450	552
14	433	636	470	672	722	477	472	305	1460	1510	440	510
15	460	612	497	570	769	600	422	300	1560	1330	890	455
16	570	540	485	552	769	624	372	416	2030	1230	1090	400
17	690	546	459	558	722	582	250	630	2190	1200	690	356
18	736	522	730	606	690	570	290	716	2450	1190	560	345
19	710	510	832	648	678	558	340	736	3920	1980	510	325
20	654	477	925	648	710	540	400	710	4310	2490	460	310
21	600	466	940	534	672	510	411	696	5080	2900	640	310
22	528	477	950	406	716	494	411	648	4660	3100	1020	362
23	534	488	965	315	716	494	372	790	4040	2490	1160	362
24	600	482	980	218	716	504	389	900	3460	2000	1400	416
25	618	510	972	222	618	499	460	932	3350	1210	1000	356
26	630	522	972	250	594	510	466	972	2940	880	510	350
27	624	504	1040	245	528	522	466	980	2990	500	395	367
28	624	494	1020	245	534	494	482	1300	3570	740	422	367
29	600	472	1020	218	---	455	433	1330	3980	940	325	389
30	580	450	1020	214	---	450	400	1330	3620	1140	472	400
31	560	---	924	214	---	510	---	1820	---	1070	552	---
TOTAL	16533	16514	21023	17111	14509	16552	14606	21756	106700	61920	26076	13077
MEAN	533	550	678	552	518	534	487	702	3557	1997	841	436
MAX	736	690	1040	804	769	624	690	1820	6260	3400	2480	840
MIN	335	450	412	214	222	450	250	300	1460	500	325	310
AC-FT	32790	32760	41700	33940	28780	32830	28970	43150	211600	122800	51720	25940
CAL YR 1985	TOTAL	463975		MEAN	1271	MAX	7570	MIN	168	AC-FT	920300	
WTR YR 1986	TOTAL	346377		MEAN	949	MAX	6260	MIN	214	AC-FT	687000	



## ARKANSAS RIVER BASIN

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 above 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. May 27, 1939 to July 30, 1940, at present site at different datum. July 30, 1940 to Sept. 30, 1985, at datum 2.0 ft, higher.

REMARKS.--No estimated daily discharges: Records good. Waste water from Oxford Farmers Co. and Rocky Ford Highline canals enters river upstream from station. Diversions upstream from 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.--50 years, 29.4 ft<sup>3</sup>/s; 21,300 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.--Peak discharges greater than base discharge of 3000 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)
Aug. 23	1115	*3,640	*10.43	No other peak greater than base discharge			
Minimum daily, 2.6 ft <sup>3</sup> /s, May 5.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	54	5.0	3.7	4.6	21	6.4	4.0	66	16	35	194
2	24	39	4.8	3.7	4.7	18	6.6	3.1	69	13	36	22
3	24	35	4.5	3.8	4.7	13	16	2.9	134	12	257	35
4	26	49	4.2	3.7	4.5	8.6	12	2.7	47	6.8	43	22
5	22	51	4.2	3.8	4.5	8.0	12	2.6	13	9.4	15	21
6	25	58	4.2	3.8	4.4	6.8	12	2.9	19	14	12	23
7	24	68	4.3	4.0	4.1	8.0	9.9	3.6	27	15	13	25
8	21	66	4.2	3.9	4.0	8.2	9.1	8.0	46	17	15	65
9	19	53	4.4	4.0	4.0	15	7.0	7.2	96	18	13	58
10	20	52	4.0	4.1	3.7	16	9.1	4.5	99	21	14	64
11	17	55	3.8	4.2	3.5	8.1	12	3.7	67	21	18	56
12	18	51	3.6	4.2	3.5	8.8	13	3.7	61	20	18	16
13	23	64	3.6	4.2	3.6	6.9	16	3.6	46	21	20	22
14	24	60	3.5	4.2	3.5	7.0	14	3.5	49	23	30	22
15	28	28	3.7	4.4	3.5	12	14	3.7	52	18	18	20
16	37	8.6	3.7	4.4	3.8	10	13	3.8	35	14	24	18
17	47	6.9	3.5	4.3	3.4	6.4	9.4	4.3	18	13	23	21
18	49	6.4	3.5	4.3	3.5	12	13	4.8	17	13	18	19
19	64	6.2	3.6	4.4	3.5	12	12	6.7	11	14	20	21
20	50	6.0	3.5	4.5	3.1	14	10	7.2	10	610	16	20
21	42	6.2	3.5	4.2	3.0	11	3.7	4.3	13	77	105	20
22	39	5.9	3.6	4.1	3.1	12	6.4	4.4	14	50	148	20
23	39	5.9	3.7	4.4	3.2	12	10	4.1	12	30	1020	19
24	35	5.5	3.5	4.1	3.1	10	7.6	4.6	13	25	147	24
25	46	5.8	3.5	4.1	21	8.1	4.8	5.7	14	23	63	24
26	46	5.5	3.5	4.2	35	7.3	4.2	7.9	17	21	41	13
27	40	5.6	3.5	4.3	14	10	5.5	9.1	18	21	36	15
28	34	5.2	3.5	4.4	22	4.2	7.0	28	15	23	42	21
29	39	5.3	3.5	4.5	---	5.0	3.4	36	8.9	16	34	21
30	46	5.3	3.7	4.6	---	5.4	4.1	48	11	23	31	32
31	47	---	3.7	4.5	---	6.4	---	60	---	28	232	---
TOTAL	1039	873.3	119.0	129.0	182.5	311.2	283.2	298.6	1117.9	1246.2	2557	973
MEAN	33.5	29.1	3.84	4.16	6.52	10.0	9.44	9.63	37.3	40.2	82.5	32.4
MAX	64	68	5.0	4.6	35	21	16	60	134	610	1020	194
MIN	17	5.2	3.5	3.7	3.0	4.2	3.4	2.6	8.9	6.8	12	13
AC-FT	2060	1730	236	256	362	617	562	592	2220	2470	5070	1930
CAL YR 1985	TOTAL	8801.7	MEAN	24.1	MAX	257	MIN	2.8	AC-FT	17460		
WTR YR 1986	TOTAL	9129.9	MEAN	25.0	MAX	1020	MIN	2.6	AC-FT	18110		

07119700 ARKANSAS RIVER AT CATLIN DAM, NEAR FOWLER, CO

LOCATION.--Lat 38°07'33", long 103°54'41", in NW¼NW¼ sec.21, T.22 S., R.58 W., Otero County, Hydrologic Unit 11020005, 600 ft downstream from gage on Catlin Canal, on right bank 2.2 mi downstream from diversion dam for Catlin Canal, 2.3 mi downstream from Apishapa River, and 6.0 mi east of Fowler.

DRAINAGE AREA.--10,901 mi<sup>2</sup>, of which 54 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--October 1964 to September 1984.

GAGE.--Water-stage recorders on river and on Catlin Canal. Datum of river gage is 4,245.92 ft above National Geodetic Vertical Datum of 1929. Datum of canal gage is 4,257.87 ft above National Geodetic Vertical Datum of 1929. Prior to May 13, 1971, river gage at site 2.2 mi upstream at datum 24.08 ft, higher, and canal gage at site 1.7 mi upstream at datum 3.26 ft, higher.

REMARKS.--Estimated daily discharges: Water year 1985, Nov. 20 to Dec. 7, Mar. 6-8, and Aug. 13, 14. Water year 1986, Dec. 10-23, Feb. 14 to Mar. 2, Aug. 4, 6, 23, and Sept 15-30. Records fair except for estimated daily discharges, which are poor. Discharge computed by combining discharge of river below canal with that of Catlin Canal. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas. Flow partly regulated by Pueblo Reservoir (station 07099350) since Jan. 9, 1974. Record for water year 1986 will be published in a subsequent report.

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

AVERAGE DISCHARGE.--9 years (water years 1965-73), 636 ft<sup>3</sup>/s, 460,800 acre-ft/yr, prior to completion of Pueblo Dam; 11 years (water years 1975-85), 764 ft<sup>3</sup>/s; 553,500 acre-ft/yr, 12 years (water years 1975-86), 778 ft<sup>3</sup>/s; 563,660 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,200 ft<sup>3</sup>/s, June 18, 1965, gage height, 7.95 ft, site and datum then in use, from rating curve extended above 13,000 ft<sup>3</sup>/s; on basis of flow-over-dam computation of peak flow; minimum daily, 30 ft<sup>3</sup>/s, Sept. 12, 1974, Aug. 14, 1977.

EXTREMES FOR WATER YEAR 1985.--Maximum discharge, 5,150 ft<sup>3</sup>/s at 0100 June 16, gage height, not determined; minimum daily, 301 ft<sup>3</sup>/s, Sept. 28.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,330 ft<sup>3</sup>/s at 1300 June 5, gage height, 7.15 ft; minimum daily, 88 ft<sup>3</sup>/s, May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	491	1540	510	504	931	1070	1040	2890	3450	849	2220	399
2	532	1520	490	465	970	1050	949	2910	2640	925	1730	346
3	538	1450	480	435	1000	1120	926	2440	1940	879	1670	337
4	556	1330	480	537	1100	1100	1330	2190	2120	797	1680	386
5	1510	1280	472	712	1110	1030	1740	2100	2300	703	1750	369
6	1750	1280	470	868	1140	860	1250	2390	2370	719	1030	365
7	1620	1310	465	895	1180	766	1320	3720	2000	730	747	355
8	1200	1280	453	904	1250	706	1350	3670	2920	770	517	378
9	1180	1240	465	913	1220	693	1420	3170	4070	860	411	369
10	1230	1140	465	868	1170	697	1510	2810	4530	971	415	340
11	1190	1090	453	796	1220	807	1800	2620	4640	1000	761	354
12	1040	1080	447	752	1240	799	1460	2540	4670	1020	691	391
13	1080	1100	453	752	1320	830	1030	2760	4770	1380	502	777
14	1070	1140	465	814	1410	759	1790	2540	4790	992	533	431
15	1280	1160	472	832	1530	693	1710	2090	4960	885	901	397
16	1080	780	472	832	1490	652	1560	1670	4680	966	830	351
17	1030	680	472	769	1400	626	934	1140	3760	862	551	369
18	1290	645	498	787	1320	639	881	880	3740	788	475	438
19	1470	632	491	841	1280	823	1020	1400	3600	926	353	421
20	1500	612	478	877	1290	887	1260	1550	3280	1280	310	405
21	1600	573	484	841	1350	864	1140	2490	3000	4120	380	431
22	1510	560	472	886	1350	931	965	3500	2770	3960	414	421
23	1390	550	465	877	1370	940	910	3830	2660	4230	464	376
24	1310	560	447	950	1310	967	781	3310	2410	3900	536	355
25	1300	565	453	1070	1370	949	818	2910	2360	3840	582	434
26	1240	550	453	1110	1380	871	894	2810	2130	2990	615	389
27	1220	540	484	1180	1190	863	1190	2830	1880	2480	519	312
28	1420	530	544	1170	1080	912	1080	3070	1650	1910	413	301
29	1530	530	558	1160	---	894	930	3280	1290	3280	379	326
30	1540	510	551	1100	---	1000	1640	3620	909	3440	391	344
31	1550	---	530	970	---	1070	---	3770	---	3180	447	---
TOTAL	38247	27757	14892	26467	34971	26868	36628	82900	92289	55632	23217	11667
MEAN	1234	925	480	854	1249	867	1221	2674	3076	1795	749	389
MAX	1750	1540	558	1180	1530	1120	1800	3830	4960	4230	2220	777
MIN	491	510	447	435	931	626	781	880	909	703	310	301
AC-FT	75860	55060	29540	52500	69360	53290	72650	164400	183100	110300	46050	23140
CAL YR 1984	TOTAL	449517	MEAN	1228	MAX	6660	MIN	160	AC-FT	891600		
WTR YR 1985	TOTAL	471535	MEAN	1292	MAX	4960	MIN	301	AC-FT	935300		

## ARKANSAS RIVER BASIN

07119700 ARKANSAS RIVER AT CATLIN DAM, NEAR FOWLER, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	355	712	429	1160	284	445	417	354	1890	3440	918	1480
2	405	924	320	922	288	434	452	318	1640	3270	826	1110
3	392	946	388	859	268	431	561	336	1830	2940	2180	782
4	364	853	504	931	284	426	650	380	2460	2790	1180	492
5	314	827	586	1020	300	421	620	433	4080	1920	740	336
6	319	729	510	1010	320	458	576	504	3810	1730	514	451
7	444	769	465	1120	325	458	552	655	4260	2380	390	538
8	523	697	465	1210	372	502	501	786	4610	2650	397	507
9	524	690	465	1180	366	522	520	571	5180	2810	453	543
10	529	639	450	1200	296	510	597	382	4910	2870	597	532
11	594	631	440	1120	292	511	629	410	4910	2620	506	478
12	530	630	420	1120	465	470	573	394	3860	1950	438	429
13	481	624	420	1120	616	480	531	432	2550	1570	399	464
14	473	639	430	1140	725	449	469	409	1820	1410	390	556
15	468	850	440	1050	860	491	427	310	1660	1150	400	485
16	535	593	450	950	865	489	368	312	1890	962	568	430
17	633	565	450	960	820	494	341	416	2150	1050	412	375
18	853	551	455	970	795	464	267	668	2220	923	387	330
19	789	524	750	1100	725	454	290	670	2980	1170	396	305
20	863	469	860	1050	795	430	340	571	3450	4360	424	275
21	759	443	920	895	820	415	375	687	3880	5600	392	248
22	679	453	935	558	805	397	379	587	3850	5540	628	290
23	653	472	950	484	805	383	376	565	3500	2590	1270	370
24	688	453	1010	335	775	389	320	751	3000	2420	854	474
25	827	463	1030	276	710	390	326	733	2780	1220	1120	377
26	820	469	1060	268	630	398	406	748	2640	971	568	355
27	793	471	1130	256	555	407	386	889	2730	851	543	370
28	800	470	1220	250	425	441	421	1080	3200	436	455	372
29	808	463	1280	246	---	427	446	1420	3660	525	386	390
30	668	459	1260	253	---	417	395	1240	3560	814	420	395
31	619	---	1250	239	---	397	---	1550	---	831	581	---
TOTAL	18502	18478	21742	25252	15586	13800	13511	19561	94960	65763	19732	14539
MEAN	597	616	701	815	557	445	450	631	3165	2121	637	485
MAX	863	946	1280	1210	865	522	650	1550	5180	5600	2180	1480
MIN	314	443	320	239	268	383	267	310	1640	436	386	248
AC-FT	36700	36650	43130	50090	30910	27370	26800	38800	188400	130400	39140	28840
CAL YR 1985	TOTAL	449361		MEAN	1231	MAX	4960	MIN	301	AC-FT	891300	
WTR YR 1986	TOTAL	341426		MEAN	935	MAX	5600	MIN	239	AC-FT	677200	

07120620 BIG ARROYO NEAR THATCHER, CO

LOCATION.--Lat 37°33'17", long 104°01'15", in NW¼NW¼ sec.4, T.29 S., R.59 W., Las Animas County, Hydrologic Unit 11020005, on left bank 2.4 mi from U.S. Route 350, 4.8 mi east of Thatcher, and 3.2 mi upstream from mouth.

DRAINAGE AREA.--15.5 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,288 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft<sup>3</sup>/s, July 28, 1985, gage height, 4.86 ft, from rating curve extended above about 1,100 ft<sup>3</sup>/s; no flow most of the time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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)
June 2	0815	30	3.20	Aug. 2	1745	21	3.12
June 5	2200	13	3.02	Aug. 22	2200	*73	*3.39
Aug. 1	1645	21	3.12	Sept. 1	0030	13	3.02

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.75	.54
2	.00	.00	.00	.00	.00	.00	.00	.00	1.6	.00	.98	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.36	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.0	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.4	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.45	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	2.12	.00	7.58	.54
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.24	.02
MAX	.00	.00	.00	.00	.00	.00	.00	.00	1.6	.00	4.0	.54
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	4.2	.00	15	1.1

CAL YR 1985	TOTAL	51.37	MEAN	.14	MAX	46	MIN	.00	AC-FT	102
WTR YR 1986	TOTAL	10.24	MEAN	.03	MAX	4.0	MIN	.00	AC-FT	20

ARKANSAS RIVER BASIN

07120620 BIG ARROYO NEAR THATCHER, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1983 to current year.

PERIOD OF DAILY RECORD.--  
SUSPENDED-SEDIMENT DISCHARGE: July 1983 to current year.

INSTRUMENTATION.--Pumping sediment sampler since July 1983.

REMARKS.--Sediment discharge for water year 1986 will be published in a subsequent report. Daily water-quality data for specific conductance and temperature will be published in a subsequent report.

EXTREMES FOR PERIOD OF RECORD.--  
SEDIMENT CONCENTRATION: Maximum daily, 3,180 mg/L July 28, 1985; no flow most of time.  
SEDIMENT LOAD: Maximum daily, 3,760 tons Aug. 1, 1983; minimum daily, no flow most time.

EXTREMES FOR CURRENT YEAR.--  
SEDIMENT CONCENTRATION: Daily sediment data for water year 1986 will be published in a subsequent report.  
SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	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 CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
AUG 01...	1655	21	54	18	2.2	18	1	3.9	33	61	4.3

DATE	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, 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)
AUG 01...	0.50	6.0	152	130	0.21	8.6	0.530	0.050	26	5

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. Elevation of gage is 4,120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 29, 1975, at site 140 ft downstream at datum 0.13 ft, lower.

REMARKS.--Estimated daily discharges: Jan. 9 to Feb. 2. Records good except those for periods of estimated daily discharge, which are poor. Natural flow of stream affected by minor diversions upstream from 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.--21 years (water years 1923-25, 1969-86), 65.0 ft<sup>3</sup>/s; 47,090 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, 3,380 ft<sup>3</sup>/s at 0800 Aug. 3, gage height, 12.30 ft, from rating curve extended above 250 ft<sup>3</sup>/s, on the basis of slope-area and contracted-opening measurements of peak flow; minimum daily, 13 ft<sup>3</sup>/s, Feb. 11,16,17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	149	24	16	45	97	39	54	114	79	341	282
2	119	156	24	16	44	128	40	50	123	191	92	161
3	129	152	23	16	43	104	73	56	229	107	856	161
4	120	150	22	15	43	94	123	55	151	90	144	149
5	125	143	22	15	44	88	76	52	190	61	110	151
6	87	147	22	16	47	79	65	51	159	58	95	144
7	97	153	22	16	48	63	63	61	122	85	88	162
8	173	155	22	16	42	61	63	64	139	74	86	179
9	181	151	22	16	19	85	71	66	190	73	74	184
10	162	153	21	16	15	130	77	65	209	69	69	161
11	153	159	22	16	13	100	72	62	165	63	94	143
12	171	160	21	15	14	62	65	64	136	63	81	177
13	180	160	21	15	14	61	82	55	194	68	78	187
14	180	140	21	15	14	61	105	58	121	69	85	196
15	179	90	21	15	14	55	58	49	126	67	76	181
16	179	64	20	16	13	78	62	46	155	70	75	163
17	179	46	20	16	13	89	58	48	165	72	70	163
18	183	33	20	16	19	82	47	47	117	66	90	169
19	158	28	20	16	37	87	51	47	83	79	72	149
20	141	26	20	25	48	71	57	45	62	296	76	146
21	129	25	20	24	49	52	61	42	65	219	77	194
22	194	24	20	23	44	48	59	38	75	103	77	144
23	201	22	19	25	40	43	58	42	76	161	347	131
24	199	22	18	30	38	43	50	46	82	116	152	122
25	188	22	18	30	38	44	55	52	85	81	130	112
26	162	22	17	50	53	42	52	56	69	78	135	143
27	155	22	17	48	56	46	75	55	73	82	134	159
28	153	22	17	45	57	53	57	56	71	81	129	139
29	158	23	17	48	---	49	52	64	79	69	114	118
30	159	23	17	47	---	38	50	95	84	63	88	105
31	153	---	17	46	---	35	---	85	---	62	90	---
TOTAL	4862	2642	627	739	964	2168	1916	1726	3709	2915	4225	4775
MEAN	157	88.1	20.2	23.8	34.4	69.9	63.9	55.7	124	94.0	136	159
MAX	201	160	24	50	57	130	123	95	229	296	856	282
MIN	87	22	17	15	13	35	39	38	62	58	69	105
AC-FT	9640	5240	1240	1470	1910	4300	3800	3420	7360	5780	8380	9470
CAL YR 1985	TOTAL	28584.5		MEAN	78.3	MAX	225	MIN	9.5	AC-FT	56700	
WTR YR 1986	TOTAL	31268		MEAN	85.7	MAX	856	MIN	13	AC-FT	62020	

## ARKANSAS RIVER BASIN

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. Elevation of gage is 4,100 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except above 80 ft<sup>3</sup>/s, which are fair. Natural flow of stream affected by minor diversions upstream from station for irrigation, water exported upstream from station to Timpas Creek, water imported from Arkansas River for irrigation upstream from 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, 12.0 ft<sup>3</sup>/s; 8,690 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, 584 ft<sup>3</sup>/s at 2200 Aug. 31, gage height, 6.77 ft, from rating curve extended above 50 ft<sup>3</sup>/s, on basis of slope-area measurements of peak flow; minimum daily, 0.96 ft<sup>3</sup>/s, Mar. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	29	3.7	2.7	2.5	2.0	11	3.1	34	24	16	50
2	28	36	3.6	2.6	2.5	12	13	3.4	37	24	12	19
3	29	31	3.7	2.5	2.6	30	38	2.6	32	17	14	28
4	28	29	3.5	2.4	3.3	21	38	2.8	32	14	22	21
5	33	30	3.5	2.4	3.0	17	11	5.9	45	9.0	16	25
6	26	30	3.6	2.5	2.7	8.2	23	4.5	37	8.0	22	22
7	23	25	3.7	2.5	2.8	5.1	29	5.7	12	17	23	23
8	26	25	3.7	2.5	2.3	2.5	16	7.6	21	19	19	27
9	15	29	3.7	2.4	2.3	8.5	11	9.6	7.1	23	18	69
10	13	32	3.6	2.4	2.3	6.1	11	9.2	24	27	17	52
11	15	30	3.5	2.4	2.2	5.9	19	7.3	11	26	17	73
12	18	23	3.5	2.4	2.1	4.8	26	4.4	3.5	21	12	55
13	17	28	3.5	2.4	2.2	1.5	35	3.2	16	19	7.2	43
14	16	39	3.5	2.5	2.2	.99	22	2.7	43	24	6.6	43
15	19	34	3.5	2.5	2.1	.96	35	3.0	35	12	10	45
16	23	6.2	3.3	2.4	2.2	19	20	3.0	18	4.4	12	46
17	24	4.9	3.3	2.5	2.3	9.0	6.9	3.0	17	5.0	15	48
18	30	4.4	3.2	2.6	2.3	8.9	6.4	3.6	14	6.5	21	36
19	38	4.1	3.1	2.8	2.4	9.7	2.8	5.3	5.0	11	21	31
20	17	4.0	3.1	2.8	2.4	7.0	1.8	9.2	7.6	50	21	33
21	25	4.0	3.1	2.6	2.4	11	2.8	7.1	5.0	123	20	11
22	26	3.8	3.1	2.6	2.4	8.8	4.4	5.0	4.0	15	18	10
23	27	3.7	3.1	2.9	2.4	9.3	10	5.3	5.9	12	20	9.3
24	24	3.7	3.1	2.9	2.4	12	2.9	7.2	11	15	23	15
25	21	3.7	3.1	2.9	2.5	10	1.7	9.8	15	16	23	23
26	23	3.6	3.0	2.9	2.7	6.4	4.2	16	13	22	22	13
27	26	3.7	2.7	2.9	2.7	7.5	15	30	13	26	20	11
28	25	3.7	2.7	3.4	4.4	5.3	29	22	15	42	15	9.4
29	22	3.6	2.7	4.3	---	4.5	8.5	23	19	35	15	17
30	24	3.5	2.7	3.0	---	5.8	2.6	19	21	20	20	19
31	20	---	2.7	2.4	---	12	---	11	---	14	83	---
TOTAL	731	510.6	101.8	83.0	70.6	272.75	457.0	254.5	573.1	700.9	600.8	926.7
MEAN	23.6	17.0	3.28	2.68	2.52	8.80	15.2	8.21	19.1	22.6	19.4	30.9
MAX	38	39	3.7	4.3	4.4	30	38	30	45	123	83	73
MIN	13	3.5	2.7	2.4	2.1	.96	1.7	2.6	3.5	4.4	6.6	9.3
AC-FT	1450	1010	202	165	140	541	906	505	1140	1390	1190	1840
CAL YR 1985	TOTAL	6329.8		MEAN	17.3	MAX	181	MIN	1.8	AC-FT	12560	
WTR YR 1986	TOTAL	5282.75		MEAN	14.5	MAX	123	MIN	.96	AC-FT	10480	

07123675 HORSE CREEK NEAR LAS ANIMAS, CO

LOCATION.--Lat 38°05'06", long 103°21'12", in SE¼SW¼ 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. Elevation of gage is 3,975 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec.12 and Feb. 12-14. Records good except for estimated daily discharges, which are fair. 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.

AVERAGE DISCHARGE.--7 years, 16.6 ft<sup>3</sup>/s; 12,030 acre-ft per year.

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, 239 ft<sup>3</sup>/s at 0630 June 11, gage height, 3.94 ft, from rating curve extended above 130 ft<sup>3</sup>/s; minimum daily, 3.7 ft<sup>3</sup>/s, May 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	15	12	13	52	20	7.1	6.9	10	25	29	31
2	19	15	11	13	54	15	8.9	7.1	15	23	97	40
3	13	14	12	13	55	14	9.3	8.6	12	18	126	71
4	9.4	14	12	12	48	11	8.1	8.4	7.7	15	94	39
5	9.8	14	12	11	46	12	8.5	6.4	8.6	21	80	38
6	13	15	11	13	45	12	9.2	6.7	65	22	73	32
7	12	15	12	13	43	11	9.0	6.0	16	37	45	34
8	11	16	12	13	40	16	7.6	6.4	103	53	28	29
9	10	15	12	14	41	12	7.3	7.5	121	66	27	26
10	15	15	11	19	40	13	7.0	7.1	55	79	34	23
11	32	15	10	30	22	11	7.5	6.4	112	66	26	24
12	32	15	10	71	21	12	9.0	4.3	51	59	26	31
13	25	15	11	71	24	15	7.7	3.7	25	69	78	27
14	24	16	10	70	26	17	6.6	4.3	21	65	23	20
15	11	16	9.9	68	28	33	6.7	5.6	25	48	22	21
16	15	15	10	68	29	25	6.5	6.8	39	32	20	20
17	23	16	11	64	27	13	6.5	7.4	48	31	21	19
18	32	16	11	65	19	11	6.6	6.4	32	42	20	19
19	30	14	12	70	13	11	7.6	5.4	22	38	20	19
20	25	14	12	70	11	15	7.8	4.7	38	46	21	19
21	35	14	12	69	11	13	7.4	4.4	42	70	21	18
22	25	14	12	68	11	11	7.6	4.3	60	77	24	18
23	19	15	12	64	11	9.7	7.6	4.2	61	45	24	18
24	19	13	12	62	10	10	7.4	4.1	43	60	41	17
25	18	13	14	62	11	8.0	7.7	4.4	52	53	69	13
26	20	13	13	59	11	7.6	9.3	7.4	54	28	56	11
27	21	13	13	56	11	7.9	8.8	8.4	53	25	51	11
28	21	13	12	55	27	7.3	8.7	6.0	25	25	49	11
29	21	13	13	54	---	7.4	8.0	5.7	45	19	46	11
30	16	12	13	51	---	6.9	7.6	6.1	88	18	40	12
31	15	---	13	51	---	6.7	---	6.1	---	18	28	---
TOTAL	622.2	433	362.9	1432	787	394.5	234.6	187.2	1349.3	1293	1359	722
MEAN	20.1	14.4	11.7	46.2	28.1	12.7	7.82	6.04	45.0	41.7	43.8	24.1
MAX	35	16	14	71	55	33	9.3	8.6	121	79	126	71
MIN	9.4	12	9.9	11	10	6.7	6.5	3.7	7.7	15	20	11
AC-FT	1230	859	720	2840	1560	782	465	371	2680	2560	2700	1430
CAL YR 1985	TOTAL	9525.1		MEAN	26.1	MAX	147	MIN	7.0	AC-FT	18890	
WTR YR 1986	TOTAL	9176.7		MEAN	25.1	MAX	126	MIN	3.7	AC-FT	18200	



ARKANSAS RIVER BASIN

07124000 ARKANSAS RIVER AT LAS ANIMAS, CO

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.

DRAINAGE AREA.--14,417 mi<sup>2</sup>, of which 441 mi<sup>2</sup> are probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to November 1898 (gage heights only), August to November 1909 (gage heights and discharge measurements only), May 1939 to current year.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,883.97 ft above 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.

REMARKS.--Estimated daily discharges: Dec. 2, 13-23, and Feb. 11-15. Records good except for estimated daily discharges, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 412,000 acres, and return flow from irrigated areas. Flow partly regulated by Pueblo Reservoir (station 07099350) since Jan. 9, 1974.

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; 12 years (water years 1975-86), 241 ft<sup>3</sup>/s; 174,600 acre-ft/yr, subsequent to completion of Pueblo Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,000 ft<sup>3</sup>/s, May 20, 1955, gage height, 15.03 ft, site and datum then in use, from rating curve extended above 24,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum daily, 0.9 ft<sup>3</sup>/s, July 31, Aug. 1, 3, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,450 ft<sup>3</sup>/s at 1300 June 9, gage height, 6.33 ft; minimum daily, 32 ft<sup>3</sup>/s, Apr. 1, May 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	87	195	266	194	108	32	35	233	207	65	183
2	80	88	210	241	190	104	33	33	578	127	110	377
3	82	88	225	209	205	109	36	36	281	290	193	500
4	82	88	326	185	209	119	38	37	223	516	485	505
5	74	88	341	176	206	115	37	37	201	698	269	383
6	73	87	287	185	203	112	38	34	691	396	118	311
7	69	86	260	185	203	114	40	32	590	353	108	222
8	70	86	255	177	208	139	40	34	851	313	94	351
9	74	86	225	180	201	158	37	40	1900	418	90	377
10	80	90	202	175	155	167	37	47	1690	578	103	362
11	108	89	121	177	110	181	37	50	1930	465	92	339
12	138	92	107	203	110	167	39	101	1400	386	85	337
13	145	89	100	212	110	156	38	120	761	239	115	355
14	116	93	100	215	200	153	39	108	416	138	236	362
15	82	116	100	222	400	114	39	74	252	110	116	361
16	83	128	100	221	388	80	39	58	194	144	92	365
17	94	109	100	218	301	73	37	54	168	88	88	299
18	101	108	130	206	247	88	37	53	136	83	89	260
19	105	105	200	196	199	68	38	60	97	77	92	231
20	127	103	400	198	229	60	42	145	210	84	99	207
21	104	103	600	196	239	66	41	144	396	1110	100	174
22	111	104	700	198	241	59	38	120	505	270	103	127
23	100	150	600	198	224	53	36	124	562	284	100	101
24	98	216	449	193	113	53	36	96	738	480	431	85
25	92	221	337	196	106	49	37	92	454	440	190	82
26	92	222	288	190	104	44	42	113	386	221	236	77
27	92	213	258	197	106	43	42	142	193	94	166	67
28	90	219	247	212	103	41	38	120	104	74	141	64
29	84	223	266	211	---	38	37	105	81	72	126	68
30	84	209	271	206	---	34	37	235	158	62	120	66
31	89	---	274	200	---	33	---	234	---	59	109	---
TOTAL	2894	3786	8274	6244	5504	2898	1137	2713	16379	8876	4561	7598
MEAN	93.4	126	267	201	197	93.5	37.9	87.5	546	286	147	253
MAX	145	223	700	266	400	181	42	235	1930	1110	485	505
MIN	69	86	100	175	103	33	32	32	81	59	65	64
AC-FT	5740	7510	16410	12380	10920	5750	2260	5380	32490	17610	9050	15070
CAL YR 1985	TOTAL	177937		MEAN	487	MAX	3100	MIN	42	AC-FT	352900	
WTR YR 1986	TOTAL	70864		MEAN	194	MAX	1930	MIN	32	AC-FT	140600	

07124000 ARKANSAS RIVER AT LAS ANIMAS, CO

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1985 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1985 to September 1986.

WATER TEMPERATURE: December 1985 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--There was no specific conductance for Jan. 12-14, Mar. 26 to Apr.9, May 16-27, July 10-28 and Sept. 3-9, and no temperature record July 10-28 and Sept.6-9. Daily maximum and minimum specific conductance data available in district office.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 7,950 microsiemens Jan. 22; minimum, 860 microsiemens June 11.

WATER TEMPERATURE: Maximum for period December 1985 to September 1986, 34.5°C Aug. 18; minimum, 0.0°C Dec. 12, 29, and Feb. 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)
NOV 26...	1400	214	2580	8.1	5.5	10.6	3.70	0.200	--
MAR 25...	0900	49	3930	8.1	11.0	--	1.40	0.110	--
APR 29...	1230	37	2690	8.1	24.0	--	1.40	0.120	--
MAY 27...	1250	154	2030	8.2	16.5	8.7	2.20	0.120	--
JUN 24...	1430	833	932	8.2	23.5	6.9	1.10	0.050	--
JUL 29...	1040	73	4520	8.1	25.0	7.6	1.10	0.110	--
AUG 26...	1140	315	2060	8.1	21.5	7.3	1.70	0.040	0.020
SEP 25...	1215	81	4040	8.2	17.5	8.3	2.00	0.200	--

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	2140	5150	2940	---	3750	1730	1760	4580	1790
2			---	2170	5010	2940	---	3570	1850	2640	3800	1850
3			---	2290	5000	2900	---	3420	1940	1780	2490	---
4			3370	2440	4900	3770	---	3450	2550	857	1290	---
5			3580	2840	5050	2840	---	3490	1170	634	1090	---
6			3360	2870	5100	2950	---	3580	938	1060	1030	---
7			3450	2870	5050	2990	---	3610	954	1500	976	---
8			3100	2870	5010	2960	---	3670	985	1900	953	---
9			2780	2850	5570	2820	---	3400	980	953	945	---
10			3160	2780	5510	2580	3680	3350	909	---	990	3490
11			3370	3070	5400	2430	3650	3350	891	---	1100	3500
12			3260	---	5510	2270	3560	2660	1100	---	1720	3320
13			3040	---	5920	2250	3680	2590	1220	---	2980	2840
14			2910	---	5740	2270	3800	3150	1370	---	3250	2690
15			2910	6920	3050	2570	3840	3590	1650	---	5050	2530
16			3080	6680	2680	2980	3920	---	1920	---	6100	2240
17			3230	6580	2840	3170	4020	---	2100	---	6510	3030
18			3200	6380	3000	3230	4080	---	2840	---	6870	3530
19			2660	6290	2840	3010	3960	---	3300	---	6530	3770
20			2830	6200	2540	2950	3700	---	2590	---	6320	3820
21			3110	5860	2340	3000	3670	---	1220	---	6030	3420
22			2610	7380	2320	3270	3820	---	1150	---	6510	3800
23			1780	6810	2280	3360	3870	---	1060	---	6490	4040
24			1830	6160	2940	3030	3850	---	963	---	2950	4230
25			2050	6380	3080	3560	3770	---	1180	---	1300	4170
26			2180	6800	3120	---	3520	---	1300	---	1420	3790
27			2370	6250	3100	---	3420	---	1890	---	1760	3780
28			2560	6150	3090	---	3750	2890	2750	---	1770	4000
29			2400	5720	---	---	3700	3140	3150	4220	1750	3970
30			2300	5460	---	---	3710	1820	2150	4470	1750	3620
31			2200	5370	---	---	---	1550	---	4510	1760	---
MEAN					4040				1660		3160	

## ARKANSAS RIVER BASIN

07124000 ARKANSAS RIVER AT LAS ANIMAS, CO

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1					---	---	5.0	2.0	10.0	5.0	14.5	8.0
2					---	---	5.0	2.5	9.5	7.0	15.0	8.5
3					---	---	4.0	1.5	9.0	7.5	15.5	10.5
4					2.5	1.5	3.0	.5	8.5	6.5	14.5	9.0
5					2.5	1.0	3.5	3.0	8.0	6.5	14.0	7.0
6					1.5	1.0	3.5	3.0	7.0	5.5	16.0	6.0
7					2.5	1.0	3.5	3.0	5.5	2.0	13.0	6.0
8					3.0	1.0	3.5	3.0	2.0	1.5	12.5	4.5
9					2.5	1.5	3.5	2.5	2.0	1.5	14.0	8.0
10					1.5	1.0	4.0	2.5	4.5	1.5	12.0	7.0
11					1.5	.5	4.5	3.5	1.5	1.5	12.0	7.0
12					.5	.0	4.5	4.0	1.0	1.0	12.0	7.5
13					.5	.5	4.5	4.0	3.5	1.0	10.5	6.0
14					.5	.5	5.5	3.5	3.0	1.0	11.5	5.5
15					1.0	.5	6.0	2.0	5.0	2.5	13.0	7.5
16					1.0	1.0	7.0	3.0	8.5	4.5	12.5	7.5
17					1.5	1.0	6.5	3.0	10.0	6.0	12.5	6.5
18					2.0	1.0	7.0	3.0	10.5	7.5	8.0	4.5
19					1.5	1.0	8.0	2.5	11.0	6.5	11.0	2.5
20					1.5	1.0	7.5	3.0	8.5	4.0	11.0	5.5
21					2.0	1.0	6.5	3.0	8.5	3.5	15.5	4.5
22					2.0	1.5	4.5	.5	10.5	4.0	15.5	6.0
23					2.0	1.0	5.5	1.0	12.0	6.5	15.5	6.5
24					2.5	1.5	6.5	3.5	15.0	6.5	17.0	7.5
25					3.0	.5	6.0	2.5	17.0	8.5	13.0	8.5
26					3.5	1.0	4.5	.5	16.5	10.0	13.0	6.5
27					3.0	1.5	6.0	.0	13.5	10.5	15.0	7.0
28					2.5	.5	7.0	2.0	13.5	7.5	15.5	8.0
29					3.0	.0	7.0	3.5	---	---	15.5	9.0
30					4.0	1.0	9.0	4.0	---	---	15.5	9.5
31					4.0	2.5	9.5	6.5	---	---	15.0	9.5
MONTH							9.5	.0	17.0	1.0	17.0	2.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	19.0	9.0	26.5	10.0	21.0	19.5	29.5	20.5	30.5	18.5	22.0	16.5
2	20.5	8.0	26.5	11.0	24.0	19.0	31.0	18.5	27.0	19.0	24.0	18.0
3	12.5	4.0	30.5	12.5	29.0	20.5	27.5	19.0	25.0	20.0	21.0	16.0
4	17.5	2.5	27.0	13.0	27.0	20.5	28.0	22.0	24.5	19.5	22.0	20.0
5	18.5	4.0	27.5	10.5	22.5	19.0	24.0	23.0	24.5	20.5	22.0	19.5
6	19.0	6.5	26.0	9.5	20.0	18.5	27.5	20.5	25.0	21.0	---	---
7	21.5	8.5	26.0	10.0	21.0	19.0	28.5	21.5	24.0	21.5	---	---
8	18.5	9.5	24.0	9.5	22.0	19.0	27.0	21.5	24.5	20.5	---	---
9	26.5	9.0	22.5	7.0	20.0	18.5	24.0	22.5	26.0	20.5	---	---
10	22.5	7.0	27.0	8.0	19.0	16.0	---	---	28.0	17.5	22.5	17.5
11	23.5	8.5	28.5	10.0	18.5	15.0	---	---	30.5	18.5	22.5	17.0
12	22.0	10.0	24.5	11.5	20.5	17.0	---	---	31.0	18.5	22.0	17.0
13	19.0	6.5	31.5	13.5	23.0	19.0	---	---	32.0	18.5	23.0	19.0
14	21.5	3.5	26.0	14.0	25.0	18.5	---	---	26.0	21.5	24.5	20.5
15	21.0	5.0	23.5	14.5	28.0	18.5	---	---	31.5	18.5	23.5	20.0
16	23.0	5.5	18.5	10.0	28.5	19.5	---	---	32.5	17.5	25.0	19.0
17	19.5	7.5	19.5	9.5	28.0	19.5	---	---	31.5	18.0	22.0	16.5
18	19.0	5.5	25.5	9.0	29.0	18.0	---	---	34.5	18.5	20.5	16.5
19	23.0	8.0	26.5	12.5	32.0	18.5	---	---	33.5	19.5	20.5	16.5
20	21.0	7.5	24.5	16.5	29.5	18.5	---	---	29.0	19.5	22.0	16.5
21	26.0	11.5	23.5	19.0	27.5	20.5	---	---	30.0	17.0	23.5	17.0
22	28.5	10.5	21.0	18.0	23.0	20.0	---	---	29.0	18.0	21.0	17.0
23	26.0	11.5	19.5	17.0	25.5	20.5	---	---	26.0	19.0	22.0	16.0
24	26.0	9.5	18.5	16.0	23.5	20.5	---	---	22.5	18.0	20.0	11.5
25	24.5	10.0	21.0	16.5	25.5	20.5	---	---	24.0	21.0	19.0	10.0
26	18.5	10.0	19.0	17.5	25.0	20.5	---	---	23.0	20.5	18.5	13.0
27	19.5	6.5	19.0	15.0	30.0	19.5	---	---	24.5	19.0	19.0	12.0
28	25.5	7.0	17.5	14.5	31.5	19.5	---	---	24.0	18.0	18.0	11.5
29	28.0	10.0	21.0	13.5	31.5	18.0	30.5	22.0	28.5	17.0	14.5	11.0
30	26.5	11.0	21.5	16.5	29.0	19.5	30.5	17.5	27.0	18.0	20.0	8.5
31	---	---	21.5	19.0	---	---	29.0	19.0	27.5	18.0	---	---
MONTH	28.5	2.5	31.5	7.0	32.0	15.0			34.5	17.0		

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.--Streamflow records, March 1972 to current year. Water-quality data available October 1978 to September 1981

GAGE.--Water-stage recorder. Datum of gage is 6,261.61 ft above National Geodetic Vertical Datum of 1929 (U.S. Army, Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Oct. 1-28, Nov. 14-17, 20-23, Dec. 1, 14-31, Jan. 1-18, Feb. 6-16, July 22-23, and Aug. 4-5. Records good except for except estimated daily discharges, which are poor. Diversions for irrigation of about 6,000 acres upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years, 70.1 ft<sup>3</sup>/s; 50,790 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.--Peak discharges greater than base discharge of 1,000 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	1545	1,220	4.12	July 20	1530	1,090	3.99
June 23	1700	1,280	4.18	Aug. 3	1830	*2,230	*5.09
June 26	1645	1,640	4.54	Aug. 20	2115	1,410	4.31

Minimum daily discharge, 11 ft<sup>3</sup>/s, Jan. 4-5, 8, and Feb. 10-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	33	25	12	20	19	20	129	170	206	125	113
2	35	30	27	12	20	19	22	82	180	194	105	68
3	34	29	33	12	19	20	28	88	203	165	264	53
4	34	28	35	11	18	20	24	102	219	157	200	54
5	33	28	23	11	18	19	24	126	246	165	130	50
6	32	28	21	12	16	19	22	116	341	204	82	48
7	31	26	19	12	14	19	23	105	398	201	79	115
8	31	24	23	11	12	19	23	102	276	227	84	77
9	35	24	18	12	12	18	28	90	364	381	79	53
10	45	23	24	12	11	18	26	76	359	297	115	48
11	37	23	23	13	11	18	24	67	322	261	79	59
12	33	23	14	13	11	20	24	63	309	247	75	55
13	38	23	14	14	13	20	22	63	326	193	79	49
14	34	30	15	14	17	20	22	73	335	183	73	56
15	33	23	16	15	20	20	22	86	317	176	74	59
16	33	25	17	16	22	20	23	90	295	218	68	54
17	34	27	16	17	23	20	22	104	298	200	63	53
18	34	29	17	19	24	20	25	84	313	208	68	48
19	33	28	18	20	23	19	40	70	313	217	66	44
20	31	27	17	21	22	20	41	65	323	364	142	41
21	30	27	17	19	22	19	43	75	257	343	105	39
22	29	28	17	18	21	19	44	86	283	290	64	38
23	28	29	16	18	21	19	44	90	429	250	99	37
24	28	30	16	22	21	19	54	98	252	223	88	38
25	27	29	17	21	20	19	56	105	235	202	149	40
26	27	29	17	21	20	19	62	115	340	192	113	40
27	26	29	17	19	20	19	57	122	220	172	148	39
28	26	27	17	19	20	19	47	118	198	162	81	39
29	26	29	18	23	---	19	40	151	208	143	71	37
30	27	28	16	22	---	19	41	133	208	128	84	42
31	29	---	14	20	---	20	---	108	---	140	91	---
TOTAL	989	816	597	501	511	597	993	2982	8537	6709	3143	1586
MEAN	31.9	27.2	19.3	16.2	18.3	19.3	33.1	96.2	285	216	101	52.9
MAX	45	33	35	23	24	20	62	151	429	381	264	115
MIN	26	23	14	11	11	18	20	63	170	128	63	37
AC-FT	1960	1620	1180	994	1010	1180	1970	5910	16930	13310	6230	3150
CAL YR 1985	TOTAL	32427	MEAN	88.8	MAX	800	MIN	14	AC-FT	64320		
WTR YR 1986	TOTAL	27961	MEAN	76.6	MAX	429	MIN	11	AC-FT	55460		

## ARKANSAS RIVER BASIN

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>.

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 6,259.09 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 8-9, Feb. 7-13, and May 7-20. Records good except those for estimated daily discharges, which are poor. No diversion upstream from station. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years, 3.78 ft<sup>3</sup>/s; 2,740 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 greater than base discharge 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)
May 1	1700	520	4.08	July 20	1600	230	3.47
June 2	0830	212	3.48	July 25	1445	337	3.72
June 7	1700	*1,460	*5.53	Aug. 3	1800	936	4.78
June 10	1315	345	3.76	Aug. 20	2200	760	4.50
July 2	0245	1,050	4.95	Aug. 24	1715	407	3.88
July 12	2030	1,030	4.91	Sept. 1	1730	560	4.16

Minimum daily discharge, 0.08 ft<sup>3</sup>/s, May 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	1.5	.34	.35	.53	.39	.26	38	24	3.1	1.8	60
2	.76	1.0	.26	.37	.54	.26	.29	2.6	85	79	1.5	6.3
3	.77	.86	.36	.41	.50	.26	.39	.54	49	3.0	48	1.8
4	.70	.88	.37	.32	.47	.26	.51	.44	15	2.6	8.2	1.0
5	.69	.76	.39	.42	.41	.26	.46	.34	7.3	2.4	1.7	1.0
6	.68	.76	.42	.38	.25	.29	.44	.26	5.3	2.6	1.3	.91
7	.64	.79	.44	.32	.23	.26	.42	.25	156	3.4	1.1	1.1
8	.59	.76	.48	.30	.20	.26	.34	.25	61	10	1.1	.99
9	.61	.77	.30	.32	.18	.26	.27	.25	81	6.6	1.1	.80
10	.92	.64	.30	.36	.16	.26	.26	.24	66	3.2	3.4	.80
11	2.0	.75	.22	.42	.14	.26	.26	.23	28	2.6	2.1	.87
12	1.1	.70	.21	.49	.18	.26	.26	.22	14	61	1.1	.74
13	1.0	.78	.19	.44	.25	.26	.24	.21	9.3	8.4	.98	.72
14	.90	.70	.20	.40	.32	.32	.20	.20	7.0	4.0	.91	.78
15	.88	.85	.27	.53	.34	.34	.21	.19	6.1	2.5	2.0	.73
16	.88	.82	.28	.49	.32	.30	.26	.18	5.3	2.1	1.4	.65
17	.97	.78	.28	.50	.29	.26	.26	.18	6.5	3.4	.94	.69
18	1.0	.75	.34	.52	.34	.26	.26	.17	18	5.6	3.0	.63
19	1.0	.56	.29	.51	.40	.26	.49	.16	9.2	9.8	1.4	.65
20	1.0	.53	.34	.46	.41	.26	.42	.15	12	38	45	.63
21	.99	.54	.33	.41	.40	.34	.38	.14	8.9	11	25	.62
22	.92	.58	.33	.43	.37	.26	.34	.11	5.1	4.5	23	.62
23	.88	.60	.32	.44	.42	.26	.30	.11	4.2	3.7	5.4	.73
24	.88	.62	.35	.44	.44	.26	.29	.11	3.9	2.3	26	.75
25	.88	.54	.35	.36	.44	.26	.26	.10	4.1	23	18	.85
26	.88	.48	.38	.33	.44	.26	.25	.08	3.8	5.2	5.1	.77
27	.82	.44	.37	.37	.44	.25	.25	.08	4.0	3.2	4.8	.74
28	.83	.42	.38	.49	.41	.24	.26	.08	3.1	2.4	2.4	.72
29	.81	.44	.37	.52	---	.26	.26	.60	3.0	1.8	1.2	.71
30	.81	.36	.44	.53	---	.26	.26	.47	3.2	1.5	1.4	.84
31	.80	---	.41	.54	---	.26	---	.11	---	1.4	1.3	---
TOTAL	27.45	20.96	10.31	13.17	9.82	8.45	9.35	47.05	708.3	313.3	241.63	89.14
MEAN	.89	.70	.33	.42	.35	.27	.31	1.52	23.6	10.1	7.79	2.97
MAX	2.0	1.5	.48	.54	.54	.39	.51	38	156	79	48	60
MIN	.59	.36	.19	.30	.14	.24	.20	.08	3.0	1.4	.91	.62
AC-FT	54	42	20	26	19	17	19	93	1400	621	479	177
CAL YR 1985	TOTAL	1634.41		MEAN	4.48	MAX	165	MIN	.19	AC-FT	3240	
WTR YR 1986	TOTAL	1498.93		MEAN	4.11	MAX	156	MIN	.08	AC-FT	2970	



ARKANSAS RIVER BASIN

07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO

LOCATION.--Lat 37°08'37", long 104°32'49", in SW¼ 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>.

PERIOD OF RECORD.--Streamflow records, December 1976 to current year. Water-quality data available, March 1977 to September 1984.

GAGE.--Water-stage recorder with concrete control. Datum of gage is 6,073.64 ft above 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.--No estimated daily discharges. Records good except for those below 1.0 ft<sup>3</sup>/s, which are poor. Natural flow of stream affected by diversions upstream from station for irrigation of about 6,000 acres. Flow since Aug. 19, 1977, completely regulated by Trinidad Lake (station 07124400) immediately upstream. Several observations of specific conductance and water temperature were obtained and are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years (water years 1978-86), 83.6 ft<sup>3</sup>/s; 60,570 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, 349 ft<sup>3</sup>/s at 1130 June 25, gage height, 6.62 ft; minimum daily, 0.04 ft<sup>3</sup>/s, Nov. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	.18	.11	.11	.20	.29	.14	292	36	318	212	161
2	111	.18	.11	.11	.18	.22	.14	325	.31	317	213	160
3	111	.18	.11	1.5	.18	.22	.14	322	.28	307	214	165
4	124	.18	.11	3.8	.18	.22	.20	321	.28	293	212	172
5	139	.17	.11	1.3	.18	.22	.23	301	.29	292	211	199
6	139	.18	.15	.14	.18	.22	.20	288	.32	291	211	215
7	88	.18	.22	.11	.18	.22	.18	290	.29	263	211	214
8	45	.18	.22	.06	.16	.20	.18	321	.22	240	210	214
9	68	.04	.22	.06	.14	.18	.18	316	.22	237	210	213
10	99	25	.22	.06	.14	.18	.18	314	.22	242	210	212
11	106	15	.22	.06	.14	.18	14	293	.22	240	212	190
12	110	.08	.22	.06	.13	.18	21	181	.23	222	211	168
13	67	.08	.22	.06	.12	.18	26	146	.22	215	211	156
14	18	.08	.21	.06	.11	.28	39	151	.24	215	211	144
15	.14	.08	.20	.06	.11	.31	18	150	.26	215	70	139
16	.14	.08	.18	.06	.12	.28	.18	149	.28	268	1.2	139
17	.14	.08	20	.06	.13	.25	.18	171	5.9	333	.85	167
18	.14	.07	29	.06	.14	28	6.0	159	14	304	113	193
19	.14	.06	10	.06	.13	41	2.7	158	21	253	171	199
20	.14	.06	.13	.06	.14	12	.14	177	24	158	235	199
21	.14	.06	.12	.06	.14	.22	.14	183	23	.51	264	199
22	.14	.06	.11	.06	.14	.18	125	178	23	.23	252	198
23	.14	.06	.11	.06	.14	.18	183	183	153	.08	226	199
24	.14	.06	.11	.06	.14	.18	194	187	201	.09	214	197
25	.14	12	.11	.06	.14	.18	199	186	295	.14	228	195
26	.14	30	.11	.06	.14	.18	199	141	260	.15	236	194
27	.14	44	.11	.06	.14	.18	199	80	261	.15	237	193
28	.14	19	.11	24	.22	.17	206	77	288	73	217	192
29	.18	.12	.11	15	---	.17	213	95	290	110	176	144
30	.18	.11	.11	.23	---	.16	223	215	310	174	161	71
31	.18	---	.11	.22	---	.15	---	169	---	209	161	---
TOTAL	1338.50	147.61	63.18	47.72	4.19	86.78	1870.11	6519	2208.78	5790.35	5922.05	5401
MEAN	43.2	4.92	2.04	1.54	.15	2.80	62.3	210	73.6	187	191	180
MAX	139	44	29	24	.22	41	223	325	310	333	264	215
MIN	.14	.04	.11	.06	.11	.15	.14	77	.22	.08	.85	71
AC-FT	2650	293	125	95	8.3	172	3710	12930	4380	11490	11750	10710
CAL YR 1985	TOTAL	34821.60		MEAN	95.4	MAX	349	MIN	.01	AC-FT	69070	
WTR YR 1986	TOTAL	29399.27		MEAN	80.5	MAX	333	MIN	.04	AC-FT	58310	

07126140 VAN BREMER ARROYO NEAR TYRONE, CO

LOCATION.--Lat 37°23'58", long 104°06'55", in SW¼SW¼, sec.27, T.30 S., R. 60 W., Las Animas County, Hydrologic Unit 11020010, on left bank, on Pinon Canyon Army Maneuver Site, 200 ft downstream from military road at gas line crossing near Brown Sheep Camp, 6 mi southeast of Tyrone, and 11 mi upstream from mouth.

DRAINAGE AREA.--132 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,310 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 11 to Feb. 19, May 7-19, and June 6-17. Natural flow affected by return flow from irrigation and storage in a small channel reservoir upstream. Records good except for periods of estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 511 ft<sup>3</sup>/s Aug. 23, 1986, gage height, 10.02 ft, from rating curve extended above about 45 ft<sup>3</sup>/s on basis of flow through culvert computation; no flow many days each year.

EXTREMES FOR PCURRENT YEAR.--Maximum discharge, 511 ft<sup>3</sup>/s at 0330 Aug. 23, 1986, gage height, 10.02 ft, from rating curve extended above about 45 ft<sup>3</sup>/s on basis of flow through culvert computation; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	.42	.06	.02	.01	.00	.00	1.2	1.1	9.4	.32	2.8
2	20	.33	.06	.02	.01	.00	.00	1.6	9.1	1.9	.31	1.8
3	24	.33	.06	.02	.01	.00	.02	2.4	4.8	.09	.17	1.2
4	23	.35	.06	.02	.01	.00	.00	3.7	1.4	.05	.23	.78
5	26	.34	.06	.02	.01	.00	.00	3.8	.48	.05	.06	.41
6	25	.31	.06	.02	.00	.00	.00	3.0	.40	.04	.02	.13
7	27	.27	.06	.02	.00	.00	.00	3.4	.33	1.0	.01	.10
8	13	.27	.06	.02	.00	.00	.00	1.4	1.2	1.2	.01	.10
9	12	.39	.06	.02	.00	.00	.00	1.3	.90	.75	1.8	.24
10	33	.31	.06	.02	.00	.00	.00	.80	.34	.09	.04	.31
11	44	.24	.06	.02	.00	.00	.00	.60	.18	.11	.03	.11
12	32	2.0	.06	.02	.00	.00	.00	.80	.10	.53	.02	.06
13	29	.17	.06	.02	.00	.00	.00	4.5	.06	.61	.02	.06
14	39	.13	.06	.02	.00	.00	.00	2.0	.04	.37	.02	.06
15	32	.10	.06	.02	.00	.00	.00	.50	.03	.23	.03	.05
16	33	.09	.06	.02	.00	.00	.00	.38	.02	.18	.03	.05
17	29	.08	.07	.02	.00	.00	.00	.35	.01	.04	.02	.10
18	21	.07	.07	.02	.00	.01	.00	.32	.01	.02	.01	.11
19	17	.07	.08	.02	.00	.00	.00	.40	.01	.01	.20	.05
20	16	.06	.08	.02	.00	.00	.00	.16	.02	.12	.74	.05
21	14	.06	.08	.01	.00	.00	.00	.03	.02	.09	1.0	.06
22	9.7	.06	.08	.01	.00	.00	.00	.00	.02	1.10	15	.21
23	3.2	.06	.08	.01	.00	.00	.00	.00	.04	1.1	171	2.0
24	1.7	.06	.08	.01	.00	.00	.00	.00	.34	1.5	13	4.5
25	.89	.06	.08	.01	.00	.00	.00	.00	.18	1.1	7.2	3.4
26	.77	.06	.08	.01	.00	.00	.00	.00	.04	.86	9.3	3.3
27	.60	.06	.07	.01	.00	.00	.31	.00	.03	.65	14	4.4
28	.28	.06	.06	.01	.00	.00	.93	.00	.02	.60	8.8	4.7
29	.41	.06	.05	.01	---	.00	1.0	.00	.02	.36	6.5	4.8
30	.39	.06	.04	.01	---	.00	.81	.00	.02	.14	4.4	2.9
31	.37	---	.03	.01	---	.00	---	.00	---	.95	2.9	---
TOTAL	537.11	6.93	1.99	.51	.05	.01	3.07	32.64	21.26	24.24	257.19	38.84
MEAN	17.3	.23	.06	.02	.00	.00	.10	1.05	.71	.78	8.30	1.29
MAX	44	2.0	.08	.02	.01	.01	1.0	4.5	9.1	9.4	171	4.8
MIN	.28	.06	.03	.01	.00	.00	.00	.00	.01	.01	.01	.05
AC-FT	1070	14	3.9	1.0	.1	.02	6.1	65	42	48	510	77
WTR YR 1986	TOTAL	923.84		MEAN	2.53	MAX	171	MIN	.00	AC-FT	1830	



## ARKANSAS RIVER BASIN

07126140 VAN BREMER ARROYO NEAR TYRONE, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1985 to current year.

REMARKS.--Daily water-quality data for specific conductance and temperature will be published in a subsequent report.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (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 15...	1300	0.04	9900	--	0.0	--	2700	260	510
APR 28...	1200	0.24	--	--	--	--	2000	350	270
MAY 21...	0915	0.07	4580	8.7	16.0	9.2	1400	180	220
AUG 23...	1845	43	920	--	19.0	--	250	57	27
SEP 29...	1500	5.6	1500	8.6	13.0	9.4	460	88	58

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 SI02)
NOV 15...	1200	10	6.3	302	4400	480	0.80	10
APR 28...	660	7	19	210	2800	260	0.60	14
MAY 21...	700	8	20	209	2300	300	0.50	0.6
AUG 23...	92	3	9.8	98	330	40	0.20	8.6
SEP 29...	180	4	9.2	190	540	61	0.40	6.8

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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 15...	7530	7000	10.2	0.81	5.20	0.020	60	140
APR 28...	5060	4500	6.9	3.3	19.0	0.120	110	70
MAY 21...	3960	3800	5.4	0.75	1.10	0.020	40	60
AUG 23...	634	620	0.86	74	0.560	0.120	99	17
SEP 29...	1040	1100	1.4	16	<0.100	0.050	38	3

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.--175 mi<sup>2</sup> of which 11.8 mi<sup>2</sup> is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1966 to current year.

REVISIONS.--WDR CO-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,960 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--20 years, 2.47 ft<sup>3</sup>/s; 1,790 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 CURRENT YEAR.--Peak discharges greater than base discharge of 450 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 1	2330	*1,860	*6.48	Aug. 22	2300	1,620	6.18

Minimum daily, 0.06 ft<sup>3</sup>/s, July 29 to Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	.21	.18	.18	.22	.18	.21	.15	.77	78	.06	9.4
2	15	.21	.18	.18	.21	.18	.21	.15	18	69	.07	1.8
3	24	.21	.18	.18	.20	.18	.21	.15	9.4	1.7	2.2	.79
4	22	.21	.18	.18	.18	.18	.21	.15	4.3	.45	.64	.35
5	27	.21	.18	.18	.18	.18	.19	.15	1.4	.26	.19	.21
6	25	.18	.18	.18	.18	.18	.18	.63	.54	.25	.13	.16
7	28	.18	.18	.18	.18	.18	.18	2.1	.41	.22	.09	.16
8	16	.18	.18	.18	.18	.18	.18	2.1	2.5	.21	.09	.17
9	11	.18	.18	.18	.18	.18	.18	1.2	1.8	.21	.23	.15
10	21	.19	.18	.18	.18	.18	.18	1.1	.46	.21	1.1	.14
11	37	.18	.18	.18	.18	.18	.18	.49	.29	.21	.19	.12
12	30	.18	.18	.18	.18	.18	.18	.69	.24	.20	.13	.12
13	23	.18	.18	.18	.18	.18	.17	8.2	.22	.18	.11	.12
14	31	.20	.21	.18	.18	.18	.15	4.1	.20	.16	.09	.12
15	28	.20	.21	.18	.18	.18	.16	1.5	.19	.12	10	.12
16	26	.21	.21	.18	.18	.18	.18	.71	.18	.12	.83	.12
17	27	.21	.21	.18	.18	.18	.17	.65	.18	.12	.20	.14
18	20	.21	.21	.18	.18	.26	.16	.53	.18	.12	.14	.12
19	17	.19	.21	.18	.18	.23	.18	.79	.16	.13	.12	.12
20	15	.20	.21	.18	.18	.21	.18	.45	.36	9.5	.09	.13
21	14	.18	.21	.18	.18	.21	.17	.28	1.3	2.1	.09	.13
22	13	.18	.21	.18	.18	.21	.15	.22	.26	.34	129	.14
23	7.0	.18	.21	.16	.20	.21	.15	.18	4.2	.18	172	.12
24	2.5	.18	.21	.15	.21	.21	.15	.16	2.1	.13	22	.08
25	1.1	.18	.21	.15	.21	.21	.15	.16	.23	.15	9.1	.08
26	.58	.18	.21	.15	.21	.19	.15	.19	.18	.18	5.9	.09
27	.32	.18	.21	.15	.21	.18	.15	.19	.20	.14	9.2	.10
28	.26	.18	.18	.16	.19	.18	.15	.20	.21	.11	10	1.6
29	.25	.18	.18	.18	---	.18	.15	.18	.20	.06	6.3	2.0
30	.21	.18	.18	.18	---	.21	.15	.18	.15	.06	4.0	2.6
31	.21	---	.18	.20	---	.21	---	.19	---	.06	2.5	---
TOTAL	495.43	5.72	6.00	5.44	5.28	5.96	5.16	28.12	50.81	164.88	386.79	21.50
MEAN	16.0	.19	.19	.18	.19	.19	.17	.91	1.69	5.32	12.5	.72
MAX	37	.21	.21	.20	.22	.26	.21	8.2	18	78	172	9.4
MIN	.21	.18	.18	.15	.18	.18	.15	.15	.15	.06	.06	.08
AC-FT	983	11	12	11	10	12	10	56	101	327	767	43
CAL YR 1985	TOTAL	1118.49		MEAN	3.06	MAX	37	MIN	.09	AC-FT	2220	
WTR YR 1986	TOTAL	1181.09		MEAN	3.24	MAX	172	MIN	.06	AC-FT	2340	

## ARKANSAS RIVER BASIN

07126200 VAN BREMER ARROYO NEAR MODEL, CO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1983 to current year.

REMARKS.--Daily water-quality data for specific conductance and water temperature will be published in a subsequent report.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (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)
MAR									
13...	1130	0.18	1860	8.2	8.0	9.6	730	160	81
MAY									
22...	1420	0.20	1570	7.9	19.0	7.8	570	130	59
JUN									
03...	1815	7.6	--	--	--	--	500	110	54
JUL									
31...	1300	0.05	1490	7.6	25.0	--	610	150	57
AUG									
23...	2145	61	580	--	16.5	--	180	44	16
SEP									
30...	1045	1.5	3720	8.2	14.0	8.3	1100	190	160

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 SI02)
MAR								
13...	160	3	11	144	800	34	1.4	5.6
MAY								
22...	130	2	11	199	610	40	0.60	6.0
JUN								
03...	180	4	8.8	101	620	63	0.40	6.6
JUL								
31...	100	2	9.9	223	590	21	0.80	9.9
AUG								
23...	56	2	7.0	83	200	20	0.50	5.8
SEP								
30...	490	6	12	207	1700	180	0.60	5.5

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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
13...	1580	1300	2.1	0.77	<0.100	<0.010	37	120
MAY								
22...	1190	1100	1.6	0.64	<0.100	<0.010	53	120
JUN								
03...	1240	1100	1.7	25	1.40	0.020	44	12
JUL								
31...	1130	1100	1.5	0.15	<0.100	0.050	110	230
AUG								
23...	416	400	0.57	69	0.460	0.080	97	26
SEP								
30...	3100	2900	4.2	13	<0.100	0.060	30	50

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.--1,791 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1966 to current year.

REVISED RECORDS.--WDR-CO-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,790 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 16-21, Nov.30 to Dec. 11, Dec. 25 to Jan. 9, Jan. 16-29, and Feb. 7-11. Records good except those for estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 30,000 acres. Peak flows regulated to some extent by Trinidad Dam, 52 mi upstream, since January 1975.

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; 10 years (water years 1977-86), 82.0 ft<sup>3</sup>/s 59,410 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, on the basis of two slope-area measurements of peak flow; 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 18, 1965, reached a stage of 23.5 ft, from floodmarks, discharge, 47,700 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,640 ft<sup>3</sup>/s, at 0845 Aug. 15, gage height, 8.70 ft; minimum daily, 6.1 ft<sup>3</sup>/s, May 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	66	25	38	29	23	17	6.1	123	18	25	99
2	55	94	25	31	28	23	17	38	1820	549	24	398
3	59	63	27	31	28	23	19	37	766	64	26	131
4	57	51	31	35	28	23	23	27	323	26	65	78
5	58	46	33	31	27	24	34	13	368	19	78	60
6	57	45	35	24	27	23	28	9.1	160	19	56	55
7	58	43	32	21	26	22	24	7.2	94	21	41	54
8	49	43	34	20	23	21	22	13	301	23	32	72
9	95	41	26	19	20	21	20	12	504	21	114	64
10	159	39	21	25	17	21	19	14	194	21	54	54
11	304	38	19	34	17	20	18	16	152	21	35	54
12	161	36	18	36	20	20	17	12	116	18	28	52
13	88	39	20	38	23	21	15	13	76	28	27	55
14	277	42	22	46	34	22	13	20	59	46	36	43
15	125	43	24	37	45	23	12	9.5	55	32	778	40
16	94	46	27	39	40	23	11	7.5	47	26	197	36
17	84	46	30	38	34	21	11	12	36	21	101	31
18	76	50	30	38	29	21	11	27	24	19	76	27
19	70	45	31	39	27	21	13	45	22	29	61	25
20	66	37	30	34	26	23	19	36	20	348	45	28
21	64	36	36	32	25	23	27	15	53	702	304	32
22	63	36	36	34	24	23	20	11	22	167	376	34
23	56	36	36	31	24	23	14	10	20	103	847	36
24	50	35	38	28	24	21	12	7.5	135	80	176	29
25	48	36	36	28	24	20	9.8	7.8	87	53	103	28
26	46	36	31	27	24	19	8.2	9.1	29	162	94	26
27	46	37	33	25	23	19	13	8.2	41	47	100	26
28	45	37	30	25	23	19	9.1	7.2	25	31	114	27
29	44	36	31	28	---	18	8.2	8.2	16	24	102	31
30	44	28	32	28	---	18	6.7	8.8	13	14	76	38
31	44	---	38	28	---	18	---	26	---	9.8	56	---
TOTAL	2605	1306	917	968	739	660	491.0	493.2	5701	2761.8	4247	1763
MEAN	84.0	43.5	29.6	31.2	26.4	21.3	16.4	15.9	190	89.1	137	58.8
MAX	304	94	38	46	45	24	34	45	1820	702	847	398
MIN	44	28	18	19	17	18	6.7	6.1	13	9.8	24	25
AC-FT	5170	2590	1820	1920	1470	1310	974	978	11310	5480	8420	3500
CAL YR 1985	TOTAL	17830	MEAN	48.8	MAX	1060	MIN	15	AC-FT	35370		
WTR YR 1986	TOTAL	22652.0	MEAN	62.1	MAX	1820	MIN	6.1	AC-FT	44930		

ARKANSAS RIVER BASIN

07126300 PURGATOIRE RIVER NEAR THATCHER, CO.--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1982 to current year

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1982 to current year.  
 WATER TEMPERATURE: December 1982 to current year.  
 SUSPENDED SEDIMENT DISCHARGE: May 1983 to current year.

INSTRUMENTATION.--Water-quality monitor since December 1982. Pumping sediment sampler since May 1983.

REMARKS.--Daily specific conductance, water temperature and sediment discharge for water year 1986 will be published in a subsequent report.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,810 microsiemens Dec. 21 1983; minimum daily, 530 microsiemens Apr. 8, 1984.  
 WATER TEMPERATURE: Maximum, 31.0° C Aug. 15, 1984; minimum, 0.0° C on many days during winter months.  
 SEDIMENT CONCENTRATION: Maximum daily, 34,500 mg/L (estimated) May 22, 1985; minimum daily, 25 mg/L July 23-24, 1983.  
 SEDIMENT LOAD: Maximum daily, 250,000 tons June 6, 1983; minimum daily, 0.74 tons July 7, 1984.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Daily water-quality data for water year 1986 will be published in a subsequent report.  
 TEMPERATURE:  
 SEDIMENT CONCENTRATION:  
 SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L CaCO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN 08...	1300	21	3610	--	0.0	12.0	1900	350	250	260
MAR 12...	1240	21	3310	--	10.0	10.1	1300	150	230	260
MAY 21...	1355	17	2780	7.9	19.0	8.7	1300	250	170	210
JUN 03...	1430	672	1090	--	18.0	--	430	93	48	72
JUN 04...	1500	184	1520	--	16.0	--	580	120	67	96
JUN 09...	1700	424	1140	7.4	15.0	--	440	110	40	59
JUL 21...	1500	317	1460	8.0	18.0	--	660	160	64	92
JUL 29...	1300	25	2120	8.4	24.0	8.0	970	190	120	140
AUG 21...	1930	287	--	--	--	--	470	120	42	62
AUG 22...	1320	480	1630	--	--	--	680	160	67	98
AUG 23...	1400	546	870	--	--	--	320	85	27	43
AUG 23...	1830	409	970	--	--	--	380	98	32	47
SEP 02...	1800	280	830	--	19.0	--	280	73	24	45

DATE	SODIUM AD-SORPTION 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 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
JAN 08...	3	5.8	240	2200	34	0.50	8.5	3500	3300	4.8
MAR 12...	3	4.7	196	2000	40	0.60	5.4	3250	2800	4.4
MAY 21...	3	5.5	175	1500	28	0.50	8.1	2570	2300	3.5
JUN 03...	2	3.9	114	430	11	0.30	12	826	740	1.1
JUN 04...	2	4.7	127	590	12	0.50	13	1130	980	1.5
JUN 09...	1	3.8	118	470	6.9	0.40	11	818	770	1.1
JUL 21...	2	5.5	110	750	8.4	0.40	6.7	1270	1200	1.7
JUL 29...	2	6.9	163	1100	24	0.40	9.5	1790	1700	2.4
AUG 21...	1	5.7	76	520	7.3	0.20	8.6	880	810	1.2
AUG 22...	2	5.9	141	760	18	0.50	8.0	1290	1200	1.8
AUG 23...	1	5.0	61	390	7.6	0.30	6.3	623	600	0.85
AUG 23...	1	5.2	66	420	7.8	0.30	6.5	695	660	0.95
SEP 02...	1	4.6	120	330	14	0.40	7.2	516	570	0.70

ARKANSAS RIVER BASIN

257

07126300 PURGATOIRE RIVER NEAR THATCHER, CO.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	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)	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)
JAN 08...	196	40	0.530	0.090	<0.010	<1	<10	4	450
MAR 12...	187	18	<0.100	<0.010	<0.010	<1	10	2	230
MAY 21...	116	--	<0.100	<0.010	--	--	--	--	--
JUN 03...	1500	5380	0.400	0.030	<0.050	<1	<10	180	130000
JUN 04...	561	--	0.350	0.020	--	--	--	--	--
JUN 09...	936	21800	0.370	0.020	<0.050	<1	<10	350	290000
JUL 21...	1090	6100	0.520	0.020	<0.030	<1	<10	210	270000
JUL 29...	121	152	0.130	0.010	<0.010	<1	<10	10	40
AUG 21...	682	--	0.510	0.020	--	--	--	--	--
AUG 22...	1670	--	0.340	0.020	--	--	--	--	--
AUG 23...	918	--	0.500	0.010	--	--	--	--	--
AUG 23...	767	--	0.450	0.010	--	--	--	--	--
SEP 02...	390	--	0.460	0.020	--	--	--	--	--

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)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	GROSS ALPHA, TOTAL DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)
JAN 08...	120	1	80	60	30	--	--	--	--
MAR 12...	60	2	40	30	30	38	<0.4	5.4	1.0
MAY 21...	30	--	--	20	--	--	--	--	--
JUN 03...	17	83	3000	9	540	--	--	--	--
JUN 04...	23	--	--	<1	--	--	--	--	--
JUN 09...	30	50	6200	2	1500	--	--	--	--
JUL 21...	15	<5	4900	14	1300	--	--	--	--
JUL 29...	30	8	90	10	40	--	--	--	--
AUG 21...	24	--	--	3	--	--	--	--	--
AUG 22...	20	--	--	<1	--	--	--	--	--
AUG 23...	24	--	--	5	--	--	--	--	--
AUG 23...	78	--	--	2	--	--	--	--	--
SEP 02...	--	--	--	14	--	--	--	--	--

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

## ARKANSAS RIVER BASIN

07126320 BURKE ARROYO TRIBUTARY NEAR THATCHER, CO.

LOCATION.--Lat 38°28'35", long 103°58'06", in SW¼SW¼ Sec.13, T.30 S., R.59 W., Las Animas County, Hydrologic Unit 11020010, on right bank, 0.3 mi southwest of mouth, 1.9 mi southwest of Rock Crossing.

DRAINAGE AREA.--4.66 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,108 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. This stream flows as a result of storm events only.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 120 ft<sup>3</sup>/s, Aug. 22, 1984, gage height, 6.85 ft; no flow most of the time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3.0 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 1	1615	4.6	5.15	Aug. 22	2030	12	5.37
June 2	0845	3.8	5.13	Aug. 31	1845	3.5	5.11
Aug. 2	1415	*56	*6.06				

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.71	.00	.00	.22
2	.00	.00	.00	.00	.00	.00	.00	.00	.48	.00	2.4	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.36	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	1.20	.28	3.90	.22
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.04	.01	.13	.01
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.71	.14	2.4	.22
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	2.4	.6	7.7	.4
CAL YR 1985	TOTAL	.00	MEAN	.00	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1986	TOTAL	5.60	MEAN	.01	MAX	2.4	MIN	.00	AC-FT	11		

07126320 BURKE ARROYO TRIBUTARY NEAR THATCHER, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1983 to current year

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: May 1983 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since May 1983.

REMARKS.--Daily sediment data for water year 1986 will be published in a subsequent report. Daily water-quality data for specific conductance and temperature will be published in a subsequent report.

EXTREMES FOR PERIOD OF RECORD.--

SEDIMENT CONCENTRATION: Maximum daily, 1,070 mg/L Aug. 22, 1984; no flow most of time.

SEDIMENT LOAD: Maximum daily, 87 tons Aug. 22, 1984; no flow most of time.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Daily sediment data for water year 1986 will be published in a subsequent report.

SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	HARDNESS (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)
JUN											
01...	1545	0.48	52	17	2.2	0.70	0.0	6.7	--	27	0.70
01...	1600	3.2	61	20	2.6	6.6	0.4	4.6	57	27	0.30
01...	1630	4.3	57	19	2.3	0.70	0.0	4.4	76	21	1.2
01...	1745	1.2	70	23	3.0	1.0	0.0	4.5	75	36	0.50

DATE	FLUORIDE, 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 CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)
JUN										
01...	0.10	7.9	--	--	--	--	0.150	0.130	--	5
01...	0.10	5.2	92	100	0.13	0.79	0.170	0.080	34	<1
01...	0.20	5.9	105	100	0.14	1.2	0.110	0.080	73	<1
01...	0.20	6.8	110	120	0.15	0.36	0.120	0.070	130	<1



ARKANSAS RIVER BASIN

07126325 TAYLOR ARROYO BELOW ROCK CROSSING, NEAR THATCHER, CO

LOCATION.--Lat 37°25'26", long 103°55'09", in SE1/4 sec.17, T.30 S., R.58 W., Las Animas County, Hydrologic Unit 11010010, on left bank 5 mi upstream from mouth, 1.6 mi southeast of Rock Crossing, and 13.5 mi southeast of Thatcher.

DRAINAGE AREA.--48.4 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,982 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 31 to Aug. 4. Records good except for estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 761 ft<sup>3</sup>/s Aug. 21, 1984, gage height, 7.94 ft, result of slope-area measurement of peak flow; no flow most of the time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5.0 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 1	0615	12	4.10	July 20	1800	5.2	3.95
June 2	1300	53	4.65	Aug. 2	a 1630	87	4.92
June 2	2030	*315	*6.40	Aug. 3	a 1900	22	4.30
June 8	1700	36	4.48	Aug. 22	2345	25	4.35
June 23	1900	9.8	4.08	Sept. 1	0200	57	4.68

No flow most of time.  
a-About

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	2.9	.00	.00	8.8
2	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	8.5	.22
3	.00	.00	.00	.00	.00	.00	.00	.00	3.5	.00	1.5	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.22	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	2.9	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	1.3	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.79	.00	2.6	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.23	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.11	.00	.00	.00	.00	.00	.00	.00	28.65	2.77	14.37	9.02
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.95	.09	.46	.30
MAX	.07	.00	.00	.00	.00	.00	.00	.00	18	2.0	8.5	8.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.2	.00	.00	.00	.00	.00	.00	.00	57	5.5	29	18

CAL YR 1985	TOTAL	22.50	MEAN	.06	MAX	8.3	MIN	.00	AC-FT	45
WTR YR 1986	TOTAL	54.92	MEAN	.15	MAX	18	MIN	.00	AC-FT	109

07126325 TAYLOR ARROYO BELOW ROCK CROSSING NEAR THATCHER, CO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1983 to current year.

PERIOD OF DAILY RECORD.--March 1983 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since Aug. 5, 1983.

REMARKS.--Records are fair with no flow most of time. Daily water-quality data for specific conductance, temperature and sediment will be published in a subsequent report.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily, 15,300 mg/L Aug. 22, 1984; no flow most of time.

SEDIMENT LOAD: Maximum daily, 2,400 tons Aug. 22, 1984; no flow most of time.

EXTREMES FOR CURRENT YEAR ---

SEDIMENT CONCENTRATION: Daily sediment data for water year 1986 will be published in a subsequent report.

SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (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)	SULFATE DIS- SOLVED (MG/L AS SO4)
JUN												
01...	0945	6.4	--	--	56	19	2.0	2.8	0.2	3.0	65	30
01...	1110	3.2	--	--	62	21	2.2	3.2	0.2	3.1	32	35
01...	1415	4.9	--	--	62	21	2.2	3.0	0.2	3.0	59	33
02...	1200	3.2	--	--	94	32	3.4	4.3	0.2	3.4	61	54
02...	1245	39	--	--	100	34	3.6	4.5	0.2	3.5	70	54
02...	1300	53	--	--	110	39	4.2	5.3	0.2	3.9	51	68
02...	1430	37	--	--	640	180	46	49	0.9	8.8	88	640
02...	1930	9.8	--	--	760	220	51	47	0.8	8.5	66	710
02...	2010	311	--	--	760	220	51	45	0.7	8.5	90	690
02...	2025	311	--	--	700	210	42	36	0.6	8.9	101	640
02...	2330	49	--	--	540	170	29	30	0.6	7.3	49	520
03...	1045	2.2	--	--	610	190	32	31	0.6	7.9	53	560
04...	1030	0.17	--	--	600	190	31	31	0.6	7.9	54	620
JUL												
21...	1215	1.8	335	23.5	130	44	5.9	4.8	0.2	6.7	79	83

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JUN											
01...	1.4	0.20	3.6	95	100	0.13	1.6	0.600	0.040	78	6
01...	1.7	0.20	3.6	97	89	0.13	0.84	0.740	0.050	50	5
01...	1.8	0.20	3.9	106	100	0.14	1.4	0.770	0.040	85	7
02...	2.7	0.20	5.4	145	140	0.20	1.3	1.10	0.040	35	2
02...	2.5	0.20	5.8	155	150	0.21	16	1.10	0.040	76	6
02...	2.9	0.20	5.6	100	160	0.14	14	1.10	0.030	18	5
02...	3.6	0.40	5.2	1110	990	1.5	111	1.10	0.010	12	3
02...	2.2	0.50	5.9	1250	1100	1.7	33	0.760	0.010	9	<1
02...	2.2	0.50	6.1	1200	1100	1.6	1010	0.710	0.010	17	5
02...	2.1	0.50	6.3	1120	1000	1.5	940	0.700	0.010	24	2
02...	1.9	0.40	5.9	917	790	1.2	121	0.550	0.010	10	<1
03...	2.3	0.50	7.0	1000	860	1.4	5.9	0.630	0.020	10	3
04...	2.7	0.50	7.5	982	920	1.3	0.45	0.620	0.010	46	8
JUL											
21...	1.9	0.20	5.4	196	200	0.27	0.95	0.260	0.030	19	4

ARKANSAS RIVER BASIN

07126390 LOCKWOOD CANYON CREEK NEAR THATCHER, CO

LOCATION.--Lat 37°29'40", long 103°50'12", in SE¼NW¼ sec.30, T.29 S., R.57 W., Las Animas County, Hydrologic Unit 11020010, on right bank, 0.4 mi downstream from Sharp Ranch, 5.5 mi upstream from mouth, and 16 mi southeast of Thatcher.

DRAINAGE AREA.--41.4 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,815 ft above National Geodetic Vertical Datum of 1929, from topographic map

REMARKS.--Estimated daily discharges: Dec. 8-18 and Jan. 9-22. Records fair except those for periods of estimated daily discharges and those above about 10 ft<sup>3</sup>/s, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2.0 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 8	2100	41	5.96	Aug. 23	0530	6.4	4.93
Aug. 13	0915	4.9	4.83	Aug. 31	2300	a*563	b*9.42

No flow many days.

a-On basis of slope-area measurement of peak flow.

b-From floodmark.

REVISIONS.--The peak discharges and annual maximum (\*) for water years 1983-84 and revised daily discharges, in cubic feet per second, for highwater periods in these years, are given below. These figures supersede those published in the report for 1985.

PEAK DISCHARGES

WATER YEAR	DATE	DISCHARGE (ft <sup>3</sup> /s)	GAGEHEIGHT (ft)
1983	Apr. 22, 1983	*365	*8.56
	June 27	29	5.68
	Aug. 13	2.7	4.64
1984	Mar. 31, 1984	71	6.38
	Aug. 22	*252	*7.93

DAILY DISCHARGES

Apr. 22, 1983.....	122	Aug. 13, 1983.....	0.38
23.....	82	14.....	0.36
24.....	5.5	Mar. 30, 1984.....	2.5
June 26, 1983.....	1.2	31.....	14
27.....	2.1	Aug. 22, 1984.....	15
28.....	2.9	23.....	2.9

	TOTAL	MEAN	MAX	MIN
June 1983	12.78	0.43	3.0	0.02
August 1983	1.05	.03	.38	0
March 1984	26.37	.85	14	.02
August 1984	18.10	.58	15	0
Wtr Yr 1984	69.97	.19	15	0

07126390 LOCKWOOD CANYON CREEK NEAR THATCHER, CO--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.28	.01	.01	.01	.02	.03	.02	.16	.00	.00	16
2	.00	.32	.01	.01	.01	.02	.03	.02	.18	.00	.00	.08
3	.00	.11	.01	.02	.01	.02	.03	.02	.05	.00	.00	.02
4	.00	.01	.01	.01	.01	.02	.06	.02	.03	.00	.00	.02
5	.00	.01	.01	.01	.01	.02	.05	.01	.02	.00	.00	.02
6	.00	.01	.01	.01	.01	.02	.04	.01	.02	.00	.00	.02
7	.00	.01	.01	.01	.02	.02	.03	.01	.02	.00	.00	.02
8	.00	.01	.01	.01	.02	.02	.02	.01	4.6	.00	.00	.02
9	.00	.02	.01	.01	.02	.02	.02	.01	3.7	.00	.00	.02
10	.01	.03	.01	.01	.02	.02	.02	.01	.41	.00	.00	.02
11	.03	.01	.01	.01	.02	.03	.02	.01	.12	.00	.00	.02
12	.01	.01	.01	.01	.02	.03	.02	.01	.06	.00	.00	.02
13	.01	.01	.01	.01	.02	.02	.02	.01	.04	.00	.87	.02
14	.03	.03	.01	.01	.00	.02	.02	.00	.02	.00	.13	.02
15	.02	.02	.01	.01	.00	.02	.02	.00	.02	.00	.08	.02
16	.01	.02	.01	.01	.01	.02	.02	.00	.01	.00	.05	.02
17	.04	.02	.01	.01	.01	.02	.02	.01	.00	.00	.03	.02
18	.07	.02	.01	.01	.01	.04	.02	.01	.00	.00	.02	.02
19	.09	.01	.01	.01	.01	.03	.02	.01	.00	.00	.00	.02
20	.10	.01	.01	.01	.04	.03	.02	.01	.00	.02	.00	.02
21	.10	.01	.01	.01	.04	.03	.02	.01	.00	.06	.00	.02
22	.12	.01	.01	.01	.01	.03	.02	.00	.00	.06	.05	.02
23	.12	.01	.01	.01	.01	.03	.02	.00	.01	.04	1.2	.02
24	.12	.01	.01	.01	.01	.03	.02	.01	.01	.01	.16	.03
25	.12	.01	.01	.01	.02	.04	.02	.01	.01	.00	.12	.02
26	.12	.01	.02	.01	.01	.04	.02	.01	.01	.00	.13	.02
27	.13	.01	.02	.01	.01	.04	.03	.01	.01	.00	.15	.02
28	.14	.01	.01	.01	.01	.04	.02	.01	.00	.00	.12	.02
29	.14	.01	.02	.01	---	.04	.02	.02	.00	.00	.11	.02
30	.14	.01	.02	.01	---	.04	.02	.02	.00	.00	.12	.02
31	.15	---	.02	.01	---	.03	---	.02	---	.00	16	---
TOTAL	1.82	1.07	.36	.32	.40	.85	.74	.33	9.51	.19	19.34	16.65
MEAN	.06	.04	.01	.01	.01	.03	.02	.01	.32	.01	.62	.55
MAX	.15	.32	.02	.02	.04	.04	.06	.02	4.6	.06	.16	.16
MIN	.00	.01	.01	.01	.00	.02	.02	.00	.00	.00	.00	.02
AC-FT	3.6	2.1	.7	.6	.8	1.7	1.5	.6	19	.4	38	33
CAL YR 1985	TOTAL	8.03		MEAN	.02	MAX	.32	MIN	.00	AC-FT	16	
WTR YR 1986	TOTAL	51.58		MEAN	.14	MAX	16	MIN	.00	AC-FT	102	

## ARKANSAS RIVER BASIN

07126390 LOCKWOOD CANYON CREEK NEAR THATCHER, CO--Continued

## WATER-QUALITY RECORD

PERIOD OF RECORD.--June 1983 to current year.

REMARKS.--Daily water-quality data for specific conductance and water temperature will be published in a subsequent report.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE WATER (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)	SULFATE DIS- SOLVED (MG/L AS SO4)
JUN											
08...	1620	1.8	--	1000	230	110	140	2	9.7	71	1300
08...	1740	1.6	20.0	1200	280	130	170	2	9.9	116	1500
08...	1815	0.89	--	1300	300	140	220	3	10	124	1600
09...	1055	1.8	11.0	200	59	12	17	0.5	5.8	76	180

DATE	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, 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)
JUN											
08...	21	0.50	1.6	2110	1900	2.9	10	0.200	0.050	50	210
08...	26	0.60	18	2320	2200	3.2	10	0.110	0.020	60	170
08...	25	0.60	2.0	2580	2400	3.5	6.2	0.100	0.020	70	220
09...	3.3	0.20	5.4	322	330	0.44	1.6	0.430	0.050	40	40

ARKANSAS RIVER BASIN

07126415 RED ROCK CANYON CREEK AT MOUTH NEAR THATCHER, CO

LOCATION.--Lat 37°30'54", long 103°43'25", in NW¼SE¼ sec.18, T.29 S., R.56 W., Las Animas County, Hydrologic Unit 11020010, on left bank, 200 ft downstream from Welsh Canyon, 0.3 mi upstream from mouth, and 21 mi east of Thatcher.

DRAINAGE AREA.--48.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,510 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharge: Aug. 12-27. Records fair except those below 3 ft³/s and those between 10 ft³/s and 300 ft³/s and those for period of estimated daily discharge, which are poor. Records for specific conductance and water temperature will be published in subsequent reports.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,510 ft³/s, Aug. 22, 1986, gage height, 10.02 ft, from floodmark, result of slope-area measurement of peak flow; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5.0 ft³/s, and maximum (\*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
July 1	2215	695	8.19	Aug. 2	1815	859	b8.52
July 19	2115	271	7.17	Aug. 22	1900	*a1,510	*b10.02
July 20	1730	131	6.63	Sept. 4	1600	208	6.95

No flow most of time.

a-From slope-area measurement of peak flow.

b-From floodmarks

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.37	2.3	69	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	36	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	9.1
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.13
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	30	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.7	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	90	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.37	46.67	250.22	9.23
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.01	1.51	8.07	.31
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.37	21	90	9.1
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.7	93	496	18

CAL YR 1985	TOTAL	3.98	MEAN	.01	MAX	2.7	MIN	.00	AC-FT	7.9
WTR YR 1986	TOTAL	306.49	MEAN	.84	MAX	90	MIN	.00	AC-FT	608

ARKANSAS RIVER BASIN

07126470 CHACUACO CREEK AT MOUTH NEAR TIMPAS, CO

LOCATION.--Lat 37°32'38", long 103°37'54", in SE¼SE¼ Sec. 1, T. 28 S., R. 56 W., Las Animas County, Hydrologic Unit 11020010, at Red Rocks Ranch, 1.5 mi upstream of mouth, 3.3 mi upstream from Bent Canyon Creek, and 21 mi southeast of Timpas.

DRAINAGE AREA.--424 mi<sup>2</sup>

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to current year.

REVISED RECORDS.--WDR CO-85-1: 1984(M).

GAGE.--Water-stage recorder. Elevation of gage is 4,350 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: May 4-5, June 5, July 22, Aug. 24-25, and Sept. 6. Records good except for estimated daily discharges, which are fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 19, 1955, and June 17, 1965, reached discharges of 3,170 ft<sup>3</sup>/s, and 38,900 ft<sup>3</sup>/s, respectively, at a different site, from slope-area measurements of peak flows.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,840 ft<sup>3</sup>/s, Aug. 2, 1984, gage height, 9.16 ft from rating curve based on four slope area measurements of peak flow; maximum gage height, 9.70 ft, May 2, 1986 (backwater from debris); no flow most of the time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 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 2	0230	*1,490	*a9.70	July 20	1800	499	6.31
June 2	2115	684	a6.99	Aug. 2	2045	345	5.65
June 3	0115	204	5.07	Aug. 7	2400	105	4.64
June 3	1215	214	5.10	Sept. 4	1815	348	5.67

a-from floodmark.  
No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	304	57	.00	44	.00
3	.00	.00	.00	.00	.00	.00	.00	24	106	.00	30	.00
4	.00	.00	.00	.00	.00	.00	.00	2.4	18	.00	5.5	34
5	.00	.00	.00	.00	.00	.00	.00	.01	1.4	.00	.00	7.7
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.55	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	4.4	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	8.9	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	47	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.3	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.5	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	330.41	195.75	52.34	112.68	41.74
MEAN	.00	.00	.00	.00	.00	.00	.00	10.7	6.52	1.69	3.63	1.39
MAX	.00	.00	.00	.00	.00	.00	.00	304	106	47	44	34
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	655	388	104	224	83
CAL YR 1985	TOTAL	277.26	MEAN	.76	MAX	106	MIN	.00	AC-FT	550		
WTR YR 1986	TOTAL	732.92	MEAN	2.01	MAX	304	MIN	.00	AC-FT	1450		

ARKANSAS RIVER BASIN

07126470 CHACAUCO CREEK NEAR MOUTH NEAR TIMPAS, CO

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1983 to current year.

PERIOD OF DAILY RECORD.-- SUSPENDED SEDIMENT DISCHARGE: June 1983 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since June 1983.

REMARKS.--Daily sediment data for water year 1986 will be published in a subsequent report. No flow for most of year. Daily water-quality data for specific conductance and water temperature will be published in a subsequent report.

EXTREMES FOR PERIOD OF DAILY RECORD.-- SEDIMENT CONCENTRATION: Maximum daily, 5,820 mg/l July 24, 1985; minimum daily no flow most of time. SEDIMENT LOAD: Maximum daily, 7,020 tons Aug. 2, 1984; minimum daily, no flow most of time.

EXTREMES FOR CURRENT YEAR.-- SEDIMENT CONCENTRATION: Daily sediment data for water year 1986 will be published in a subsequent report. SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Table with columns: DATE, TIME, STREAM-FLOW, INSTANTANEOUS, SPE-CIFIC CONDUCTANCE, PH, TEMPERATURE, OXYGEN, HARDNESS, CALCIUM, MAGNESIUM, SODIUM. Rows for MAY 02, JUN 05, JUL 21.

Table with columns: DATE, SODIUM AD-SORPTION RATIO, POTASSIUM, ALKALINITY, SULFATE, CHLORIDE, FLUORIDE, SILICA, SOLIDS RESIDUE AT 180 DEG C, SOLIDS CONSTITUENTS, SOLIDS. Rows for MAY 02, JUN 05, JUL 21.

Table with columns: DATE, SOLIDS DIS-SOLVED, SOLIDS RESIDUE AT 105 DEG C, NITROGEN, PHOSPHORUS, CYANIDE, CADMIUM, CHROMIUM, COPPER, IRON. Rows for MAY 02, JUN 05, JUL 21.

Table with columns: DATE, IRON DIS-SOLVED, LEAD TOTAL RECOVERABLE, MANGANESE TOTAL RECOVERABLE, MANGANESE DIS-SOLVED, ZINC RECOVERABLE, GROSS ALPHA, GROSS ALPHA, GROSS BETA, GROSS BETA. Rows for MAY 02, JUN 05, JUL 21.



ARKANSAS RIVER BASIN

07126480 BENT CANYON CREEK AT MOUTH NEAR TIMPAS, CO

LOCATION.-- Lat 37°35'19", long 103°38'51", in SE¼SE¼ sec.23, T.28 S., R.65 W., Las Animas County, Hydrologic Unit 11020010, on left bank 0.5 mi upstream from mouth, 0.6 mi southwest of Rourke Ranch house, 0.9 mi upstream from Iron Canyon, and 17 mi southeast of Timpas.

DRAINAGE AREA.--56.2 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,402 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair. This stream flows only from storm events.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,640 ft<sup>3</sup>/s, Aug. 21, 1984, gage height, 12.56 ft, from floodmark, result of slope-area measurement of peak flow; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge 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)
July 1	2130	362	7.43	Aug. 2	1845	*397	*7.60

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.1	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	7.3	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.24	7.51	.00
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.24	.00
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.1	7.3	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	15	.00
CAL YR 1985	TOTAL	.00	MEAN	.00	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1986	TOTAL	16.75	MEAN	.05	MAX	9.1	MIN	.00	AC-FT	33		

07126485 PURGATOIRE RIVER AT ROCK CROSSING NEAR TIMPAS, CO

LOCATION.--Lat 37°37'10", long 103°35'32" in NE¼SE¼ sec.10, T.28 S., R.55 W., 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.

DRAINAGE AREA.--2,635 Mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,350 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Jan. 10, Feb. 5-14 and July 26-29. Records good, except those for estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 30,000 acres. Peak flows are regulated to some extent by Trinidad Dam, 92 mi upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,290 ft<sup>3</sup>/s, Aug. 21, 1984, gage height 12.60 ft, result of slope-area measurement of peak flow; minimum daily, 6.6 ft<sup>3</sup>/s, May 28, 31, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,650 ft<sup>3</sup>/s at 2400 June 2, gage height, 11.77 ft, from rating curve extended above about 1,400 ft<sup>3</sup>/s, on the basis of slope-area measurement of peak flow; minimum daily, 6.6 ft<sup>3</sup>/s, May 28, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	39	30	29	34	27	23	9.8	21	22	14	81
2	57	63	30	31	34	26	23	362	753	366	93	311
3	50	81	31	30	34	25	20	74	1420	110	401	212
4	53	59	32	32	33	25	22	45	501	74	61	121
5	52	50	35	33	30	25	24	41	225	38	80	87
6	52	47	39	34	26	25	38	24	335	24	84	57
7	50	45	36	28	22	25	38	13	124	23	67	50
8	52	44	38	27	20	24	32	9.0	193	20	105	49
9	46	44	30	26	19	24	31	7.8	417	21	48	66
10	83	44	24	30	17	22	28	7.0	345	22	110	59
11	131	44	21	35	17	22	25	9.8	169	16	65	48
12	263	42	20	36	17	21	24	9.0	144	20	47	49
13	107	41	20	39	20	21	21	13	105	16	45	46
14	127	42	23	44	25	23	20	9.8	80	13	34	49
15	193	45	29	44	34	23	19	23	66	37	349	41
16	98	46	34	41	47	25	16	16	58	24	481	36
17	83	46	30	38	45	26	13	12	48	20	157	35
18	80	47	32	38	39	27	13	8.2	39	15	99	31
19	71	49	31	38	34	27	13	7.8	27	9.8	78	26
20	68	47	33	34	31	26	13	39	23	385	60	23
21	62	42	31	34	30	26	14	41	20	880	78	21
22	59	41	31	35	30	26	26	25	47	280	359	24
23	54	40	33	31	28	27	29	15	25	148	1000	27
24	52	42	33	33	27	27	23	9.9	20	105	383	30
25	46	41	29	34	27	27	15	9.0	108	81	159	27
26	45	41	28	34	28	26	13	7.4	71	70	99	25
27	42	41	27	31	27	25	13	6.7	39	200	87	25
28	40	41	28	29	27	24	10	6.6	39	120	92	24
29	40	41	31	33	---	24	12	7.4	38	68	97	24
30	40	36	33	32	---	24	13	7.2	23	31	89	29
31	40	---	30	33	---	22	---	6.6	---	21	68	---
TOTAL	2304	1371	932	1046	802	767	624	882.0	5523	3279.8	4989	1733
MEAN	74.3	45.7	30.1	33.7	28.6	24.7	20.8	28.5	184	106	161	57.8
MAX	263	81	39	44	47	27	38	362	1420	880	1000	311
MIN	40	36	20	26	17	21	10	6.6	20	9.8	14	21
AC-FT	4570	2720	1850	2070	1590	1520	1240	1750	10950	6510	9900	3440
CAL YR 1985	TOTAL	16892		MEAN	46.3	MAX	1070	MIN	10	AC-FT	33510	
WTR YR 1986	TOTAL	24252.8		MEAN	66.4	MAX	1420	MIN	6.6	AC-FT	48110	

WATER-QUALITY RECORDS

PERIOD OF RECORDS.--October 1982 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1983 to current year.  
 WATER TEMPERATURE: July 1983 to current year.  
 SUSPENDED SEDIMENT: August 1983 to current year.

INSTRUMENTATION.--Water-quality monitor since July 1983. Automatic pumping sediment sampler since August 1983.

REMARKS.--Daily specific conductance, water temperature and sediment discharge for water year 1986 will be published in a subsequent report.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,030 microsiemens Feb. 8, 1985; minimum daily, 534 microsiemens Aug. 24, 1984.  
 WATER TEMPERATURE: Maximum, 34.5° c Aug. 13, 14, 16, 1983; minimum 0.0° on many days during the winter in most years.  
 SEDIMENT CONCENTRATION: Maximum daily, 43,400 mg/l May 23, 1985; minimum daily, 10 mg/l Oct. 25, 1983.  
 SEDIMENT LOAD: Maximum daily, 152,000 tons May 23, 1985; minimum daily, 0.81 tons July 9, 1984.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Daily water-quality data for water year 1986 will be published in a subsequent report.  
 WATER TEMPERATURE:  
 SEDIMENT CONCENTRATION:  
 SEDIMENT LOAD:

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARDNESS (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)
NOV										
14...	1100	45	--	--	--	--	--	--	--	--
JAN										
09...	1200	9.3	3730	8.4	0.0	--	1800	340	240	260
MAR										
14...	1045	24	3300	--	7.0	10.6	1300	140	220	260
MAY										
02...	1625	211	570	--	12.0	--	220	65	15	17
23...	1035	17	3530	8.2	16.0	9.1	1600	290	210	310
JUN										
03...	1045	--	--	--	--	--	--	--	--	--
03...	1615	1100	--	7.9	19.0	--	400	95	40	58
05...	1115	174	1320	--	21.0	--	540	120	59	80
10...	1030	351	1190	7.8	21.0	--	590	150	53	69
JUL										
02...	1500	902	--	--	--	--	630	150	63	89
21...	1930	710	1120	8.2	20.0	6.8	440	100	45	66
30...	1530	31	1890	8.4	29.0	7.8	820	170	95	140
AUG										
10...	1210	--	1280	--	23.5	--	510	110	56	76
21...	2240	358	2150	--	24.0	--	850	160	110	150
21...	2330	581	2110	--	24.0	--	900	180	110	150
22...	2030	154	--	--	--	--	750	170	78	120
22...	2210	577	--	--	--	--	690	150	77	120
22...	2335	629	--	--	--	--	--	--	--	--
23...	0230	1240	1140	--	21.5	--	460	120	40	55
23...	1250	--	--	--	--	--	--	--	--	--
23...	1700	1100	606	8.2	22.0	--	230	63	18	29
SEP										
03...	1540	688	1580	--	24.0	--	810	180	88	100

07126485 PURGATOIRE RIVER AT ROCK CROSSING NEAR TIMPAS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	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 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
NOV 14...	--	--	--	--	--	--	--	--	--	--
JAN 09...	3	6.1	210	2200	35	0.40	8.5	3420	3200	4.7
MAR 14...	3	4.7	167	2100	43	0.60	3.8	3250	2900	4.4
MAY 02...	0.5	5.1	111	200	7.4	0.20	5.2	414	380	0.56
MAY 23...	3	8.8	162	2100	49	0.50	5.2	3360	3100	4.6
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUN 03...	1	4.9	122	420	11	0.30	10	735	710	1.0
JUN 05...	2	4.6	100	540	10	0.40	11	1020	880	1.4
JUN 10...	1	4.4	137	600	9.8	0.40	10	1060	980	1.4
JUL 02...	2	6.5	146	700	14	0.50	6.0	1180	1100	1.6
JUL 21...	1	5.1	141	480	6.7	0.30	6.9	822	790	1.1
JUL 30...	2	7.1	120	980	30	0.40	8.4	1640	1500	2.2
AUG 10...	2	4.9	20	560	16	0.40	6.7	954	840	1.3
AUG 21...	2	8.9	158	940	16	0.50	10	1660	1500	2.3
AUG 21...	2	7.8	159	1000	17	0.20	10	1800	1600	2.4
AUG 22...	2	6.9	165	860	17	0.40	8.7	1500	1400	2.0
AUG 22...	2	6.7	142	800	20	0.40	9.0	1440	1300	2.0
AUG 22...	--	--	--	--	--	--	--	--	--	--
AUG 23...	1	7.0	136	490	8.8	0.40	8.6	790	810	1.1
AUG 23...	--	--	--	--	--	--	--	--	--	--
AUG 23...	0.9	6.4	65	220	8.8	0.40	5.0	420	390	0.57
SEP 03...	2	5.5	130	900	12	0.30	7.7	1390	1400	1.9

DATE	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)	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)
NOV 14...	--	--	--	--	--	--	--	--	--
JAN 09...	86	36	0.590	<0.010	<0.010	<1	<10	4	550
MAR 14...	214	10	<0.100	<0.010	<0.010	1	<10	2	160
MAY 02...	236	5180	0.750	0.100	<0.040	1	<10	130	86000
MAY 23...	154	--	<0.100	<0.010	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--
JUN 03...	2180	7400	0.360	0.040	<0.010	<1	<10	110	260000
JUN 05...	479	7140	0.380	0.010	<0.050	<1	<10	180	130000
JUN 10...	1000	27000	0.600	0.020	<0.050	<1	<10	440	370000
JUL 02...	2870	287000	0.340	0.010	<0.050	<1	<10	510	410000
JUL 21...	1580	4980	0.360	0.030	<0.030	<1	<10	230	290000
JUL 30...	137	80	0.140	0.030	<0.010	<1	<10	11	1800
AUG 10...	0.0	--	0.230	0.010	--	--	--	--	--
AUG 21...	1600	--	0.290	0.250	--	--	--	--	--
AUG 21...	2820	--	0.210	0.070	--	--	--	--	--
AUG 22...	624	--	0.570	0.020	--	--	--	--	--
AUG 22...	2240	1730	0.430	0.010	--	--	--	--	--
AUG 22...	--	--	--	--	--	--	--	--	--
AUG 23...	2640	--	0.550	0.020	--	--	--	--	--
AUG 23...	--	--	--	--	--	--	--	--	--
AUG 23...	1250	--	0.440	0.010	--	--	--	--	--
SEP 03...	2580	--	0.240	0.020	--	--	--	--	--

## ARKANSAS RIVER BASIN

07126485 PURGATOIRE RIVER AT ROCK CROSSING NEAR TIMPAS, CO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	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 SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)
NOV 14...	--	--	--	--	--	--	--	--	--
JAN 09...	80	1	70	50	30	--	--	--	--
MAR 14...	80	3	50	40	20	48	<0.5	2.7	1.4
MAY 02...	21	100	2500	48	400	3.7	<0.6	5.7	<0.6
23...	30	--	--	40	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--
03...	47	160	5500	12	1300	--	--	--	--
05...	10	100	2800	<1	640	--	--	--	--
10...	25	25	7900	1	2000	--	--	--	--
JUL 02...	14	400	9800	260	1700	--	--	--	--
21...	39	<5	6000	3	1300	--	--	--	--
30...	9	6	60	7	90	--	--	--	--
AUG 10...	22	--	--	7	--	--	--	--	--
21...	40	--	--	30	--	--	--	--	--
21...	50	--	--	90	--	--	--	--	--
22...	22	--	--	2	--	--	--	--	--
22...	60	--	--	10	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
23...	10	--	--	6	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	75	--	--	4	--	--	--	--	--
SEP 03...	23	--	--	5	--	--	--	--	--

\* The minimum reporting level for Lead was changed from &lt;1 to &lt;5 during June, 1986.

ARKANSAS RIVER BASIN

273

07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO

LOCATION.--Lat 38°02'02", long 103°12'00", in NE¼SW¼ 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.--3,318 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--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.

REVISED RECORDS.--WSP 1241: 1927(M); WDR CO-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,871.84 ft above 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, higher.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 31, Jan. 5-11, Feb. 8-17, June 12-24, July 25-28, and Aug. 24-25. Records good except for estimated daily discharges, which are fair. Flow regulated to some extent since January 1975 by Trinidad Lake near Trinidad upstream. Diversions for irrigation of about 36,000 acres upstream from station.

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; 9 years (water years 1978-86), 73.6 ft<sup>3</sup>/s; 53,320 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, 2,690 ft<sup>3</sup>/s at 1800 June 3, gage height, 8.55 ft; minimum daily, 2.9 ft<sup>3</sup>/s, Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	58	30	43	16	11	7.0	6.6	7.2	23	2.9	179
2	53	54	28	42	12	10	7.0	36	12	20	3.2	549
3	58	51	32	38	10	9.7	6.8	170	1460	216	221	409
4	61	96	32	40	8.2	8.3	14	23	858	91	352	224
5	61	85	30	35	8.9	7.5	9.9	26	303	36	58	150
6	59	82	27	30	7.5	8.5	6.2	24	176	22	21	130
7	62	72	25	30	8.3	8.5	6.4	13	222	17	26	106
8	54	65	25	30	9.0	8.5	7.0	9.0	104	14	13	100
9	54	62	30	30	9.0	7.3	6.5	9.0	169	45	18	65
10	58	56	30	30	8.0	11	8.4	11	446	25	42	51
11	56	59	25	35	7.5	8.4	6.6	9.0	301	14	9.6	66
12	120	56	20	38	7.5	7.3	6.6	8.4	150	8.1	18	58
13	221	55	20	33	8.0	7.0	8.4	7.5	120	11	7.0	46
14	112	58	20	34	9.0	7.9	13	7.4	85	15	73	32
15	133	57	20	33	10	28	25	7.0	60	29	37	36
16	184	46	20	36	10	35	7.1	7.0	40	26	245	39
17	117	42	25	35	11	50	6.8	7.0	30	18	304	31
18	98	49	30	35	14	43	7.0	6.9	20	16	115	26
19	92	48	30	32	17	21	6.9	6.6	16	12	69	23
20	98	48	31	32	11	19	6.6	6.6	14	8.7	55	17
21	99	48	28	30	15	21	6.6	5.8	12	562	45	16
22	90	46	30	26	15	15	6.6	5.8	10	688	44	14
23	89	43	30	26	15	11	6.4	5.8	25	193	467	18
24	81	40	30	27	15	8.0	6.2	5.8	15	134	787	15
25	71	43	30	24	13	7.5	6.8	5.8	7.1	60	280	18
26	63	40	30	23	12	7.5	8.0	5.9	12	200	194	12
27	57	37	29	22	12	7.8	7.8	6.2	40	150	192	13
28	53	35	29	21	11	7.9	6.9	6.2	20	65	129	8.5
29	55	35	28	22	---	6.8	6.4	6.1	16	28	93	8.5
30	57	35	32	18	---	10	6.4	6.3	20	11	101	12
31	57	---	37	18	---	7.0	---	9.4	---	3.9	92	---
TOTAL	2561	1601	863	948	309.9	426.4	241.3	470.1	4770.3	2761.7	4113.7	2472.0
MEAN	82.6	53.4	27.8	30.6	11.1	13.8	8.04	15.2	159	89.1	133	82.4
MAX	221	96	37	43	17	50	25	170	1460	688	787	549
MIN	38	35	20	18	7.5	6.8	6.2	5.8	7.1	3.9	2.9	8.5
AC-FT	5080	3180	1710	1880	615	846	479	932	9460	5480	8160	4900
CAL YR 1985	TOTAL	14413.3	MEAN	39.5	MAX	707	MIN	2.9	AC-FT	28590		
WTR YR 1986	TOTAL	21538.4	MEAN	59.0	MAX	1460	MIN	2.9	AC-FT	42720		

## ARKANSAS RIVER BASIN

07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1985 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1985 to September 1986.

WATER TEMPERATURE: December 1985 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--There was no specific conductance record June 5, July 24-28, Aug. 18-25 and Sept. 6-9 and no temperature record Sept. 6-9. Records are good. Daily maximum and minimum specific conductance data available in district office.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 5,560 microsiemens Apr. 24; minimum, 420 microsiemens Sept. 2.

WATER TEMPERATURE: Maximum for period December 1985 to September 1986, 33.5°C July 13; minimum, 0.0°C many days during winter.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
NOV									
26...	1500	40	3600	8.3	4.0	11.3	0.200	0.150	--
DEC									
31...	1340	37	3640	8.1	3.0	11.8	0.400	0.080	--
JAN									
28...	1415	22	3900	8.2	7.5	--	0.300	0.090	--
FEB									
26...	1130	12	4000	8.2	12.0	12.2	<0.100	0.100	--
MAR									
25...	0945	7.5	4600	8.2	12.0	--	0.300	0.140	--
APR									
29...	1345	6.4	5180	8.1	23.5	--	<0.100	0.180	--
MAY									
28...	1015	6.2	4930	8.2	14.0	10.0	<0.100	0.250	--
JUN									
24...	1540	15	1980	8.2	26.5	6.9	0.800	0.090	--
JUL									
28...	1415	64	2010	8.2	26.5	6.2	0.500	0.130	--
AUG									
25...	1530	245	1320	8.1	25.0	7.1	0.600	0.040	0.140
SEP									
25...	0915	28	3400	8.3	12.5	9.4	0.900	0.250	--

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	3620	3870	4120	5000	5380	4330	2070	3910	1450
2			---	3510	4120	4210	5040	5220	3190	2110	4080	848
3			---	3590	4280	4360	4930	1850	2030	1940	3090	1030
4			4080	3690	4480	4510	3710	1680	986	1230	913	1830
5			3950	3860	4390	4690	3650	1700	---	1280	1020	2030
6			3850	3810	4340	4560	5000	1750	1390	1590	1510	---
7			3760	3790	4370	4530	5090	2450	1210	1590	1700	---
8			3660	3810	4460	4510	4800	3430	1440	2270	1820	---
9			3480	3920	4410	4760	4940	3770	1360	1620	2160	---
10			3660	3810	4630	4630	4370	3670	1260	1420	1620	2690
11			3990	3690	3240	4480	5110	4320	1760	2000	2680	2160
12			4100	3670	3710	4650	5180	4460	1370	2830	2630	2120
13			4090	3590	4420	4670	4720	4680	1220	2180	2800	2330
14			4390	3660	4270	4560	3920	4820	1780	2400	1550	3300
15			4360	3710	3630	3850	3050	4890	1630	1930	1720	2790
16			4230	3730	3240	2710	4510	4830	1770	1710	1960	2750
17			4040	3740	3500	2650	5000	4970	1390	2200	941	2820
18			3820	3790	3600	2390	4730	5070	1470	2490	---	3000
19			3740	3770	3690	2800	4750	5130	1500	2700	---	3090
20			3650	3730	3990	3080	5110	5180	1500	3230	---	3280
21			3610	3770	4000	2980	5220	5170	1550	1750	---	3260
22			3540	3750	3950	3100	5090	5130	1550	952	---	3280
23			3530	3730	4010	3680	5080	5170	1700	1460	---	3140
24			3520	3750	4090	4400	5270	5250	2320	---	---	3420
25			3630	3760	4130	4640	5180	5000	3740	---	---	3440
26			3610	3770	4090	5000	4800	4960	2730	---	1180	3560
27			3550	3820	4020	4960	4790	4780	2560	---	1600	3240
28			3600	3800	4150	4790	4980	4980	2340	---	1690	3990
29			3610	3790	---	4810	5160	5060	2520	2360	1680	3430
30			3550	3840	---	4240	5240	4790	2300	3030	1660	3690
31			3500	3860	---	4890	---	2740	---	3560	1590	---
MEAN				3750		4140	4780	4270				

07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1					---	---	4.5	.0	11.5	3.0	15.5	4.5
2					---	---	4.0	.5	12.5	5.0	15.5	5.5
3					---	---	3.0	.0	9.5	4.5	15.5	8.5
4					2.5	.0	2.5	.0	11.5	4.0	15.5	6.0
5					2.0	.0	1.0	.0	9.0	4.0	16.0	6.0
6					1.0	.0	2.5	.0	7.0	3.0	16.5	5.5
7					3.0	.0	3.5	.0	3.0	.5	14.5	7.0
8					3.5	.0	2.5	.0	1.0	.5	15.0	6.5
9					.5	.0	4.0	.0	.5	.5	15.5	9.5
10					.0	.0	6.0	.0	.5	.0	15.5	8.0
11					.0	.0	6.5	.0	1.0	.5	14.5	8.0
12					.0	.0	5.5	.0	.5	.5	14.5	9.0
13					.0	.0	5.5	.0	1.0	.5	13.0	7.0
14					.0	.0	6.0	.0	5.5	.5	15.5	6.5
15					.0	.0	6.5	.5	5.0	1.0	16.0	10.0
16					.0	.0	7.5	2.0	10.0	3.5	15.0	12.0
17					.0	.0	6.5	1.5	11.5	5.0	14.5	11.5
18					.0	.0	7.0	2.0	12.0	7.0	12.5	9.5
19					.0	.0	9.0	1.5	12.0	7.0	13.5	8.5
20					1.5	.0	8.0	2.0	9.0	4.0	13.0	10.0
21					4.0	.0	7.0	3.0	10.0	3.0	15.0	9.0
22					2.5	.0	5.0	.0	10.5	3.0	17.5	10.5
23					2.5	.0	6.5	.0	13.0	4.5	18.5	12.5
24					1.5	.0	7.5	2.5	15.0	4.5	19.5	13.0
25					3.5	.0	7.0	2.0	16.5	6.5	18.0	13.5
26					4.0	.0	5.5	.0	17.0	7.0	19.0	12.0
27					2.5	.0	6.5	.0	13.0	8.0	20.5	13.0
28					2.5	.0	8.0	.5	14.5	5.0	21.0	13.5
29					3.5	.0	8.5	2.5	---	---	21.0	14.5
30					4.5	.0	10.0	2.5	---	---	22.5	16.0
31					2.0	.0	11.0	5.5	---	---	21.0	16.5
MONTH							11.0	.0	17.0	.0	22.5	4.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	19.0	15.5	24.5	12.5	17.0	15.0	31.0	20.5	30.5	18.5	20.5	16.5
2	20.5	14.5	24.0	13.0	25.0	15.0	30.5	20.5	28.5	19.0	19.5	16.5
3	17.5	13.0	20.0	14.5	19.0	15.5	28.0	20.0	30.0	17.0	23.0	16.0
4	17.0	11.0	23.0	14.0	22.0	17.0	30.0	22.5	25.0	20.0	22.0	19.5
5	19.0	12.5	23.0	12.5	24.0	19.5	27.0	20.5	29.0	19.5	19.0	16.5
6	20.0	15.0	23.0	12.5	28.0	20.0	29.5	19.0	31.5	20.0	---	---
7	21.5	16.0	21.5	12.0	26.5	21.0	31.0	20.5	27.0	19.0	---	---
8	19.5	16.5	20.5	11.0	26.0	18.5	29.5	20.5	30.5	19.0	---	---
9	19.5	10.5	20.5	9.0	24.0	18.0	28.5	20.5	30.5	19.5	---	---
10	20.0	8.5	25.0	10.0	19.5	17.0	30.5	20.0	26.0	18.5	22.0	16.5
11	21.5	9.0	26.0	11.0	22.0	15.5	31.5	19.5	31.0	17.5	21.5	16.5
12	21.0	10.5	26.0	11.5	24.5	17.0	32.0	19.0	31.5	19.5	21.5	16.0
13	18.5	8.0	26.0	12.5	25.0	19.0	33.5	20.5	32.0	19.5	21.5	16.5
14	19.5	5.0	27.0	12.0	27.0	18.5	32.0	20.0	22.5	19.0	22.5	17.0
15	18.0	9.5	24.0	13.0	29.0	18.5	30.5	22.0	23.5	17.0	21.5	16.0
16	19.5	7.0	16.5	10.0	27.0	19.0	30.5	21.5	27.0	18.0	24.5	19.0
17	16.5	9.5	18.0	9.0	24.5	20.0	31.5	21.0	26.5	22.0	25.5	15.5
18	17.0	6.5	24.5	8.5	24.0	18.5	31.5	21.5	29.0	21.5	22.5	15.0
19	20.5	9.0	27.5	12.5	24.5	19.0	28.5	21.0	29.0	22.5	23.5	15.5
20	20.0	8.5	28.5	13.5	24.5	20.0	27.0	19.0	26.0	21.0	25.0	16.0
21	24.5	11.5	26.5	15.0	25.0	20.5	24.5	19.5	25.5	19.0	26.5	17.5
22	26.0	11.5	22.5	14.0	23.0	21.0	25.0	21.5	24.5	19.0	23.0	17.5
23	23.0	12.5	21.5	12.5	27.0	22.5	27.0	21.0	25.0	21.0	24.5	17.5
24	25.5	11.0	20.5	12.0	25.5	20.0	28.0	22.5	24.0	21.0	21.5	13.5
25	21.5	11.5	24.5	14.0	28.0	18.0	28.5	22.0	25.0	21.0	19.0	12.0
26	17.5	11.0	20.5	13.5	27.0	18.0	26.0	20.0	23.0	20.0	18.5	12.5
27	18.0	8.0	19.5	11.0	30.5	19.5	28.5	20.0	20.0	19.0	18.0	12.0
28	23.0	8.5	16.5	13.0	32.0	21.0	27.5	22.0	19.5	18.0	16.5	12.5
29	24.0	11.5	22.0	11.5	30.5	20.0	32.0	19.5	18.0	17.5	15.5	14.0
30	25.0	12.5	26.5	12.5	31.0	21.5	31.5	19.0	18.0	17.5	20.0	13.0
31	---	---	21.5	15.0	---	---	31.0	19.5	18.0	17.5	---	---
MONTH	26.0	5.0	28.5	8.5	32.0	15.0	33.5	19.0	32.0	17.0		



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 above National Geodetic Vertical Datum of 1929 (levels by U.S. Corps of Engineers); gage readings have been reduced to elevations below National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated contents. 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 provided 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, 337,000 acre-ft, Mar. 4, 17, elevation, 3,850.28 ft; minimum contents, 196,000 acre-ft, Aug. 23, elevation, 3,835.62 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

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277000	281000	288000	310000	326000	337000	314000	257000	216000	235000	203000	200000
2	277000	281000	288000	311000	326000	337000	312000	257000	217000	234000	201000	202000
3	277000	281000	289000	312000	327000	337000	310000	256000	219000	233000	199000	205000
4	277000	281000	289000	312000	327000	337000	307000	255000	221000	232000	200000	207000
5	277000	281000	290000	312000	327000	337000	305000	254000	222000	232000	201000	208000
6	277000	281000	291000	313000	328000	337000	302000	253000	224000	231000	201000	209000
7	276000	281000	291000	313000	328000	337000	300000	251000	225000	230000	200000	209000
8	276000	281000	292000	314000	328000	337000	297000	250000	228000	229000	200000	210000
9	276000	281000	292000	314000	329000	337000	295000	249000	232000	228000	200000	211000
10	276000	281000	293000	315000	329000	337000	293000	248000	237000	228000	199000	212000
11	277000	281000	293000	315000	329000	337000	291000	247000	241000	227000	199000	213000
12	277000	281000	293000	316000	329000	337000	288000	245000	244000	225000	199000	213000
13	277000	281000	294000	316000	330000	337000	286000	243000	247000	224000	198000	214000
14	277000	282000	294000	317000	330000	337000	285000	241000	248000	223000	199000	215000
15	278000	282000	295000	317000	331000	337000	282000	239000	249000	222000	198000	215000
16	278000	282000	296000	318000	332000	337000	281000	237000	249000	219000	198000	216000
17	279000	283000	296000	318000	332000	337000	279000	235000	249000	217000	198000	216000
18	279000	283000	297000	319000	333000	337000	277000	232000	248000	215000	198000	217000
19	279000	283000	298000	319000	334000	337000	275000	231000	247000	212000	198000	217000
20	279000	283000	299000	320000	334000	337000	273000	229000	246000	210000	197000	217000
21	280000	284000	300000	321000	335000	336000	272000	228000	245000	212000	197000	217000
22	280000	284000	302000	321000	335000	334000	270000	226000	244000	213000	196000	217000
23	280000	284000	304000	322000	336000	333000	268000	224000	243000	213000	196000	216000
24	280000	285000	305000	322000	336000	332000	266000	223000	243000	213000	197000	216000
25	280000	285000	306000	323000	336000	330000	264000	221000	242000	213000	198000	215000
26	281000	286000	306000	323000	336000	328000	263000	220000	242000	213000	198000	214000
27	280000	286000	307000	324000	336000	326000	262000	219000	241000	213000	199000	214000
28	280000	287000	308000	324000	337000	324000	261000	218000	239000	212000	199000	213000
29	281000	287000	308000	324000	---	322000	260000	217000	237000	210000	199000	213000
30	280000	288000	309000	325000	---	319000	259000	217000	236000	208000	199000	212000
31	281000	---	310000	325000	---	317000	---	216000	---	205000	200000	---
MAX	281000	288000	310000	325000	337000	337000	314000	257000	249000	235000	203000	217000
MIN	276000	281000	288000	310000	326000	317000	259000	216000	216000	205000	196000	200000
CAL YR 1985	MAX	362000	MIN	246000								
WTR YR 1986	MAX	337000	MIN	196000								

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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1938 to current year. Published as "at Caddoa" prior to October 1947.

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 above 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.--Estimated daily discharges: Nov. 16-25, and Dec. 2-4. Records good except those for periods of estimated daily discharges, which are fair. Storage diversions upstream from 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.

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; 38 years (water years 1949-86), 246 ft<sup>3</sup>/s; 178,200 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, 1,410 ft<sup>3</sup>/s at 0830 May 13, gage height, 4.49 ft; minimum daily, 2.5 ft<sup>3</sup>/s, Dec. 15-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	138	5.3	3.6	6.8	61	1270	568	443	768	1290	83
2	184	134	5.3	3.6	6.4	61	1260	562	310	777	985	82
3	168	134	5.3	3.6	5.8	70	1250	562	169	818	795	8.6
4	165	138	5.3	3.6	5.8	83	1230	564	124	849	433	6.2
5	167	143	5.3	3.6	5.8	93	1250	555	82	852	229	6.4
6	172	148	4.7	3.6	5.8	103	1240	559	14	845	229	4.6
7	172	149	4.0	3.6	5.8	122	1260	570	14	926	234	4.4
8	167	146	4.0	6.4	6.1	134	1250	579	12	945	253	4.7
9	165	146	4.0	6.7	6.3	134	1240	585	11	919	269	3.8
10	165	146	4.0	14	6.3	134	1220	586	8.3	901	269	3.2
11	165	146	3.6	9.9	5.9	134	1070	588	7.4	897	266	3.0
12	165	120	3.2	9.8	5.6	134	984	836	7.3	923	235	2.8
13	165	101	3.3	9.8	6.2	134	981	1200	7.3	920	229	3.2
14	166	99	2.9	9.8	6.3	134	983	1140	7.3	891	241	2.8
15	131	39	2.5	9.3	6.3	134	967	1120	6.3	1010	249	43
16	118	5.5	2.5	9.3	6.3	134	952	1040	127	1140	242	70
17	125	5.5	3.0	9.0	6.3	132	946	989	288	1210	245	70
18	126	5.5	3.8	8.6	6.1	134	948	983	312	1290	245	70
19	134	5.5	3.5	8.3	5.7	137	949	946	644	1310	323	118
20	133	5.5	3.6	8.1	5.8	143	949	892	842	1280	371	165
21	121	5.4	3.6	7.3	5.8	439	968	945	840	979	378	164
22	111	5.4	3.6	7.3	5.8	686	995	994	834	678	378	251
23	106	5.4	3.6	7.3	5.8	685	988	971	812	556	377	317
24	94	5.3	3.6	7.3	5.8	874	980	816	801	564	373	327
25	94	5.3	3.6	7.3	38	1020	808	802	798	534	323	329
26	94	5.3	3.6	7.3	61	826	680	805	814	516	205	339
27	94	5.3	3.6	7.3	61	997	677	800	852	517	68	348
28	124	5.3	3.6	9.1	61	1200	613	694	873	521	109	347
29	150	5.3	3.6	6.8	---	1200	565	563	873	945	123	338
30	149	5.3	3.6	6.8	---	1200	568	495	809	1300	134	324
31	145	---	3.6	6.8	---	1240	---	445	---	1340	113	---
TOTAL	4435	2007.8	118.7	224.8	365.6	12712	30041	23754	11741.9	27921	10213	3838.7
MEAN	143	66.9	3.83	7.25	13.1	410	1001	766	391	901	329	128
MAX	200	149	5.3	14	61	1240	1270	1200	873	1340	1290	348
MIN	94	5.3	2.5	3.6	5.6	61	565	445	6.3	516	68	2.8
AC-FT	8800	3980	235	446	725	25210	59590	47120	23290	55380	20260	7610
CAL YR 1985	TOTAL	168965.45		MEAN	463	MAX	2980	MIN	.95	AC-FT	335100	
WTR YR 1986	TOTAL	127373.5		MEAN	349	MAX	1340	MIN	2.5	AC-FT	252600	

## ARKANSAS RIVER BASIN

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, CO

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1985 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1985 to September 1986.

WATER TEMPERATURE: December 1985 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--There was no specific conductance record Mar. 11-23 and Sept. 4-15. Daily maximum and minimum specific conductance data available in district office.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum for period December 1985 to September 1986, 3,540 microsiemens Feb.26; minimum, 1,670 microsiemens July 24-25.

WATER TEMPERATURE: Maximum for period December 1985 to September 1986, 25.5°C Sept. 3; minimum, 1.0°C Dec. 17 and Jan. 5.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV								
26...	1215	5.3	2100	8.0	6.0	10.2	<0.100	0.280
DEC								
31...	1000	3.6	2510	7.6	4.5	9.1	0.200	0.460
JAN								
28...	1130	10	3310	7.8	6.0	--	0.800	0.480
FEB								
25...	1215	55	3280	7.7	7.5	10.6	0.400	0.430
MAR								
24...	1410	1010	2180	8.4	7.0	12.5	0.100	0.100
APR								
30...	1215	570	2200	8.3	13.0	10.6	<0.100	0.080
MAY								
28...	1230	750	2240	8.4	15.5	9.6	<0.100	0.180
JUN								
24...	1225	817	2150	8.2	19.0	9.6	<0.100	0.420
JUL								
29...	1445	1310	2140	8.1	24.0	8.4	0.300	0.110
AUG								
28...	1100	109	2100	8.2	23.0	7.9	<0.100	0.120
SEP								
25...	1530	327	2170	8.3	19.0	8.4	<0.100	0.120

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	2500	3070	3480	2110	2170	2200	2050	2110	2120
2			---	2490	3070	3470	2110	2170	2220	2200	2100	2120
3			---	2500	3070	3440	2110	2170	2230	2200	2100	---
4			---	2500	3140	3420	2110	2170	2230	2200	2100	---
5			2230	2520	3160	3400	2110	2180	2250	2190	2090	---
6			2270	2430	3100	3390	2110	2170	2310	2180	2080	---
7			2180	2520	3100	3370	2100	2180	2330	2160	2060	---
8			2210	2520	3090	3350	2120	2180	2350	2160	2090	---
9			2220	2500	3060	3320	2130	2180	2340	2160	2080	---
10			2230	2450	3090	---	2130	2180	2330	2120	2080	---
11			2320	2370	3070	---	2130	2180	2320	2150	2080	---
12			2300	2320	3150	---	2130	2180	2300	2150	2070	---
13			2290	2320	3080	---	2140	2180	2320	2110	2110	---
14			2280	2330	3030	---	2140	2180	2350	2140	2100	---
15			2250	2330	3040	---	2140	2180	2370	2100	2100	---
16			2200	2330	3060	---	2140	2180	2360	2110	2120	2160
17			2210	2330	3030	---	2140	2180	2230	2110	2110	2140
18			2250	2350	3070	---	2140	2190	2220	2110	2110	2130
19			2330	2430	3040	---	2140	2190	2130	1900	2110	2120
20			2370	2600	3070	---	2140	2190	2180	1790	2090	2110
21			2390	2760	3040	---	2120	2190	2190	1770	2070	2100
22			2460	2870	3060	---	2080	2190	2140	1730	2080	2090
23			2440	2930	3000	---	2020	2210	2180	1700	2070	2090
24			2480	3010	3060	2120	1980	2200	2140	1680	2150	2080
25			2460	3070	3250	2120	1970	2200	1970	1890	2090	2080
26			2460	3090	3520	2120	1970	2200	1920	1950	2080	2050
27			2470	3070	3500	2120	1980	2190	1970	2070	2110	2030
28			2480	3130	3490	2110	2140	2200	1970	2090	2110	2180
29			2460	3060	---	2110	2150	2230	1960	2090	2120	2350
30			2500	3090	---	2110	2160	2230	1930	2120	2120	2330
31			2500	3060	---	2110	---	2220	---	2110	2120	---
MEAN				2640			2100	2190	2200	2050	2100	

07130500 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, CO--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1					---	---	7.0	4.5	8.5	5.0	6.5	4.5
2					---	---	7.0	3.5	9.0	5.5	6.5	5.0
3					---	---	6.0	3.5	8.5	6.0	6.5	5.0
4					---	---	6.0	2.5	8.5	5.5	6.5	5.0
5					11.0	5.5	5.5	1.0	8.0	5.0	6.5	5.0
6					6.5	4.5	5.5	2.5	6.5	4.5	6.0	5.0
7					8.0	4.0	5.5	2.5	5.0	1.5	5.5	5.0
8					8.0	5.0	6.0	1.0	4.5	2.0	6.0	5.0
9					6.0	4.5	6.0	2.5	5.0	3.5	6.5	5.0
10					5.0	3.5	5.5	3.0	6.0	3.0	6.0	5.0
11					5.5	3.0	6.0	3.5	5.0	2.0	6.0	5.0
12					5.5	3.5	5.5	3.0	5.5	3.0	6.0	5.0
13					3.5	1.5	6.0	3.0	6.0	3.0	6.0	5.0
14					3.5	1.5	6.0	3.0	7.5	3.0	6.5	5.0
15					3.0	1.5	6.0	3.5	7.0	3.5	6.0	5.5
16					3.5	1.5	6.0	3.5	9.5	4.5	6.5	5.5
17					5.0	1.0	6.5	4.0	9.5	5.0	6.5	5.5
18					5.0	2.0	6.5	3.5	9.5	6.0	6.5	5.5
19					6.0	2.0	7.0	4.0	9.5	5.5	7.0	6.0
20					6.0	2.5	7.0	4.0	7.5	5.5	6.5	6.0
21					6.5	2.5	7.0	4.5	9.5	4.5	7.0	6.0
22					7.0	4.5	6.0	4.0	10.0	4.5	7.0	6.5
23					7.0	4.0	7.0	3.0	10.5	5.0	7.0	6.5
24					6.0	4.0	7.5	4.5	11.0	6.0	7.5	6.5
25					7.0	4.0	7.0	3.5	8.0	6.0	7.5	7.0
26					7.5	4.0	5.5	2.5	7.0	5.5	7.5	7.0
27					5.5	1.0	6.5	3.5	6.0	5.0	7.5	7.0
28					5.5	2.0	6.0	4.0	6.5	4.5	8.0	7.0
29					6.5	3.0	8.5	4.0	---	---	8.5	7.5
30					7.0	4.0	9.5	4.5	---	---	8.5	8.0
31					6.0	4.0	8.5	6.0	---	---	8.5	8.0
MONTH							9.5	1.0	11.0	1.5	8.5	4.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	9.0	8.5	13.0	12.5	15.5	15.5	19.5	19.0	23.5	23.0	22.5	21.5
2	9.5	9.0	13.0	12.5	16.0	15.5	19.5	19.0	23.5	23.0	23.0	21.5
3	9.0	9.0	14.0	13.0	16.5	15.0	20.0	19.0	23.5	23.0	25.5	20.0
4	9.0	8.5	14.0	13.0	17.0	15.5	20.0	19.0	24.0	23.0	25.0	20.0
5	9.5	9.0	15.0	13.5	17.0	15.5	20.5	19.5	24.0	22.5	25.0	19.0
6	9.5	9.0	14.5	13.5	21.5	15.5	20.5	20.0	24.0	23.0	20.5	18.0
7	10.0	9.0	15.0	14.0	22.5	17.0	20.5	20.0	23.5	23.0	17.5	16.5
8	10.0	9.0	15.0	14.5	21.5	17.0	22.0	20.0	24.0	23.0	23.0	16.5
9	9.5	9.0	14.5	14.0	21.0	17.0	21.5	20.5	24.0	23.0	24.0	17.5
10	10.0	9.5	15.0	14.5	17.5	16.0	21.5	20.5	24.0	23.0	23.5	18.0
11	10.0	9.5	15.0	14.5	21.0	15.0	21.5	21.0	24.0	23.0	23.0	17.5
12	10.0	9.5	15.0	14.5	23.0	16.5	22.0	21.0	24.0	22.5	24.0	17.0
13	10.5	9.5	15.5	14.5	22.0	17.5	22.0	21.5	24.0	23.0	22.5	17.5
14	10.0	10.0	15.5	15.0	23.5	17.5	22.5	21.5	24.0	23.0	23.5	18.0
15	10.0	10.0	15.5	15.0	23.5	18.5	23.0	22.0	24.0	23.0	20.5	17.5
16	10.5	10.0	15.5	15.0	20.0	17.5	23.5	22.5	24.0	23.0	20.5	19.5
17	11.0	10.5	15.5	15.0	18.0	17.5	23.5	23.0	24.0	23.0	21.0	19.5
18	11.0	10.5	15.0	15.0	18.0	17.5	23.0	23.0	24.0	23.0	20.5	19.0
19	11.0	10.5	15.0	15.0	18.0	17.5	23.0	23.0	24.0	23.0	20.5	19.5
20	11.0	10.5	15.0	15.0	18.0	17.5	23.5	23.0	24.0	23.0	20.5	19.5
21	11.0	10.5	15.0	15.0	18.0	17.5	23.5	23.0	24.0	23.0	20.5	19.5
22	11.5	10.5	15.5	15.0	18.0	17.5	23.5	23.0	24.0	23.0	20.5	19.5
23	12.5	11.5	15.5	15.0	18.0	18.0	23.5	23.0	23.0	23.0	20.5	19.5
24	12.5	12.0	15.0	15.0	18.5	18.0	23.5	23.0	23.5	23.0	20.0	19.0
25	13.0	12.5	15.5	15.0	18.5	18.0	23.5	22.5	23.5	23.0	19.5	18.5
26	13.0	13.0	15.5	15.0	18.5	18.0	23.5	22.5	23.0	21.5	19.5	19.0
27	13.0	13.0	15.5	15.0	18.5	18.0	23.5	23.0	23.5	20.5	19.0	18.5
28	13.0	12.5	16.0	15.5	19.0	18.0	23.5	23.0	23.0	22.0	18.5	18.5
29	13.0	12.5	16.0	15.5	18.5	18.0	23.5	23.0	23.5	22.0	18.5	18.0
30	13.0	12.5	16.5	15.5	19.5	18.5	23.5	23.0	23.5	22.0	18.5	17.5
31	---	---	16.0	15.5	---	---	23.5	23.0	23.0	22.0	---	---
MONTH	13.0	8.5	16.5	12.5	23.5	15.0	23.5	19.0	24.0	20.5	25.5	16.5

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 above 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. Mar. 27, 1968 to Nov. 17, 1982 at datum 4.00 ft, lower.

REMARKS.--Estimated daily discharge: Oct. 1-2, Dec. 13 to Jan. 2, Feb. 10-14, and July 19-30. Records good except those for estimated daily discharges, 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, 34 years (water years 1949-55, 1960-86), 99.1 ft<sup>3</sup>/s, unadjusted; 71,800 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, datum then in use, from rating curve extended above 10,000 ft<sup>3</sup>/s; maximum gage height, 16.48 ft, June 18, 1965, datum then in use, from floodmarks; no flow at times in 1913-15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,110 ft<sup>3</sup>/s at 0330 Sept. 3, gage height, 9.83 ft; minimum daily, 1.5 ft<sup>3</sup>/s, Mar. 2.

REVISIONS.--Revised daily discharges, in cubic feet per second, for a period in September 1985 are given below. These figures supersede those published in the report for 1985

	Sept. 20....25	Sept. 23....45	Sept. 26....50	Sept. 29....45
	21....30	24....50	27....45	30....45
	22....35	25....50	28....50	
	Total	Mean	Max	Min
September 1985	929	31	60	19
Wtr Yr 1985	76,210	209	2,090	11
Cal Yr 1985	64,660	177	1,090	5.2
	Ac-ft			
	1,840			151,200
				128,200

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	16	22	36	16	1.6	683	50	58	373	841	36
2	46	13	29	36	16	1.5	683	48	96	361	947	46
3	50	12	40	36	24	7.6	691	43	96	342	518	731
4	47	11	46	37	33	8.8	690	32	89	309	438	92
5	50	9.7	42	41	33	6.7	690	30	87	320	100	47
6	53	22	40	39	35	7.4	700	20	116	317	108	19
7	46	32	39	37	34	8.6	701	16	87	355	73	16
8	47	33	40	37	31	9.9	704	13	53	593	53	13
9	51	32	40	38	28	24	706	13	37	399	178	11
10	51	31	34	40	25	36	715	14	33	363	114	6.9
11	69	46	22	41	25	13	673	13	34	401	88	6.4
12	82	56	21	44	25	20	510	16	34	338	68	6.4
13	82	42	22	43	28	20	498	504	33	339	62	6.6
14	88	38	25	42	30	20	483	573	34	334	248	6.7
15	96	41	25	40	34	20	466	580	36	338	231	8.2
16	78	58	35	40	37	20	425	537	36	519	84	9.5
17	72	52	35	40	33	20	413	456	35	548	60	8.9
18	69	47	37	39	31	19	400	425	37	610	46	11
19	66	44	39	39	29	20	402	341	87	655	40	11
20	63	41	40	38	27	24	399	322	441	690	46	11
21	62	38	40	38	28	48	407	322	489	670	45	12
22	60	33	40	37	28	461	433	303	484	350	50	15
23	36	32	40	37	27	516	443	227	469	200	62	16
24	22	32	40	36	27	510	398	198	428	150	154	16
25	21	33	39	36	13	521	358	183	414	130	117	16
26	20	33	38	37	2.0	691	125	155	428	110	302	13
27	22	32	37	32	2.6	575	109	208	433	100	320	19
28	21	33	36	33	1.9	707	105	203	444	90	85	20
29	21	32	36	35	---	730	63	128	438	250	64	21
30	20	24	36	35	---	730	52	105	425	600	38	22
31	19	---	36	25	---	715	---	79	---	756	37	---
TOTAL	1575	998.7	1091	1164	703.5	6512.1	14125	6157	6011	11910	5617	1273.6
MEAN	50.8	33.3	35.2	37.5	25.1	210	471	199	200	384	181	42.5
MAX	96	58	46	44	37	730	715	580	489	756	947	731
MIN	19	9.7	21	25	1.9	1.5	52	13	33	90	37	6.4
AC-FT	3120	1980	2160	2310	1400	12920	28020	12210	11920	23620	11140	2530
CAL YR 1985	TOTAL	75522.7	MEAN	207	MAX	2090	MIN	9.7	AC-FT	149800		
WTR YR 1986	TOTAL	57137.9	MEAN	157	MAX	947	MIN	1.5	AC-FT	113300		

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. Elevation of gage is 3,480 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--5 years, 191 ft<sup>3</sup>/s; 138,400 acre-ft / yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 1,990 ft<sup>3</sup>/s, June 1, 1985, gage height, 10.54 ft; minimum daily, 3.3 ft<sup>3</sup>/s, May 27-28, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft<sup>3</sup>/s at 1730 Aug. 23, gage height, 9.85 ft; minimum daily, 23 ft<sup>3</sup>/s, Mar. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	98	123	143	113	87	622	82	138	369	751	152
2	118	97	123	142	113	88	645	77	150	335	1360	134
3	112	98	131	141	119	87	638	70	135	356	954	737
4	112	103	148	138	131	89	667	64	114	343	800	573
5	106	105	151	131	135	90	655	62	107	323	434	305
6	110	96	155	141	135	87	658	54	127	319	320	229
7	108	96	153	136	133	84	661	51	146	315	278	204
8	97	97	153	133	122	85	639	47	189	385	219	180
9	95	100	154	134	119	89	636	44	240	560	245	160
10	97	113	146	137	114	106	656	45	193	430	246	144
11	128	121	141	137	111	81	660	43	168	450	191	133
12	167	139	119	139	109	47	549	42	145	418	170	127
13	163	145	130	139	112	28	494	126	118	385	161	118
14	161	138	134	137	125	28	475	413	110	384	138	113
15	174	142	137	138	134	28	455	458	105	364	366	108
16	176	149	143	135	139	28	418	455	95	458	208	95
17	164	152	148	133	135	28	404	411	74	535	160	81
18	162	146	151	131	129	27	379	400	63	550	120	74
19	159	136	152	132	126	23	375	391	62	578	91	68
20	153	132	155	132	119	25	377	383	154	618	77	59
21	149	140	159	130	117	25	378	354	335	689	76	52
22	147	150	159	125	115	137	390	379	391	686	82	48
23	144	151	155	127	112	352	412	405	415	348	623	45
24	127	153	149	128	107	410	388	380	398	194	304	44
25	120	156	146	125	106	417	392	298	369	153	234	44
26	117	156	147	122	102	568	276	288	376	140	226	48
27	110	152	144	121	106	620	194	287	377	126	646	42
28	107	151	142	121	92	604	161	279	387	115	334	46
29	106	148	140	121	---	630	124	245	390	95	230	46
30	105	138	143	120	---	649	96	175	390	284	188	44
31	101	---	142	119	---	656	---	151	---	566	166	---
TOTAL	4006	3898	4473	4088	3330	6303	13874	6959	6461	11871	10398	4253
MEAN	129	130	144	132	119	203	462	224	215	383	335	142
MAX	176	156	159	143	139	656	667	458	415	689	1360	737
MIN	95	96	119	119	92	23	96	42	62	95	76	42
AC-FT	7950	7730	8870	8110	6610	12500	27520	13800	12820	23550	20620	8440
CAL YR 1985 TOTAL		94153		MEAN	258	MAX	1960	MIN	25	AC-FT	186800	
WTR YR 1986 TOTAL		79914		MEAN	219	MAX	1360	MIN	23	AC-FT	158500	

ARKANSAS RIVER BASIN

07137000 FRONTIER DITCH NEAR COOLIDGE, KS

LOCATION.--Lat 38°02'18", long 102°02'19", in SW¼SE¼NE¼ 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 above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Apr. 11-23, Aug. 2-4, and Aug. 23. Records good except for estimated daily discharges, which are poor. 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 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	.00	.00	.00	.00	.00	37	18	30	39	.00
2	13	13	.00	.00	.00	.00	.00	36	.01	28	47	.00
3	14	16	.00	.00	.00	.00	.00	33	.00	26	.80	.00
4	13	14	.00	.00	.00	.00	.00	30	14	25	.75	.00
5	12	13	.00	.00	.00	.00	.00	29	17	26	.08	.00
6	10	13	.00	.00	.00	.00	.00	27	12	29	.00	.00
7	13	9.5	.00	.00	.00	.00	.00	22	.13	28	.00	.00
8	12	.30	.00	.00	.00	.00	.00	21	.00	31	.00	.00
9	13	.02	.00	.00	.00	.00	.00	29	.00	31	.00	.00
10	14	.00	.00	.00	.00	.00	.00	35	.00	32	.00	.00
11	15	.00	.00	.00	.00	.00	.00	32	.00	35	.00	.00
12	17	.00	.00	.00	.00	.00	.00	30	.00	38	.00	.00
13	17	.00	.00	.00	.00	.00	.00	33	.00	39	.00	.00
14	15	.00	.00	.00	.00	.00	.00	34	.00	41	.00	.00
15	12	.00	.00	.00	.00	.00	13	28	.00	41	.00	.00
16	13	.00	.00	.00	.00	.00	32	31	.00	43	15	.00
17	13	.00	.00	.00	.00	.00	38	33	18	48	21	.00
18	12	.00	.00	.00	.00	.00	35	29	25	46	20	.00
19	13	.00	.00	.00	.00	.00	42	26	26	48	22	.00
20	16	.00	.00	.00	.00	.00	45	26	31	47	30	.00
21	15	.00	.00	.00	.00	.00	53	30	19	42	31	.00
22	12	.00	.00	.00	.00	.00	63	35	.00	5.6	37	.00
23	13	.00	.00	.00	.00	.00	62	33	.00	.48	35	.00
24	12	.00	.00	.00	.00	.00	57	34	.00	19	.00	.00
25	9.7	.00	.00	.00	.00	.00	53	33	.00	36	.00	.00
26	5.1	.00	.00	.00	.00	.00	52	31	.00	36	.00	.00
27	5.4	.00	.00	.00	.00	.00	41	32	4.6	32	.00	.00
28	11	.00	.00	.00	.00	.00	39	33	23	29	.00	1.2
29	12	.00	.00	.00	.00	.00	36	31	27	27	.00	17
30	12	.00	.00	.00	.00	.00	36	28	29	27	.00	20
31	12	.00	.00	.00	.00	.00	.00	23	.00	38	.00	.00
TOTAL	388.2	91.82	.00	.00	.00	.00	697.00	944	263.74	1004.08	298.63	38.20
MEAN	12.5	3.06	.000	.000	.000	.000	23.2	30.5	8.79	32.4	9.63	1.27
MAX	17	16	.00	.00	.00	.00	63	37	31	48	47	20
MIN	5.1	.00	.00	.00	.00	.00	.00	21	.00	.48	.00	.00
AC-FT	770	182	.00	.00	.00	.00	1380	1870	523	1990	592	76
CAL YR 1985	TOTAL	4492.85	MEAN	12.3	MAX	53	MIN	.00	AC-FT	8910		
WTR YR 1986	TOTAL	3725.67	MEAN	10.2	MAX	63	MIN	.00	AC-FT	7390		

07137500 ARKANSAS RIVER NEAR COOLIDGE, KS

LOCATION.--Lat 38°01'34", long 102°00'41", in NW¼NE¼NW¼ 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 above 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.--Estimated daily discharges: Nov. 30 to Dec. 2, and Dec. 12-14. Records good except those for estimated daily discharges, which are poor. 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.--36 years (water years 1951-86), 187 ft<sup>3</sup>/s; 135,500 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, 2,520 ft<sup>3</sup>/s, Aug. 2, gage height, 7.41 ft; minimum daily, 98 ft<sup>3</sup>/s, Mar. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	180	150	169	162	157	709	202	296	699	681	377
2	239	173	150	170	156	152	688	190	364	425	2000	358
3	266	182	159	169	148	151	691	183	343	389	1620	591
4	259	169	165	166	152	146	666	175	310	370	1290	1030
5	247	170	177	168	159	145	649	166	278	343	1030	504
6	230	170	185	175	165	140	650	162	220	337	670	390
7	240	195	191	163	166	136	656	150	227	337	517	344
8	220	195	186	157	158	137	649	143	444	592	445	347
9	225	186	183	163	160	146	648	135	432	643	490	333
10	231	197	175	166	151	156	653	134	531	525	503	316
11	258	197	170	169	140	172	648	133	433	488	483	301
12	300	217	164	162	140	146	597	131	303	506	418	264
13	300	213	165	165	152	129	526	136	267	413	453	257
14	287	207	160	167	157	129	541	291	246	414	399	247
15	245	228	158	168	166	128	529	464	227	401	428	235
16	235	233	162	168	170	129	478	519	216	388	436	237
17	238	259	172	161	172	130	464	526	185	501	333	226
18	226	225	177	162	169	131	439	529	167	536	276	208
19	226	201	183	167	155	126	436	550	166	575	240	198
20	239	179	186	167	154	116	412	530	180	668	202	191
21	235	171	186	157	157	110	402	440	285	738	199	187
22	214	179	185	151	159	102	395	392	405	1510	204	191
23	208	189	179	155	155	229	410	456	469	766	718	195
24	208	189	179	159	148	373	407	495	492	395	866	190
25	201	187	183	159	148	442	391	414	440	307	463	202
26	193	182	177	159	156	487	393	355	413	280	404	201
27	176	179	165	159	147	693	329	363	512	249	564	202
28	165	179	170	161	143	602	297	367	450	228	581	216
29	163	177	171	157	---	614	268	352	465	206	423	211
30	167	160	173	156	---	697	229	308	505	216	408	206
31	179	---	169	160	---	689	---	278	---	465	386	---

TOTAL	7051	5768	5355	5055	4365	7840	15250	9669	10271	14910	18130	8955
MEAN	227	192	173	163	156	253	508	312	342	481	585	299
MAX	300	259	191	175	172	697	709	550	531	1510	2000	1030
MIN	163	160	150	151	140	102	229	131	166	206	199	187
AC-FT	13990	11440	10620	10030	8660	15550	30250	19180	20370	29570	35960	17760

CAL YR 1985	TOTAL	118822	MEAN	326	MAX	1870	MIN	115	AC-FT	235700
WTR YR 1986	TOTAL	112619	MEAN	309	MAX	2000	MIN	102	AC-FT	223400



ARKANSAS RIVER BASIN

07137500 ARKANSAS RIVER NEAR COOLIDGE, KS--Continued  
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-68, 1970-73, 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1963 to September 1968, January 1976 to September 1981.  
WATER TEMPERATURE: November 1963 to September 1968, January 1976 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BARO-METRIC PRES-SURE (MM OF HG)	COLI-FORM, FECAL, 0.7 ULM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 01...	1230	230	3400	8.0	10.0	--	--	--	--
NOV 05...	1415	175	4080	8.1	12.0	12.2	741	60	K230
FEB 26...	1335	153	4890	7.8	14.0	--	683	K42	180
MAY 05...	1320	166	4000	7.8	12.0	--	--	54	410
JUL 14...	1155	421	2890	8.1	24.0	8.0	735	>220	450

DATE	TUR-BID-ITY (NTU)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (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, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT 01...	--	--	--	--	--	--	--	--	--	--	--
NOV 05...	20	1500	1460	320	160	520	6	11	280	344	4.3
FEB 26...	16	1800	1830	400	200	620	7	10	256	312	7.9
MAY 05...	22	1600	1620	350	180	520	6	11	270	329	8.3
JUL 14...	80	1100	1120	250	120	340	5	9.1	226	276	3.5

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, RESIDUE AT 180 DEG. C 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 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
OCT 01...	--	--	--	--	--	--	--	--	--	--
NOV 05...	2100	170	1.0	15	3860	5.2	1820	2.50	0.19	0.21
FEB 26...	2500	180	1.1	18	4240	5.8	1750	2.50	0.15	0.12
MAY 05...	2200	170	0.9	15	3830	5.2	1720	2.30	0.16	0.15
JUL 14...	1500	100	1.0	11	2450	3.3	2780	1.40	0.17	0.18

K Results based on colony count outside the acceptable range (non-ideal colony count).

ARKANSAS RIVER BASIN

07137500 ARKANSAS RIVER NEAR COOLIDGE, KS--Continued  
(National stream-quality accounting network station)

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 01...	--	--	--	--	--	--	--	195	121	74
NOV 05...	0.63	0.01	0.44	0.06	0.04	0.02	0.02	436	206	19
FEB 26...	1.0	0.02	0.85	--	0.07	0.04	<0.01	142	59	89
MAY 05...	1.0	0.02	0.84	--	0.05	0.01	<0.01	--	--	--
JUL 14...	1.2	<0.01	1.0	0.06	0.07	0.03	0.02	463	526	83

DATE	ALUM- INIUM, DIS- SOLVED (UG/L AS AL)	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)	*LEAD, DIS- SOLVED (UG/L AS PB)
NOV 05...	10	<1	<100	<10	<1	<1	1	2	50	<1
FEB 26...	290	1	100	<10	2	2	1	6	--	5
MAY 05...	20	1	100	<10	<1	<1	<1	4	50	2
JUL 14...	20	1	100	<10	<1	<1	<1	3	60	<5

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	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)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 05...	180	30	--	4	4	29	<1	5800	4	20
FEB 26...	190	40	--	6	1	33	<1	6700	7	40
MAY 05...	150	10	<0.1	6	3	27	<1	5800	5	20
JUL 14...	120	20	1.0	19	3	11	<1	4000	4	20

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	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
OCT 01...	1230	82	92	100	--
NOV 05...	1415	22	27	40	85
JUL 14...	1155	90	100	--	--

\* The minimum reporting level for Lead was changed from <1 to <5 during June, 1986.

## 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. Elevation of gage is 9,300 ft, from topographic map. See WSP 1712 or 1732 for history of changes prior to Oct. 1, 1934.

REMARKS.--Estimated daily discharges: Nov. 20 to Apr. 22 and Sept. 24-30. Records good except for estimated daily discharges, which are fair. 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 upstream from station through Weminuche Pass and Pine River-Weminuche Pass ditches. No known diversions 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.--72 years (water years 1911-23, 1927-86), 215 ft<sup>3</sup>/s; 155,800 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 CURRENT YEAR.--Maximum discharge, 4,050 ft<sup>3</sup>/s at 0800 June 7, gage height, 5.88 ft; minimum daily, 9.0 ft<sup>3</sup>/s, many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	191	9.0	10	12	13	15	270	938	1120	882	427
2	152	191	9.0	11	12	13	15	365	890	1060	708	400
3	152	191	9.0	11	12	13	15	136	946	1250	620	365
4	121	191	9.0	11	12	13	15	14	1050	1340	592	298
5	106	84	9.0	11	12	13	15	15	1350	1380	546	156
6	104	13	9.0	11	12	14	15	15	1550	1370	438	104
7	121	61	9.0	11	12	14	15	16	2050	1420	405	97
8	136	202	9.0	11	12	14	15	100	1850	1450	400	136
9	95	229	9.0	11	12	14	15	164	1670	1440	427	183
10	62	278	9.0	11	12	14	15	164	1260	1440	444	298
11	63	263	9.0	11	12	14	15	199	1150	1430	533	256
12	63	662	10	11	12	14	15	263	1250	1430	537	226
13	63	842	10	11	13	14	15	385	1460	1420	599	191
14	63	850	10	11	13	14	15	472	1590	1390	613	167
15	64	866	10	11	13	14	15	490	1610	1370	655	147
16	64	850	10	11	13	14	15	496	1610	982	662	150
17	210	786	10	11	13	14	83	520	1680	1230	648	157
18	290	655	10	11	13	14	117	478	1680	1250	641	140
19	211	278	10	11	13	14	117	395	1690	1240	627	136
20	177	10	10	11	13	14	117	370	1540	1220	620	127
21	177	9.5	10	11	13	14	117	149	1500	1210	613	119
22	177	9.1	10	11	13	14	117	11	1460	1200	592	138
23	174	9.0	10	12	13	14	117	12	1400	1170	585	194
24	177	9.0	10	12	13	14	150	12	1300	1150	572	226
25	226	9.0	10	12	13	14	199	14	1180	1140	552	197
26	263	9.0	10	12	13	14	217	282	1230	1120	540	191
27	263	9.0	10	12	13	15	217	938	1290	1110	520	190
28	274	9.0	10	12	13	15	220	1200	1290	1100	502	192
29	282	9.0	10	12	---	15	217	1310	1530	1080	484	194
30	223	9.0	10	12	---	15	217	1120	1290	1060	466	177
31	191	---	10	12	---	15	---	954	---	1040	449	---
TOTAL	4916	7783.6	299.0	349	352	434	2462	11329	42284	38612	17472	5979
MEAN	159	259	9.65	11.3	12.6	14.0	82.1	365	1409	1246	564	199
MAX	290	866	10	12	13	15	220	1310	2050	1450	882	427
MIN	62	9.0	9.0	10	12	13	15	11	890	982	400	97
AC-FT	9750	15440	593	692	698	861	4880	22470	83870	76590	34660	11860
CAL YR 1985	TOTAL	118593.6		MEAN	325	MAX	2530	MIN	9.0	AC-FT	235200	
WTR YR 1986	TOTAL	132271.6		MEAN	362	MAX	2050	MIN	9.0	AC-FT	262400	

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. Elevation of gage is 10,200 ft, from topographic map. Prior to Oct. 2, 1951, at site 150 ft upstream, at different datum.

REMARKS.--Estimated daily discharges: Dec. 1 to Apr. 22. Records good except for estimated daily discharges, which are fair. Flow regulated by Continental Reservoir, capacity, 26,720 acre-ft. No diversion 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.--57 years, 30.6 ft<sup>3</sup>/s; 22,170 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, 210 ft<sup>3</sup>/s at 1700 June 13, gage height, 2.16 ft; minimum daily, 0.35 ft<sup>3</sup>/s, many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	18	.35	.40	.50	13	13	13	147	96	28	28
2	20	18	.35	.40	.50	13	13	13	136	79	27	29
3	20	18	.35	.40	.50	13	13	13	130	75	28	99
4	21	18	.35	.40	.50	13	13	5.3	130	74	81	148
5	21	18	.35	.40	.50	13	13	35	53	73	136	156
6	21	18	.35	.40	.50	13	13	126	2.5	71	158	160
7	21	18	.35	.40	.50	13	13	132	2.5	62	158	163
8	23	18	.35	.45	.50	13	13	132	2.5	60	153	168
9	26	18	.35	.45	.50	13	13	132	2.5	63	153	161
10	27	18	.35	.45	.50	13	13	114	2.8	73	147	161
11	13	8.2	.35	.45	.50	13	13	76	69	71	139	153
12	1.4	.35	.35	.45	.50	13	13	61	130	59	134	152
13	1.4	.35	.35	.45	.50	13	13	61	156	51	147	153
14	1.4	.50	.35	.45	.50	13	13	63	210	33	156	153
15	1.4	.50	.35	.45	.50	13	13	64	210	28	148	121
16	1.4	.50	.40	.45	.50	13	13	94	210	42	138	90
17	1.2	.50	.40	.45	.50	13	13	114	208	48	139	86
18	8.7	.50	.40	.45	.50	13	13	106	208	55	150	86
19	15	.50	.40	.45	.50	13	13	100	208	77	155	86
20	16	.50	.40	.45	.50	13	13	104	208	65	155	86
21	17	.50	.40	.45	.50	13	13	123	208	55	156	88
22	17	.50	.40	.45	.50	13	13	145	177	53	160	57
23	17	.35	.40	.45	.50	13	13	155	136	53	161	36
24	17	.35	.40	.45	.50	13	13	163	103	52	161	15
25	17	.35	.40	.45	.50	13	14	166	64	52	170	1.2
26	18	.35	.40	.45	.50	13	14	166	61	42	172	1.2
27	18	.35	.40	.45	7.0	13	14	170	86	34	172	1.2
28	18	.35	.40	.45	13	13	14	180	99	25	131	1.2
29	18	.35	.40	.45	---	13	14	182	104	5.5	35	.95
30	18	.35	.40	.45	---	13	14	184	112	31	50	.95
31	18	---	.40	.45	---	13	---	165	---	34	35	---
TOTAL	473.9	196.20	11.65	13.60	33.00	403	396	3357.3	3575.8	1691.5	3933	2641.70
MEAN	15.3	6.54	.38	.44	1.18	13.0	13.2	108	119	54.6	127	88.1
MAX	27	18	.40	.45	13	13	14	184	210	96	172	168
MIN	1.2	.35	.35	.40	.50	13	13	5.3	2.5	5.5	27	.95
AC-FT	940	389	23	27	65	799	785	6660	7090	3360	7800	5240
CAL YR 1985	TOTAL	13440.85	MEAN	36.8	MAX	278	MIN	.35	AC-FT	26660		
WTR YR 1986	TOTAL	16726.65	MEAN	45.8	MAX	210	MIN	.35	AC-FT	33180		

## RIO GRANDE BASIN

## 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 above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 12-13, 16 to Jan. 6, Jan. 31 to Feb. 11, Feb. 25 to Mar. 4. Records good except for those for estimated daily discharges, which are poor. Flow regulated by Santa Maria, Rio Grande, and Continental Reservoirs, combined capacity, 121,400 acre-ft. Diversions upstream from station for irrigation. Transmountain diversions to drainage area upstream from 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.--35 years, 533 ft<sup>3</sup>/s; 386,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,190 ft<sup>3</sup>/s, June 9, 1985, gage height, 6.10 ft; minimum daily, 46 ft<sup>3</sup>/s, Dec. 9, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,560 ft<sup>3</sup>/s at 1700 June 7, gage height, 5.54 ft; minimum daily, 132 ft<sup>3</sup>/s, Dec. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	615	510	234	160	200	170	367	1100	2590	2300	1390	738
2	553	491	250	150	220	170	368	1370	2510	2120	1170	713
3	532	496	234	160	200	170	342	1640	2660	2310	1040	697
4	518	484	217	160	180	160	291	1680	2930	2370	963	747
5	464	495	193	150	160	157	291	1750	3260	2540	1030	686
6	450	317	186	170	160	165	296	1650	3510	2440	995	579
7	520	260	198	187	190	171	330	1460	4060	2360	899	557
8	574	369	187	174	160	173	345	1260	3770	2330	896	655
9	584	451	191	170	160	182	350	1280	3490	2600	870	688
10	530	480	192	183	170	161	357	1170	2920	2550	874	878
11	546	526	167	176	185	162	373	1130	2680	2360	923	824
12	549	595	150	176	174	161	375	1130	2820	2240	1070	719
13	517	923	150	177	181	155	381	1260	3330	2190	1220	675
14	503	937	140	177	168	156	332	1440	3930	2100	1180	644
15	464	965	132	186	177	158	345	1510	3870	2030	1220	617
16	475	955	140	187	172	157	354	1490	3860	1810	1220	570
17	477	984	140	193	168	155	380	1510	3780	1840	1190	547
18	657	809	140	198	182	154	361	1490	3650	1940	1170	523
19	643	733	150	190	152	150	414	1510	3560	2000	1180	510
20	547	306	150	189	162	157	436	1700	3220	2150	1160	496
21	541	278	150	188	160	162	467	1890	3110	2020	1170	485
22	536	226	150	181	162	164	549	1680	2970	2000	1150	482
23	523	233	150	184	180	168	600	1780	2740	1960	1170	506
24	518	281	160	186	186	175	637	1800	2580	2020	1210	567
25	519	254	180	173	180	183	695	1710	2420	1880	1200	557
26	585	246	160	174	180	203	711	2040	2510	1800	1130	528
27	576	211	150	179	180	225	659	2680	2540	1730	1090	519
28	578	208	140	169	160	253	655	2980	2560	1650	1100	512
29	592	221	140	184	---	278	739	3200	3060	1560	892	530
30	592	217	160	184	---	295	891	2950	2650	1490	825	520
31	523	---	170	200	---	334	---	2660	---	1460	776	---
TOTAL	16801	14461	5251	5515	4909	5684	13691	53900	93540	64150	33373	18269
MEAN	542	482	169	178	175	183	456	1739	3118	2069	1077	609
MAX	657	984	250	200	220	334	891	3200	4060	2600	1390	878
MIN	450	208	132	150	152	150	291	1100	2420	1460	776	482
AC-FT	33320	28680	10420	10940	9740	11270	27160	106900	185500	127200	66200	36240
CAL YR 1985	TOTAL	305358	MEAN	837	MAX	4970	MIN	90	AC-FT	605700		
WTR YR 1986	TOTAL	329544	MEAN	903	MAX	4060	MIN	132	AC-FT	653700		

08218500 GOOSE CREEK AT WAGONWHEEL GAP, CO

LOCATION.--Lat 37°45'07", long 106°49'46", in SW¼ 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. Elevation of gage is 8,460 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 15 to Mar. 19, and Aug. 16 to Sept. 10. Records good except for estimated daily discharges, which are fair. Several small diversions upstream from 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.--32 years, 63.3 ft<sup>3</sup>/s; 45,140 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 greater than base discharge 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)
May 3	2300	332	3.61	June 7	2230	*562	*4.07
May 27	0030	327	3.59	July 9	1430	336	3.68

Minimum daily discharge, 14 ft<sup>3</sup>/s, Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	45	44	22	26	20	63	194	225	296	90	52
2	59	42	40	22	26	22	59	222	214	284	87	52
3	56	45	44	24	26	22	51	276	242	272	81	54
4	54	42	40	22	22	20	51	300	260	264	79	52
5	52	44	38	22	20	22	48	284	292	292	81	54
6	51	41	40	24	20	22	51	253	386	253	79	54
7	61	41	40	24	20	22	58	211	495	225	74	52
8	64	52	40	22	16	22	61	178	484	200	70	64
9	64	52	38	22	18	22	61	157	440	296	68	60
10	63	49	36	26	16	20	64	141	358	264	63	90
11	79	56	24	26	14	20	68	133	340	222	61	76
12	72	58	22	26	16	18	66	133	372	211	64	64
13	66	46	24	26	18	18	66	149	415	214	70	59
14	64	48	24	24	20	18	59	155	440	194	61	56
15	58	38	26	24	22	18	59	166	451	172	56	52
16	58	38	28	24	20	18	68	163	440	172	54	51
17	58	42	28	26	20	20	63	155	456	155	54	49
18	56	42	28	28	20	20	56	144	440	175	52	46
19	52	38	28	26	18	18	54	152	440	181	52	46
20	52	36	30	26	20	20	54	181	386	214	50	45
21	52	38	30	22	16	20	70	228	386	187	56	42
22	49	36	30	20	16	23	92	242	390	175	60	41
23	48	42	30	22	18	25	103	264	368	160	60	45
24	48	44	30	22	20	28	118	272	327	155	62	54
25	48	44	28	20	22	32	108	264	327	138	60	51
26	48	44	26	22	22	35	99	284	350	128	62	51
27	46	42	26	24	20	39	87	296	358	120	56	52
28	48	40	26	24	18	44	92	280	381	110	50	54
29	46	42	24	26	---	48	120	288	390	103	50	59
30	46	44	26	26	---	52	155	256	336	96	54	52
31	46	---	24	26	---	56	---	232	---	92	50	---
TOTAL	1725	1311	962	740	550	804	2224	6653	11189	6020	1966	1629
MEAN	55.6	43.7	31.0	23.9	19.6	25.9	74.1	215	373	194	63.4	54.3
MAX	79	58	44	28	26	56	155	300	495	296	90	90
MIN	46	36	22	20	14	18	48	133	214	92	50	41
AC-FT	3420	2600	1910	1470	1090	1590	4410	13200	22190	11940	3900	3230
CAL YR 1985	TOTAL	39288	MEAN	108	MAX	610	MIN	15	AC-FT	77930		
WTR YR 1986	TOTAL	35773	MEAN	98.0	MAX	495	MIN	14	AC-FT	70960		

RIO GRANDE BASIN

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 above 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.--Estimated daily discharges: Nov. 20-23, Dec. 1-4, 6, and Dec. 8 to Mar. 27. Records good except for estimated daily discharges, which are fair. Transmountain diversions from Colorado River basin to drainage area upstream from 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.--62 years (water years 1911-22, 1937-86), 215 ft<sup>3</sup>/s; 155,800 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.--Peak discharges greater than base discharge 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 4	2300	1,400	4.83	June 7	0030	*2,630	*6.23
May 27	0130	1,680	5.24				

Minimum daily discharge, 60 ft<sup>3</sup>/s, Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	135	98	82	98	82	313	725	1040	888	197	109
2	147	125	94	82	100	84	310	918	1040	810	195	111
3	137	123	91	84	96	84	262	1130	1180	760	189	116
4	131	118	85	80	90	80	232	1320	1240	730	189	107
5	123	118	80	80	86	84	222	1280	1510	795	193	114
6	116	111	90	84	84	82	240	1100	1890	755	155	101
7	177	97	88	86	80	86	252	906	2270	635	118	99
8	201	105	90	80	72	88	260	745	2120	532	114	157
9	208	104	91	82	74	88	262	630	1840	888	121	137
10	201	102	84	90	66	84	272	563	1510	780	105	280
11	272	114	70	88	60	84	286	532	1430	630	105	220
12	252	123	64	88	62	80	289	554	1490	558	114	201
13	232	107	72	88	70	82	286	615	1560	563	120	193
14	212	109	74	86	72	82	260	695	1620	468	116	183
15	183	104	78	88	78	84	255	745	1570	423	111	171
16	179	99	84	88	74	84	292	795	1530	427	105	163
17	171	105	84	90	74	88	307	770	1540	391	105	163
18	169	105	86	94	74	88	270	685	1640	407	101	147
19	159	99	88	94	74	83	252	785	1590	383	99	127
20	153	96	90	94	80	82	258	1000	1420	527	96	93
21	147	100	90	90	72	81	313	1280	1350	455	118	88
22	147	96	92	88	70	90	435	1370	1270	423	137	87
23	141	98	90	92	74	99	581	1470	1150	387	135	93
24	137	97	90	92	78	116	605	1450	1030	361	143	112
25	135	97	86	86	86	129	554	1340	1040	322	141	116
26	139	102	84	88	88	153	478	1500	1120	295	145	111
27	141	96	84	92	82	183	415	1540	1100	270	120	114
28	143	93	84	94	78	225	383	1430	1130	250	97	127
29	143	93	86	98	---	250	439	1380	1130	230	101	141
30	139	96	90	98	---	258	563	1200	1060	218	116	129
31	139	---	86	100	---	280	---	1050	---	208	101	---
TOTAL	5131	3167	2643	2746	2192	3543	10146	31503	42410	15769	4002	4110
MEAN	166	106	85.3	88.6	78.3	114	338	1016	1414	509	129	137
MAX	272	135	98	100	100	280	605	1540	2270	888	197	280
MIN	116	93	64	80	60	80	222	532	1030	208	96	87
AC-FT	10180	6280	5240	5450	4350	7030	20120	62490	84120	31280	7940	8150
CAL YR 1985	TOTAL	133673	MEAN	366	MAX	2510	MIN	30	AC-FT	265100		
WTR YR 1986	TOTAL	127362	MEAN	349	MAX	2270	MIN	60	AC-FT	252600		

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 above 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.--Estimated daily discharges: Dec. 6 to Jan. 30. Records good except for estimated daily discharges, which are fair. Small diversions upstream from 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 upstream from 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.--97 years, 907 ft<sup>3</sup>/s; 657,100 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, 7,620 ft<sup>3</sup>/s at 2330 June 7, gage height, 5.39 ft; minimum daily, 227 ft<sup>3</sup>/s, Feb. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	857	681	351	260	315	335	875	2000	4110	3950	1700	938
2	796	642	378	260	310	356	902	2520	4010	3560	1500	911
3	745	650	384	265	305	373	794	3170	4300	3480	1370	893
4	729	628	340	260	277	378	665	3520	4710	3540	1290	893
5	689	642	290	260	250	401	635	3620	5490	3800	1350	893
6	635	548	310	270	250	407	650	3230	6060	3720	1320	745
7	697	419	310	270	259	443	697	2770	7020	3400	1180	697
8	839	443	310	250	259	455	729	2320	6940	3250	1150	848
9	848	605	300	250	255	474	737	2140	6450	3920	1120	920
10	813	612	290	270	238	425	754	1950	5420	3920	1100	1220
11	902	689	240	270	235	413	796	1840	4710	3480	1070	1240
12	911	721	230	270	227	401	788	1810	4850	3210	1300	1060
13	839	1010	240	270	246	351	796	1980	5330	3190	1350	992
14	804	1070	240	260	242	356	697	2290	5950	2970	1350	938
15	721	1100	250	260	246	346	681	2480	6020	2840	1350	884
16	713	1100	270	270	250	351	729	2500	5950	2750	1370	813
17	697	1140	280	275	255	362	804	2520	5860	2360	1340	779
18	813	1030	280	280	281	340	721	2410	5830	2660	1320	729
19	866	938	280	280	290	305	713	2480	5790	2900	1330	689
20	770	583	280	280	315	320	762	2910	5350	3170	1300	635
21	737	443	280	270	305	325	839	3580	5140	2930	1340	612
22	729	395	280	270	255	335	1050	3440	4980	2810	1350	590
23	705	390	280	275	268	356	1280	3720	4670	2720	1370	612
24	689	443	280	275	305	390	1390	3760	4280	2750	1430	697
25	689	419	280	270	315	413	1390	3420	4050	2540	1430	779
26	729	419	270	270	340	468	1340	3860	4320	2360	1370	713
27	754	378	270	280	356	527	1200	4650	4340	2220	1310	697
28	745	340	270	300	335	612	1150	5050	4390	2080	1290	705
29	762	378	270	320	---	681	1290	5370	4870	1940	1130	737
30	762	425	270	330	---	713	1610	4870	4600	1810	1060	737
31	713	---	260	340	---	762	---	4280	---	1740	965	---
TOTAL	23698	19281	8863	8530	7784	13174	27464	96460	155790	91770	40205	24596
MEAN	764	643	286	275	278	425	915	3112	5193	2960	1297	820
MAX	911	1140	384	340	356	762	1610	5370	7020	3950	1700	1240
MIN	635	340	230	250	227	305	635	1810	4010	1740	965	590
AC-FT	47000	38240	17580	16920	15440	26130	54470	191300	309000	182000	79750	48790
CAL YR 1985	TOTAL	509444	MEAN	1396	MAX	8710	MIN	170	AC-FT	1010000		
WTR YR 1986	TOTAL	517615	MEAN	1418	MAX	7020	MIN	227	AC-FT	1027000		



## RIO GRANDE BASIN

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 ., 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. Elevation of gage is 8,000 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. One recording and two nonrecording (installed this season) rain gages are 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.--Maximum discharge, 0.16 ft<sup>3</sup>/s at 1815 July 20, gage height, 3.12 ft (mean daily discharge for July 20 was 0.0 ft<sup>3</sup>/s). Two periods of instantaneous flow occurred on Aug. 3 and 21, however, the mean discharge for the days were 0.0 ft<sup>3</sup>/s; no flow most of time.

## 08227400 TRACY PIT RESERVOIR INFLOW NEAR SAGUACHE, CO

LOCATION.--Lat 38°02'44", long 106°13'06", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  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. Elevation of gage is 8,190 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. One recording and two nonrecording (installed this season) rain gages 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, 0.26 ft<sup>3</sup>/s at 1815 July 8, gage height, 3.17 ft; (mean daily discharge for July 8 was 0.0 ft<sup>3</sup>/s); no flow most of time.

## 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. Elevation of gage is 8,380 ft above National Geodetic Vertical Datum of 1929, from topographic map.

--No estimated daily discharges. Records good. One recording and three nonrecording (installed this season) rain gages are 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, 0.55 ft<sup>3</sup>/s at 1330 Aug. 10, gage height, 3.21 ft. One period of instantaneous flow occurred on July 9, however the mean discharge for the day is 0.0 ft<sup>3</sup>/s; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

## MEAN VALUES

Aug. 10	.02
Aug. 12	.01

CAL YR 1985 TOTAL	0.00	MEAN	0.00	MAX	0.00	MIN	0.00	AC-FT	0.00
WTR YR 1986 TOTAL	0.03	MEAN	0.00	MAX	0.02	MIN	0.00	AC-FT	0.06

## 08238380 TURKEY RESERVOIR INFLOW NEAR CONEJOS, CO

LOCATION.--Lat 37°08'16", long 106°06'41", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  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. Elevation of gage is 8,280 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 21-23. Records good. One recording and three nonrecording (installed this season) rain gages 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, 0.58 ft<sup>3</sup>/s at 1615 July 21, gage height, 3.22 ft; (mean daily discharge for July 21, was 0.0 ft<sup>3</sup>/s). Instantaneous flow occurred on Aug. 10 and Sept. 8, however, the mean flow for both days was 0.0 ft<sup>3</sup>/s; no flow most of time.

## 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. Elevation of gage is 8,800 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated instantaneous contents. 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. There is one recording and three nonrecording (installed this season) rain gages in the basin upstream.

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, 0.05 acre-ft at 1645 Aug. 10, gage height, 4.42 ft; no contents most of time.

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

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0					---	0	0	.00	.00	.00	.00
2	0					---	0	0	.00	.00	.00	.00
3	---					---	0	0	.00	.00	.00	.00
4	---					---	0	0	.02	.00	.00	.00
5	---					---	0	0	.00	.00	.00	.00
6	---					---	0	0	.00	.00	.00	.00
7	---					---	0	0	.00	.00	.00	.00
8	---					---	0	0	.00	.00	.00	.02
9	---					---	0	0	.00	.02	.00	.02
10	---					---	0	0	.00	.02	.05	.02
11	---					---	0	0	.00	.02	.04	.00
12	---					---	0	0	.00	.00	.03	.00
13	---					---	0	0	.00	.00	.02	.00
14	---					---	0	0	.00	.00	.02	.00
15	---					---	0	0	.00	.00	.02	.00
16	---					---	0	0	.00	.00	.02	.00
17	---					---	0	0	.00	.00	.00	.00
18	---					---	0	0	.00	.00	.00	.00
19	---					---	0	0	.00	.00	.00	.00
20	---					---	0	0	.00	.00	.00	.00
21	---					---	0	0	.00	.00	.00	.00
22	---					---	0	0	.00	.00	.00	.00
23	---					---	0	0	.00	.00	.00	.00
24	---					---	0	0	.00	.00	.00	.00
25	---					0	0	0	.00	.00	.00	.00
26	---					0	0	0	.00	.00	.00	.00
27	---					0	0	0	.00	.00	.00	.00
28	---					0	0	0	.00	.00	.00	.00
29	---					0	0	0	.00	.00	.00	.00
30	---					0	0	0	.00	.00	.00	.00
31	---					0	---	0	---	.00	.00	---
MAX	---	---	---	---	---	---	.00	.00	.02	.02	.05	.02
MIN	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00

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 Lasauses, 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. Elevation of gage is 7,500 ft, estimated from nearby level lines.

REMARKS.--Estimated daily discharges: Dec. 10 to Feb. 10, and Aug. 22-25. Records good except for estimated daily discharges, which are fair. 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.--50 years, 260 ft<sup>3</sup>/s; 188,400 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, 4,060 ft<sup>3</sup>/s at 2000 June 11, gage height, 8.96 ft; minimum daily, 82 ft<sup>3</sup>/s, Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	265	564	385	435	513	698	244	1920	2320	300	122
2	244	302	525	365	410	504	730	322	1920	2410	258	112
3	194	390	519	350	390	504	806	531	1820	2310	220	110
4	166	408	528	340	410	519	874	820	1750	1990	199	103
5	143	441	498	360	395	525	834	1120	1850	1770	188	98
6	122	426	483	325	130	522	762	1340	2040	1730	171	96
7	111	438	453	320	300	528	650	1420	2250	1780	161	120
8	108	388	474	330	235	525	622	1280	2560	1840	170	127
9	135	338	468	335	290	554	678	834	3060	1730	168	128
10	186	345	300	345	305	568	578	486	3630	1600	149	152
11	248	405	235	345	405	554	547	398	4010	1750	146	195
12	248	429	125	350	395	525	531	322	3940	1930	138	328
13	248	468	195	315	380	522	507	272	3580	1940	132	365
14	280	504	325	330	372	501	483	224	3130	1800	130	315
15	260	670	360	330	372	480	462	211	2940	1720	135	298
16	253	752	370	330	402	465	382	209	2940	1580	132	265
17	228	940	370	330	432	465	332	201	3040	1400	115	239
18	224	1000	365	340	511	468	342	201	3070	1180	112	203
19	237	920	375	350	501	468	315	205	3080	980	110	195
20	237	900	385	345	540	450	228	207	3090	995	104	182
21	258	920	385	345	534	429	207	201	3060	1090	101	159
22	253	775	400	350	516	435	211	244	3000	1340	90	136
23	228	596	415	350	495	438	194	388	2820	1260	82	132
24	222	634	410	335	504	447	244	438	2670	1190	83	136
25	207	702	410	325	525	462	330	578	2590	1150	85	151
26	192	739	400	335	531	477	402	626	2450	1140	100	168
27	168	730	400	345	534	495	441	596	2280	990	107	224
28	149	690	390	350	531	528	438	874	2220	829	110	226
29	151	568	350	385	---	564	358	1220	2240	662	117	226
30	163	544	380	395	---	618	263	1520	2280	510	121	235
31	233	---	380	415	---	678	---	1790	---	380	126	---
TOTAL	6340	17627	12237	10750	11780	15731	14449	19322	81230	45296	4360	5546
MEAN	205	588	395	347	421	507	482	623	2708	1461	141	185
MAX	280	1000	564	415	540	678	874	1790	4010	2410	300	365
MIN	108	265	125	315	130	429	194	201	1750	380	82	96
AC-FT	12580	34960	24270	21320	23370	31200	28660	38330	161100	89840	8650	11000
CAL YR 1985	TOTAL	254206	MEAN	696	MAX	3660	MIN	33	AC-FT	504200		
WTR YR 1986	TOTAL	244668	MEAN	670	MAX	4010	MIN	82	AC-FT	485300		

## 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.

REVISED RECORDS.--WDR-CO-85-1: 1984.

PERIOD OF RECORD.--November 1951 to current year.

REVISED RECORDS.--WDR-CO-85-1: 1984.

GAGE.--Nonrecording gage. Datum of gage is 9,911.5 ft above 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 provided 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, 55,350 acre-ft, June 22, elevation, 10,029.5 ft; minimum contents, 36,300 acre-ft, May 11, elevation, 10,007.2 ft.

## MONTHEND ELEVATION IN FEET NGVD AND CONTENTS, AT 1000, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. . . . .	10,027.5	55,510	-
Oct. 31. . . . .	10,026.9	52,960	-550
Nov. 30. . . . .	10,026.0	52,140	-820
Dec. 31. . . . .	10,023.6	49,970	-2,170
CAL YR 1985 . . . . .			+15,950
Jan. 31. . . . .	10,027.5	53,510	+3,540
Feb. 28. . . . .	10,020.2	46,970	-6,540
Mar. 31. . . . .	10,020.2	46,970	0
Apr. 30. . . . .	10,010.4	38,800	-8,170
May 31. . . . .	10,007.3	36,370	-2,430
June 30. . . . .	10,027.5	53,510	+17,140
July 31. . . . .	10,027.5	53,510	0
Aug. 31. . . . .	10,026.4	52,500	-1,010
Sept. 30. . . . .	10,026.0	52,140	-360
WTR YR 1986 . . . . .			-1,370

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 above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Estimated daily discharges: Nov. 26 to Mar. 30 Records good. No diversion upstream from 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.--34 years, 93.1 ft<sup>3</sup>/s; 67,450 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, 944 ft<sup>3</sup>/s at 1500 Oct. 24, gage height, 3.59 ft; minimum daily, 6.2 ft<sup>3</sup>/s, Apr. 6-8, May 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	40	50	50	50	30	53	420	279	612	65	61
2	48	33	50	50	50	30	81	416	252	384	65	61
3	49	41	50	50	50	30	101	261	234	420	65	55
4	49	41	50	50	50	30	44	63	422	570	106	55
5	49	41	50	50	50	30	7.7	6.2	222	696	84	60
6	49	41	50	50	50	30	6.2	164	13	630	68	58
7	52	41	50	50	50	30	6.2	380	13	465	79	57
8	58	41	50	50	22	30	6.2	530	13	465	79	52
9	68	41	50	50	20	30	20	445	13	465	79	36
10	91	41	50	50	20	30	38	248	13	465	81	204
11	91	41	50	50	20	30	109	95	13	465	81	155
12	91	41	50	50	20	30	178	46	13	341	81	126
13	91	41	50	50	20	30	212	133	54	200	81	108
14	61	40	50	50	20	30	212	215	128	200	81	94
15	48	65	50	50	20	30	212	225	128	252	47	84
16	48	81	50	50	20	30	212	225	264	293	26	84
17	58	81	50	50	20	30	212	225	552	328	26	112
18	91	81	50	50	20	30	212	225	744	258	26	66
19	56	81	50	50	20	30	212	192	488	200	47	25
20	41	81	50	50	29	30	212	205	582	185	78	25
21	40	81	50	50	30	30	212	424	776	179	136	25
22	40	81	50	50	30	30	237	558	776	192	152	28
23	40	43	50	50	30	21	255	525	744	198	158	88
24	115	32	50	50	30	18	255	450	736	246	165	88
25	19	50	50	50	30	18	324	384	728	175	117	45
26	55	50	50	50	30	18	424	328	736	160	75	107
27	29	50	50	50	30	18	420	428	744	160	89	106
28	46	50	50	50	30	18	420	530	784	120	78	52
29	56	50	50	50	---	18	420	530	784	77	78	52
30	56	50	50	50	---	18	420	490	776	64	69	52
31	56	---	50	50	---	47	---	352	---	64	61	---
TOTAL	1789	1571	1550	1550	861	854	5733.3	9718.2	12024	9529	2523	2221
MEAN	57.7	52.4	50.0	50.0	30.8	27.5	191	313	401	307	81.4	74.0
MAX	115	81	50	50	50	47	424	558	784	696	165	204
MIN	19	32	50	50	20	18	6.2	6.2	13	64	26	25
AC-FT	3550	3120	3070	3070	1710	1690	11370	19280	23850	18900	5000	4410
CAL YR 1985	TOTAL	47741.0	MEAN	131	MAX	984	MIN	2.0	AC-FT	94690		
WTR YR 1986	TOTAL	49923.5	MEAN	137	MAX	784	MIN	6.2	AC-FT	99020		



## 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.--Estimated daily discharges: Dec. 17 to Jan. 19, Feb. 4-14, 21, 22, and Feb. 28. Records good except for estimated daily discharges, which are fair. Diversions for irrigation of about 500 acres of hay meadows upstream from 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.--77 years, 336 ft<sup>3</sup>/s; 243,400 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, 2,600 ft<sup>3</sup>/s at 0630 June 19, gage height, 5.10 ft; minimum daily, 76 ft<sup>3</sup>/s, Feb. 10-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	161	122	105	134	134	348	1200	1170	1660	208	187
2	158	139	125	110	128	134	340	1350	1080	1330	201	170
3	148	136	131	110	128	134	328	1390	1200	1140	194	154
4	145	139	125	110	120	134	299	1420	1450	1370	187	142
5	142	139	119	105	115	142	222	1220	2150	1530	257	148
6	139	131	125	110	115	142	212	1030	2020	1560	204	142
7	198	128	119	110	115	145	229	1210	2240	1150	201	131
8	229	128	125	105	95	148	246	1240	2060	1040	204	148
9	215	128	125	105	80	151	246	1220	1800	1060	201	158
10	236	122	111	110	76	131	271	935	1420	1100	194	376
11	296	125	96	110	76	136	306	710	1290	990	194	530
12	282	134	111	110	78	128	428	670	1320	910	212	360
13	271	116	128	110	82	122	512	770	1510	670	218	328
14	250	122	116	110	82	122	468	995	1700	602	232	336
15	194	116	109	110	84	122	464	1050	1670	566	212	285
16	180	131	103	110	82	116	516	1030	1650	651	148	274
17	180	148	105	115	82	116	512	1090	1910	670	125	274
18	212	148	110	115	86	114	468	970	2270	620	122	274
19	222	136	110	120	93	111	448	935	2490	516	119	187
20	180	128	105	122	96	109	452	1060	1740	498	128	148
21	167	125	100	116	110	116	530	1460	2070	556	164	136
22	164	125	100	119	110	119	680	1780	2050	472	212	131
23	154	145	105	122	114	128	845	1860	1950	456	257	142
24	154	128	105	122	114	136	885	1760	1760	472	328	204
25	208	116	105	114	119	148	850	1610	1790	420	302	218
26	136	134	105	128	116	158	960	1670	1920	356	243	204
27	164	134	105	128	122	180	870	1770	2110	340	204	302
28	148	128	105	131	122	218	865	1810	1980	310	229	246
29	154	136	105	131	---	243	960	1780	1900	257	212	254
30	161	119	115	128	---	250	1070	1680	1850	222	271	229
31	161	---	110	131	---	302	---	1370	---	215	229	---
TOTAL	5818	3945	3480	3582	2874	4589	15830	40045	53520	23709	6412	6818
MEAN	188	132	112	116	103	148	528	1292	1784	765	207	227
MAX	296	161	131	131	134	302	1070	1860	2490	1660	328	530
MIN	136	116	96	105	76	109	212	670	1080	215	119	131
AC-FT	11540	7820	6900	7100	5700	9100	31400	79430	106200	47030	12720	13520
CAL YR 1985	TOTAL	189682	MEAN	520	MAX	2610	MIN	48	AC-FT	376200		
WTR YR 1986	TOTAL	170622	MEAN	467	MAX	2490	MIN	76	AC-FT	338400		

RIO GRANDE BASIN

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. Elevation 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.--Estimated daily discharges: Nov. 14, Nov. 18 to Feb. 28, and Mar. 19. Records good except for estimated daily discharges, which are fair. A few small diversions upstream from 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.--46 years (1940-86), 26.0 ft<sup>3</sup>/s; 18,840 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 greater than base discharge 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)
May 4	0700	*708	*4.26	No other peak greater than base discharge.			
No flow Aug. 3-6.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	8.0	8.0	4.0	7.5	29	134	304	54	8.8	.20	3.6
2	3.0	8.0	8.5	4.0	8.0	28	118	368	63	6.2	.06	3.2
3	2.8	7.0	8.5	4.0	7.5	22	86	396	54	4.6	.00	2.2
4	2.8	6.6	8.0	4.0	6.5	28	68	524	61	4.0	.00	1.8
5	2.5	6.2	8.0	3.5	6.0	30	58	446	52	5.4	.00	1.6
6	2.5	6.2	8.0	4.0	6.5	33	62	295	50	6.6	.00	1.4
7	2.8	5.0	8.0	4.0	7.0	26	91	236	41	5.4	.05	1.2
8	18	4.3	8.0	3.5	6.0	32	119	200	37	4.3	.40	1.2
9	9.3	4.3	8.0	4.0	6.0	34	124	158	42	4.6	3.1	3.3
10	8.0	4.6	4.5	4.5	5.0	20	124	130	35	5.0	22	4.3
11	16	4.0	4.5	4.5	5.0	23	126	122	41	4.3	5.6	13
12	23	6.2	4.0	4.5	5.5	19	134	148	30	2.8	4.1	9.8
13	13	6.2	4.0	4.5	6.5	23	155	166	26	1.6	7.8	6.6
14	9.8	4.0	4.5	4.5	7.0	17	97	166	21	.90	1.2	4.6
15	8.4	3.6	4.5	4.5	8.5	19	98	155	18	.75	2.0	4.3
16	7.0	5.0	4.5	5.0	8.0	15	125	136	16	1.2	1.6	3.0
17	7.0	7.5	4.5	5.0	8.0	16	132	145	14	2.8	.90	2.5
18	9.8	7.5	4.5	5.0	9.0	14	98	130	12	2.8	.50	3.0
19	12	6.0	4.5	5.0	9.0	12	88	109	11	2.8	5.2	2.2
20	10	5.5	4.5	5.0	8.5	16	84	112	10	2.5	6.3	1.6
21	9.3	8.0	4.5	5.5	8.0	13	116	115	9.3	5.8	2.2	1.0
22	8.0	7.0	4.5	5.0	8.0	14	196	102	7.5	6.6	1.8	.90
23	7.5	8.0	4.5	5.0	12	16	234	92	6.6	5.0	1.6	1.0
24	6.6	8.5	4.5	5.5	16	20	252	82	7.0	5.4	12	1.2
25	6.6	9.0	4.5	5.5	20	27	227	73	12	4.0	11	1.8
26	6.2	8.0	4.0	5.0	24	32	229	68	13	2.5	6.6	5.3
27	6.2	7.5	4.0	5.0	23	42	163	62	12	1.6	5.8	14
28	5.8	7.5	4.0	5.0	22	58	142	61	8.8	1.0	3.6	11
29	5.4	8.0	4.0	6.0	---	76	182	63	7.0	.75	3.2	11
30	7.0	7.5	4.5	7.0	---	85	234	61	7.0	.60	5.7	11
31	8.4	---	4.5	8.0	---	101	---	58	---	.40	2.5	---
TOTAL	247.9	194.7	169.0	149.5	274.0	940	4096	5283	778.2	111.00	117.01	132.60
MEAN	8.00	6.49	5.45	4.82	9.79	30.3	137	170	25.9	3.58	3.77	4.42
MAX	23	9.0	8.5	8.0	24	101	252	524	63	8.8	22	14
MIN	2.5	3.6	4.0	3.5	5.0	12	58	58	6.6	.40	.00	.90
AC-FT	492	386	335	297	543	1860	8120	10480	1540	220	232	263
CAL YR 1985	TOTAL	20228.75		MEAN	55.4	MAX	692	MIN	.00	AC-FT	40120	
WTR YR 1986	TOTAL	12492.91		MEAN	34.2	MAX	524	MIN	.00	AC-FT	24780	

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. Elevation 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.--Estimated daily discharges: Nov. 14 to Mar. 1. Records good except for estimated daily discharges, which are fair. Diversions upstream from 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.--67 years, 121 ft<sup>3</sup>/s; 87,660 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 greater than base discharge 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 4	2330	*1,710	*5.87	May 21	0030	1,070	4.90

Minimum daily discharge, 17 ft<sup>3</sup>/s, Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985  
MEAN VALUES 1986

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	59	29	25	26	43	214	758	551	235	35	36
2	45	54	30	25	27	43	210	934	539	212	34	31
3	42	53	30	25	26	45	173	1160	609	200	33	26
4	40	50	29	25	25	46	160	1430	618	200	33	25
5	37	50	29	24	25	49	151	1310	686	214	33	24
6	36	44	30	25	25	54	149	1020	740	190	31	23
7	107	39	30	25	25	55	180	830	762	158	29	22
8	123	39	30	24	24	60	195	717	717	145	32	27
9	96	43	30	24	24	62	200	568	686	145	29	28
10	82	35	23	25	23	54	207	482	609	139	29	121
11	117	40	25	25	23	53	220	493	547	115	32	119
12	119	41	22	25	23	53	227	596	512	101	33	89
13	115	27	20	25	26	49	235	699	532	91	40	67
14	102	21	23	25	26	46	200	753	536	86	44	63
15	84	17	28	25	28	45	202	735	512	84	41	54
16	78	18	30	26	27	43	238	708	489	87	32	54
17	80	20	30	26	27	43	235	717	474	92	28	63
18	94	21	30	26	28	40	207	578	474	77	29	48
19	94	19	30	26	28	43	190	632	463	74	34	42
20	91	18	28	26	27	39	192	780	410	74	27	37
21	80	21	28	26	26	39	259	892	368	111	26	35
22	77	20	28	26	26	42	395	850	349	82	25	34
23	67	24	28	26	30	46	493	830	330	74	27	34
24	64	25	27	26	35	56	539	790	314	69	39	39
25	63	28	27	26	40	63	528	730	327	59	35	48
26	63	27	27	25	42	69	478	766	333	54	42	62
27	59	26	26	26	41	84	385	735	342	49	37	59
28	59	25	26	26	39	109	355	668	299	44	31	89
29	58	28	26	26	---	139	455	672	284	39	34	109
30	58	27	26	26	---	155	591	650	264	37	42	87
31	56	---	25	27	---	185	---	564	---	36	48	---
TOTAL	2334	959	850	788	792	1952	8463	24047	14676	3373	1044	1595
MEAN	75.3	32.0	27.4	25.4	28.3	63.0	282	776	489	109	33.7	53.2
MAX	123	59	30	27	42	185	591	1430	762	235	48	121
MIN	36	17	20	24	23	39	149	482	264	36	25	22
AC-FT	4630	1900	1690	1560	1570	3870	16790	47700	29110	6690	2070	3160

CAL YR 1985	TOTAL	79822	MEAN	219	MAX	1730	MIN	15	AC-FT	158300
WTR YR 1986	TOTAL	60873	MEAN	167	MAX	1430	MIN	17	AC-FT	120700

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 Lasausas, 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 above and on secondary (south) channel is 7,496.89 ft above 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.--Estimated daily discharges: Dec. 12-29, Jan. 4-6, 8-10, 15, Feb. 8, July 31, Aug. 1. Records good except for estimated daily discharges, which are fair. Diversions for irrigation of about 75,000 acres 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.--65 years, 190 ft<sup>3</sup>/s; 137,700 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, 1,970 ft<sup>3</sup>/s May 6; minimum daily, 7.4 ft<sup>3</sup>/s, Aug. 20-22, Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	87	165	149	159	186	364	988	1260	1460	18	10
2	56	89	164	146	174	188	432	1160	1220	1320	16	8.9
3	50	87	164	151	166	196	417	1410	1220	1060	15	9.4
4	46	84	169	141	159	195	394	1590	1270	822	13	9.4
5	46	84	147	136	152	199	364	1850	1320	832	14	8.9
6	44	84	145	141	152	198	303	1870	1660	951	13	8.9
7	41	81	157	144	159	198	287	1380	1750	964	13	7.4
8	38	79	152	136	147	223	325	1120	1820	880	13	8.4
9	76	78	155	131	147	234	329	983	1860	896	13	9.4
10	73	75	145	131	125	236	349	737	1790	1000	13	11
11	86	73	141	146	119	212	335	572	1350	974	13	111
12	103	73	122	146	117	212	369	513	1030	888	12	214
13	110	72	111	149	121	205	474	486	903	725	12	144
14	106	77	111	146	125	198	513	544	797	559	11	110
15	98	69	121	147	133	186	433	583	752	444	10	105
16	95	68	126	147	138	180	407	544	701	385	9.8	84
17	87	103	126	145	133	168	441	540	606	348	9.8	78
18	93	152	131	147	145	168	415	570	640	280	9.4	70
19	104	149	131	147	150	155	377	466	771	236	8.9	58
20	104	136	131	150	162	151	366	442	1050	192	7.4	47
21	100	120	131	152	165	149	366	508	1060	232	7.4	38
22	95	119	131	152	144	146	415	678	1190	261	7.4	34
23	96	113	131	152	144	158	624	847	1210	238	7.7	32
24	88	123	136	150	152	149	826	990	1110	195	9.8	32
25	84	124	131	143	161	149	891	1000	1100	194	8.9	31
26	83	132	136	139	171	153	960	923	1170	140	9.4	36
27	81	146	136	139	176	165	970	940	1290	104	9.4	35
28	81	139	141	143	189	182	828	971	1380	84	8.9	67
29	79	139	141	147	---	228	745	1060	1410	58	8.4	78
30	79	176	158	156	---	273	830	1300	1490	35	8.9	96
31	81	---	153	166	---	308	---	1450	---	24	10	---
TOTAL	2475	3131	4339	4515	4185	5948	15149	29015	36180	16781	340.5	1591.7
MEAN	79.8	104	140	146	149	192	505	936	1206	541	11.0	53.1
MAX	110	176	169	166	189	308	970	1870	1860	1460	18	214
MIN	38	68	111	131	117	146	287	442	606	24	7.4	7.4
AC-FT	4910	6210	8610	8960	8300	11800	30050	57550	71760	33290	675	3160
CAL YR 1985	TOTAL	157499.8		MEAN	432	MAX	2010	MIN	3.9	AC-FT	312400	
WTR YR 1986	TOTAL	123650.2		MEAN	339	MAX	1870	MIN	7.4	AC-FT	245300	

## 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 above National Geodetic Vertical Datum of 1929. Prior to 1910, nonrecording gages at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 12 to Feb. 17. Records good except for estimated daily discharges, 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: 56 years (water years 1931-86), 444 ft<sup>3</sup>/s; 321,700 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, 6,180 ft<sup>3</sup>/s at 1600 June 11, gage height, 6.30 ft; minimum daily, 88 ft<sup>3</sup>/s, Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266	355	760	575	610	744	997	1190	3160	3960	375	142
2	310	375	752	565	625	720	1100	1380	3140	3960	310	139
3	270	450	706	540	615	728	1170	1810	3060	3820	270	128
4	234	496	728	530	585	736	1220	2330	2940	3200	242	125
5	209	526	692	515	600	744	1200	2840	3020	2750	226	120
6	195	544	657	525	575	744	1100	3370	3550	2700	206	112
7	188	538	622	495	310	744	988	3180	4010	2820	188	112
8	170	520	650	495	490	760	925	2800	4350	2900	181	154
9	160	484	650	495	410	792	1020	2280	4900	2810	192	160
10	258	435	636	505	465	824	961	1580	5570	2700	181	167
11	290	466	365	515	460	808	916	1160	6080	2770	164	216
12	355	514	415	520	515	768	898	943	6010	3060	157	460
13	360	544	285	525	530	752	988	824	5300	3020	154	550
14	385	580	345	495	555	728	1030	800	4500	2700	148	466
15	375	706	475	505	560	692	934	832	4080	2420	145	410
16	360	848	520	505	590	664	856	832	3900	2150	148	385
17	345	1020	535	505	580	657	808	760	3960	1880	136	340
18	325	1110	535	505	587	657	776	824	4080	1580	128	310
19	340	1310	535	515	692	650	736	760	4190	1240	122	274
20	345	1340	545	525	720	622	643	678	4420	1160	112	258
21	350	1230	555	525	720	601	587	692	4520	1250	108	223
22	375	1080	555	525	678	594	608	840	4550	1640	105	202
23	350	824	570	530	664	594	728	1150	4380	1670	88	181
24	330	744	585	530	657	601	997	1360	4130	1530	100	184
25	315	808	585	515	685	615	1200	1590	3970	1460	95	195
26	302	880	580	500	713	622	1350	1610	3890	1400	102	209
27	290	880	575	505	720	643	1480	1530	3720	1240	112	242
28	266	872	575	515	760	678	1360	1680	3690	1040	122	282
29	258	752	570	525	---	736	1220	2010	3720	848	130	306
30	258	736	530	560	---	832	1130	2520	3870	650	133	325
31	298	---	580	580	---	916	---	3040	---	496	139	---
TOTAL	9132	21967	17668	16165	16671	21966	29926	49195	124660	66824	5019	7377
MEAN	295	732	570	521	595	709	998	1587	4155	2156	162	246
MAX	385	1340	760	580	760	916	1480	3370	6080	3960	375	550
MIN	160	355	285	495	310	594	587	678	2940	496	88	112
AC-FT	18110	43570	35040	32060	33070	43570	59360	97580	247300	132500	9960	14630
CAL YR 1985	TOTAL	442193		MEAN	1211	MAX	6080	MIN	40	AC-FT	877100	
WTR YR 1986	TOTAL	386570		MEAN	1059	MAX	6080	MIN	88	AC-FT	766800	

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 TEMPERATURE: 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 29...	1200	176	390	9.0	11.0	7.0	7.4	<2	<2	130	40
DEC 23...	1400	675	229	8.1	0.0	7.8	11.2	27	--	81	24
FEB 25...	1100	671	272	8.2	5.0	14	9.2	K2	44	86	26
APR 29...	1200	1170	175	7.9	11.5	20	7.6	K36	52	67	20
JUN 30...	1200	3890	170	7.6	19.0	5.2	7.1	110	65	60	18
AUG 29...	1100	125	457	8.7	20.0	--	7.4	K18	K6	--	--

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, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 29...	8.1	31	1	5.5	117	64	8.8	0.40	21	254	250
DEC 23...	5.0	13	0.7	3.1	78	19	3.8	0.30	30	150	150
FEB 25...	5.1	21	1	3.7	84	36	6.1	0.40	28	210	180
APR 29...	4.2	11	0.6	2.4	59	23	3.3	0.20	22	168	120
JUN 30...	3.7	12	0.7	2.9	59	24	2.9	0.10	19	125	120
AUG											

DATE	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 (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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 29...	0.35	121	0.100	--	0.050	--	0.60	0.121	0.080	3	33
DEC 23...	0.20	273	0.280	--	0.090	--	0.50	0.130	0.090	--	--
FEB 25...	0.29	380	0.210	0.060	0.070	0.64	0.70	0.170	0.170	3	32
APR 29...	0.23	531	0.150	0.070	0.040	0.63	0.70	0.170	0.120	--	--
JUN 30...	0.17	1310	<0.100	0.030	0.040	0.37	0.40	0.120	0.070	2	34
AUG 29...	--	--	<0.100	0.010	<0.010	0.79	0.80	0.160	0.110	--	--

DATE	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)	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)
OCT 29...	<0.5	<1	<1	<3	4	300	2	49	0.3	<10
FEB 25...	<0.5	<1	<1	<3	4	610	6	86	0.2	<10
JUN 30...	1	<1	<1	<3	14	600	27	69	--	<10

K BASED ON NON-IDEAL COLONY COUNT.

## RIO GRANDE BASIN

08251500 RIO GRANDE NEAR LOBATOS, CO--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	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)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)	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 SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)
OCT 29...	5	3	<1	<6	7	4.1	4.2	<0.6	4.0	1.1
FEB 25...	<1	<1	<1	<6	23	--	--	--	--	--
JUN 30...	1	<1	<1	<6	29	--	--	--	--	--

## SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 29...	1200	176	54	26	79
APR 29...	1200	1170	82	259	--
JUN 30...	1200	3890	62	651	53
AUG 29...	1100	125	23	7.8	81

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN COLORADO

There are 24 tunnels or ditches, all of which are equipped with water-stage recorders and Parshall flumes or sharp-crested weirs. Records furnished by Colorado Division of Water Resources. The locations and diversions of 8 selected diversions are given in the following list.

09010000 Grand River ditch diverts water from tributaries of Colorado River to La Poudre Pass Creek (tributary to Cache la Poudre River) in NW¼ sec.21, T.6 N., R.75 W., in Platte River basin. Two collection ditches beginning at headgates located in sec.28, T.5 N., R.76 W., and sec.29, T.6 N., R.75 W., intercept all tributaries upstream on each side of the Colorado River and converge at La Poudre Pass.

REVISIONS (WATER YEARS).--WSP 1313: 1912-27.

09013000 Alva B. Adams tunnel diverts water from Grand Lake and Shadow Mountain Lake in NW¼ sec.9, T.3 N., R.75 W., in Colorado River basin, to Lake Estes (Big Thompson River) in sec.30, T.5 N., R.72 W., in Platte River basin. For daily discharge, see elsewhere in this report.

09021500 Berthoud Pass ditch diverts water from tributaries of Fraser River between headgate in sec.33, T.2 S., R.75 W., and Berthoud Pass, in Colorado River basin, to Hoop Creek (tributary to West Fork Clear Creek) in sec.10, T.3 S., R.75 W., in Platte River basin.

09042000 Hoosier Pass tunnel diverts water from tributaries of Blue River in Colorado River basin to Montgomery Reservoir (Middle Fork South Platte River) in sec.14, T.8 S., R.78 W., in Platte River basin; this water is again diverted to South Catamount Creek (tributary to Catamount Creek) in SE¼ sec.14, T.13 S., R.69 W., in the Arkansas River basin. Collection conduits extending from the right bank of Crystal Creek (tributary to Spruce Creek) in sec.14, T.7 S., R.78 W., right bank of Spruce Creek in sec.23, T.7 S., R.78 W., right bank of McCullough Gulch in sec.26, T.7 S., R.78 W., right bank of Monte Cristo Creek in SW¼NE¼ sec.2, T.8 S., R.78 W., left bank of Bemrose Creek in SW¼SW¼ sec.6, T.8 S., R.77 W., and intercepting intermediate tributaries, transport diversions to north portal of the tunnel.

REVISIONS (WATER YEARS).--WDR CO-86-1, WDR CO-86-2: 1984, 1985.

09050590 Harold D. Roberts tunnel diverts water from Dillon Reservoir (Blue River) in sec.18, T.5 S., R.77 W., in Blue River basin, to North Fork South Platte River (tributary to South Platte, River) in SW¼SW¼ sec.4, T.7 S., R.74 W., in Platte River basin. Figures include a small amount of ground-water inflow between Dillon Reservoir and east portal of tunnel.

09063700 Homestake tunnel diverts water from Homestake Lake (Middle Fork Homestake Creek), in sec.17, T.8 S., R.81 W., in Eagle River basin, to Lake Fork in sec.9, T.9 S., R.81 W., in Arkansas River basin. Water is imported to Homestake Lake from tributaries of Homestake Creek by collection conduits that extend from right bank of French Creek in sec.28, T.7 S., R.81 W., and left bank of East Fork Homestake Creek in sec.9, T.8 S., R.81 W., and intercept intermediate tributaries.

09077160 Charles H. Boustead tunnel diverts water from the main stem and tributaries of Fryingspan River (tributary to Roaring Fork River), in Colorado River basin, to Lake Fork in sec.10, T.9 S., R.81 W., in Arkansas River basin. Water is transported to west portal of tunnel (at lat 39°14'44", long 106°31'47"), by a series of collection conduits extending between headgates on right bank of Sawyer Creek at lat 39°15'58", long 106°38'19" and right bank of Fryingspan River at lat 39°14'40", long 106°31'49", and intercepting intermediate tributaries.

09077500 Busk-Ivanhoe tunnel diverts water from Ivanhoe Lake (Ivanhoe Creek), tributary to Fryingspan River in sec.13, T.9 S., R.82 W., in Roaring Fork River basin, to Busk Creek (tributary to Lake Fork) in sec. 20, T.9 S., R.81 W., in Arkansas River basin.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986  
(SOME PREVIOUSLY UNPUBLISHED DIVERSIONS TO THE ARKANSAS RIVER BASIN ARE INCLUDED IN THIS TABLE)

Diversion	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TO PLATTE RIVER BASIN												
09010000	0	0	0	0	0	0	0	0	11,420	8,800	3,140	560
Water year	1986, 23,940											
09013000	Diversion during water year 1986 for this tunnel will be published in a subsequent report.											
09021500	0	0	0	0	0	0	0	0	216	505	138	55
Water year	1986, 914											
09050590	0	0	0	0	0	0	0	980	0	0	0	0
Water year	1986, 980											
TO ARKANSAS RIVER BASIN												
09042000	1,870	0	0	0	0	0	0	982	1,730	765	783	1,360
Water year	1984, 7,490											
09042000	1,080	0	0	0	0	0	0	833	2,250	1,140	956	1,220
Water year	1985, 7,470											
09042000	178	0	0	0	0	0	0	961	5,560	2,540	1,800	1,840
Water year	1986, 12,880											
09063700	Diversion during water year 1986 for this tunnel will be published in a subsequent report.											
09077160	2,070	421	0	0	0	0	63	16,420	36,460	14,820	1,540	0
Water year	1985, 71,790											
09077160	0	0	0	0	0	0	0	4,190	21,430	4,880	1,320	0
Water year	1986, 31,820											
09077500	0	0	0	0	0	0	0	547	4,170	3,520	993	373



## 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
		09341000 Treasure Pass 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
	09115000 Larkspur ditch	09351000 Pine River-Weminuche Pass ditch
		09351500 Weminuche Pass 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 1986

Station number	Station name	Location	Total drainage area (mi <sup>2</sup> )	Non-tributing	Period of record	Annual maximum		
						Date	Gage height (feet)	Discharge (ft <sup>3</sup> /s)
PLATTE RIVER BASIN								
-----	Lee Gulch at Littleton, CO	Lat 39°35'47", long 105°00'756", in SW <sup>1</sup> / <sub>4</sub> SW <sup>1</sup> / <sub>4</sub> sec.21, T.5 S., R.68W., Arapahoe County, on right bank 30 ft above Prince St. culvert, 0.6 mi upstream from mouth in Littleton.	a		1980-86	1986	12.08	59
06708500	Deer Creek near Littleton, CO	Lat 39°32'56", long 105°07'59", in NE <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub> 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, 1978-86	1986	4.86	12
06710350	Bear Creek near Evergreen, CO	Lat 39°38'11", long 105°20'51", in NW <sup>1</sup> / <sub>4</sub> NW <sup>1</sup> / <sub>4</sub> 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	-	1978-86	1986	6.39	153
06710400	Cub Creek at Evergreen, CO	Lat 39°37'50", long 105°19'16", in NW <sup>1</sup> / <sub>4</sub> SE <sup>1</sup> / <sub>4</sub> sec.10, T.5 S., R.71 W., Jefferson County, 0.1 mi upstream from confluence with Bear Creek.	22.2	-	1978-86	1986	6.81	90
06710600	Mt. Vernon Creek near Morrison, CO	Lat 39°40'49", long 105°11'50", in NW <sup>1</sup> / <sub>4</sub> NW <sup>1</sup> / <sub>4</sub> sec.26, T.4 S., R.70 W., Jefferson County, 1.9 mi north of Morrison.	7.58	-	1978-86	1986		Not determined
06710990	Parmalee Gulch at mouth at Indian Hills, CO	Lat 39°36'57", long 105°13'54", in NW <sup>1</sup> / <sub>4</sub> SE <sup>1</sup> / <sub>4</sub> sec.16, T.5 S., R.70 W., Jefferson County, 20 ft upstream from box type culvert beneath U.S. Highway 285.	5.80	-	1978-86	1986	8.71	7.7
06711000	Turkey Creek near Morrison, CO	Lat 39°37'22", long 105°11'13", in NE <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub> sec.14, T.5 S., R.70 W., Jefferson County, 2.2 mi southwest of Morrison.	48.0	-	1942-53, 1969, 1978-86	1986	9.64	37
-----	Weaver Creek near Lakewood, CO	Lat 39°38'13", long 105°07'47", in NE <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub> sec.8, T.5 S., R.69 W., Jefferson County, 500 ft upstream from Simms St., and 700 ft south of West Quincy Ave.	a		1982-86	1986	10.81	42
-----	Little Dry Creek above Englewood, CO	Lat 39°38'56", long 104°58'40", in SW <sup>1</sup> / <sub>4</sub> NW <sup>1</sup> / <sub>4</sub> sec.2, T.5 S., R.68 W., Arapahoe County, 40 ft above Clarkson St. bridge, and 800 ft south of Hampton Ave., in Cherry Hills Village.	a		1982-86	1986	11.93	373
06711570	Harvard Gulch at Colorado Blvd. at Denver, CO	Lat 39°40'08", long 104°56'32", in SE <sup>1</sup> / <sub>4</sub> SE <sup>1</sup> / <sub>4</sub> sec.30, T.4 S., R.67 W., Denver County, on left bank, 100 ft upstream from S. Jackson St., and 400 ft north of E. Yale Ave.	a		1979-86	1986	11.32	139

## ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1986--Continued

Station number	Station name	Location	Total drainage area (mi <sup>2</sup> )	Non tribututing	Period of record	Date	Annual maximum	
							Gage height (feet)	Discharge (ft <sup>3</sup> /s)
PLATTE RIVER BASIN--Continued								
-----	Harvard Gulch below University Blvd. at Denver, CO	Lat 39°40'10", long 104°57'33", in SE½SE¼ sec.26, T.4 S., R.68 W., Denver County, 200 ft downstream from University Blvd., and 600 ft north of East Yale Ave., in Denver.	a		1979-86	1986	11.57	193
06711575	Harvard Gulch at Harvard Park at Denver, CO	Lat 39°40'21", long 104°58'35", in NW¼SW¼ sec.26, T.4 S., R.68 W., Denver County, on left bank, 200 ft north of E. Harvard Ave. and 300 ft west of S. Ogden St., directly north of Porter Hospital.	a		1979-86	1986	12.67	104
06711600	Sanderson Gulch tributary at Lakewood, CO	Lat 39°41'19", long 105°04'54", in NE¼NW¼ 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	-	1969-86	1986	12.08	69
-----	Dry Gulch at Denver, CO	Lat 39°44'03", long 105°02'20", in SW¼NE¼ sec.6, T.4 S., R.68 W., Denver County, 800 ft upstream from confluence with Lakewood Gulch, north of West 10th Ave., at Perry St., in Denver.	a		1980-86	1986	13.61	273
-----	Lakewood Gulch at Denver, CO	Lat 39°44'06", long 105°01'54", in SW¼NW¼ sec.5, T.4 S., R.68 W., Denver County, 2,000 ft downstream from confluence with Dry Gulch, near intersection of Knox Ct., and West 12th Ave., in Denver.	a		1980-86	1986	13.88	581
06714310	Sand Creek tributary at Denver, CO	Lat 39°47'07", long 104°50'31", in SW¼SW¼ 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	-	1971-86	1986	11.76	123
-----	Westerly Creek at Aurora, CO	Lat 39°44'43", long 104°52'48", in NW¼SW¼ sec.34, T.3 S., R.67 W., Adams County, 50 ft upstream from footbridge, 800 ft upstream from Montview Blvd., and 100 ft east of Boston St., in Aurora.	a		1982-86	1986	11.84	335
-----	Little Dry Creek at Westminster, CO	Lat 39°49'39", long 105°02'28", in SE¼NW¼ sec.5, T.3 S., R.68 W., Adams County, 30 ft upstream from culvert under 72nd Ave., and 1300 ft west of Lowell Blvd. in Westminster.	a		1982-86	1986	10.92	125
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 1978-86	1986	7.23	520
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 1978-86	1986	7.60	180
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	-	1978-86	1986	5.23	13

## ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1986--Continued

Station number	Station name	Location	Total drainage area (mi <sup>2</sup> )	Non contributing	Period of record	Date	Annual maximum	
							Gage height (feet)	Discharge (ft <sup>3</sup> /s)
PLATTE RIVER BASIN--Continued								
-----	Inflow into Holly Reservoir, CO.	Lat 39°35'38", long 104°54'23", in NE¼NE¼ sec.29, T.5.S., R.67 W., Arapahoe County, on right bank, 800 ft downstream from Quebec St. north of East Yale Ave., in Denver.	a		1985-86	1985 1986	10.52 8.67	800 185
-----	Lena Gulch at Upper Site, at Golden, CO	Lat 39°43'21", long 105°11'46", in NE¼NW¼ sec.11, T.4.S., R.70 W., Jefferson County, 60 ft north of US 40, and 2,200 ft southwest of US 6, in Golden.	a		1985-86	1985 1986	none 10.55	none 240
-----	Little Creek at Littleton, CO	Lat 39°36'44", long 105°01'09", in SE¼SE¼ sec.17, T.5.S., R.68 W., Arapahoe County, 50 ft downstream from Rapp St., and 150 ft south of W. Alamo St. in Littleton.	a		1985-86	1985 1986	none none	none none
-----	Sanderson Gulch at Mouth at Navajo St. at Denver, CO	Lat 39°41'33", long 105°00'12", in SW¼NE¼ sec.21, T.4.S., R.68 W., Denver County, 200 ft south of Louisiana Ave., at Navajo St.	a		1985-86	1985 1986	11.82 11.40	522 400
-----	Sloans Lake, south Tributary at Denver, CO	Lat 39°44'44", long 105°03'28", in NW¼SE¼ sec.36, T.3.S., R.69 W., Jefferson County, 100 ft south of 18th Ave., at Depew St.	a		1985-86	1985 1986	2.30 3.18	45 372
-----	Weir Gulch upstream from 1st Avenue, at Denver, CO	Lat 39°43'03", long 105°02'30", in NW¼SE¼ sec.7, T.4.S., R.68 W., Denver County, 250 ft upstream from 1st Ave., in Denver.	a		1985-86	1985 1986	11.03 11.47	275 375
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, 1978-86	1986	3.55	1,400
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, 1978-86	1986	2.90	500

a Not determined.

## SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06614800 MICHIGAN RIVER NEAR CAMERON PASS, CO. (LAT 40 29 46N LONG 105 51 52W)									
OCT 1985					MAY 1986				
05...	1035	0.84	60	2.0	21...	1130	3.9	45	1.0
NOV					JUN				
16...	1200	0.83	35	1.0	10...	1145	18	42	1.0
DEC					JUL				
31...	1200	0.52	42	1.0	01...	1100	18	32	5.0
FEB 1986					AUG				
17...	1130	0.33	40	1.0	21...	1100	3.0	40	10.0
APR					SEP				
01...	1230	0.52	55	1.0	06...	1100	1.7	42	8.0
06695000 S PLATTE R AB 11-MILE CANYON RE, NR HARTSEL, CO. (LAT 38 58 03N LONG 105 34 51W)									
OCT 1985					APR 1986				
07...	1545	50	--	12.0	08...	1455	217	--	6.0
NOV					22...	1400	30	--	14.5
18...	1545	38	--	2.5	MAY				
DEC					06...	1640	36	--	10.0
04...	1530	40	--	1.5	20...	1432	35	--	17.5
17...	1710	64	--	0.0	JUN				
30...	1525	40	--	4.0	03...	1320	56	--	13.0
JAN 1986					17...	1310	122	--	18.5
14...	1510	59	--	4.0	JUL				
29...	1440	58	--	6.0	02...	1300	251	--	17.0
FEB					16...	1420	159	--	12.0
10...	1620	58	--	2.0	31...	1443	162	--	20.0
24...	1530	40	--	4.0	AUG				
MAR					11...	1817	132	--	17.0
11...	1430	262	--	5.5	27...	1235	179	--	19.0
25...	1335	261	--	7.0	SEP				
					10...	1510	160	--	16.0
					24...	1425	109	--	12.5
06696000 SOUTH PLATTE RIVER NEAR LAKE GEORGE, CO. (LAT 38 54 19N LONG 105 28 22W)									
OCT 1985					APR 1986				
07...	1410	58	--	11.0	08...	1210	239	--	5.0
NOV					22...	1205	51	--	8.0
18...	1425	33	--	4.0	MAY				
DEC					06...	1405	29	--	10.0
04...	1345	41	--	1.0	20...	1210	27	--	12.5
17...	1525	56	--	2.0	JUN				
30...	1345	47	--	2.0	03...	1110	53	--	12.0
JAN 1986					17...	1055	31	--	14.5
14...	1335	53	--	3.0	JUL				
29...	1325	58	--	3.0	02...	1055	228	--	17.0
FEB					16...	1300	205	--	18.0
10...	1445	57	--	3.0	31...	1245	154	--	19.0
24...	1350	47	--	4.0	AUG				
MAR					11...	1345	133	--	17.5
11...	1215	158	--	7.0	27...	0855	232	--	17.0
25...	1715	280	--	4.5	SEP				
					11...	0905	153	--	15.5
					24...	1215	92	--	14.0
06696980 TARRYALL CREEK AT UPPER STATION, NEAR COMO, CO. (LAT 39 20 22N LONG 105 54 37W)									
OCT 1985					APR 1986				
01...	1520	12	70	3.0	15...	1740	9.1	90	2.0
NOV					MAY				
08...	1045	9.6	60	5.0	13...	1150	22	120	3.0
DEC					JUN				
05...	1140	10	60	1.0	11...	1250	66	120	4.0
FEB 1986					JUL				
04...	1310	7.8	90	0.5	01...	1120	43	120	5.0
MAR					SEP				
11...	1645	6.4	60	1.0	09...	1625	15	80	8.0
06697200 FRENCH CREEK NEAR JEFFERSON, COLORADO (LAT 39 23 21N LONG 105 38 07W)									
MAR 1986					JUN 1986				
11...	1250	1.1	<50	0.0	11...	1505	34	60	4.0
APR					JUL				
15...	1240	1.8	<50	0.0	01...	1310	22	110	5.0
28...	1245	2.9	<50	1.0	SEP				
MAY					09...	1040	5.8	<50	8.0
13...	1630	10	<50	3.0					
29...	1050	17	110	2.0					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06697450 MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32N LONG 105 50 27W)									
OCT 1985					APR 1986				
01...	0945	17	65	2.0	15...	1410	16	85	1.5
16...	1510	18	140	7.0	MAY				
NOV					13...	1755	15	130	3.0
08...	1225	10	65	3.0	JUN				
DEC					11...	1745	72	130	4.0
05...	1355	5.9	65	0.0	JUL				
FEB 1986					02...	1330	41	140	5.0
04...	1050	4.7	60	0.0	SEP				
MAR					09...	1220	15	95	9.0
11...	1130	6.7	90	1.0					
06698000 JEFFERSON CREEK NEAR JEFFERSON, CO. (LAT 39 23 24N LONG 105 48 38W)									
OCT 1985					APR 1986				
01...	1130	6.7	<50	2.0	15...	1050	6.9	<50	1.5
NOV					MAY				
05...	1540	5.0	60	5.0	13...	0945	9.9	<50	3.0
DEC					JUN				
05...	1735	2.5	<50	0.0	11...	1350	18	80	4.0
FEB 1986					JUL				
04...	1650	3.9	<50	0.0	02...	1145	24	110	5.0
MAR					SEP				
11...	0915	5.8	<50	1.0	09...	1000	24	65	9.0
06699000 ROCK CREEK NEAR JEFFERSON, COLORADO (LAT 39 17 29N LONG 105 41 43W)									
MAR 1986					JUN 1986				
11...	1800	2.1	85	1.0	11...	0910	25	80	4.0
APR					JUL				
15...	1620	8.2	120	1.0	02...	1700	14	120	6.0
28...	1615	7.0	95	1.5	SEP				
MAY					09...	1445	5.7	65	8.0
13...	1505	12	110	2.0					
19...	1605	13	85	4.0					
29...	1255	16	110	1.0					
06699005 TARRYALL CREEK BELOW ROCK C NEAR JEFFERSON, CO. (LAT 39 17 13N LONG 105 41 43W)									
OCT 1985					APR 1986				
01...	1315	25	85	4.0	15...	1540	21	80	1.0
NOV					28...	1450	29	240	2.0
05...	1720	32	80	6.0	MAY				
DEC					13...	1350	34	185	3.0
05...	1635	7.1	140	0.0	19...	1425	35	120	4.0
FEB 1986					JUN				
04...	1435	9.7	80	0.0	11...	1110	203	140	4.0
MAR					JUL				
11...	1500	13	120	1.5	02...	1545	82	240	5.0
					SEP				
					09...	1340	50	130	9.0
06701500 SOUTH PLATTE RIVER BELOW CHEESMAN LAKE, CO. (LAT 39 12 33N LONG 105 16 02W)									
OCT 1985					APR 1986				
07...	1020	29	--	6.0	07...	1400	365	--	7.5
NOV					21...	1220	157	--	8.5
18...	1035	48	--	7.0	MAY				
DEC					05...	1225	441	--	6.0
04...	1005	61	--	6.5	19...	1220	147	--	6.0
17...	1100	77	--	5.0	JUN				
30...	1015	88	--	4.5	09...	1240	30	--	8.0
JAN 1986					26...	1535	405	--	19.5
14...	1045	95	--	3.5	JUL				
29...	1015	90	--	4.0	09...	1325	815	--	7.0
FEB					AUG				
10...	1045	142	--	3.0	06...	1535	507	--	9.5
24...	1010	100	--	4.0	19...	1630	763	--	12.5
MAR					SEP				
12...	1625	256	--	4.0	04...	1355	611	--	17.5
24...	1000	176	--	4.0					

## SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06706000 NF SOUTH PLATTE R BELOW GENEVA C, AT GRANT, CO. (LAT 39 27 26N LONG 105 39 29W)									
OCT 1985					MAY 1986				
08...	1130	44	--	3.0	14...	1315	109	--	7.0
NOV					29...	1240	239	--	7.0
19...	1040	26	--	0.0	JUN				
DEC					10...	1625	338	--	7.5
05...	1350	33	--	0.0	26...	0955	304	--	7.5
31...	1120	23	--	0.0	JUL				
JAN 1986					08...	1025	7.5	--	--
30...	1010	23	--	0.0	24...	1340	132	--	13.5
FEB					AUG				
11...	1010	18	--	0.0	07...	1045	80	--	10.0
25...	1435	24	--	0.5	21...	1005	73	--	11.5
MAR					SEP				
12...	1020	17	--	0.0	03...	1240	57	--	11.0
25...	0740	20	--	0.0	30...	1010	39	--	3.0
APR									
09...	1530	39	--	7.5					
21...	1705	42	--	8.0					
06708750 EAST PLUM CR AT CASTLE ROCK, COLO. (LAT 39 23 04N LONG 104 51 42W)									
MAR 1986					JUL 1986				
06...	1030	6.5	250	10.0	01...	1213	3.2	287	25.0
19...	1245	7.2	300	6.0	17...	1235	1.0	365	26.0
APR					AUG				
10...	1040	33	240	13.0	04...	1210	1.9	365	22.0
21...	1355	18	216	20.0	19...	1155	0.43	469	25.0
MAY					SEP				
05...	1245	10	320	20.0	02...	1120	1.5	394	21.0
19...	1250	12	237	21.0	15...	1200	0.83	405	21.0
JUN									
16...	1221	15	211	24.0					
06709500 PLUM CREEK NEAR LOUVIERS, CO. (LAT 39 29 04N LONG 105 00 07W)									
OCT 1985					MAR 1986				
01...	1330	25	400	11.0	19...	1430	17	410	5.0
17...	1035	12	300	9.0	31...	1350	20	400	6.0
31...	1040	26	400	9.0	APR				
NOV					22...	1348	65	246	21.5
14...	1325	12	--	1.0	MAY				
DEC					12...	1145	28	290	17.0
03...	1115	22	400	0.0	19...	1305	38	294	25.0
23...	1330	31	330	1.0	JUN				
JAN 1986					16...	1440	37	306	26.0
06...	1330	30	345	0.0	JUL				
21...	1335	24	360	4.0	01...	1415	9.4	330	25.0
FEB					17...	1420	2.5	360	23.0
03...	1300	26	420	8.0	AUG				
20...	1400	32	--	5.0	19...	1400	0.18	383	23.0
MAR					SEP				
06...	1330	21	400	11.0	02...	1330	1.5	379	21.0
					15...	1420	1.2	376	22.0
06709530 PLUM CREEK AT TITAN RD NR LOUVIERS, CO (LAT 39 30 27N LONG 105 01 23W)									
OCT 1985					MAY 1986				
01...	1205	26	360	11.0	12...	1040	24	330	17.0
31...	1305	24	370	10.0	JUN				
DEC					05...	0950	40	310	15.0
03...	1155	23	370	0.0	JUL				
FEB 1986					01...	1600	6.2	370	23.0
03...	1440	22	360	7.0	AUG				
MAR					04...	1510	1.5	400	24.0
06...	1425	21	390	12.0	SEP				
31...	1210	16	500	5.0	02...	1530	0.15	402	26.0

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06710385 BEAR CR AB EVERGREEN (LAT 39 37 58N LONG 105 19 59W)									
NOV 1985					JUN 1986				
01...	1300	19	74	4.0	17...	1119	125	<50	11.5
JAN 1986					JUL				
03...	1125	15	80	0.0	18...	1105	84	<50	13.0
FEB					AUG				
19...	1130	17	140	0.0	20...	1115	29	102	14.5
MAR					SEP				
17...	1350	17	150	2.0	16...	1100	26	55	11.0
MAY									
01...	1230	68	64	10.0					
20...	1145	80	42	8.0					
06710500 BEAR CREEK AT MORRISON, CO. (LAT 39 39 11N LONG 105 11 43W)									
OCT 1985					JAN 1986				
08...	1120	36	--	9.0	02...	1215	20	--	1.0
22...	1255	32	--	7.0	13...	1135	14	--	1.0
NOV					FEB				
05...	1320	26	--	7.0	12...	1200	21	--	0.0
20...	1410	16	--	0.0	MAR				
DEC					10...	1205	21	--	4.0
05...	1540	19	--	0.0					
19...	1340	22	--	0.5					
06712000 CHERRY CREEK NEAR FRANKTOWN, CO. (LAT 39 21 21N LONG 104 45 46W)									
OCT 1985					APR 1986				
03...	1200	12	220	8.0	10...	1210	45	260	13.0
16...	1330	12	230	9.0	21...	1115	15	241	16.0
29...	1400	12	240	8.0	MAY				
NOV					05...	1440	7.9	260	17.0
14...	1105	11	230	2.0	19...	1015	8.7	237	11.5
DEC					JUN				
02...	1115	8.3	180	0.0	16...	1025	7.4	235	16.5
18...	1150	11	225	0.0	JUL				
JAN 1986					01...	0945	4.5	235	15.0
02...	1045	9.4	190	1.0	17...	1030	4.7	230	18.0
17...	1540	16	200	1.0	AUG				
FEB					04...	1000	2.9	213	16.5
03...	1050	12	230	1.0	19...	0900	3.0	220	17.0
14...	1055	14	260	0.0	SEP				
MAR					02...	0905	3.6	220	13.0
19...	1055	14	230	0.0	15...	1020	3.9	216	14.0
06713000 CHERRY CREEK BELOW CHERRY CREEK LAKE, CO. (LAT 39 39 12N LONG 104 51 41W)									
OCT 1985					APR 1986				
02...	1150	85	560	11.0	15...	1430	97	625	9.0
DEC					16...	0850	305	610	9.0
23...	0940	58	515	4.0	16...	1330	210	604	9.0
JAN 1986					25...	1005	84	604	12.5
07...	1045	2.5	600	5.0					
FEB									
21...	1140	68	520	4.0					
06713300 CHERRY CREEK AT GLENDALE, CO (LAT 39 42 22N LONG 104 56 15W)									
OCT 1985					APR 1986				
03...	1420	102	650	13.0	16...	0905	103	650	10.0
29...	0950	7.6	1300	10.0	17...	1445	18	1140	9.5
NOV					25...	1448	89	833	6.0
26...	1115	7.2	1410	5.0	MAY				
DEC					21...	1500	12	1110	24.0
16...	1300	5.6	2020	6.5	JUN				
JAN 1986					18...	1343	14	950	25.5
07...	1325	64	800	5.0	JUL				
08...	1020	11	1200	3.0	21...	1130	44	567	19.5
FEB					SEP				
21...	1420	68	560	7.0	17...	1350	10	1170	22.0
MAR									
17...	1010	4.7	1360	8.0					
06714000 SOUTH PLATTE RIVER AT DENVER, CO. (LAT 39 45 35N LONG 105 00 10W)									
OCT 1985					DEC 1985				
07...	0830	282	--	13.0	09...	0955	172	--	2.0
21...	1040	165	--	12.0	18...	0915	125	--	4.0
NOV					JAN 1986				
04...	0925	392	--	8.0	02...	1430	166	--	3.0
19...	1100	222	--	3.0					



## SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06714215 SOUTH PLATTE R AT 64TH ST. AT COMMERCE CITY, CO. (LAT 39 48 44N LONG 104 57 28W)									
NOV 1985					APR 1986				
27...	1220	208	500	0.0	24...	1317	89	714	17.5
DEC					MAY				
22...	1140	199	975	5.0	22...	0930	38	672	18.0
JAN 1986					JUN				
08...	1340	154	1220	5.0	19...	0930	164	485	17.5
FEB					JUL				
13...	1340	20	1500	6.0	21...	1345	73	546	22.0
MAR					SEP				
18...	1020	14	--	3.0	17...	0940	9.6	1190	16.5
06716500 CLEAR CREEK NEAR LAWSON, CO. (LAT 39 45 57N LONG 105 37 32W)									
OCT 1985					JAN 1986				
08...	1340	72	--	4.5	02...	0935	26	--	0.0
22...	1010	62	--	3.5	FEB				
NOV					12...	1525	36	--	0.0
05...	1045	51	--	3.0	MAR				
20...	1100	45	--	0.0	10...	0915	24	--	2.0
DEC									
05...	1100	31	--	0.0					
19...	1045	35	--	0.0					
06725450 ST. VRAIN CREEK BELOW LONGMONT, CO. (LAT 40 09 29N LONG 105 00 53W)									
OCT 1985					MAY 1986				
28...	1050	51	1200	11.0	06...	1420	80	860	18.5
DEC					JUN				
04...	1100	49	1500	4.0	03...	1205	104	400	11.0
FEB 1986					JUL				
04...	1050	52	1650	5.0	29...	1100	202	1390	21.0
MAR					AUG				
04...	1230	44	1500	12.0	21...	1420	212	1420	23.5
APR					SEP				
02...	1240	38	1200	15.0	04...	1015	117	1200	18.0
06726900 BUMMERS GULCH NEAR EL VADO, CO. (LAT 40 00 42N LONG 105 20 53W)									
OCT 1985					MAY 1986				
28...	1300	0.24	580	9.0	08...	1005	0.78	430	6.0
DEC					JUN				
04...	1250	0.23	500	4.0	03...	1400	0.49	400	10.0
FEB 1986					JUL				
05...	1415	0.19	60	2.0	02...	1625	0.22	515	16.0
MAR					AUG				
03...	1415	0.37	470	8.0	05...	1030	0.14	500	13.5
APR					SEP				
01...	1345	0.33	500	9.0	01...	1320	0.09	536	14.5
06727500 FOURMILE CREEK AT ORODELL, CO. (LAT 40 01 06N LONG 105 19 33W)									
OCT 1985					MAY 1986				
28...	1405	1.3	330	8.0	08...	1110	21	130	5.0
DEC					JUN				
04...	1405	2.0	340	0.0	03...	1310	23	--	10.0
FEB 1986					JUL				
04...	1550	2.4	360	2.0	02...	1420	10	95	17.0
MAR					AUG				
03...	1510	2.9	330	8.0	05...	1205	0.84	204	17.0
APR					SEP				
01...	1440	3.8	410	8.0	04...	1500	0.69	225	18.0
06729500 SOUTH BOULDER CREEK NEAR ELDORADO SPRINGS, CO. (LAT 39 55 52N LONG 105 17 43W)									
OCT 1985					JAN 1986				
01...	1125	30	--	9.0	06...	1445	22	--	0.5
16...	1200	23	--	10.0	22...	1145	10	--	0.0
NOV					APR				
01...	0935	11	--	4.0	29...	1220	75	--	9.0
15...	1225	19	--	7.0	MAY				
DEC					13...	1140	104	--	8.5
03...	1650	8.3	--	6.0					
11...	1125	9.0	--	0.0					
24...	0910	53	--	1.5					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
06746095 JOE WRIGHT CREEK ABOVE JOE WRIGHT RESERVOIR, CO. (LAT 40 32 24N LONG 105 52 56W)									
OCT 1985					MAY 1986				
05...	1250	1.7	80	0.0	21...	1330	9.4	40	1.0
NOV					JUN				
17...	1100	0.94	40	1.0	11...	1045	30	40	1.0
DEC					AUG				
31...	1430	0.65	48	0.0	21...	1250	5.3	54	12.0
FEB 1986					SEP				
17...	1345	0.48	42	1.0	06...	1215	3.9	57	10.0
MAR									
29...	1030	0.61	55	1.0					
06746110 JOE WRIGHT CREEK BELOW JOE WRIGHT RESERVOIR, CO. (LAT 40 33 43N LONG 105 52 09W)									
OCT 1985					MAY 1986				
05...	1445	1.1	41	0.0	21...	1515	4.4	41	1.0
NOV					JUN				
16...	1500	0.92	38	1.0	10...	1315	117	40	1.0
JAN 1986					JUL				
04...	1130	0.63	45	0.0	01...	1345	87	35	10.0
FEB					AUG				
17...	1530	0.31	44	0.0	21...	1450	11	33	13.0
MAR					SEP				
29...	1230	0.62	60	1.0	06...	1315	9.1	42	9.5
06759100 BIJOU CREEK NEAR FT. MORGAN, CO. (LAT 40 16 58N LONG 103 52 30W)									
OCT 1985					APR 1986				
24...	0930	11	1600	12.5	23...	0935	17	1500	15.5
NOV					JUN				
21...	0910	10	1650	9.5	02...	1345	16	1550	19.5
DEC					25...	0835	16	1500	16.0
18...	1225	10	1600	12.0	JUL				
JAN 1986					30...	0940	12	1600	17.0
09...	0915	10	1600	7.5	AUG				
FEB					19...	1000	12	1700	18.0
05...	1405	12	1630	13.0	SEP				
MAR					11...	0915	16	1550	15.0
19...	1435	13	1600	13.0					
06826500 SOUTH FORK REPUBLICAN RIVER NEAR HALE, CO. (LAT 39 37 26N LONG 102 09 47W)									
OCT 1985					JUN 1986				
30...	1200	3.6	540	11.0	30...	1245	6.5	566	18.0
FEB 1986					AUG				
06...	1320	9.0	600	1.0	06...	1246	6.2	556	21.0
MAR					SEP				
05...	1155	6.4	540	8.0	03...	1355	6.3	556	21.0
APR					30...	1235	5.2	576	15.0
09...	1245	5.0	--	8.0					
MAY									
13...	1300	5.8	300	11.0					
07103990 COTTONWOOD CR AT THE MOUTH AT PIKEVIEW, CO (LAT 38 55 41N LONG 104 38 35W)									
MAY 1986					JUL 1986				
14...	1150	2.1	565	19.0	15...	1710	--	343	26.0
07106000 FOUNTAIN CREEK NEAR FOUNTAIN, CO. (LAT 38 36 08N LONG 104 40 13W)									
JUL					JUL 1986				
15...	1340	--	1110	30.0	15...	1740	--	1180	27.0
15...	1345	--	1110	30.0	15...	1745	--	1180	27.0
					15...	2135	--	1050	22.0
					16...	0130	--	1110	19.0
					16...	0630	--	1120	17.0

## SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
07106300 FOUNTAIN CREEK NEAR PINON, CO. (LAT 38 26 50N LONG 104 35 28W)									
OCT 1985					MAY 1986				
03...	1105	--	1100	12.0	13...	1255	--	1360	24.0
22...	1430	--	1120	15.5	JUN				
23...	1835	--	1120	13.5	03...	1040	--	960	20.5
24...	0920	--	1110	7.5	05...	1110	--	640	19.5
NOV					06...	1125	--	E1070	22.5
06...	1445	--	1160	13.0	10...	1235	--	965	15.0
DEC					27...	1300	--	1230	29.5
05...	1500	--	1030	5.0	JUL				
JAN 1986					01...	1425	--	1320	27.5
06...	1250	--	1040	2.5	03...	1400	--	1290	31.5
FEB					07...	1340	--	1150	29.0
11...	1045	--	--	0.0	25...	1240	--	1290	28.5
13...	1440	--	1160	4.0	AUG				
MAR					04...	1435	--	828	23.0
18...	1340	--	1090	10.0	22...	0800	--	488	16.5
APR					29...	1325	--	1230	27.5
15...	1240	--	1090	17.5	SEP				
30...	1030	--	1200	17.0	09...	1220	--	1040	17.0
07124410 PURGATOIRE RIVER BELOW TRINIDAD LAKE, CO. (LAT 37 08 37N LONG 104 32 49W)									
NOV 1985					MAY 1986				
26...	1525	--	370	5.0	01...	1135	--	415	11.5
FEB 1986					22...	1430	--	425	13.0
05...	1350	--	410	4.0	JUL				
MAR					02...	1220	--	287	16.0
26...	0950	--	422	7.0	SEP				
APR					09...	1405	--	302	18.5
22...	1145	--	480	9.5					
30...	1120	--	390	11.5					
07126140 VAN BREMER ARROYO NEAR TYRONE, CO (LAT 37 23 58N LONG 104 06 55W)									
NOV 1985					AUG 1986				
15...	1300	0.04	9900	0.0	23...	1845	43	920	19.0
APR 1986					SEP				
28...	1200	0.24	--	--	29...	1500	5.6	1500	13.0
MAY									
21...	0915	0.07	4580	16.0					
08219500 SOUTH FORK RIO GRANDE AT SOUTH FORK, CO. (LAT 37 39 25N LONG 106 38 55W)									
JAN 1986					APR 1986				
15...	1130	85	--	0.0	08...	1130	255	--	4.5
FEB									
18...	1130	67	--	0.0					
08220000 RIO GRANDE NEAR DEL NORTE, CO. (LAT 37 41 22N LONG 106 27 38W)									
JAN 1986					FEB 1986				
02...	1000	278	--	0.0	18...	1300	287	--	2.0
15...	1400	297	--	0.0	MAR				
					03...	1130	368	--	3.0
08246500 CONEJOS RIVER NEAR MOGOTE, CO. (LAT 37 03 14N LONG 106 11 13W)									
NOV 1985					JAN 1986				
01...	1200	169	--	6.0	02...	1500	125	--	0.0
DEC					MAR				
02...	1330	117	--	1.0	17...	1130	114	--	4.0
16...	1230	91	--	0.0					
08247500 SAN ANTONIO RIVER AT ORTIZ, CO. (LAT 36 59 35N LONG 106 02 17W)									
NOV 1985					MAR 1986				
01...	0930	E8.4	--	4.0	17...	0930	16	--	2.0
DEC									
02...	1230	9.6	--	0.0					
16...	1000	4.5	--	0.0					

E Estimated.

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
08248000		LOS PINOS RIVER NEAR ORTIZ, CO. (LAT 36 58 56N LONG 106 04 23W)							
NOV 1985					JAN 1986				
01...	1030	62	--	4.5	02...	1230	26	--	0.0
DEC					MAR				
02...	1130	28	--	0.0	17...	1030	40	--	2.0
16...	1100	37	--	0.0					
08249000		CONEJOS RIVER NEAR LASAUSES, CO. (LAT 37 18 01N LONG 105 44 47W)							
NOV 1985					JAN 1986				
01...	1230	87	--	8.0	08...	1220	164	--	0.0
15...	0930	74	--	1.5	15...	0930	109	--	1.0
DEC					FEB				
02...	0900	161	--	1.0	03...	1330	147	--	3.0
JAN 1986					MAR				
02...	1430	134	--	0.5	03...	0900	182	--	4.5
08...	1220	164	--	0.0	APR				
					01...	1300	334	--	8.5

## ARKANSAS RIVER BASIN

Listed below are data for instantaneous discharge and selected water-quality data for sites on the upper Fountain and Monument Creeks that were done on a synoptic sampling.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385813105022201 - FOUNTAIN CREEK BLW WOODLAND PARK WWTF, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1330	0.24	8.00	18.5	7.0	43	K50	K52	40	22.0	0.800

385716105014301 - FOUNTAIN CREEK ABV CRYSTOLA CR AT CRYSTOLA, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1045	0.09	584	7.70	12.0	7.8	6.5	250	400	31	0.690	2.50

385715105014401 - CRYSTOLA CREEK AT THE MOUTH AT CRYSTOLA, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1145	0.35	249	7.40	12.0	8.5						

385620105005401 - FOUNTAIN CREEK ABOVE GREEN MOUNTAIN FALLS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1400	1.6	435	8.20	15.5	8.6	1.5	K20	130	19	0.050	2.50

385600105004301 - FOUNTAIN CR ABV CATAMOUNT CR AT GRN MNT FALLS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1225	1.9	440	8.20	13.0	9.1	1.5	65	110	18	0.040	2.60

385559105004301 - CATAMOUNT CR AT THE MOUTH AT GREEN MNT FALLS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1520	1.1	124	7.70	12.0	9.8						

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385556105004001 - CRYSTAL CREEK AT THE MOUTH AT GREEN MNT FALLS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
MAY 13...	1600	1.7	87	7.30	10.0	8.9

385537105001401 - FOUNTAIN CREEK BELOW GREEN MOUNTAIN FALLS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1035	4.8	258	8.10	8.5	11.4	1.4	740	310	9.8	0.070	1.20

385509104592501 - FOUNTAIN CREEK AT CHIPITA PARK, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1210	6.3	239	8.20	11.0	8.2	2.2	K120	K90	9.7	0.030	1.40

385347104581601 - FOUNTAIN CREEK ABV CASCADE CREEK AT CASCADE, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1030	4.8	249	8.20	8.5	9.1	1.7	190	280	10	0.020	1.30

385346104581601 - CASCADE CREEK AT THE MOUTH AT CASCADE, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1645	0.62	95	7.70	9.0	9.1						

385319104574501 - FOUNTAIN CREEK ABV FRENCH CREEK BELOW CASCADE. CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1400	7.5	210	8.20	13.0	7.8	1.5	K9	92	9.1	0.030	0.900

BASED ON NON-IDEAL COLONY COUNT.

## DISCHARGE AND SELECTED WATER-QUALITY DATA AT SITES ON UPPER FOUNTAIN AND MONUMENT CREEKS--continued

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385318104574301 - FRENCH CREEK AT THE MOUTH BELOW CASCADE, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1930	<1.0	7.60	10.0

385205104552501 - FOUNTAIN CREEK ABOVE MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1800	2.7	220	8.50	13.0	1.8	K22	84	10	0.080	1.10

385137104551001 - FOUNTAIN CR ABV RUXTON CR AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1715	2.9	300	7.70	13.0

385130104553101 - RUXTON CREEK NR THE MOUTH AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1615	0.29	380	8.50	12.0

385129104544101 - FOUNTAIN CR AT EL PASO BLVD AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1500	4.2	342	8.10	10.0

385129104540901 - FOUNTAIN CR AT MAYFAIR AVE AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1300	8.6	350	8.30	10.0

K BASED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385130104534601 - SUTHERLAND CR AT THE MOUTH AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	1145	0.61	143	8.30	15.0

385129104532701 - FOUNTAIN CR AT BECKERS LANE AT MANITOU SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 13...	0945	11	323	8.20	8.0

385047104515501 - FOUNTAIN CR AT TWENTY-SIXTH ST AT COLO SPGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 13...	1530	2.7	396	8.10	15.0	7.3

385030104512801 - FOUNTAIN CR AT TWENTY-FIRST ST AT COLORADO SPGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 13...	1455	3.1	409	8.10	15.5	7.2

385007104505501 - FOUNTAIN CR AT FOURTEENTH ST AT COLORADO SPRGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 13...	1415	3.3	552	8.20	18.5	8.2

384947104502401 - FOUNTAIN CR AT EIGHTH ST AT COLORADO SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 13...	1330	3.6	690	8.30	19.0	7.5



## DISCHARGE AND SELECTED WATER-QUALITY DATA AT SITES ON UPPER FOUNTAIN AND MONUMENT CREEKS--continued

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

384940104495901 - FOUNTAIN CR ABV MONUMENT CR AT COLORADO SPRGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 13...	1215	4.0	798	8.00	17.0	7.5	6.0	35	500	20	0.050	1.90

390707104552801 - MONUMENT CREEK ABOVE PALMER LAKE, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1030	2.1	101	7.80	9.5	8.9	9.5	E1	350	0.90	0.020	<0.100

390425104522701 - MONUMENT CREEK AT ARNOLD RD BLW MONUMENT, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1345	2.3	169	8.30	14.0	9.2	2.7	E3	57	7.2	0.020	<0.100

390324104514501 - MONUMENT CREEK AT BAPTIST RD BLW MONUMENT, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1125	3.4	288	7.80	13.0	17		K4	350	15	4.20	0.700

390300104520701 - BEAVER CREEK AT THE MOUTH BLW MONUMENT, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1235	3.3	144	7.30	13.0							

390115104502301 - SMITH CREEK AT THE MOUTH AT USAF ACADEMY, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1500	0.38	295	8.10	17.0	7.5	15	K48	500	20	0.030	0.800

E Estimated.  
K BASED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

390036104500301 - MONUMENT CR BLW SMITH CR AT USAF ACADEMY, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM. CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1310	8.1	219	8.70	14.0	8.9	4.3	K2	400	8.7	0.450	0.900

385858104494301 - MONUMENT CR AT USAF ACAD WSTE WATER TRTMNT PLNT, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM. CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1100	9.3	236	8.40	14.5	8.6	11	K12	120	10	0.180	1.10

385732104500301 - MONUMENT CR ABV W MONUMENT CR AT USAF ACADEMY, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	BOD OXYGEN DEMAND, BIOCHEM. CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS./100 ML)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1505	12	240	8.30	18.0	7.5	5.1	K10	100	10	0.090	1.20

385729104500401 - WEST MONUMENT CR AT THE MOUTH AT USAF ACADEMY, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
MAY 14...	1430	0.41	163	8.30	17.0	8.2

385708104492901 - KETTLE CREEK NR THE MOUTH ABV COLORADO SPRINGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
MAY 14...	1350	0.41	385	7.90	16.0	7.2

385618104484401 - PINE CREEK NR THE MOUTH ABV COLORADO SPRINGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
MAY 14...	1320	1.4	490	8.40	17.0	7.4

. SED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385559104485601 - MONUMENT CR AT WOODEN VALLEY RD ABV COLO SPGS, CO,

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 14...	1230	16	280	8.20	15.5	7.9

385429104491901 - MONUMENT CREEK BELOW PIKEVIEW, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)
MAY 14...	0955	18	375	8.30	13.0	7.8

385351104490901 - MONUMENT CR AT GARDEN OF THE GODS RD AT COLO SPGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 14...	1600	33	460	8.10	19.0

385320104492401 - TEMPLETON GAP FLDWY AT THE MOUTH AT COLO SPGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 14...	1700	2.2	900	8.50	18.0

385321104493301 - DOUGLAS CREEK AT THE MOUTH AT COLORADO SPRINGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 14...	1630	<1.0	590	8.10	16.0

385302104502201 - UNNAMED TRIB ABV FILLMORE ST AT COLORADO SPGS, CO

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)
MAY 14...	1530	0.07	1520	7.80	14.0

## ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

385234104494901 - MONUMENT CREEK AT FILLMORE ST AT COLO SPRINGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	1330	26	492	8.00	19.0	6.6	K33	1200	16	0.040	2.70

385202104493901 - MONUMENT CR ABV MONUMENT VALLEY PARK COLO SPGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)
MAY 14...	1230	22	520	8.00	17.0

07104900 - MONUMENT C AT C L POU DRE ST AT COLO. SPRINGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)
MAY 14...	1130	25	580	8.00	17.0

384943104495801 - MONUMENT CREEK AT THE MOUTH AT COLORADO SPRINGS, CO

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY 14...	0930	27	670	8.20	13.0	7.1	70	K930	21	0.040	2.60

K BASED ON NON-IDEAL COLONY COUNT.

## ARKANSAS RIVER BASIN

## FOUNTAIN CREEK STREAMFLOW EVALUATION

Five series of discharge measurements were made during 1985 on a reach of Fountain Creek during periods of relatively stable streamflow. The reach is about 49 river miles in length and extends from the gaging station at Nevada Street in Colorado Springs downstream to the confluence of Fountain Creek with the Arkansas River in Pueblo.

More than one measurement was made at many of the Fountain Creek sites on each indicated day, whereas discharge was measured only once at tributary, diversion, and gaging-station sites. The series of measurements made on September 11 were not completed because of an increase in streamflow resulting from a rainstorm. The sites are listed in downstream order, but the site numbers have no relation to river mile. Dashes indicate that discharge was not determined.

Site No.	Site name and location	Instantaneous discharge, in cubic feet per second				
		Aug. 13	Sept. 11	Oct. 22	Oct. 23	Oct. 24
1	Fountain Creek at Colorado Springs NW1/4SE1/4 sec.19, T.14 S., R.66 W. (station 07105500).	61.7	---	50.8	53.8	48.0
2	Unnamed drain blw Nevada Ave. at Colorado Springs NW1/4SE1/4 sec.19, T.14 S., R.66 W.	0	---	0	0	0
3	Shooks Run at mouth at Colorado Springs NE1/4NW1/4 sec.10, T.14 S., R.66 W.	1.14	---	0.78	1.00	0.95
4	Colo. Springs Wastewater Outfall at Colorado Springs NW1/4SW1/4 sec.20, T.14 S., R.66 W.	*49	*52	*46	*46	*44
5	Fountain Cr. below Colo. Spgs. Wastewater Outfall NW1/4SW1/4 sec.20, T.14 S., R.66 W.	129 133 103	160 ---	126 94.4 ---	118 110 ---	113 86.5 ---
6	Fountain Mutual canal at Colorado Springs SE1/4SW1/4 sec.20, T.14 S., R.66 W.	23.2	---	9.01	8.55	8.08
7	Spring Run at mouth near Colorado Springs NE1/4SE1/4 sec.29, T.14 S., R.66 W.	0.94	---	2.98	3.07	3.16
8	Spring Creek at mouth near Colorado Springs SE1/4NE1/4 sec.29, T.14 S., R.66 W.	3.07	---	2.81	3.22	3.14
9	Laughlin ditch at Colorado Springs SE1/4NE1/4 sec.29, T.14 S., R.66 W.	0	---	&0.23	&0.38	&0.43
10	Fountain Cr. at Circle Dr. at Colorado Springs SE1/4SW1/4 sec.28, T.14 S., R.66 W.	124 124 102	---	121 ---	112 103 ---	109 96.8 ---
11	Unnamed trib ab Sand Cr. near Colorado Springs NW1/4NE1/4 sec.30, T.14 S., R.66 W.	0.92	---	0.96	0.92	0.95
12	Fountain Cr. ab Sand Cr. near Colorado Springs SW1/4SE1/4 sec.33, T.14 S., R.66 W.	132 99.8	---	112 ---	118 120	122 ---
13	Sand Creek at mouth near Security NE1/4NE1/4 sec.33, T.15 S., R.66 W.	0.56	---	0.51	0.67	0.51
14	Unnamed drain blw Sand Cr. near Security SE1/4SW1/4 sec.34, T.15 S., R.66 W.	0	---	0	0	0
15	Fisher's Canyon at mouth near Security SE1/4NE1/4 sec.4, T.15 S., R.66 W.	0.38	---	1.55	0.57	0.48
16	Stubbs and Miller ditch near Security NE1/4SW1/4 sec.3, T.15 S., R.66 W.	0	---	0	0	0
17	Fountain Creek at Academy Blvd. near Security NE1/4NW1/4 sec.10, T.15 S., R.66 W.	136 118	114 ---	122 120	108 117	103 111
18	B ditch drain at Security SW1/4SE1/4 sec.10, T.15 S., R.66 W. (station 07105780)	0.46	0.39	0.34	0.29	0.32
19	Security Wastewater Outfall at Security NW1/4NW1/4 sec.24, T.15 S., R.66 W.	*2.12	---	*1.8	*1.8	*1.8
20	Fountain Cr. below B ditch drain at Security SW1/4NW1/4 sec. 14. T.15 S., R.66 W.	---	95.5 ---	87.5 118	91.4 125	0 121

## FOUNTAIN CREEK STREAMFLOW EVALUATION--Continued

Site No.	Site name and location	Instantaneous discharge, in cubic feet per second				
		Aug. 13	Sept. 11	Oct. 22	Oct. 23	Oct. 24
21	Fountain Creek at Security NE1/4SE1/4 sec.24, T.15 S., R.66 W. (station 07105800)	109	---	127	130	99.8
22	Unnamed tributary at Security NW1/4SE1/4 sec.24, T.15 S., R.66 W.	0	0	0	0	0
23	Clover ditch drain near Widefield SW1/4NE1/4 sec.25, T.15 S., R.66 W. (station 07105820)	6.59	---	3.71	5.09	5.34
24	Widefield Homes Wastewater Outfall nr Widefield SE1/4NE1/4 sec.25, T.15 S., R.66 W.	*1.76	---	*1.05	*1.02	*1.00
25	Fountain Creek near Security NE1/4SE1/4 sec.25, T.15 S., R.66 W.	123 ---	77.3 ---	102 146	104 148	94.8 139
26	Chilcotte ditch near Security NE1/4NW1/4 sec.31, T.15 S., R.65 W.	0	28.4	22.3	22.6	39.7
27	Crabb ditch near Security NE1/4NW1/4 sec.31, T.15 S., R.65 W.	0	1.19	0	---	0
28	Unnamed tributary at Fountain SE1/4SW1/4 sec.6, T.16 S., R.65 W.	&0.94	---	&0.78	&0.78	&0.78
29	Fountain Creek above Lock ditch at Fountain SW1/4SE1/4 sec.6, T.16 S., R.65 W.	143 ---	0 ---	87.5 113	83.8 122	87.6 126
30	Lock ditch at Fountain NE1/4NE1/4 sec.7, T.16 S., R.65 W.	0	---	0	3.82	---
31	Jimmy Camp Creek at Fountain NW1/4SE1/4 sec.5, T.16 S., R.65 W. (station 07105900)	---	---	2.63	2.54	2.76
32	Fountain Wastewater Outfall at Fountain SW1/4NW1/4 sec.17, T.16 S., R.65 W.	---	---	*0.71	*0.62	*0.62
33	Liston and Love ditch (north) near Fountain SE1/4SW1/4 sec.17, T.16 S., R.65 W.	0	---	0	0	0
34	Fountain Cr. abv Owen and Hall ditch near Fountain NW1/4NE1/4 sec.20, T.16 S., R.65 W.	131 ---	---	100 ---	105 110	91.7 ---
35	Owen and Hall ditch near Fountain SW1/4SE1/4 sec.20, T.16 S., R.65 W.	0.01	---	3.68	9.70	14.6
36	Liston and Love ditch (south) near Fountain NE1/4NW1/4 sec.33, T.16 S., R.65 W.	4.76	---	0	0	0
37	Unnamed tributary near Fountain NE1/4NW1/4 sec.33, T.16 S., R.65 W.	&0.06	---	&0.30	&0.30	&0.30
38	Little Fountain Creek near mouth near Fountain NE1/4NE1/4 sec.32, T.16 S., R.65 W.	8.70	---	1.67	1.66	1.77
39	Fountain Creek near Fountain SW1/4NE1/4 sec.4, T.17 S., R.65 W. (station 07106000)	130	67.0	99.9	115	85.2
40	Tom Wanless ditch near Buttes SW1/4NE1/4 sec.4, T.17 S., R.65 W.	0	0	0	0	0
41	Talcott and Cotton ditch near Buttes SE1/4SW1/4 sec.3, T.17 s., R.65 W.	2.47	---	0.10	0.10	0.10
42	Fountain Creek above Robinson ditch near Buttes NW1/4NW1/4 sec.14, T.17 S., R.65 W.	133 ---	56.4 ---	108 100	123 117	111 89.9
43	Robinson ditch near Buttes NE1/4SW1/4 sec.14, T.17 S., R.65 W.	0.04	7.36	7.93	6.40	5.92

## ARKANSAS RIVER BASIN

## FOUNTAIN CREEK STREAMFLOW EVALUATION--Continued

Site No.	Site name and location	Instantaneous discharge, in cubic feet per second				
		Aug. 13	Sept. 11	Oct. 22	Oct. 23	Oct. 24
44	Williams Creek near mouth near Wigwam NE1/4NE1/4 sec.14, T.17 S., R.65 W.	0.29	---	0.98	0.90	1.25
45	Unnamed seepage below Williams Creek near Wigwam SE1/4SE1/4 sec.23, T.17 S., R.65 W.	1.19	2.43	3.40	4.25	4.00
46	Burke ditch near Wigwam SW1/4SW1/4 sec.25, T.17 S., R.65 W.	0	---	0	0	0
47	Sand Creek at mouth near Wigwam NW1/4NE1/4 sec.35, T.17 S., R.65 W.	0	---	0	0	0
48	Fountain Creek above Wood Valley ditch near Wigwam NE1/4SE1/4 sec.1, T.18 S., R.65 W.	142 117 ---	34.9 ---	100 86.3 ---	103 102 87.3 94.9	95.2 88.5 79.1 ---
49	Wood Valley ditch near Wigwam NW1/4NW1/4 sec.7, T.18 S., R.64 W.	0	---	0.96	1.68	0.80
50	Young Hollow near Pinon NW1/4NE1/4 sec.13, T.18 S., R.65 W.	0	0	0	---	0
51	Fountain Creek above Sutherland ditch near Pinon SW1/4NW1/4 sec.19, T.18 S., R.64 W.	---	26.8 ---	97.3 88.9 ---	109 99.0 88.9 93.9	100 97.2 83.9 ---
52	Sutherland ditch near Pinon NE1/4SW1/4 sec.19, T.18 S., R.64 W.	---	0	1.03	0	0
53	Fountain Creek near Pinon NE1/4NE1/4 sec.31, T.18 S., R.64 W. (station 07106300)	139	---	91.7	81.6	92.2
54	Unnamed tributary near Pinon SE1/4SE1/4 sec.31, T.18 S., R.64 W.	0	---	0	---	0
55	McNeil ditch near Pinon SE1/4SE1/4 sec.31, T.18 S., R.64 W.	---	---	0	---	0
56	Caufield ditch near Pinon NW1/4NE1/4 sec.6, T.19 S., R.64 W.	0.35	---	---	---	0.38
57	Steele Hollow near Pinon NW1/4SE1/4 sec.12, T.19 S., R.65 W.	0	---	---	---	---
58	Fountain Creek above Greenview ditch near Pinon SE1/4NW1/4 sec.18, T.19 S., R.64 W.	148 ---	26.3 ---	87.1 114	96.9 96.3	103 ---
59	Greenview ditch near Pinon NE1/4SW1/4 sec.18, T.19 S., R.64 W.	0	3.99	---	---	0
60	Porter Creek at mouth near Pinon	0	---	---	---	---
61	Gnat Hollow near Pueblo SE1/4SW1/4 sec.25, T.19 S., R.65 W.	0	---	---	---	---
62	Fountain Creek at Belmont Stables near Pueblo SE1/4SE1/4 sec.36, T.19 S., R.65 W.	149 132	21.2 ---	105 118	96.4 99.7	98.2 93.6
63	Fountain Creek at Pueblo SE1/4SW1/4 sec.19, T.20 S., R.64 W. (station 07106500)	163	---	101	99.8	92.9
64	Fountain Creek at mouth at Pueblo NE1/4NE1/4 sec.6, T.20 S., R.64 W.	173 149	22.8 ---	97.1 109	100 97.8	93.6 ---

\*Discharge is average for day.

&amp;Field estimate.

QUALITY OF GROUND WATER

331

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 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1315	1330	7.1	14.5	52
FEB 21...	1410	1260	7.1	14.0	47
MAY 30...	1350	1290	7.0	13.0	44
AUG 25...	1535	1220	7.2	13.0	41

384407104434801 - SC01506624BAD1 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.--Elevation of land surface is 5,685 ft above National Geodetic Vertical Datum of 1929, from topographic map.

PERIOD OF RECORD.--February 1981 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1250	650	7.1	7.00	30
FEB 21...	1345	710	7.2	8.60	27
MAY 30...	1320	650	7.0	6.80	25
AUG 25...	1600	656	7.0	6.80	24



## QUALITY OF GROUND WATER

## EL PASO COUNTY

384458104442601 - 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.--Widefield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 24 in., depth 78 ft., screened 43 to 78 ft.

DATUM.--Elevation of land-surface is 5,270 ft above National Geodetic Vertical Datum of 1929 , from topographic map.

PERIOD OF RECORD.--February 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1055	562	7.0	6.40	27
FEB 21...	1205	540	7.0	6.10	20
MAY 30...	1035	513	6.7	7.70	16
AUG 25...	1345	503	7.3	8.20	15

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.--Widefield 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 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1220	465	7.2	8.50	12
FEB 21...	1310	420	7.1	8.40	11
MAY 30...	1240	479	6.8	9.30	16
AUG 25...	1440	441	7.1	8.90	10

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.--Widfield of Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 24 in., depth 80 ft., screened 39 to 80 ft.

DATUM.--Elevation of land-surface is 5,780 ft above National Geodetic Vertical Datum of 1929, from topographic map.

PERIOD OF RECORD.--February 1981 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1115	590	7.4	8.00	27
FEB 21...	1145	580	7.5	7.40	23
MAY 30...	1100	591	7.3	7.60	21
AUG 25...	1415	596	7.6	7.80	24

384617104455901 - 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.--Elevation of land surface is 5,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

PERIOD OF RECORD.--February 1981 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1135	850	7.3	6.50	37
FEB 21...	1230	920	7.3	6.80	38
MAY 30...	1125	930	7.5	6.80	37
AUG 25...	1230	934	7.2	6.70	38

## QUALITY OF GROUND WATER

## EL PASO COUNTY

384328104481101 - SCO1506620CDD1 - GOLF COURSE NO. 14

LOCATION.--Lat 38°43'28", long 104°48'11", in SE¼SE¼SW¼ sec. 20, T. 15S., R. 66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Piney Creek Alluvium.

WELL CHARACTERISTICS.--Observation well, depth 12.2 ft, diameter 2 in, screened 8 to 12 ft.

PERIOD OF RECORD.--April 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)
SEP 05...	1210	15.0	6400	7.2	0.93	0.170	0.020	2.58	1.1	2.60	0.22	0.07

384108104420701 - SCO1606506DAA - FOUNTAIN NO. 2

LOCATION.--Lat 38°41'08", long 104°42'07", SE¼NE¼NE¼ sec. 6, T. 16S., R.65W., in El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well, depth 56 ft.

PERIOD OF RECORD.--March to September 1985.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1020	1220	7.2	4.40	50
FEB 21...	1100	1180	7.3	4.70	47
AUG 25...	1205	1290	7.2	3.40	46

384639104461401 - SCO1506603BAC1 - MARS GAS

LOCATION.--Lat 38°46'39", long 104°46'14", in SW¼NE¼NW¼ sec. 3, T. 15S., R.66W., El Paso County, Hydrologic Unit 11020003

AQUIFER.--Fountain Alluvium.

WELL CHARACTERISTICS.--Commercial well, diameter 6 in, depth 85 ft, screened 50 to 85 ft.

DATUM.--Elevation of land surface is 5.820 ft above National Geodetic Vertical Datum of 1929, from topographic map.

PERIOD OF RECORD.--March to September 1985.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1150	870	7.1	11.0	31
FEB 21...	1250	820	7.1	13.0	25
MAY 30...	1200	870	7.0	12.0	25
AUG 25...	1250	--	7.0	11.0	32

## QUALITY OF GROUND WATER

## EL PASO COUNTY

385323104224001 - SC01306230ACC1

LOCATION.--Lat 38°53'23", long 104°22'40", in SW¼SW¼NE¼ sec. 23, T. 13S., R. 62W., El Paso County, Hydrologic Unit 11020004.

AQUIFER.--Black Squirrel Alluvium.

WELL CHARACTERISTICS.--Municipal well, diameter 16 in, depth 176 ft, screened 116 to 176 ft.

DATUM.--Elevation of land surface is 6,160 ft above National Geodetic Vertical Datum of 1929, from topographic map

PERIOD OF RECORD.--February to September 1985.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 29...	1115	280	6.0	6.70	10
MAY 29...	1115	390	7.7	6.90	12
AUG 07...	1230	358	7.3	<6.80	12

384056104415601 - SC01606505CCB - FOUNTAIN NO. 3

LOCATION.--Lat 38°40'56", long 104°41'56" in NW¼SW¼SW¼ sec. 5, T. 16S., R. 65W., El Paso County, Hydrologic Unit 11020003

AQUIFER.--Fountain Alluvium.

WELL CHARACTERISTICS.--Municipal well.

PERIOD OF RECORD.--March to September 1985.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 26...	1005	1140	7.2	3.40	53
FEB 21...	1030	1180	7.2	5.10	52
MAY 30...	0935	1170	7.4	4.40	48
AUG 25...	1140	1180	7.7	2.60	49

384718104463701 - SC01406633DAA - BARNES WELL

LOCATION.--Lat 38°47'18", long 104°46'37", in NE¼NE¼SE¼ sec. 33, T. 14S., R. 66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Fountain Alluvium.

WELL CHARACTERISTICS.--Domestic well, depth 72 ft, diameter 6 in.

PERIOD OF RECORD.--March to September 1985.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
MAY 30...	1220	1330	7.0	16.0	38
AUG 25...	1310	1320	7.4	15.0	37

## QUALITY OF GROUND WATER

## EL PASO COUNTY

384331104473401 - SC01506621CCB - GOLF COURSE NO. 22

LOCATION.--Lat 38°43'31", long 104°47'34", in NW¼SW¼SW¼ sec. 21, T. 15S., R. 66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Piney Creek Alluvium.

WELL CHARACTERISTICS.--Observation well, depth 18.2 ft, diameter 2 in, screened 14 to 18 ft.

PERIOD OF RECORD.--September 1981 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)
SEP 05...	1130	16.0	2510	7.2	1.3	0.140	0.030	5.47	1.4	5.50	0.18	0.10

384318104475301 - SC01506629AAB1 - GOLF COURSE NO. 19

LOCATION.--Lat 38°43'18", long 104°47'53", in NW¼NE¼NE¼ sec. 29, T. 15S, R. 66W., El Paso County, Hydrologic Unit 11020003.

AQUIFER.--Piney Creek Alluvium.

WELL CHARACTERISTICS.--Observation well, depth 13.8 ft, diameter 2 in, screened 9.5 to 13.5 ft.

PERIOD OF RECORD.--April to October 1981; September 1986.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)
SEP 17...	1545	17.5	3110	7.3	1.1	0.140	0.010	3.59	1.2	3.60	0.18	0.03

## ADAMS COUNTY

395727104071701

SC 1-60-17CDD2. Carl Sanden. Drilled irrigation water-table well in alluvium. Diameter, 18 in. Depth, 87 ft. MP, 1.7 ft, above lsd. Elevation of land surface, 4,830.8 ft. Records available: 1942-86.

Highest water level, 25.09 ft, below lsd, Nov. 19, 1942; lowest water level, 50.63 ft, below lsd, June 10, 1982.

Mar. 26, 1985 45.29 ft  
Mar. 31, 1986 44.38 ft

395643104183301

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. Elevation of land surface, 4,994 ft. Records available: 1946-86.

Highest water level, 44.21 ft, below lsd, Nov. 25, 1949; lowest water level, 61.9 ft, below lsd, Mar. 12, 1973.

Apr. 21, 1986 48.48 ft

## ALAMOSA COUNTY

372154105555401

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. Elevation of land surface, 7,558.1 ft. Records available: 1949-70, 1975, 1980-86.

Highest water level, 0.07 ft, below lsd, May 5, 1968; lowest water level, 6.17 ft, below lsd, Jan. 6, 1964.

Jan. 15, 1986 2.00 ft

373409106021501

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. Elevation of land surface, 7,567.4 ft. Records available: 1948-64, 1967-70, 1975, 1977, 1979-80, 1983-86.

Highest water level, 1.42 ft, below lsd, June 26, 1962; lowest water level, 5.78 ft, below lsd, Jan. 27, 1969.

Jan. 15, 1985 4.40 ft

## BACA COUNTY

373058102151500

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. Elevation of land surface, 3,913 ft. Records available: 1955-72, 1974-84.

Highest water level, 48.60 ft, below lsd, Jan. 16, 1975; lowest water level, 68.74 ft, below lsd, Feb. 2, 1978.

1986, not measured

## BENT COUNTY

380228103105600

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. Elevation of land surface, 3,895 ft. Records available: 1962, 1964, 1969-75, 1977-86.

Highest water level, 8.6 ft below lsd, Dec. 4, 1962; lowest water level, 16.6 ft, below lsd, Nov. 13, 1964.

Mar. 11, 1986 14.28 ft

## ELBERT COUNTY

391717103475001

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. Elevation of land surface, 5,475 ft. Records available: 1945, 1947, 1954-86.

Highest water level, 5.00 ft, below lsd, July 2, 1947; lowest water level, 7.92 ft below lsd, Mar. 2, 1977.

Mar. 17, 1986 5.90 ft

## GROUND-WATER LEVELS--Continued

## EL PASO COUNTY

390441104184501

SC11-62-22ADC. Anthony Eurich. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 44 ft. MP, 0.80 ft, above lsd. Elevation of land surface, 6,364.8 ft. Records available: 1945, 1947, 1952, 1954-80, 1982-85.

Highest water level, 5.49 ft, below lsd, Aug. 9, 1947; lowest water level, 8.48 ft below lsd, July 11, 1952.

1986, not measured

## HUERFANO COUNTY

373922104501401

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. Elevation of land surface, 6,282 ft. Records available: 1949-75, 1978-80, 1983, 1986.

Highest water level, 41.33 ft, below lsd, May 7, 1980; lowest water level, 48.8 ft below lsd, Apr. 26, 1955.

Apr. 10, 1986 42.8 ft

## KIOWA COUNTY

383230102274601

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. Elevation of land surface, 3,954.4 ft. Records available: 1960-86.

Highest water level, 4.99 ft, below lsd, Apr. 27, 1983; lowest water level, 8.6 ft below lsd, Nov. 10, 1960.

Mar. 12, 1986 5.34 ft

## KIT CARSON COUNTY

392230103052000

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. Elevation of land surface, 4,870 ft. Records available: 1951-66, 1968-86.

Highest water level, 30.4 ft, below lsd, Jan. 15, 1952; lowest water level, 40.64 ft, below lsd, Jan. 8, 1979.

Jan. 10, 1986 36.72 ft

391110102030100

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. Elevation of land surface, 3,997.7 ft. Records available: 1955, 1962-77, 1979-86.

Highest water level, 101.67 ft, below lsd, Aug. 12, 1955; lowest water level, 133.63 ft, below lsd, Jan. 16, 1985.

Dec. 29, 1985 134.45 ft

## LARIMER COUNTY

402426105013001

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. Elevation of land surface, 4,948 ft. Records available: 1941-82, 1984-86.

Highest water level, 5.43 ft, below lsd, Oct. 27, 1947; lowest water level, 14.45 ft below lsd. Apr. 20, 1949.

Mar. 21, 1986 10.96 ft

404517105014201

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. Elevation of land surface, 5,329 ft. Records available: 1940-79, 1982, 1984, 1986.

Highest water level, 29.02 ft below lsd, Apr. 3, 1959; lowest water level, 64.45 ft, below lsd, Nov. 9, 1956.

Mar. 21, 1986 33.18 ft

## GROUND-WATER LEVELS--Continued

## LINCOLN COUNTY

385724103155601

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. Elevation of land surface, 4,720 ft. Records available: 1960-77, 1979-84, 1986.

Highest water level, 3.5 ft, below lsd, Apr. 4, 1960; lowest water level, 5.28 ft, below lsd, Mar. 2, 1977.

June 5, 1986 5.17 ft

## LOGAN COUNTY

404256103064401

SB 9-51-31BBB. Frank Manuello. Drilled irrigation water-table well in alluvium. Diameter unknown. Depth, 106 ft. MP, 1.0 ft, above lsd. Elevation of land surface, 3,865 ft. Records available: 1947-73, 1975, 1978-81, 1983-86.

Highest water level, 2.89 ft below lsd, Oct. 6, 1947; lowest water level, 7.16 ft, below lsd, Jan. 10, 1975.

Mar. 26, 1986 5.75 ft

405209102481700

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. Elevation of land surface, 3,711 ft. Records available: 1948-79, 1981-83, 1985-86.

Highest water level, 3.95 ft, below lsd, Apr. 7, 1958; lowest water level, 9.03 ft below lsd, Nov. 6, 1964.

Mar. 26, 1986 5.94 ft

## MORGAN COUNTY

401452103480200

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. Elevation of land surface, 4,325.6 ft. Records available: 1955, 1965, 1970-73, 1975-82, 1984-86.

Highest water level, 39.88 ft, below lsd, Jan. 20-21, 1955; lowest water level, 56.76 ft, below lsd, Sept. 5, 1965.

Mar. 24, 1986 50.42 ft

401424103505200

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. Elevation of land surface, 4,366.2 ft. Records available: 1941-65, 1967, 1970-73, 1975-79, 1984-86.

Highest water level, 51.85 ft, below lsd, Nov. 19, 1942; lowest water level, 69.87 ft, below lsd, Nov. 5, 1964.

Mar. 24, 1986 61.78 ft

401214104053401

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. Elevation of land surface, 4,568.4 ft. Records available: 1937-73, 1975-86.

Highest water level, 49.44 ft, below lsd, Apr. 11, 1938; lowest water level, 103.83 ft, below lsd, Mar. 25, 1980.

Mar. 24, 1986 101.40 ft

402113103580300

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. Elevation of land surface, 4,362 ft, above msl. Records available: 1947-82, 1984-86.

Highest water level, 7.16 ft, below lsd, Sept. 9, 1948; lowest water level, 17.47 ft, below lsd, Mar. 27, 1985.

Mar. 24, 1986 17.11 ft



## GROUND-WATER LEVELS--Continued

## OTERO COUNTY

380706103534200

SC22-58-21DAA. C. Meyer. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 56 ft. MP, 1.90 ft, above lsd. Elevation of land surface, 4,282 ft. Records available: 1955, 1960, 1964-76, 1978-86.

Highest water level, 25.54 ft, below lsd, Mar. 28, 1955; lowest water level, 36.61 ft, below lsd, Mar. 6, 1979.

Mar. 10, 1986 30.28 ft

380334103434700

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. Elevation of land surface, 4,186 ft. Records available: 1946, 1956, 1962-78, 1980-86.

Highest water level, 8.87 ft, below lsd, Dec. 4, 1946; lowest water level, 15.78 ft, below lsd, Nov. 27, 1956.

Mar. 11, 1986 10.61 ft

## PHILLIPS COUNTY

403230102070901

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. Elevation of land surface, 3,601 ft. Records available: 1973-86.

Highest water level, 46.06 ft, below lsd, Feb. 20, 1974; lowest water level, 64.51 ft, below lsd, Dec. 29, 1984.

Dec. 11, 1985 67.49 ft

## PROWERS COUNTY

380532102311600

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. Elevation of land surface, 3,567 ft. Records available: 1956-86.

Highest water level, 0.10 ft below lsd, Aug. 24, 1967; lowest water level, 6.00 ft below lsd, May 3, 1965.

Nov. 27, 1985 3.79 ft  
 Mar. 13, 1986 3.66 ft  
 June 4, 1986 3.75 ft  
 Sept. 9, 1986 3.57 ft

## PUEBLO COUNTY

381340104205601

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. Elevation of land surface, 4,567 ft. Records available: 1929, 1935-36, 1938-66, 1968-73, 1980-1982, 1985.

Highest water level, 13.90 ft, below lsd, Nov. 16, 1965; lowest water level, 20.55 ft, below lsd, July 28, 1981.

1986, not measured

381443104320701

SC21-64-3DAC. Joseph Thomas. Drilled irrigation water-table well in alluvium. Diameter, 15 in. Depth, 35 ft. MP, 2.10 ft, above lsd. Elevation of land surface, 4,679 ft. Records available: 1934-36, 1938-45, 1947-71, 1973-79, 1982.

Highest water level, 12.20 ft, below lsd, Nov. 11, 1942; lowest water level, 27.50 ft, below lsd, Mar. 14, 1977.

1986, not measured

380817104043400

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. Elevation of land surface, 4,375 ft. Records available: 1952-70, 1972-86.

Highest water level, 25.73 ft, below lsd, Mar. 20, 1985; lowest water level, 36.16 ft, below lsd, Nov. 28, 1956.

Mar. 12, 1986 26.28 ft

## SEDGWICK COUNTY

404741102030500

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. Elevation of land surface, 3,609.2 ft. Records available: 1952-86.

Highest water level, 176.34 ft, below lsd, Jan. 16, 1969; lowest water level, 193.46 ft, below lsd. Dec. 28, 1984.

Nov. 20, 1985      196.69 ft  
Mar. 26, 1986      193.27 ft

405805102235100

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. Elevation of land surface, 3,540 ft. Records available: 1948-79, 1982-86.

Highest water level, 11.23 ft, below lsd, Oct. 7, 1949; lowest water level, 20.70 ft, below lsd, Jan. 6, 1975.

Mar. 26, 1986      15.89 ft

405435102364300

SB11-47-28BBB. James Jankovsky. Drilled irrigation water-table well in alluvium. Diameter, 24 in. Depth, 52 ft. MP, 0.50 ft, above lsd. Elevation of land surface, 3,624 ft. Records available: 1948-79, 1982-86.

Highest water level, 2.51 ft below lsd, June 24, 1948; lowest water level, 5.61 ft below lsd, Oct. 17, 1954.

Mar. 26, 1986      3.87 ft

## WASHINGTON COUNTY

394038102481800

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. Elevation of land surface, 4,350 ft. Records available: 1950-69, 1971-72, 1975-79, 1982-86.

Highest water level, 7.42 ft below lsd, Aug. 6, 1951; lowest water level, 16.30 ft below lsd, Jan. 4, 1979.

Mar. 19, 1986      12.82 ft

393902102561800

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. Elevation of land surface, 4,514.6 ft. Records available: 1950-75, 1982-86.

Highest water level, 16.44 ft, below lsd, Nov. 8, 1961; lowest water level, 22.65 ft, below lsd, July 23, 1954.

Mar. 18, 1986      18.32 ft

## WELD COUNTY

400306104154701

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. Elevation of land surface, 4,824.1 ft. Records available: 1947-72, 1974-75, 1981, 1983-86.

Highest water level, 18.29 ft, below lsd, Oct. 16, 1952; lowest water level, 53.20 ft, below lsd, Mar. 12, 1981.

Apr. 24, 1986      43.67 ft

400427104244801

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. Elevation of land surface, 4,822 ft. Records available: 1950, 1959, 1962-77, 1979-86.

Highest water level, 51.70 ft below lsd, May 1, 1950; lowest water level, 75.90 ft below lsd, Nov. 13, 1959.

Apr. 24, 1986      50.02 ft

400129104483800

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. Elevation of land surface, 4,953 ft. Records available: 1929-31, 1933-75, 1977-86.

Highest water level, 10.29 ft, below lsd, Oct. 12, 1933; lowest water level, 21.16 ft, below lsd, Mar. 11, 1982.

Apr. 24, 1986      19.00 ft

## GROUND-WATER LEVELS--Continued

## WELD COUNTY--Continued

- 401727104133000 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. Elevation of land surface, 4,482 ft. Records available: 1947-79, 1983-86.
- Highest water level, 21.60 ft, below lsd, Oct. 9, 1947; lowest water level, 40.60 ft, below lsd, Mar. 1, 1976.
- Mar. 21, 1986 34.80 ft
- 401912104313700 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. Elevation of land surface, 4,635 ft. Records available: 1940-86.
- Highest water level, 6.43 ft below lsd, Nov. 9, 1949; lowest water level, 23.64 ft below lsd, Nov. 13, 1956.
- Mar. 21, 1986 10.38 ft
- 402753104280901 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. Elevation of land surface, 4,655 ft. Records available: 1932, 1956, 1962-79, 1982-86.
- Highest water level, 7.19 ft, below lsd, Aug. 11, 1932; lowest water level, 22.85 ft, below lsd, Nov. 12, 1956.
- Mar. 21, 1986 7.90 ft
- 402930104414301 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. Elevation of land surface, 4,761.9 ft. Records available: 1932-75, 1982-86.
- Highest water level, 21.22 ft, below lsd, Aug. 1, 1932; lowest water level, 41.36 ft, below lsd, Nov. 12, 1956.
- Mar. 21, 1986 23.74 ft
- 403032104510201 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. Elevation of land surface, 4,859 ft. Records available: 1941-65, 1967-75, 1983, 1985-86.
- Highest water level, 5.45 ft, below lsd, Mar. 21, 1962; lowest water level, 13.30 ft, below lsd, Nov. 12, 1956.
- Mar. 21, 1986 8.85 ft
- 403454104403701 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. Elevation of land surface, 4,875.1 ft. Records available: 1959, 1962-79, 1982-86.
- Highest water level, 4.09 ft below lsd, Oct. 28, 1959; lowest water level, 7.66 ft below lsd, Mar. 27, 1985.
- Mar. 21, 1986 5.30 ft
- 403914104451801 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. Elevation of land surface, 5,073.7 ft. Records available: 1947, 1951-74, 1976-86.
- Highest water level, 16.20 ft, below lsd, Jan. 8, 1947; lowest water level, 22.68 ft, below lsd, Nov. 22, 1954.
- Mar. 21, 1986 16.61 ft

## YUMA COUNTY

- 401105102061101 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. Elevation of land surface, 3,615.8 ft. Records available: 1952, 1957-70, 1972-75, 1977-86.
- Highest water level, 21.25 ft, below lsd, Aug. 14, 1952; lowest water level, 48.52 ft, below lsd, Jan. 11, 1981.
- Nov. 29, 1986 46.30 ft

	Page		Page
Access to WATSTORE DATA.....	35	Cache la Poudre River near Greeley.....	138
Accuracy of field data and computed results.....	34	Carter Lake near Berthoud, contents of.....	118
Acre-foot, definition of.....	19	water-quality record.....	119-120
Adams County, ground-water levels.....	337	Cells/volume, definition of.....	20
Alamosa County, ground-water levels.....	337	Cfs-day, definition of.....	20
Algae, definition of.....	19	Chacuaco Creek at Mouth near Timpas, gaging- station record.....	266
Algae, blue green, definition of.....	25	water-quality record.....	267
Algae, green, definition of.....	25	Charles H. Boustead Tunnel, diversion by.....	307
Algal-growth potential, definition of.....	19	Chatfield Lake near Littleton, contents of.....	67
Alva B. Adams tunnel at east portal, near Estes Park.....	307	Cheesman Lake near Deckers, contents of.....	60
Apishapa River, near Fowler.....	236	Chemical oxygen demand (COD), definition of.....	21
Aquifer, definition of.....	19	Chemical quality of streamflow.....	14
Arkansas River, above Pueblo, gaging-station record.....	183	Cherry Creek at Denver.....	84
water-quality record.....	184-185	at Glendale.....	83,315
at Canon City.....	171-172	below Cherry Creek Lake.....	82,315
at Catlin Dam near Fowler.....	237-238	near Franktown.....	80,315
at Granite.....	156	Cherry Creek Lake near Denver, contents of.....	81
at Lamar.....	280	Chlorophyll, definition of.....	21
at Las Animas, gaging-station record.....	244	Clear Creek (Platte River basin) above Clear Creek Reservoir.....	157-159
water-quality record.....	245-246	at Golden.....	88
at Parkdale.....	167	near Lawson.....	87,316
at Portland, gaging-station record.....	174	Clover Ditch Drain near Widefield, gaging- station record.....	210
water-quality record.....	175-177	water-quality record.....	211
below John Martin Reservoir, gaging-station record.....	277	Collection and computation of data, streamflow....	31-34
water-quality record.....	278-279	Collection and examination of data, water-quality.....	36-36
East Fork at Hwy 24, near Leadville water-quality record.....	151	Collection of data, ground-water-level records.....	40-42
near Avondale.....	228	Conejos River, below Platoro Reservoir.....	299
near Coolidge, KS, gaging-station record.....	283	near Lasausas.....	303,319
water-quality record.....	284-285	near Mogote.....	300,318
near Granada.....	281	Contents, definition of.....	21
near Nepesta.....	233-235	Control, definition of.....	21
Arkansas River basin, crest-stage partial-record stations in.....	311	Cooperation.....	6-7
gaging station records in.....	158	Cottonwood Creek at mouth at Pikeview.....	197,317
B Ditch Drain near Security, gaging-station record.....	207	below Hot Springs, near Buena Vista.....	160
water-quality record.....	208	Crest-stage partial-record stations.....	309-311
Baca County, ground-water levels.....	337	Crooked Arroyo near Swink.....	242
Bacteria, definition of.....	19	Cubic foot per second, definition of.....	21
Bacteria, explanation of.....	19-20	Definition of terms.....	19-29
Badger Creek, lower station, near Howard, gaging-station record.....	164	Diatoms, definition of.....	25
water-quality records.....	165-166	Discharge at partial-record stations and miscellaneous sites.....	309-311
Badger Creek, upper station, near Howard, gaging-station record.....	161	Discharge, explanation of.....	21
water-quality record.....	162-163	Dissolved, definition of.....	21
Bear Creek above Evergreen.....	72,315	Dissolved oxygen (DO), definition of.....	21
at Morrison.....	73,315	Downstream order and station number.....	29-30
Bed material, definition of.....	20	Drainage area, definition of.....	22
Bent Canyon Creek at Mouth, near Timpas.....	268	East Fork Arkansas River at Hwy 24, near Leadville, water-quality record.....	151
Bent County, ground-water levels.....	337	East Plum Creek at Castle Rock.....	63-64,314
Berthoud Pass ditch at Berthoud Pass, diversion by.....	307	Elbert County, ground-water levels.....	337
Big Arroyo near Thatcher, gaging-station record... water-quality record.....	239 240	Elevenmile Canyon Reservoir near Lake George, contents of.....	60
Big Thompson River, above Loveland, water-quality record.....	108-110	El Paso County, ground-water levels.....	338
at Estes Park.....	97	Explanation of ground-water-level records.....	40
at Loveland, gaging-station record.....	111	Explanation of omitted data water year 1986.....	42
water-quality record.....	112-114	previous water years.....	42
below Loveland, water-quality record.....	115-117	Explanation of stage and water-discharge records.....	31
near Estes Park.....	100	Explanation of water-quality records.....	35-38
Bijou Creek near Fort Morgan.....	143,317	Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter.....	23
Biochemical oxygen demand (BOD), definition of.....	20	Factors for conversion of sediment concen- tration in milligrams per liter to parts per million.....	24
Biomass, definition of.....	20	Fountain Creek, above Little Fountain Creek, below Fountain, water-quality record.....	213
Biomass, explanation of.....	20	at Colorado Springs, gaging-station record.....	203
Bobolink Reservoir near Conejos.....	296	water-quality record.....	204-205
Bonny Reservoir near Hale.....	148	at Pueblo, gaging-station record.....	223
Bottom material, definition of.....	20	water-quality record.....	224-226
Boulder Creek at mouth near Longmont, gaging- station record.....	94	at Security.....	209
water-quality record.....	95-96	below Janitell Road, water-quality record.....	206
Bummers Gulch near El Vado.....	91,316	near Colorado Springs, gaging-station record... water-quality record.....	187-188
Burke Arroyo Tributary near Thatcher, gaging- station record.....	258	near Fountain.....	221
water-quality record.....	259	near Pinon.....	222,318
Busk-Ivanhoe Tunnel, diversion by.....	307	Streamflow Evaluation.....	328
Cache la Poudre River, above Box Elder Creek near Timnath, gaging-station record.....	134	Fourmile Creek, near Canon City.....	173
water-quality record.....	135-137	at Orodell.....	92,316
at Fort Collins, gaging-station record.....	127	French Creek near Jefferson.....	55,312
water-quality record.....	128-130	Frontier ditch near Coolidge, KS.....	282
Cache la Poudre River at mouth of canyon, near Fort Collins.....	123	Gage height, definition of.....	22
at Shields Street, water-quality record.....	124-126	Gaging station, definition of.....	22
below Fort Collins, water-quality record.....	131-133	Goose Creek (Rio Grande basin) at Wagonwheel Gap..	289

	Page		Page
Grand River ditch at La Poudre Pass, diversion by.....	307	Micrograms per liter, definition of.....	22
Grape Creek near Westcliffe.....	168-170	Milligrams per liter, definition of.....	22
Ground-water levels.....	17	Monument Creek, above North Gate Boulevard, at USAF Academy, gaging-station record.....	192
Ground-water levels by county:		water-quality record.....	193-194
Adams.....	337	at Bijou Street at Colorado Springs, water-quality record.....	201-202
Alamosa.....	337	at Palmer Lake, gaging-station record.....	189
Baca.....	337	water-quality record.....	190-191
Bent.....	337	at Pikeview, gaging-station record.....	198
Elbert.....	337	water-quality record.....	199-200
El Paso.....	338	West at U. S. Air Force Academy.....	195
Huerfano.....	338	Morgan County, ground-water levels.....	339
Kiowa.....	338	National Geodetic Vertical Datum of 1929, definition of.....	22
Kit Carson.....	338	National stream-quality accounting network, explanation of.....	30
Larimer.....	338	Noland Gulch Tributary Reservoir Inflow near Villa Grove.....	292
Lincoln.....	339	North Clear Creek below Continental Reservoir....	287
Logan.....	339	North Fork Republican River at Colorado- Nebraska State Line.....	147
Morgan.....	339	North Fork South Platte River, below Geneva Creek at Grant.....	62,314
Otero.....	340	North Platte River near Northgate gaging-station record.....	50
Phillips.....	340	water-quality record.....	51
Prowers.....	340	Olympus Tunnel at Lake Estes, water-quality record.....	98-99
Pueblo.....	340	Omitted data	
Sedgwick.....	341	water year 1986.....	42-43
Washington.....	341	previous water years.....	42-43
Weld.....	341-342	Otero County, ground-water levels.....	339
Yuma.....	342	Other data available.....	34-35
Halfmoon Creek near Malta, gaging-station record..	153	Overview of water year 1986.....	9
water-quality record.....	154	Partial-record station, definition of.....	22
Hardness, definition of.....	22	Particle size, classification of.....	24
Harold D. Roberts tunnel at Grant, diversion by...	307	Particle size, definition of.....	22
Homestake tunnel near Leadville, diversion by.....	307	Periphyton, definition of.....	25
Hoosier Pass tunnel at Hoosier Pass, diversion by...	307	Pesticide network, definition of.....	25
Horse Creek near Las Animas.....	243	Phillips County, ground-water levels.....	339
Horsetooth Reservoir near Fort Collins, contents of.....	101	Phytoplankton, definition of.....	25
water-quality record.....	102-107	Phytoplankton, explanation of.....	25
Huerfano County, ground-water levels.....	338	Picocurie, definition of.....	25
Huerfano near Boone.....	232	Platoro Reservoir at Platoro.....	298
Hydrologic bench-mark station, explanation of.....	30	Platte River basin, crest-stage partial-record stations in.....	309-311
Introduction.....	1	Platte River basin, gaging station records in.....	49
Jefferson Creek near Jefferson.....	57,313	Plum Creek at Titan Road near Louviers.....	66,314
Jimmy Camp Creek at Fountain.....	212	near Louviers.....	65,314
Joe Wright Creek, above Joe Wright Reservoir.....	121,317	Polychlorinated biphenyls, definition of.....	25
below Joe Wright Reservoir.....	122,317	Prowers County, ground-water levels.....	339
John Martin Reservoir at Caddoa.....	276	Publications.....	42
Kansas River basin, gaging station records in.....	147	Publications on techniques of water-resources investigations.....	47-48
Kettle Creek near Black Forest.....	196	Pueblo County, ground-water levels.....	339
Kiowa County, ground-water levels.....	338	Pueblo Reservoir near Pueblo.....	182
Kit Carson County, ground-water levels.....	338	Purgatoire River, at Madrid.....	247
Lakes and reservoirs:		at Rock Crossing, near Timpas, gaging- station record.....	269
Bobolink Reservoir.....	296	water-quality record.....	270-272
Bonny Reservoir.....	148	below Trinidad Lake.....	250-318
Carter Lake.....	118	near Las Animas, gaging-station record.....	273
Chatfield Lake.....	67	water-quality record.....	274-275
Cheeseman Lake.....	60	near Thatcher, gaging-station record.....	255
Cherry Creek Lake.....	81	water-quality record.....	256-257
Elevenmile Canyon Reservoir.....	60	Quality of ground-water, El Paso County.....	331-336
Horsetooth Reservoir.....	101	Radiochemical network, definition of.....	25
John Martin Reservoir.....	276	Radioisotopes, definition of.....	26
Platoro Reservoir.....	298	Records of discharge collected by agencies other than the Geological Survey.....	35
Pueblo Reservoir.....	182	Recoverable from bottom material, definition of...	26
Teller Reservoir.....	181	Red Rock Canyon Creek at mouth, near Thatcher....	265
Trinidad Lake.....	249	Republican River, South Fork, near Hale.....	149
Turquoise Lake.....	152	Reservoirs in South Platte River basin.....	60
Lake Creek above Twin Lakes Reservoir.....	155	REVISIONS, water-quality data.....	36
Larimer County, ground-water levels.....	338	Rio Grande, above mouth of Trinchera Creek, near Lasausas.....	297
Leadville Drain at Leadville, water-quality records.....	150	at Thirtymile Bridge, near Creede.....	286
Lincoln County, ground-water levels.....	339	at Wagonwheel Gap.....	288
Little Fountain Creek, above Keaton Reservoir, near Fort Carson.....	214	near Del Norte.....	291,318
near Fort Carson.....	216	near Lobatos, gaging-station record.....	304
near Fountain.....	217	water-quality record.....	305-306
Little Turkey Creek near Fountain.....	179	South Fork, at South Fork.....	290,318
Lockwood Canyon Creek near Thatcher, gaging-station record.....	262-263	Rio Grande basin, gaging station records in.....	286
water-quality record.....	264	Rock Creek, above Fort Carson Reservation.....	218
Logan County, ground-water levels.....	339	near Fort Carson.....	219
Long Canyon Creek near Madrid.....	248	near Fountain.....	220
Los Pinos River (Rio Grande basin) near Ortiz.....	302,319	Rock Creek (Platte River basin) near Jefferson....	58,313
Map of Colorado, crest-stage partial-record stations.....	4		
lake, stream-gaging and water-quality stations.....	3		
observation wells.....	5		
Michigan Creek above Jefferson.....	313		
Michigan River, near Cameron Pass.....	49,312		

	Page		Page
St. Charles River at Vineland.....	227	Taylor Arroyo below Rock Crossing, near	
St. Vrain Creek, at Lyons.....	89	Thatcher, gaging-station record.....	260
below Longmont.....	90,316	water-quality record.....	261
San Antonio River at Ortiz.....	301,318	Teller Reservoir near Stone City.....	181
Sedgwick County, ground-water levels.....	341	Thermograph, definition of.....	28
Sediment.....	38	Time-weighted average, explanation of.....	28
Sediment, definition of.....	26	Timpas Creek at mouth, near Swink.....	241
Sediment, explanation of.....	26-27	Tracy Pit Reservoir Inflow near Saguache.....	293
Selected references.....	44-46	Transmountain diversions from Colorado River basin	
Sodium adsorption ratio, definition of.....	27	in Colorado.....	307
Solute, definition of.....	27	no longer published.....	308
Solutes, explanation of.....	38	Tons per acre-foot, explanation of.....	28
South Boulder Creek,		Tons per day, definition of.....	28
near Eldorado Springs.....	93,316	Total, definition of.....	28
South Fork Republican River near Hale.....	149,317	Total, explanation of.....	28-29
South Fork Rio Grande at South Fork.....	290,318	Trinidad Lake near Trinidad.....	249
South Platte River, above Elevenmile Canyon		Turkey Creek above Bear Creek Lake	
Reservoir, near Hartsel.....	52,312	near Morrison (D).....	74
at Denver.....	85,315	Turkey Creek, above Teller Reservoir, near	
at Englewood, gaging-station record.....	75	Stone City.....	180
water-quality record.....	76-79	Turkey Creek near Fountain.....	178
at 64th Avenue at Commerce City.....	86,316	Turkey Reservoir Inflow near Conejos.....	295
at Julesburg, gaging-station record.....	144	Turquoise Lake near Leadville.....	152
water-quality record.....	145-146		
at Littleton,		Van Bremer Arroyo near Model, gaging-station	
gaging-station record.....	68	record.....	253
water-quality record.....	69-71	water-quality record.....	254
at Masters,		near Tyrone, gaging-station record.....	251,318
gaging-station record.....	139	water-quality record.....	252
water-quality record.....	140		
below Cheesman Lake.....	61,313	Washington County, ground water levels.....	341
near Lake George.....	53,312	Water analysis.....	36
near Weldona, water-quality record.....	141-142	Water-supply papers.....	39-40
North Fork below Geneva Creek, at Grant.....	62	Water temperatures.....	37
Special networks and programs, explanation of.....	30	Water year, definition of.....	29
Specific conductance, definition of.....	27	WDR, definition of.....	29
Stage-discharge relation, definition of.....	27	Weighted average, definition of.....	29
Streamflow.....	12	Weld County, ground-water levels.....	341-342
Streamflow, definition of.....	27	West Monument Creek at U. S. Air Force Academy.....	195
Supplemental Water-Quality Data for		Wind River, Diversion by.....	97
Gaging Stations.....	312-319	Womack Ditch near Fort Carson.....	215
Suspended recoverable, definition of.....	27	WRD, definition of.....	29
Suspended total, definition of.....	28	WSP, definition of.....	29
System for numbering wells and miscellaneous		Yellow Warbler Reservoir Inflow	
sites.....	40	near Conejos.....	294
Tarryall Creek at upper station, near Como.....	54,312	Yuma County, ground-water levels.....	342
below Rock Creek, near Jefferson.....	59,313	Zooplankton, definition of.....	29