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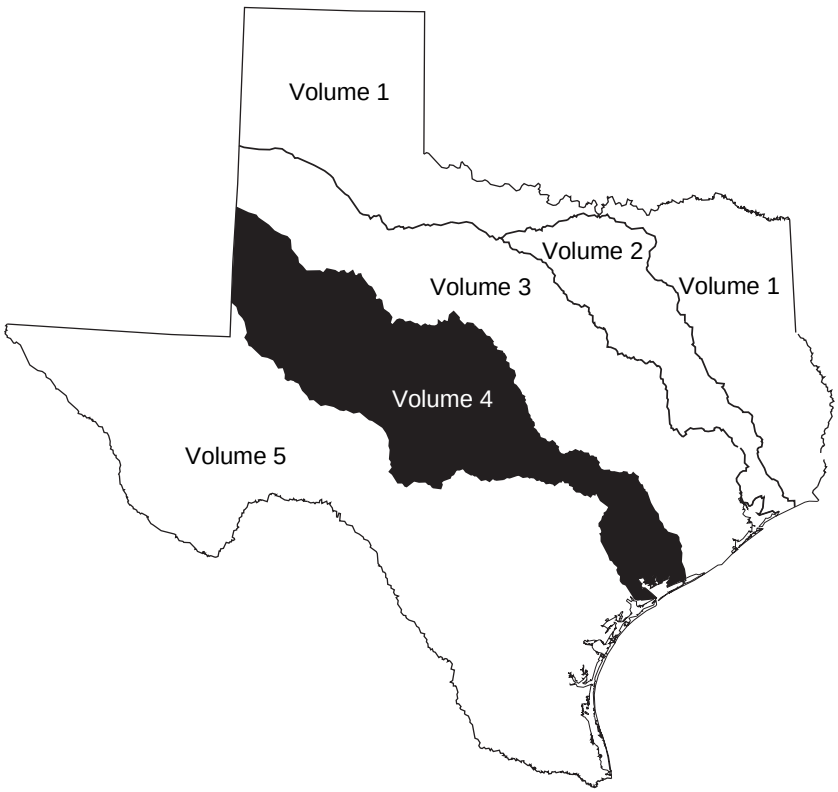
Water Resources Data
Texas
Water Year 1999

Volume 4. Colorado River Basin, Lavaca River Basin, and Intervening Coastal Basins

By S.C. Gandara, W.J. Gibbons, D.L. Barbie and R.E. Jones

Water-Data Report TX-99-4



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

UNITED STATES DEPARTMENT OF THE INTERIOR

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2000

PREFACE

This edition of the annual hydrologic data report of Texas is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's 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 Federal, State, local agencies, and the private sector for developing and managing land and water resources in Texas which are contained in 6 volumes:

Volume 1.	Arkansas River Basin, Red River Basin, Sabine River Basin, Neches River Basin, and Intervening Coastal Basins
Volume 2.	Trinity River Basin
Volume 3.	San Jacinto River Basin, Brazos River Basin, San Bernard River Basin, and Intervening Coastal Basins
Volume 4.	Colorado River Basin, Lavaca River Basin and Intervening Coastal Basins
Volume 5.	Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Basins
Volume 6.	Ground-Water Data

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 the primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policy and established guidelines, most of the data were collected, computed, and processed from Subdistrict and Field Offices. The following supervised the collection, processing, and tabulation of the data:

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13. ABSTRACT *(Maximum 200 words)*

Water-resources data for the 1999 water year for Texas are presented in six volumes, and consist of records of stage, discharge, and water quality of streams and canals; stage, contents, and water-quality of lakes and reservoirs; and water levels and water quality of ground-water wells. Volume 4 contains records for water discharge at 61 gaging stations; stage only at 1 gaging station; stage and contents at 11 lakes and reservoirs; water quality at 30 gaging stations; and data for 13 partial-record stations comprised of 6 flood-hydrograph, 5 low-flow, and 2 miscellaneous stations. Also included are lists of discontinued surface-water discharge or stage-only stations and discontinued surface-water-quality stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and local agencies in Texas. Records for a few pertinent stations in the bordering States also are included.

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ILLUSTRATIONS

TABLES

GAGING STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

[Type of data collected: (d) discharge; (c) chemical; (b) biological; (t) water temperature; (s) sediment; (e) elevation, gage heights, or contents.]

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Texas have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (*) after the station number are currently operated as partial-record stations. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the title page of this report.

[Letters after station name designate the type of data collected: (d) discharge, (e) elevation (stage only).]

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
San Bernard River near West Columbia (e)	08117700	766	1949, 1971-77
Mound Creek Tributary at Guy (e)	08117800	1.48	1966-73
Big Boggy Creek near Wadsworth (d)	08117900	10.30	1970-77
Bull Creek near Ira (d)	08118500	26.30	1948-54, 1959-62
Colorado River below Bull Creek near Ira (e)	08118600	3,524	1975-78
Bluff Creek near Ira (d)	08119000	42.60	1948-65
Bluff Creek at mouth near Ira (e)	08119100	44.1	1975-78
Colorado River near Ira (d)	08119500	3,483	1948-52, 1959-89
Deep Creek near Dunn (d)	08120500	198	1953-86
Morgan Creek near Westbrook (d)	08121500	273	1954-63
Graze Creek near Westbrook (d)	08122000	21.70	1954-59
Morgan Creek near Colorado City (d)	08122500	313	1947-49
Champlin Creek near Colorado City (d)	08123500	198	1948-59
Sulphur Springs Draw near Wellman (e)	08123620	41.80	1966-74
Beals Creek above Big Spring (d)	08123650	9,319	1959-79
Beals Creek at Big Spring (d)	08123700	9,341	1957-59
Beals Creek near Coahoma (d)	08123720	9,383	1983-88
Coahoma Draw Tributary near Big Spring (e)	08123750	2.38	1966-74
Bull Creek Tributary near Forsan (e)	08123760	0.4	1966-74
Colorado River near Silver (d)	08123900	14,997	1957-70
Bitter Creek near Silver (e)	08123920	4.3	1967-74
Salt Creek Tributary near Hylton (e)	08125450	0.25	1966-74
Oak Creek Reservoir near Blackwell (e)	08125500	238	1953-83
Fish Creek Tributary near Hylton (e)	08126300	0.25	1966-71
Colorado River at Ballinger (d)	08126500	16,413	1907-79
Dry Creek near Christoval (e)	08127100	0.79	1965-73
South Concho Irrigation Co. Canal at Christoval (d)	08127500	N/A	1940-83
South Concho River at Christoval (d)	08128000*	412.6	1931-95
Middle Concho River above Tankersley (d)	08128400*	2,084	1962-95
Middle Concho River near Tankersley (d)	08128500	2,653	1930-61
Spring Creek above Tankersley (d)	08129300*	424.7	1961-95
Dove Creek Springs near Knickerbocker (d)	08129500*	N/A	1944-58
Dove Creek at Knickerbocker (d)	08130500*	226.43	1961-95
Spring Creek near Tankersley (d)	08131000	699	1930-60
South Concho River above Pecan Creek near San Angelo (e)	08131300	470	1963-84
Pecan Creek near San Angelo (d)	08131400	81.10	1961-86
Tom Green Co. WCID No. 1 Canal near San Angelo (d)	08131600	N/A	1963-81
South Concho River at San Angelo (d)	08132500	3,866	1932-53
Quarry Creek near Sterling City (e)	08133300	3.25	1965-73
North Concho River at Sterling City (d)	08133500*	588.0	1939-87
Broome Creek near Broome (e)	08133800	0.29	1965-73
Nolke Station Creek near San Angelo (e)	08134300	0.59	1965-73
Gravel Pit Creek near San Angelo (e)	08134400	0.19	1965-74
North Concho River at San Angelo (d)	08135000	1,525	1916-31, 1947-90
Puddle Creek near Veribest (e)	08136200	12.0	1966-73
Frog Pond Creek near Eden (e)	08136300	1.96	1967-73
Mukewater Creek SWS No. 10A near Trickham (e)	08136900	15.3	1965-72
Mukewater Creek SWS No. 9 near Trickham (e)	08137000	4.02	1961-72
Mukewater Creek at Trickham (d)	08137500	70	1951-73

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Deep Creek SWS No. 3 near Placid (e)	08139000	3.42	1954-60
Deep Creek near Mercury (d)	08139500	43.90	1954-73
Deep Creek SWS No. 8 near Mercury (e)	08140000	5.14	1952-71
Dry Prong Deep Creek near Mercury (d)	08140500	8.31	1951-71
Lake Clyde near Clyde (e)	08140600	36.9	1970-85
Pecan Bayou near Cross Cut (d)	08140700	532	1968-79
Jim Ned Creek near Coleman (d)	08140800	333	1965-80
McCall Branch near Coleman (e)	08141100	2.17	1966-73
Hords Creek near Valera	08141500	54.20	1947-91
Hords Creek at Coleman (d)	08142000	107	1941-70
Brown County WID No. 1 Canal near Brownwood (d)	08142500	N/A	1950-83
Pecan Bayou at Brownwood (d)	08143500	1,660	1917-18, 1924-83
Brown Creek Tributary near Goldthwaite (e)	08143700	2.48	1966-73
Noyes Canal at Menard (d)	08144000	N/A	1924-83
Brady Creek near Eden (d)	08144800	101	1962-85
Brady Creek at Brady (d)	08145000	588	1939-86
Brady Creek Tributary near Brady (e)	08145100	4.05	1967-73
Lake Buchanan near Burnet (e)	08148000	31,910	1937-90
North Llano River near Junction (d)	08148500	914	1915-77
Llano River Tributary near London (e)	08150200	0.58	1966-73
Stone Creek Tributary near Art (e)	08150900	0.40	1966-73
Llano River near Castell (d)	08151000	3,747	1924-39
Johnson Creek near Valley Spring (e)	08151300	5.66	1967-73
Sandy Creek near Kingsland (d)	08152000	327	1967-93
Little Flatrock Creek near Marble Falls (e)	08152700	3.20	1966-74
Spring Creek near Fredricksburg (e)	08152800	15.20	1967-73
Pedernales River near Fredericksburg (d)	08152900	369	1979-93
Pedernales River at Stonewall (d)	08153000	647	1924-34
Cane Branch at Stonewall (e)	08153100	1.37	1965-71
Pedernales River near Spicewood (d)	08154000	1,294	1924-39
Lake Travis near Austin (d)	08154500	38,755	1940-90
Colorado River below Mansfield Dam, Austin (d)	08154510	38,755	1975-90
West Bull Creek at Loop 360 near Austin (e)	08154750	6.77	1976-82
Bull Creek at FM 2222, Austin (e)	08154760	30.4	1975-78
Bee Creek at West Lake Drive near Austin (e)	08154950	3.28	1980-82
Barton Creek near Camp Craft Road near Austin (d)	08155260	109	1982-89
Skunk Hollow Creek below Pond 1 at Austin (e)	08155400	0.12	1982-84
West Bouldin Creek at Riverside Drive, Austin (e)	08155550	3.12	1976-82
Shoal Creek at Steck Avenue, Austin (e)	08156650	2.79	1975-82
Shoal Creek at Northwest Park at Austin (d)	08156700	6.52	1975-84
Shoal Creek at White Rick Drive, Austin (e)	08156750	12.30	1975-82
Waller Creek at 38th Street, Austin (d)	08157000	2.31	1955-80
Waller Creek at 23rd Street, Austin (d)	08157500	4.13	1955-80
Boggy Creek at U.S. Highway 183, Austin (d)	08158050*	13.10	1976-86
Walnut Creek at Farm-Market 1325 near Austin (e)	08158100	12.60	1975-88
Walnut Creek at Dessau Road, Austin (e)	08158200	26.20	1975-88
Ferguson Branch at Springdale Road, Austin (e)	08158300	1.63	1978-82
Little Walnut Creek at Georgian Drive, Austin (e)	08158380	5.22	1975-88
Little Walnut Creek at IH 35, Austin (e)	08158400	5.57	1975-82
Little Walnut Creek at Manor Road, Austin (e)	08158500	12.1	1975-82
Walnut Creek at Southern Pacific Railroad bridge, Austin (e)	08158640	53.5	1975-86
Onion Creek at Buda (e) (d)	08158800	166	1961-78, 1979-83, 1992-95
Bear Creek at Farm-Market Road 1626 near Manchaca (e)	08158820	24.0	1979-83
Little Bear Creek at Farm-Market Road 1626 near Manchaca (d)	08158825	21.0	1979
Slaughter Creek at FM 2304 near Austin (e)	08158860	23.1	1978-83
Boggy Creek (South) at Circle S Road, Austin (e)	08158880	3.58	1976-88
Fox Branch near Oak Hill (e)	08158900	0.12	1965-73

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Williamson Creek at Oak Hill (d)	08158920	6.30	1978-93
Williamson Creek at Manchaca Road, Austin (e)	08158930	19	1975-85
Williamson Creek at Jimmy Clay Road, Austin (d)	08158970	27.60	1975-85
Onion Creek below Del Valle (e)	08159100	339	1962-75
Wilbarger Creek near Pflugerville (d)	08159150	4.6	1963-80
Big Sandy Creek near McDade (d)	08159165	38.70	1979-85
Big Sandy Creek near Elgin (d)	08159170	63.80	1979-85
Dogwood Creek near McDade (e)	08159180	0.53	1980-85
Dogwood Creek at Highway 95 near McDade (e)	08159185	5.03	1980-85
Reeds Creek near Bastrop (e)	08159450	5.22	1967-73
Colorado River at Smithville (d)	08159500	39,880	1931-75
Dry Creek at Buescher Lake near Smithville (d)	08160000	1.48	1940-66
Colorado River at La Grange (d)	08160500	40,430	1939-55
Colorado River above Columbus (d)	08160700	41,403	1983-85
Dry Branch Tributary near Altair (e)	08161580	0.68	1966-73
Little Robin Slough near Matagorda (e)	08162530	3.4	1969
Tres Palacios River near Midfield (d)	08162600	145	1970-97
Cashs Creek near Blessing (e)	08162650	14.8	1969-77
East Carancahua Creek near Blessing (e)	08162700	81.2	1968, 1970-83
West Carancahua Creek near Laward (e)	08162800	57.1	1970-76
Navidad River near Ganado (d)	08164500	826	1939-80

The following stations were discontinued as continuous-record surface-water-quality stations prior to the 1999 water year. Daily records of specific conductance, temperature, sediment, color, pH, dissolved oxygen, or chloride were collected and published for the record shown for each station.

[SC, specific conductance; T, temperature; S, sediment; C, color; pH, pH; DO, dissolved oxygen; Cl, chloride.]

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Colorado River above Bull Creek near Knapp	08118200	N/A	SC, T, Cl	1950-52
Bull Creek near Ira	08118500	26.30	SC, T, pH, Cl	1950-51
Bluff Creek near Ira	08119000	42.60	SC, T, pH, Cl	1950
Colorado River near Ira	08119500	3,483	SC, T	1950-52, 1959-70, 1975-82,
			Cl	1951-52
Deep Creek near Dunn	08120500	198	SC, T	1953-54
Morgan Creek near Westbrook	08121500	273	T	1954-55
Graze Creek near Westbrook	08122000	21.70	T	1954-55
Morgan Creek near Colorado City	08122500	313	T	1947-49
Lake Colorado City near Colorado City	08123000	340	T	1954-55
Beals Creek above Big Spring	08123650	9,319	SC, T	1973-78
Beals Creek near Big Spring	08123700	9,341	SC, T	1956-57
Beals Creek near Coahoma	08123720	9,383	SC, T	1983-88
Colorado River near Silver	08123900	14,997	SC, T	1957-68
Colorado River at Robert Lee	08124000	15,307	SC, T, pH, Cl	1948-51,
			S	1949-51
Oak Creek near Blackwell	08126000	209	SC, T	1950
Colorado River at Ballinger	08126500	16,413	SC, T	1961-79,
			S	1978-79
Elm Creek at Ballinger	08127000	450	SC, T	1968-91
Concho River at Paint Rock	08136500	6,574	SC, T	1946-50, 1967-90,
			S	1978-81
Pecan Bayou at Brownwood	08143500	1,660	SC, T	1948-49
Pecan Bayou near Mullin	08143600	2,073	SC, T	1968-91
San Saba River near San Saba	08145500	N/A	SC, T	1962-65
San Saba River at San Saba	08146000	3,046	SC	1962-69,
			T	1963-70
Colorado River near San Saba	08147000	37,217	SC, T	1947-92,
			S	1951-62
Llano River at Llano	08151500	4,197	SC, T	1979-81
Lake Austin at Austin	08154900	38,240	SC, T	1965-80
Barton Creek below Barton Springs at Austin	08155505	125	SC, T,	1965, 1975-83, 1989-91, 1994-97
Waller Creek at 23rd Street at Austin	08157500	4.13	T	1955-60
Colorado River at Austin	08158000	39,009	SC, T	1948-91
Colorado River above Columbus	08160700	41,403	SC, T	1983-86
Colorado River at Columbus	08161000	41,640	SC	1967-73,
			T	1957-59, 1961-68
			S	1957-73
Colorado River at Wharton	08162000	42,003	SC	1945-92,
			T	1946-48,
Lavaca River near Edna	08164000	817	SC, T	1978-81
Navidad River near Ganado	08164500	826	SC, T	1960-80

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WATER RESOURCES DATA—TEXAS, 1999

VOLUME 4

COLORADO RIVER BASIN, LAVACA RIVER BASIN AND INTERVENING COASTAL BASINS

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with Federal, State, and City agencies, obtains a large amount of data pertaining to the water resources of Texas each water year. Such data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in six volumes of this report series entitled "Water Resources Data - Texas."

This report series includes records of stage, discharge, and water quality of streams and canals; stage, contents, and water quality of lakes and reservoirs and water levels and water quality of ground water wells. Volume 4 contains records for water discharge at 61 gaging stations; stage only at 1 gaging station; stage and contents at 11 lakes and reservoirs; and water quality at 30 gaging stations. Also included are data for 13 partial-record stations comprised of 6 flood-hydrograph, 5 low-flow, and 2 miscellaneous measurement stations. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating Federal, State, and City agencies in Texas.

This series of annual reports for Texas began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report was changed to its present format, with data on quantities and quality of surface water contained in each of three volumes, and expanding to five volumes beginning with the 1999 water year. Ground-water levels and water quality have been published in a separate volume beginning with the 1991 water year.

Prior to introduction of this series and for several water years concurrent with it, water resources data for Texas were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 7 and 8." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425 Denver, CO 80225.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official U.S. Geological Survey reports have 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 TX-99-4." For archiving and general distribution, the reports for the 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161 (703)) 605-6000.

Additional information, including the 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 (512) 927-3500.

COOPERATION

Federal agencies that assisted the U.S. Geological Survey in the collection of data in this report in the form of funds or services in water year 1999 are:

- Corps of Engineers, U.S. Army.
- International Boundary and Water Commission, United States and Mexico, U.S. Section.
- U.S. Bureau of Reclamation.

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Texas Water Development Board, G.E. Kretzschmar, Executive Administrator; the cities of Abilene, Arlington, Austin, Corpus Christi, Fort Worth, Gainesville, Garland, Georgetown, Graham, Houston, Lubbock, Nacogdoches, San Angelo, and Wichita Falls; Bexar, Medina, and Atascosa Counties Water Improvement District No. 1; Barton Springs/Edwards Aquifer Authority; Brazos River Authority; Canadian Municipal Water Authority; Coastal Water Authority; Colorado River Municipal Water District; Dallas Public Works Department; Dallas Water Utilities; Edwards Underground Water District; Fort Bend Subsidence District; Franklin County Water District; Galveston County; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Office of Emergency Management Harris-Galveston Coastal Subsidence District; Harris County Flood Control District; Houston-Galveston Area Council; Lavaca-Navidad River Authority; Lower Colorado River Authority; Lower Neches Valley Authority; North Central Texas Council of Governments; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; North Texas Municipal Water District; Pecos River Commission; Red Bluff Water Power Control District; Red River Authority; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio River Authority; San Antonio Water System; San Jacinto River Authority; Somervell County Water District; Tarrant Regional Water District; Texas Soil & Water Conservation Board; Texas State Department of Highways & Public Transportation; Texas Natural Resources Conservation Commission; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; West Central Texas Municipal Water District; and Wichita County Water Improvement District No. 2.

HYDROLOGIC CONDITIONS

Large variations in precipitation, runoff, and streamflow characterize the usual hydrologic conditions in Texas. In the eastern part of the State, streams typically are deep with wide alluvial flood plains, and streamflow is perennial. In the western part of the State, most streams flow through arroyos, and streamflow usually is ephemeral.

Streamflow across the State averaged normal during water year 1999.

Conservation storage in 77 selected reservoirs throughout the State, with a combined conservation capacity of 34,481,000 acre-feet, increased from 75 percent at the end of September 1998 to 76 percent at the end of September 1999. Records from these reservoirs indicate that storage decreased in 42, increased in 34, and remained the same in 1.

The area for which water resources data are presented in volume 4 includes the Colorado River Basin, Lavaca River Basin, and Intervening Coastal Basins. The area described in volume 4 and the location of selected streamflow-gaging and water-quality stations in the area are shown in figure 1.

Streamflow

In the area covered in volume 4, streamflow averaged normal during water year 1999. Streamflow for water year 1999 and streamflow for the period of record at the two selected stations (fig. 1) for which data are included in volume 4 is presented in table 1.

At the four long-term hydrologic index stations in the State, monthly mean streamflow during water year 1999 was normal. Monthly mean discharges for water year 1999 and the median of the long-term monthly means for water years 1961–90 for the four long-term hydrologic index stations in the State are shown in figure 2. Streamflow at the hydrologic index station North Concho River near Carlsbad had normal streamflow for each month of water year 1999. The station Neches River near Rockland was above normal during October through February and normal for the remaining 7 months. The station North Bosque River near Clifton had above normal streamflow during November and December, below normal streamflow during May, August, and September and normal streamflow for the remaining 7 months. Streamflow for the station Guadalupe River near Spring Branch was above normal during October through December, below normal during September and normal for the remaining 8 months.

Conservation storage in 12 selected reservoirs in this area of the State, with a total combined conservation capacity of 3,962,000 acre-feet, decreased from 65 percent of capacity at

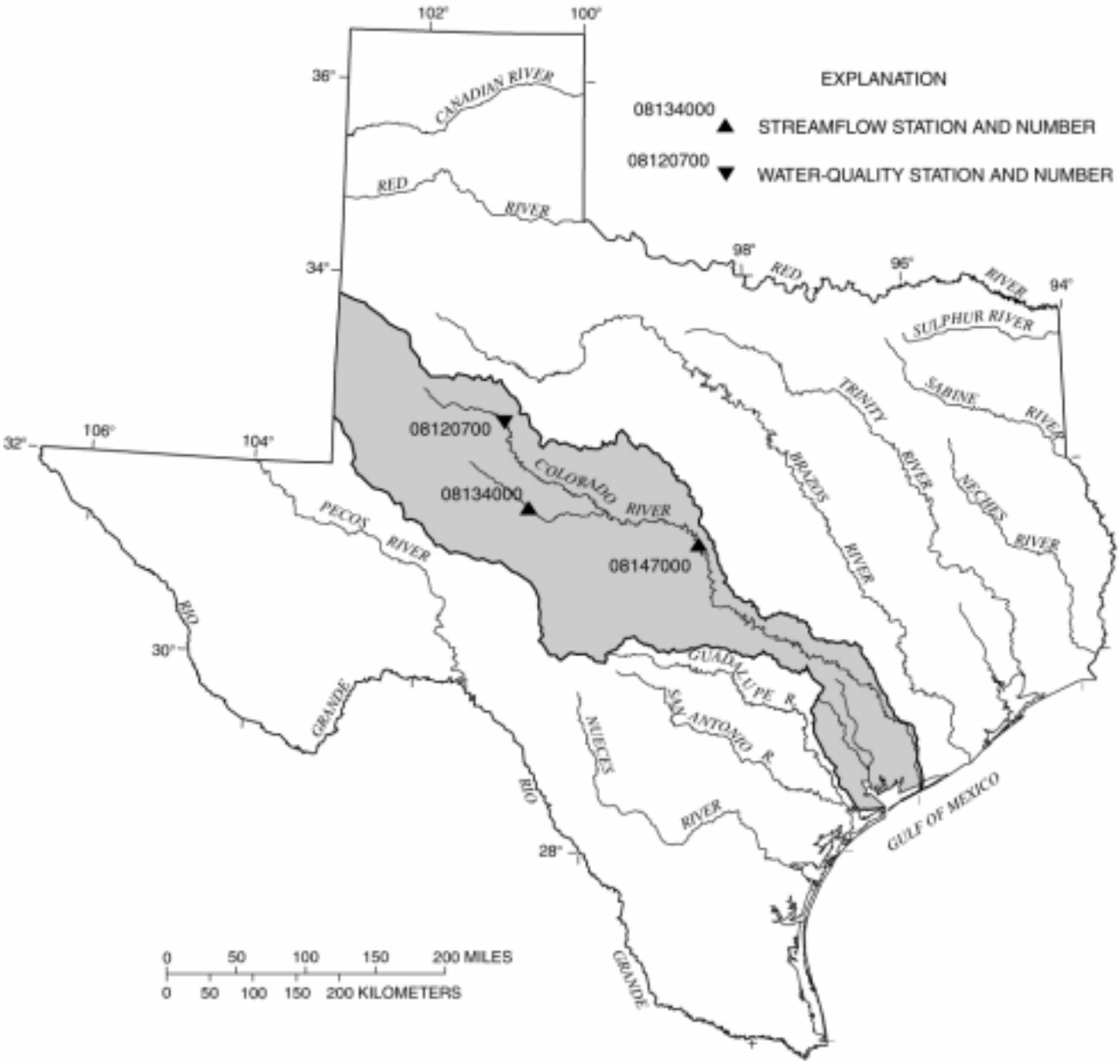


Figure 1. Area of Texas covered by volume 4 (shaded) and location of selected streamflow and water-quality stations in volume 4.

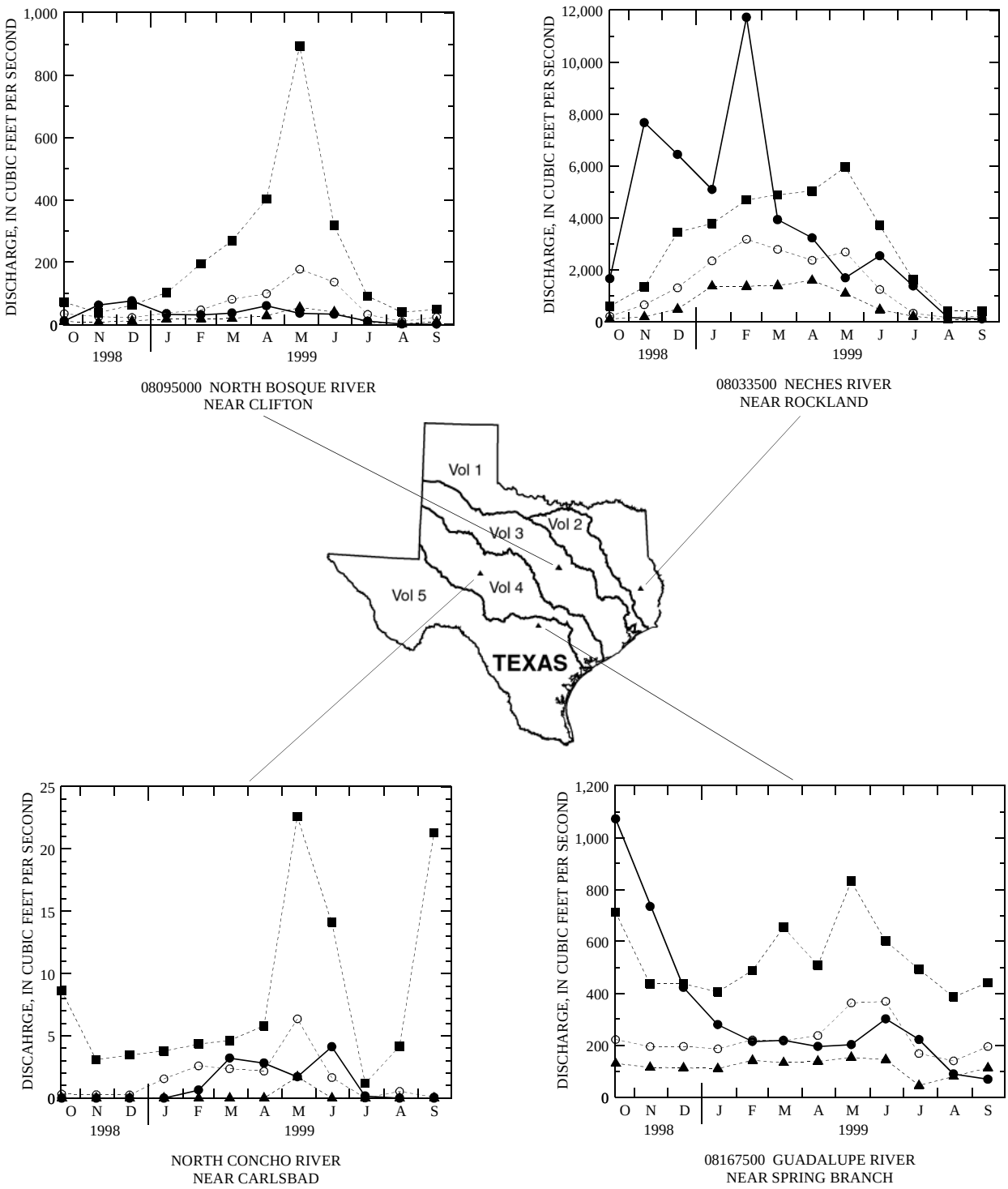


Figure 2. Monthly mean discharges at four long-term hydrologic index stations during 1999 water year and median of the monthly mean discharges for 1961–90 water years.

the end of September 1998 to 60 percent of capacity at the end of September 1999. Records from these reservoirs indicate that storage decreased in 10 and increased in 2.

Water Quality

Dissolved-solids concentrations in most streams in the State are inversely related to streamflow discharges. During years when precipitation and runoff are less than normal, streamflow commonly is more mineralized than during years when precipitation and runoff are normal or greater than normal. However, for streams where discharge is controlled by reservoirs, the dissolved-solids concentrations may remain relatively constant despite substantial fluctuations in precipitation and runoff.

Records of discharge-weighted-average concentrations of dissolved solids for water year 1999 are compared with those for water years 1995–99 for selected long-term daily or continuous-record water-quality stations (fig. 1) in the Colorado River Basin. Results are shown in table 2.

Table 1. Streamflow at two selected stations

Station no. and name		Discharge during 1999 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
		Maximum instantaneous	Minimum daily mean	Mean	Maximum instantaneous	Minimum daily mean	Mean
Colorado River Basin							
08134000	North Concho River near Carlsbad, Tex. 1/	62	0	1.06	94,600	0	28.9 (1924-99)
08147000	Colorado River near San Saba, Tex.	51,400	50	337	224,000	0	1,041 (1931-99)

1/ Hydrologic index station.

Table 2.--Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1999 and 1995-99 water years

Station no. and name		Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
		1999	1995-99	1999	1995-99
Colorado River Basin					
08120700	Colorado River near Cuthbert, Tex.	32	17	676	1,350

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 40 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of the constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and remobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

Additional information about the NASQAN program is available through the world wide web at:

http://water.usgs.gov/nasqan/

The National Atmospheric Deposition Program/National Trends Network (NAPD/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of over 200 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO_2 emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO_2 and NOx scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

http://nadp.sws.uiuc.edu

National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. There are currently two NAWQA Programs operating in Texas; the Trinity NAWQA and the South Central Texas NAWQA.

Additional information about the NAWQA Program is available through the world wide web at:

http://water.usgs.gov/nawqa/nawqa_home.html
http://tx.usgs.gov/trin
http://tx.usgs.gov/sctx

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1999 water year that began October 1, 1998, and ended September 30, 1999. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order Numbering

Since October 1, 1950, the order of listing hydrologic-station records in U.S. Geological Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series 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 08057000, which appears just to the left of the station name, includes the 2-digit Part number "08" plus the 6-digit downstream-order number "057000." The Part number designates the major river basin; for example, Part "08" is the Western Gulf of Mexico basin.

Records of Stage and Water Discharge

Records of stage and streamflow may be complete or partial. Complete records of discharge are those obtained using a stage-recording device through which either instantaneous or daily mean discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated for any time, or period of time. They may be obtained using a stage-recording device, but need not be. Because daily-mean discharges and reservoir contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Flood-hydrograph partial records, "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow channel gain and loss studies, may be considered as partial records, but they are presented separately in this report. Instantaneous peak discharges are presented for all but the low-flow partial-record stations.

Data Collection and Computation

The data obtained at a complete record gaging station on a stream or canal consist of records of stage (that is recorded every 15, 30, or 60 minutes), measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information such as weather records, are used to compute daily mean discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute lake storage.

Records of stage are obtained with recorders at selected time intervals. Measurements of discharge are made with current meters and indirect procedures using methods adopted by the U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, TWRI, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves then are constructed. From these curves, rating tables indicating the discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves can be extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques. Stage-discharge ratings at gaging stations are described in TWRI, Book 3, Chapter A10.

Instantaneous discharges are computed by applying each individual recorded stage (gage height) to the stage-discharge table. The daily mean discharge is computed as the mean of the instantaneous discharges. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the rating tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations, that the daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by backwater from reservoirs, tributary streams, bays, or other sources. This necessitates the use of the slope method in which the slope (fall) in a reach of the stream is a factor in computing discharge. The slope is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relation of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Even when this is done, the contents computed may increase in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some streamflow 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 stage sensor or recorder fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily mean discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Streamflow data in this report are presented in a format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consists of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly-mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7- day low-flow minimums, and flow duration.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station

name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years which the revisions apply to. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted 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 most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to sea level, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error. Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscripts published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check, because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, AND EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the EXTREMES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents.

Data table of daily mean values

The daily table for stream-gaging stations gives 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 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 cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the daily mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period, expressed as "FOR WATER YEARS ____- ____, BY WATER YEAR (WY)," will list the first and last water years of the range selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS ____-____," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. However, data for partial water years, if any, will only be used in the statistical calculations, if appropriate. For example, all of the calculations for the statistical characteristics designated ANNUAL (See line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the column heading. When this occurs, it should be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data is omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period.

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

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

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that has been exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. 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.

Identifying Estimated Daily Discharge

Estimated daily discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol “e” and printing a table footnote, “e Estimated,” or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records 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 measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under “REMARKS.” “Excellent” means that about 95 percent of the daily discharges are within 5 percent of their true values; “good,” within 10 percent; and “fair,” within 15 percent.

Records that do not meet the criteria mentioned are rated “poor.” Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s; to the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges 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. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables, is on file in the Texas District. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications.

A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin. A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values obtained by data logger. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-Site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Records of surface-water quality at some National Water Quality Accounting (NAWQA) Sites include data collected by different government agencies as identified in the water-quality data tables under AGENCY COLLECTING SAMPLE (CODE NUMBER). Values for this code are given below:

1028 - U.S. Geological Survey
84823 - International Boundary & Water Commission

Procedures for on site measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. Detailed information on collecting, treating, and shipping samples may be obtained from the Texas Office of the Central Region Office.

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. All samples obtained for the National Stream Quality Accounting Network (NASQAN) (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector. Information on the method used to collect the sample at National Stream Quality Accounting Network sites is given in the water-quality data tables under SAMPLING METHOD. Values for this code are given below:

10 - Equal Width Increment (EWI)
20 - Equal Discharge Increment (EDI)
25 - Timed Sampling Interval
30 - Single Vertical
40 - Multiple Verticals
50 - Point Sample
60 - Weighted Bottle
70 - Grab Sample (DIP)
90 - Discharge Integrated, Centroid
120 - Velocity Integrated
8010 - Other

Detailed information on sampling methods may be found in the following publications: OFR-90-127 "Guidelines for Collection and Analysis of Water-Quality Samples from Streams in Texas", OFR-94-455 "Field Guide for Collecting and Processing Stream-Water Samples for the National Water-Quality Assessment Program", and OFR-94-539 "U.S. Geological Survey protocol for the collection and processing of surface-water samples for the subsequent determination of inorganic constituents in filtered water". Specific questions pertaining to water-quality sample collection may be directed to the District

Water-Quality Specialist in Austin, Texas, or the Regional Water-Quality Specialist in Denver, Colorado.

Additional information about the NASQAN program is available through the world wide web at:

http://water.usgs.gov/public/nasqan/

Chemical-quality data published in this report 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.

For chemical-quality stations equipped with water-quality monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly readings beginning at 0100 hours and ending at 2400 hours for the day of record.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal 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. Water temperatures measured at the time of water-discharge measurements are on file in the Texas District Office.

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 discharges 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.

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 and in predicting long-term sediment-discharge characteristics of the stream.

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

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the U.S. Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the U.S. Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Historical and current (1999) dissolved trace-element concentrations are reported herein for water that was collected, processed, and analyzed by using either ultraclean or other than ultraclean techniques. If ultraclean techniques were used, then those concentrations are reported in nanograms per liter. If other than ultraclean techniques were used, then those concentrations are reported in micrograms per liter and could reflect contamination introduced during some phase of the procedure.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radio-chemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of “daily values” of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. These periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

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 insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remarks Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
e or E	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (Organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
V	Analyte was detected in both the environmental sample and the associated blanks.

Dissolved Trace-Element Concentrations

NOTE: Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (mg/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the mg/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network Procedures

NOTE: Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (303-491-5643).

WATER QUALITY-CONTROL DATA

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this District are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this district are:

Field blank - a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is put in the same type of bottle used for an environmental sample, and kept with the set of sample bottles before and after sample collection.

Equipment blank - a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to field blank but normally done in the more controlled conditions of the office).

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sample preservatives used for an environmental sample.

Reference Samples

Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

Sequential sample - a type of replicate sample in which the samples collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with necessary telemetry and historic daily-mean and peak-flow discharge

data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at

http://tx.usgs.gov

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape, 3-1/2 inch floppy disk or CD-ROM. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page.)

DEFINITION OF TERMS

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

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

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 325,851 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

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

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while 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. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-sha-ped bacteria which ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at +35 °C ± 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 intestine 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 that produce blue colonies within 24 hours when incubated at +44.5 °C ± 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 in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms that produce red or pink colonies within 48 hours at +35 °C ± 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Benthic organisms (invertebrates) are the group of animals inhabiting the bottom of an aquatic invironment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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

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

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

Dry mass refers to the mass of residue present after drying in an oven at 105 °C for zooplankton and 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 ash mass and represents the actual mass of the living matter. 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 plankton cells or natural units counted using a microscope and grid or counting cell. Results are generally reported as cells or units per milliliter.

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 BOD 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 green pigments in plants.

Color Unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

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

Cubic foot per second per day [$(ft^3/s)/d$] is the volume of water represented by a 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.

Cubic feet per second per square mile [$(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

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 µm membrane filter. This 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-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to reflect the change.

Drainage area of a site on a stream at a specified 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 specified.

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

Extractable organic halides (EOX) are organic compounds which contain halogen atoms such as chlorine. These organic compounds are semi-volatile and extractable by ethyl acetate from air-dried stream bottom sediments. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of th stream bottom sediments.

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.

Supplementary gage is a gage used to obtain additional data. A supplementary gage may be used in place of the principal gage if the latter is isolated or cut

off from the channel, or registers only above (or below) a certain gage height. One or more supplementary gages may be used on bypass channels or overflow channels, or on streams that flow in several channels, each of which is rated independently.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Low tide is the minimum height reached by each falling tide.

Mean high tide is the average of all high tides over a specified period.

Mean low tide is the average of all low tides over a specified period.

Mean water level is the average of all tides over a specified period.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, µg/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.

Microsiemens per centimeter (µS/cm, US/CM) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents 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 dry sediment per liter of water-sediment mixture.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic-invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/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 a particle determined by either 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).

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

Classification	Size (mm)			Method of analysis
Clay	0.00024	-	0.004	Sedimentation
Silt	0.004	-	0.062	Sedimentation
Sand	0.062	-	2.0	Sedimentation/sieve
Gravel	2.0	-	64.0	Sieve

The partial size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter 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.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

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

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL of sample).

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 milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating “moss” in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

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, zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

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

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2/time)] for periphyton and macrophytes and [mg C/(m^3/time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg 0/(m^2/time)] for periphyton and macrophytes and [mg 0/(m^3/time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is 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 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.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sea level was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports and refers to the 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 Sea Level Datum of 1929.

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.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed-load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

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 above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The entire sample is used for the analysis.

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

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either discharge or concentration.

Suspended total residue at 105 ºC concentration is the concentration of suspended sediment in the sampled zone expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). A small aliquot of the sample is used for the analysis.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a cross section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with total-sediment discharge.

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 ºC. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring imersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with

clean streamside rocks) and multiplate samplers (made of hard-board) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest USGS topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is 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 µm 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 are 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 is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm 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.

Synoptic Studies Short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchal scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

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 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 of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the rate representing a mass of 1 ton of a constituent in streamflow passing a cross section in 1 day. It is equivalent to 2,000 poinds per day, or 0.9072 metric tons per day.

Total is 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 determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total recoverable is 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 are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Volatile Organic Compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are man-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxid and are known or suspected human carcinogens (U.S. Environmental Protection Agency, 1996).

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1990, is called the "1990 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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."

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

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.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

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.

2-D2. ***Application of seismic-refraction techniques to hydrologic studies***, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

2-E1. ***Application of borehole geophysics to water-resources investigations***, by W.S. Keys and L.M. MacCary: USGS--TWRI 11.0

2-E2. ***Borehole geophysics applied to ground-water investigations***, by W.S. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.

Section F. Drilling and Sampling Methods

2-F1. ***Application of drilling, coring, and sampling techniques to test holes and wells***, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3-A1. ***General field and office procedures for indirect discharge measurements***, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. ***Measurement of peak discharge by the slope-area method***, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. ***Measurement of peak discharge at culverts by indirect methods***, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. ***Measurement of peak discharge at width contractions by indirect methods***, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. ***Measurement of peak discharge at dams by indirect methods***, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. ***General procedure for gaging streams***, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. ***Stage measurements at gaging stations***, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. ***Discharge measurements at gaging stations***, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. ***Measurement of time of travel in streams by dye tracing***, by F.A. Kilpatrick, and J.F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

3-A10. ***Discharge ratings at gaging stations***, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. ***Measurement of discharge by moving-boat method***, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. ***Fluorometric procedures for dye tracing***, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A12, 1986. 41 pages.

3-A13. ***Computations of continuous records of streamflow***, by E.J. Kennedy: USGS-- TWRI Book 3, Chapter A13, 1983. 53 pages.

3-A14. ***Use of flumes in measuring discharge***, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. ***Computation of water-surface profiles in open channels***, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-A16. ***Measurement of discharge using tracers***, by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. ***Acoustic velocity meter systems***, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.

3-A18. ***Determination of stream reaeration coefficients by use of tracers***, by F.A. Kilpatrick, R.E. Rathbun, N. Yotsukura, G.W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

3-A19. ***Levels of streamflow gaging stations***, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 pages.

3-A20. ***Simulation of soluble waste transport and buildup in surface waters using tracers***, by F.A. Kilpatrick: USGS --TWRI Book 3, Chapter A20. 1993. 38 pages.

3-A21. ***Stream-gaging cableways***, by C. Russell Wagner: USGS--TWRI Book 3, Chapter A21. 1995. 56 pages.

Section B. Ground-Water Techniques

3-B1. ***Aquifer-test design, observation, and data analysis***, by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. ***Introduction to ground-water hydraulics, a programmed text for self instruction***, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. ***Type curves for selected problems of flow to wells in confined aquifers***, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. ***Regression modeling of ground-water flow***, by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

3-B4. ***Supplement 1. Regression modeling of ground-water flow-Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems***, by R.L. Cooley. USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.

3-B5. ***Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction***, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.

3-B6. ***The principle of superposition and its application in ground-water hydraulics***, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

3-B7. ***Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow***, by E.J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.

Section C. Sedimentation and Erosion Techniques

3-C1. ***Fluvial sediment concepts***, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. ***Field methods for measurement of fluvial sediment***, by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. ***Computation of fluvial-sediment discharge***, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4-A1. ***Some statistical tools in hydrology***, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. ***Frequency curves***, by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

Section B. Surface Water

4-B1. ***Low-flow investigations***, by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. ***Storage analyses for water supply***, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. ***Regional analyses of streamflow characteristics***, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

Section D. Interrelated Phases of the Hydrologic Cycle

4-D1. ***Computation of rate and volume of stream depletion by wells***, by C.T. Jenkins: USGS--TWRI Book 4,Chapter D1. 1970. 17 pages.

Book 5. Laboratory Analysis

Section A. Water Analysis

5-A1. ***Methods for determination of inorganic substances in water and fluvial sediments***, by M.J. Fishman and L.C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

5-A2. ***Determination of minor elements in water by emission spectroscopy***, by P.R. Barnett and E.C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. ***Methods for the determination of organic substances in water and fluvial sediments***, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.

5-A4. ***Methods for collection and analysis of aquatic biological and microbiological samples***, by L.J. Britton and P.E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.

5-A5. ***Methods for determination of radioactive substances in water and fluvial sediments***, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. ***Quality assurance practices for the chemical and biological analyses of water and fluvial sediments***, by L.C. Friedman and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

Section A. Sediment Analysis

5-C1. ***Laboratory theory and methods for sediment analysis***, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

Book 6. Modeling Techniques

Section A. Ground Water

6-A1. ***A modular three-dimensional finite-difference ground-water flow model***, by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

6-A2. ***Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model***, by S.A. Leake and D.E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.

6-A3. ***A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual***, by L.J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.

6-A4. ***A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions***, by R.L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.

6-A5. ***A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details***, by L.J. Torak. USGS--TWRI Book 6, Chapter A5. 1993. 243 pages.

6-A6. ***A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction***, by Eric D. Swain and Eliezer J. Wexler. 1995. 125 pages.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

7-C1. ***Finite difference model for aquifer simulation in two dimensions with results of numerical experiments***, by pages.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. ***Computer model of two-dimensional solute transport and dispersion in ground water***, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. ***A model for simulation of flow in singular and interconnected channels***, by R.W. Schaffrannek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 pages.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8-A1. ***Methods of measuring water levels in deep wells***, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. ***Installation and service manual for U.S. Geological Survey manometers***, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

Section B. Instruments for Measurement of Discharge

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

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

9-A1. ***National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling,*** by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A1. 1998. 47 pages.

9-A2. ***National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling,*** edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A2. 1998. 94 pages.

9-A3. ***National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling,*** edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A3. 1998. 75 pages.

9-A5. ***National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples,*** edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A5. 1999. 149 pages.

9-A6. ***National Field Manual for the Collection of Water-Quality Data: Field Measurements***, edited by F.D. Wilde and D.B. Radtke: USGS--TWRI Book 9, Chapter A6. 1998. Variously paginated.

9-A7. ***National Field Manual for the Collection of Water-Quality Data: Biological Indicators***, edited by D.N. Myers and F.D. Wilde: USGS--TWRI Book 9, Chapter A7. 1997. 49 pages.

9-A7. ***National Field Manual for the Collection of Water-Quality Data: Five-Day Biochemical Oxygen Demand,*** by G.C. Delzer and S.W. McKenzie: USGS-TWRI Book 9, Chapter A7.2. 1999. 28 pages.

9-A8. ***National Field Manual for the Collection of Water-Quality Data: Bottom Material Samples***, by D.B. Radtke: USGS--TWRI Book 9, Chapter A8. 1998. 48 pages.

9-A9. ***National Field Manual for the Collection of Water-Quality Data: Saafety in Field Activities***, by S.L. Lane and R.G. Fay: USGS--TWRI Book 9, Chapter A9. 1998. 60 pages.

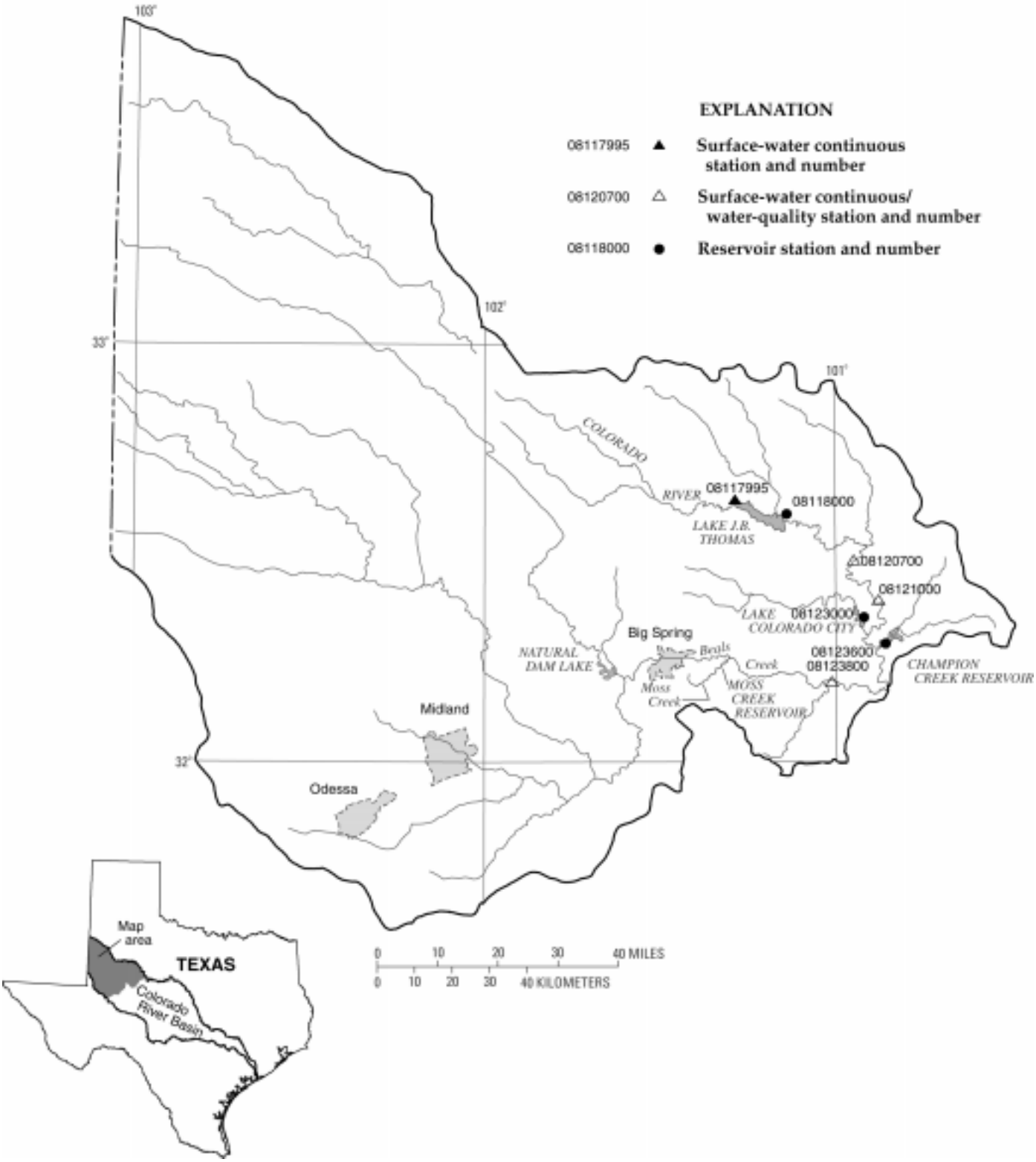


Figure 3.--Map showing location of gaging stations in the first section of the Colorado River Basin

08164800 PLACEDO CREEK NEAR PLACEDO, TX

LOCATION.--Lat 28°43'30", long 96°46'07", Victoria County, Hydrologic Unit 12100401, on right bank at downstream end of bridge on Farm Road 616, 0.1 mi downstream from confluence of Lone Tree Creek and Arroyo Palo Alto, 1.2 mi upstream from Ninemile Creek, and 4.4 mi northeast of Placedo.

DRAINAGE AREA.--68.3 mi^2.

PERIOD OF RECORD.--Jun 1970 to current year.
Water-quality records.--Chemical data: Oct 1968 to Sep 1979. Biochemical data: Oct 1968 to Sep 1979. Pesticide data: Oct 1968 to Sep 1979.

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversions.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1930, 31.9 ft in Sep 1967 and 30.4 ft in 1960 (probably Oct), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	2200	3,470	23.80	Nov 14	1145	4,990	25.52
Nov 13	0545	14,200	31.62				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	7.2	3.6	5.2	.83	.81	3.3	1.3	4.5	1.7	1.1	.63
2	1.0	93	3.7	32	.81	.86	2.7	1.3	2.3	1.5	1.0	.64
3	.97	42	4.1	16	1.1	.79	2.3	1.3	1.6	1.4	1.0	.64
4	.95	16	4.9	5.1	.98	.80	2.1	1.4	1.3	1.5	.96	4.6
5	.92	14	4.3	2.4	.81	.89	2.0	1.3	1.2	1.4	.94	15
6	402	24	4.0	1.9	.82	.95	1.8	1.3	1.1	1.3	.91	3.0
7	444	207	4.1	1.9	.81	.86	1.8	1.2	1.1	1.3	.88	2.1
8	78	317	39	1.9	.78	.89	1.7	1.2	1.1	1.2	.86	4.6
9	26	86	62	1.7	.76	.91	1.7	1.2	1.2	1.2	.83	3.3
10	11	38	24	1.6	.75	.88	1.6	1.4	1.2	e40	.81	2.4
11	5.3	19	73	1.6	.77	.91	1.6	1.4	1.1	e110	.79	1.8
12	2.8	1890	161	1.7	5.9	.99	1.6	2.0	1.0	e25	.76	1.4
13	2.3	10100	63	2.0	14	1.0	1.6	18	1.0	5.5	.75	1.3
14	1.7	3700	25	20	3.8	.90	1.6	6.4	1.0	2.5	.74	1.1
15	1.5	838	13	3.4	1.7	.81	1.5	2.7	18	1.7	.73	1.1
16	1.4	178	7.2	1.6	1.1	.83	1.3	1.7	29	1.3	.71	1.0
17	1.4	75	4.9	1.4	1.0	.86	1.3	1.4	110	14	.70	.93
18	969	36	4.1	1.2	.85	.96	1.4	1.4	30	12	.72	.91
19	1740	19	3.7	1.1	.79	1.1	1.4	37	8.4	3.4	.70	.86
20	346	20	3.2	1.5	.82	1.1	1.4	6.6	137	13	.68	.83
21	170	13	3.2	1.2	.82	.92	1.3	2.8	73	15	.68	.80
22	58	7.6	4.0	1.2	.78	.87	1.4	1.7	17	92	.68	.73
23	23	6.0	3.6	1.1	.84	.91	1.4	1.4	9.0	34	.82	.70
24	11	5.3	3.5	.95	.86	.97	1.4	1.2	11	6.5	.84	.69
25	6.5	5.0	3.2	.93	.87	.96	1.3	1.2	12	2.8	.78	.69
26	4.7	4.5	3.0	.94	.90	.91	1.7	1.1	20	1.8	.73	.70
27	5.8	4.1	3.0	.98	.94	.91	1.7	1.1	25	1.5	.70	.67
28	52	3.9	3.1	1.4	.86	63	1.4	5.4	6.4	1.4	.67	.88
29	39	4.0	3.0	1.3	---	67	1.4	35	2.9	1.3	.66	.98
30	16	4.1	2.7	2.2	---	10	1.3	41	1.9	1.2	.65	.78
31	8.3	---	2.8	.98	---	5.5	---	12	---	1.1	.63	---
TOTAL	4431.54	17776.7	546.9	118.38	46.05	170.05	50.0	195.4	531.3	399.5	24.41	55.76
MEAN	143	593	17.6	3.82	1.64	5.49	1.67	6.30	17.7	12.9	.79	1.86
MAX	1740	10100	161	32	14	67	3.3	41	137	110	1.1	15
MIN	.92	3.9	2.7	.93	.75	.79	1.3	1.1	1.0	1.1	.63	.63
AC-FT	8790	35260	1080	235	91	337	99	388	1050	792	48	111

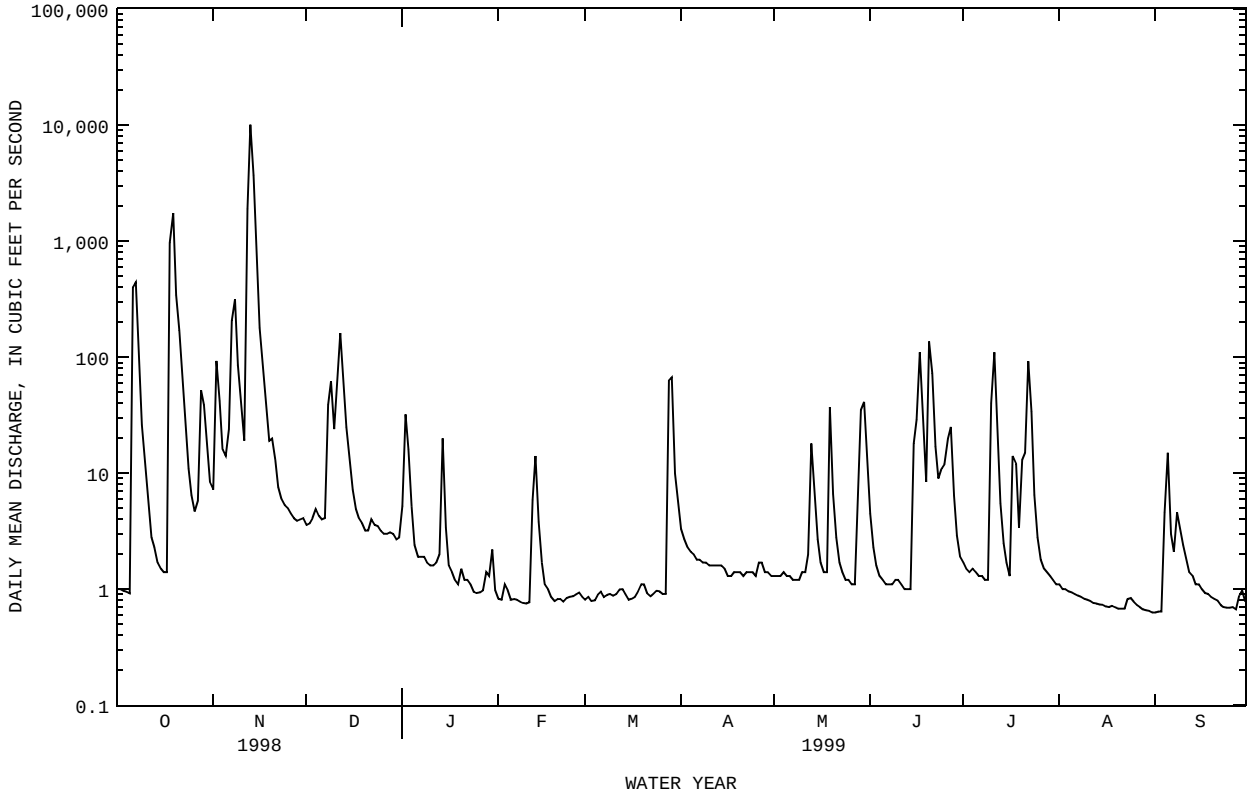
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)

MEAN	75.6	72.5	43.8	42.4	56.1	47.8	63.3	94.5	90.2	59.7	12.3	113
MAX	291	593	389	262	455	516	541	354	510	559	107	913
(WY)	1998	1999	1992	1991	1992	1997	1991	1972	1973	1990	1972	1978
MIN	.004	.021	.015	.052	.002	.086	.019	.17	.000	.031	.012	.013
(WY)	1990	1989	1990	1990	1994	1989	1989	1996	1989	1989	1988	1988

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1970 - 1999	
ANNUAL TOTAL	33306.36		24345.99			
ANNUAL MEAN	91.3		66.7		64.1	
HIGHEST ANNUAL MEAN					154	1992
LOWEST ANNUAL MEAN					1.20	1989
HIGHEST DAILY MEAN	10100	Nov 13	10100	Nov 13	11400	Nov 1 1981
LOWEST DAILY MEAN	.04	Aug 1	.63	Aug 31	.00	Aug 12 1981
ANNUAL SEVEN-DAY MINIMUM	.05	Jul 28	.65	Aug 28	.00	Jul 27 1982
INSTANTANEOUS PEAK FLOW			14200	Nov 13	18300	Oct 31 1981
INSTANTANEOUS PEAK STAGE			31.62	Nov 13	31.62	Nov 13 1998
ANNUAL RUNOFF (AC-FT)	66060		48290		46410	
10 PERCENT EXCEEDS	68		37		47	
50 PERCENT EXCEEDS	1.4		1.5		1.6	
90 PERCENT EXCEEDS	.15		.80		.14	

e Estimated

08164800 PLACEDO CREEK NEAR PLACEDO, TX--Continued



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08118000 LAKE J.B. THOMAS NEAR VINCENT, TX

LOCATION.--Lat 32°35'35", long 101°08'16", Scurry County, Hydrologic Unit 12080002, on upstream edge of dam 500 feet right of valve tower for Snyder pump station near center of dam on Colorado River, 8.5 mi west of Ira, 9.2 mi northeast of Vincent, and at mile 837.0.

DRAINAGE AREA.--3,389 mi^2, of which 2,371 mi^2 probably is noncontributing. Drainage area includes 455 mi^2 above Bull Creek diversion dam, of which 38 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1953 to Sep 1986, Feb 1999 to Sep 1999.
Water-quality records.--Chemical data: Feb 1970 to May 1984.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Water-stage recorder and nonrecording gage read once daily from Oct 1953 to Sep 1986 at site 4.0 mi upstream at same datum. Nov 4, 1953 to Feb 7, 1955, Colorado River Municipal Water District nonrecording gage at present site and datum. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily contents, which are poor. The lake is formed by a rolled earthfill dam, 14,500 ft long. Storage began in Jul 1952 and the dam was completed in Sep 1952. There was no appreciable storage prior to Jul 1953. There are two uncontrolled emergency spillways, both cut through natural ground and located as follows: the first is a 500-foot wide cut located at the left end of dam, and the second cut is 1,600 ft wide located at the right end of dam. These spillways are designed to discharge 161,000 ft^3/s (elevation, 2,275.0 ft. An uncontrolled rectangular concrete drop inlet, 38.0 by 53.0 ft at the crest, discharges into two 10.0-foot concrete conduits. In addition, there is an outlet that can release water through a 24-inch gate into a 30-inch concrete pipe. The dam was built by the Colorado River Municipal Water District to impound water for municipal and industrial supply for the cities of Big Spring, Odessa, and Snyder. A diversion dam on Bull Creek diverts water through a 13,000 ft long gravity canal into Lake J.B. Thomas. These diversions began in Nov 1953. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	2,280.0
Crest of right spillway (south)	2,267.0
Crest of left spillway (north)	2,264.0
Crest of drop inlet (top of conservation pool)	2,258.0
Lowest gated outlet (invert)	2,200.0

COOPERATION.--The capacity table dated Jul 1, 1953 was derived from area and capacity curves furnished by Colorado River Municipal Water District and is based on surveys made by Freese and Nichols in 1948 and 1950.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 218,600 acre-ft, Sep 8, 1962 (elevation, 2,259.85 ft); minimum since first appreciable storage, 4,960 acre-ft May 28, 1971 (elevation, 2,206.43 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 42,450 acre-ft, Jun 24 (elevation, 2,226.16 ft); minimum contents, 6,010 acre-ft, Mar 6-7 (elevation, 2,207.51 ft).

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

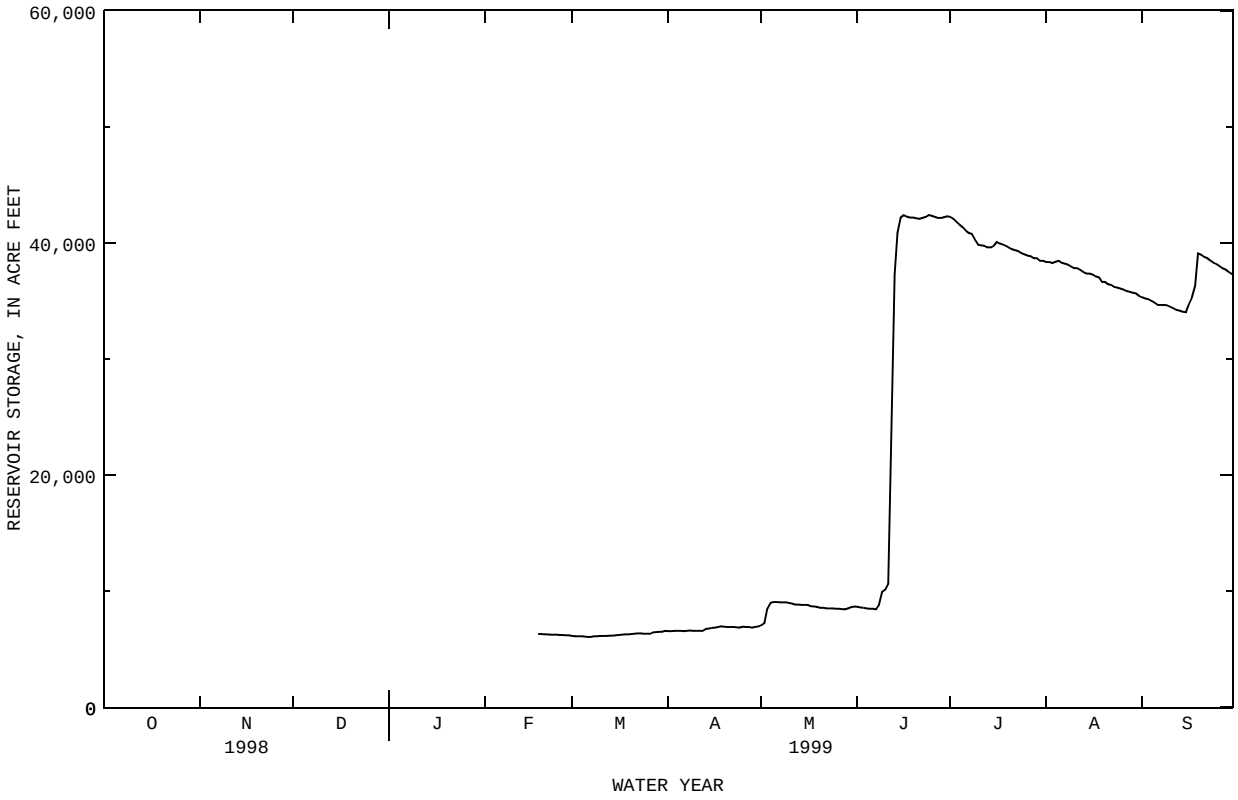
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	6140	6560	7090	8640	42250	38350	35330
2	---	---	---	---	---	6120	6560	7270	8610	42110	38350	35200
3	---	---	---	---	---	6110	6570	8520	8550	41820	38270	35150
4	---	---	---	---	---	6100	6580	9010	8520	41570	38400	35020
5	---	---	---	---	---	6090	6590	9060	8480	41370	38490	34860
6	---	---	---	---	---	6050	6560	9050	8470	41090	38320	34680
7	---	---	---	---	---	6050	6590	9030	8440	40870	38240	34680
8	---	---	---	---	---	6120	6610	9030	8850	40790	38130	34680
9	---	---	---	---	---	6120	6590	9030	9960	40280	37970	34650
10	---	---	---	---	---	6140	6580	8970	10150	39860	37840	34520
11	---	---	---	---	---	6140	6570	8930	10680	39810	37840	34390
12	---	---	---	---	---	6140	6580	8860	23970	39780	37700	34260
13	---	---	---	---	---	6150	6760	8840	37290	39640	37510	34180
14	---	---	---	---	---	6170	6770	8820	40930	39640	37370	34080
15	---	---	---	---	---	6200	6840	8810	42220	39780	37370	34030
16	---	---	---	---	---	6220	6870	8800	42430	40090	37290	34710
17	---	---	---	---	---	6260	6900	8710	42280	39970	37130	35330
18	---	---	---	---	6300	6280	6960	8690	42190	39890	37020	36320
19	---	---	---	---	6300	6280	6930	8660	42190	39750	36670	e39100
20	---	---	---	---	6290	6310	6920	8580	42140	39610	36640	e39000
21	---	---	---	---	6270	6320	6910	8580	42080	39470	36450	e38800
22	---	---	---	---	6260	6360	6900	8530	42160	39390	36380	e38700
23	---	---	---	---	6260	6350	6880	8520	42250	39300	36220	e38500
24	---	---	---	---	6260	6330	6870	8500	42400	39140	36170	e38300
25	---	---	---	---	6230	6320	6930	8490	42370	39030	36090	e38200
26	---	---	---	---	6220	6340	6920	8470	42250	38920	35980	e38000
27	---	---	---	---	6190	6450	6900	8450	42160	38840	35850	e37800
28	---	---	---	---	6190	6470	6870	8430	42160	38700	35800	e37700
29	---	---	---	---	---	6490	6910	8500	42220	38680	35700	e37500
30	---	---	---	---	---	6500	6960	8630	42310	38460	35670	e37300
31	---	---	---	---	---	6570	---	8680	---	38460	35440	---
MAX	---	---	---	---	---	6570	6960	9060	42430	42250	38490	39100
MIN	---	---	---	---	---	6050	6560	7090	8440	38460	35440	34030
(+)						2208.06	2208.41	2209.85	2226.11	2224.73	2223.60	2224.30
(@)						+380	+390	+1720	+33630	-3850	-3020	+1860

WTR YR 1999 MAX 42430 MIN 6050

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

e Estimated

08118000 LAKE J.B. THOMAS NEAR VINCENT, TX--Continued



08120700 COLORADO RIVER NEAR CUTHBERT, TX

LOCATION.--Lat 32°28'38", long 100°56'58", Mitchell County, Hydrologic Unit 12080002, on left bank at downstream side of bridge on Farm Road 1808, 4.0 mi downstream from Deep Creek, 4.8 mi east of Cuthbert, 8.0 mi northwest of Colorado City, and at mile 810.0.

DRAINAGE AREA.--3,912 mi^2, of which 2,381 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,073.49 ft above sea level. Oct 29, 1987, to Oct 23, 1989, water-stage recorder at site on right bank 300 ft downstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in Mar 1965, at least 10% of contributing drainage area has been regulated by Lake J.B. Thomas (station 08118000, normal storage 204,000 acre-ft), 27 mi upstream. There are numerous diversions from Lake J.B. Thomas for municipal use and for oil field operations. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1941 and 1946 reached a stage of 36.1 ft, from Texas Department of Transportation bridge plans.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	33	.59	1.6	3.1	1.4	3.1	1.4	.32	5.5	.62	.05
2	.00	24	.58	1.5	2.3	1.2	2.8	23	.24	4.8	2.1	.02
3	.00	4.9	.75	1.4	1.9	1.1	2.9	91	.18	3.9	6.5	.00
4	.00	1.4	1.1	1.3	1.7	1.3	2.6	21	.13	3.8	3.5	.00
5	.00	.78	1.0	1.3	1.6	1.5	2.6	10	.09	3.8	14	.00
6	.00	.46	1.0	1.4	1.5	1.5	2.1	5.7	.07	3.5	7.8	.00
7	.00	.33	.94	1.5	1.8	1.6	1.8	3.9	.22	3.2	3.2	.00
8	.00	.29	.85	1.6	1.8	1.7	1.7	2.8	.12	2.6	2.0	.00
9	.00	.24	.87	1.4	1.6	1.7	1.6	2.3	.07	2.0	1.3	5.6
10	.00	.15	.92	1.4	1.6	2.5	1.5	1.9	3.2	261	.95	10
11	.00	.15	1.2	1.3	1.7	2.3	1.2	1.3	26	1020	1.3	3.7
12	.00	.14	1.8	1.5	1.5	1.9	1.1	.97	1660	159	1.5	.75
13	.00	.16	1.6	1.6	1.4	2.0	1.1	.93	5690	35	1.6	3.5
14	.00	.25	1.4	1.5	1.3	1.9	10	.86	1180	20	.97	6.6
15	.00	.33	1.3	1.5	1.5	1.6	11	.69	348	15	.75	5.3
16	.00	.46	1.2	1.6	1.6	1.5	10	.54	81	11	.75	22
17	.00	.44	1.2	1.6	1.5	1.8	8.5	.40	42	9.6	.61	8.6
18	.00	.47	1.3	1.4	1.6	2.8	6.4	.51	28	8.5	.67	2.7
19	.00	.53	1.2	1.3	1.5	2.9	4.8	.45	21	9.3	.75	1.1
20	.00	.44	1.2	1.4	1.6	3.4	2.9	.32	18	7.4	.39	1.2
21	.00	.35	1.4	1.6	1.5	2.7	2.2	.25	25	6.2	.22	.89
22	.00	.31	1.1	1.7	1.5	2.1	1.7	.18	59	4.9	.14	.45
23	.00	.29	1.2	1.7	1.3	1.7	1.4	.14	21	4.3	.12	.32
24	.00	.28	1.3	1.6	1.1	1.5	1.1	.14	15	3.4	.12	.41
25	.00	.31	1.3	1.7	1.1	1.6	1.4	.56	12	2.9	.11	.38
26	.00	.29	1.4	1.7	1.1	1.5	1.3	.89	10	2.4	.12	.32
27	.00	.29	1.6	1.7	1.5	2.3	1.2	1.7	9.2	2.3	.12	.29
28	.00	.77	1.6	1.7	1.5	5.3	1.1	1.3	8.1	2.4	.11	.22
29	.00	.80	1.9	4.4	---	9.6	1.0	.75	7.2	2.4	.10	.22
30	.00	.73	1.6	5.4	---	5.6	1.0	.53	6.4	1.8	.09	.23
31	.00	---	1.5	4.1	---	3.8	---	.38	---	.96	.07	---
TOTAL	0.00	73.34	37.90	56.4	44.7	75.3	93.1	176.79	9271.54	1622.86	52.58	74.85
MEAN	.000	2.44	1.22	1.82	1.60	2.43	3.10	5.70	309	52.4	1.70	2.49
MAX	.00	33	1.9	5.4	3.1	9.6	11	91	5690	1020	14	22
MIN	.00	.14	.58	1.3	1.1	1.1	1.0	.14	.07	.96	.07	.00
AC-FT	.00	145	75	112	89	149	185	351	18390	3220	104	148

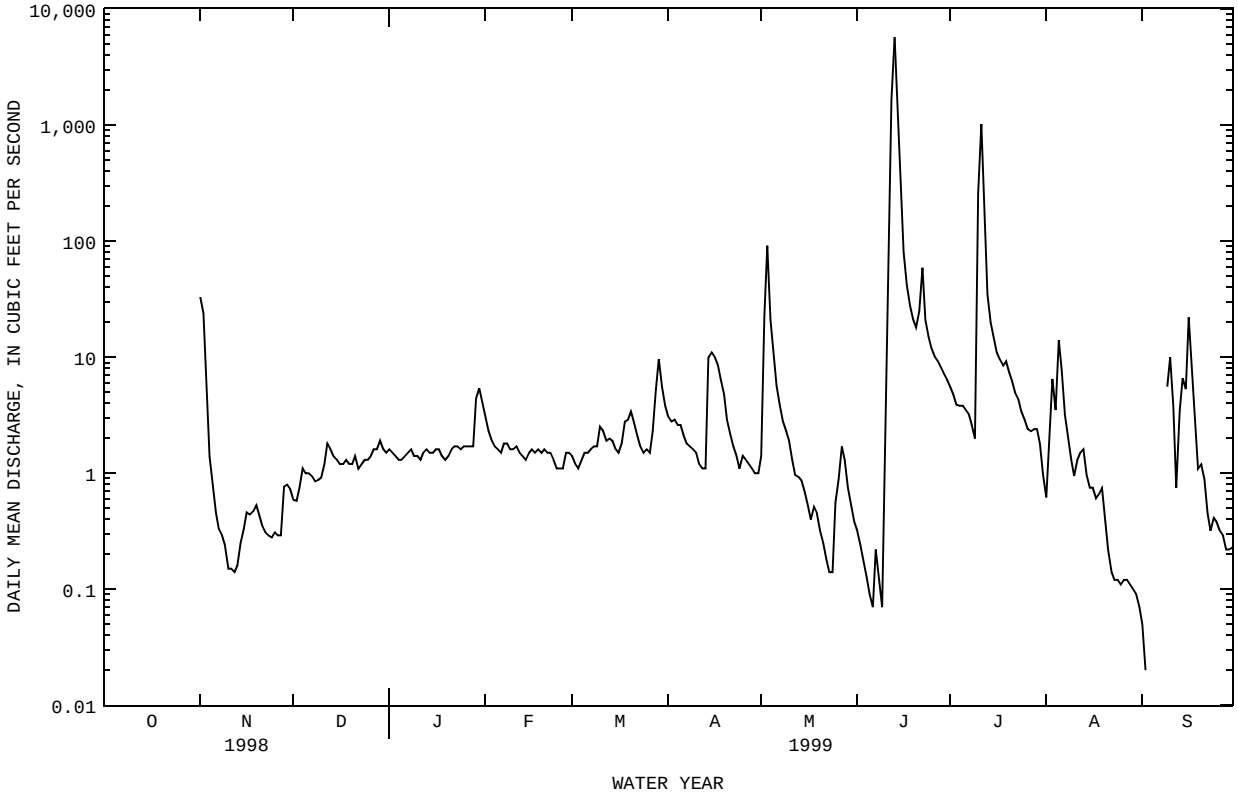
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1999, BY WATER YEAR (WY)

MEAN	28.2	8.15	8.03	7.26	11.3	10.3	28.2	73.0	84.4	17.9	55.7	49.5
MAX	304	37.1	51.5	30.2	86.5	66.0	204	403	592	131	771	810
(WY)	1987	1985	1992	1992	1992	1973	1981	1965	1982	1988	1971	1980
MIN	.000	.092	.53	.68	.82	.20	.39	.044	.000	.000	.000	.000
(WY)	1969	1971	1971	1971	1971	1971	1971	1967	1984	1970	1970	1983

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1965 - 1999	
ANNUAL TOTAL	786.31		11579.36			
ANNUAL MEAN	2.15		31.7		31.3	
HIGHEST ANNUAL MEAN					104	1980
LOWEST ANNUAL MEAN					2.59	1998
HIGHEST DAILY MEAN	35	Mar 16	5690	Jun 13	8770	Sep 29 1980
LOWEST DAILY MEAN	.00	May 18	.00	Oct 1	.00	Apr 13 1965
ANNUAL SEVEN-DAY MINIMUM	.00	May 18	.00	Oct 1	.00	Apr 13 1965
INSTANTANEOUS PEAK FLOW			9580	Jun 13	11500	Aug 14 1972
INSTANTANEOUS PEAK STAGE			a26.29	Jun 13	27.18	Sep 29 1980
ANNUAL RUNOFF (AC-FT)	1560		22970		22660	
10 PERCENT EXCEEDS	6.0		9.6		25	
50 PERCENT EXCEEDS	.33		1.4		4.0	
90 PERCENT EXCEEDS	.00		.00		.00	

a From floodmark.

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued



08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Mar 1965 to Sep 1999 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Mar 1965 to May 1980 (local observer), Jun 1980 to Oct 1987, Nov 1987 to Sep 1989 (local observer), Oct 1989 to Sep 1999 (discontinued).
WATER TEMPERATURE: Mar 1965 to May 1980 (local observer), Apr 1983 to Oct 1987, Nov 1987 to Sep 1989 (local observer), Oct 1989 to Sep 1999 (discontinued).

INSTRUMENTATION.--Specific conductance recorder from Mar 1965 to Oct 1987, Oct 1989 to Sep 1999 (discontinued). Water temperature recorder from Apr 1983 to Oct 1987, Oct 1989 to Sep 1999 (discontinued).

REMARKS.--Interruptions in the maximum and minimum specific conductance values were due to malfunction of the instrument. No flow Oct 1-31 and Sep 3-8. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and a regression relation between each chemical constituent and specific conductance. New regression equations were developed based on data from water years 1990 to 1999. The standard error of estimate for dissolved solids is 6%, chloride is 39%, sulfate is 41% and for hardness is 22%. Regression equations developed for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 70,000 microsiemens, Nov 17, 1968; minimum, 102 microsiemens, Sep 28, 1980.
WATER TEMPERATURE: Maximum, 36.0°C, Aug 7, 1985; minimum, 0.0°C, on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 18,700 microsiemens, Apr 19; minimum, 182 microsiemens, Jun 13.
WATER TEMPERATURE: Maximum, 33.4°C, Jul 9; minimum, 0.2°C, Dec 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
DEC									
30...	1130	1.8	3620	5.0	740	490	180	71	554
MAY									
05...	1440	9.8	3700	21.7	500	390	130	44	584
JUN									
12...	1700	2250	203	19.4	73	17	23	3.7	9.7
13...	1350	4500	241	20.0	87	23	30	2.8	11
14...	1340	1110	433	22.0	130	45	40	6.5	33

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
DEC								
30...	9	14	250	520	970	1.1	8.8	2460
MAY								
05...	11	8.4	110	370	950	.45	4.8	2160
JUN								
12...	.5	6.5	56	24	14	.28	5.8	121
13...	.5	5.9	64	17	23	.21	7.7	135
14...	1	5.8	82	52	52	.26	6.9	246

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1998 TO SEPTEMBER 1999

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1998	0	--	--	--	--	--	--	--	--
NOV.	1998	73.34	2470	1530	303	550	110	350	70.2	480
DEC.	1998	37.9	4290	2660	272	1000	104	580	59.1	790
JAN.	1999	56.4	4430	2750	419	1100	160	590	90.6	820
FEB.	1999	44.7	5730	3560	429	1500	175	710	85.3	990
MAR.	1999	75.3	8270	5140	1040	2400	479	840	171	1200
APR.	1999	93.1	9970	6200	1560	3100	789	800	202	1300
MAY	1999	176.79	4460	2770	1320	1100	515	590	279	810
JUNE	1999	9271.54	630	390	9770	130	3260	98	2450	130
JULY	1999	1622.86	1900	1180	5160	420	1850	270	1200	370
AUG.	1999	52.58	4590	2850	404	1100	157	600	85.7	830
SEPT	1999	74.85	3600	2230	451	850	171	490	98.6	670
TOTAL		11579.36	**	**	21130	**	7780	**	4790	**
WTD.AVG.		32	1090	676	**	250	**	150	**	210

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	9570	660	2430	6480	6160	6360	4160	3890	4010
2	---	---	---	2260	584	1080	6610	6460	6530	4120	3920	4020
3	---	---	---	3670	2260	3210	6620	5920	6420	4200	4100	4150
4	---	---	---	3690	3600	3650	5920	4930	5240	4190	4060	4140
5	---	---	---	3710	3610	3660	5470	5010	5220	4210	4050	4150
6	---	---	---	3750	3660	3700	5870	5440	5710	4120	4040	4100
7	---	---	---	3850	3750	3790	5860	4820	5350	4110	4030	4070
8	---	---	---	3940	3850	3880	4820	4510	4610	4090	4040	4070
9	---	---	---	4080	3930	3990	4580	4530	4550	4180	3950	4040
10	---	---	---	4210	4080	4150	4610	4520	4550	4210	4050	4110
11	---	---	---	4300	4200	4240	4640	4590	4610	4160	4050	4110
12	---	---	---	4330	4280	4300	4780	4490	4640	4080	4010	4040
13	---	---	---	4470	4330	4400	4500	3980	4310	4330	4060	4210
14	---	---	---	4600	4420	4490	4160	3920	3980	4420	4210	4320
15	---	---	---	4820	4600	4680	4250	3910	4120	4410	4010	4170
16	---	---	---	5800	4820	5340	3910	3630	3760	4420	4190	4340
17	---	---	---	6440	5800	6230	3650	3560	3600	4420	4100	4300
18	---	---	---	6440	6220	6360	3650	3560	3600	4300	4040	4190
19	---	---	---	6770	6340	6490	3660	3540	3600	4340	4080	4240
20	---	---	---	7190	6770	7030	3560	3490	3520	4450	4100	4260
21	---	---	---	7240	6950	7140	3670	3500	3570	4620	4360	4490
22	---	---	---	6950	6400	6680	4200	3670	3920	4680	4490	4590
23	---	---	---	6400	6050	6210	4310	4180	4260	4580	4290	4450
24	---	---	---	6060	5810	5940	4180	4000	4060	4420	4050	4260
25	---	---	---	5830	5580	5680	4150	4020	4090	4340	4220	4290
26	---	---	---	5610	5480	5540	4050	3800	3940	4350	4080	4240
27	---	---	---	5530	5430	5470	3940	3780	3820	4300	4230	4270
28	---	---	---	5920	5440	5710	3980	3700	3830	4340	4250	4300
29	---	---	---	5920	5820	5880	3880	3770	3830	5050	4100	4680
30	---	---	---	6160	5920	6020	4100	3880	4010	6900	4600	5470
31	---	---	---	---	---	---	4210	4070	4170	6730	3840	5030
MONTH	---	---	---	9570	584	4910	6620	3490	4440	6900	3840	4290

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4020	3770	3850	7800	6390	7170	11900	11300	11700	11100	10400	10800
2	4110	3860	3940	6390	6070	6190	11800	8780	10400	10600	3180	6780
3	4710	3930	4360	6380	6140	6230	8800	7450	8000	5310	2780	3700
4	5400	4470	5100	6750	6380	6570	7450	7000	7170	4960	2840	4360
5	5550	5340	5450	7290	6750	6980	7750	7180	7490	4250	3650	3830
6	5590	5260	5370	7620	7290	7490	7870	7720	7790	3670	3560	3630
7	6010	5350	5590	7370	6320	6680	7760	7440	7610	3770	3660	3720
8	6410	6010	6290	6410	6290	6350	7670	7460	7520	3830	3740	3790
9	6410	6130	6290	6400	6140	6250	8230	7660	7940	4060	3820	3900
10	6130	5760	5930	6200	5860	5990	8470	8230	8380	4240	4060	4190
11	6380	5730	6010	6390	5990	6280	8370	7840	8150	4420	4240	4340
12	6510	6080	6440	6360	5360	5710	7840	7560	7670	4670	4420	4550
13	6560	6100	6340	5850	5370	5560	7670	7070	7590	5150	4670	4900
14	6540	6280	6390	6270	5850	6100	10600	7420	8200	5540	5150	5350
15	6390	6250	6320	6330	6190	6270	7740	4070	5570	5920	5540	5710
16	6260	6090	6190	6490	6270	6320	7290	5260	6270	6220	5920	6020
17	6260	6090	6180	6950	6480	6770	14300	7290	10900	6550	6150	6310
18	6220	5930	6040	7310	6780	7110	18500	9150	15200	6890	6540	6660
19	5950	5840	5890	7280	6970	7150	18700	17200	18100	7120	6880	6960
20	6020	5950	5980	7980	6920	7330	17200	15700	16400	7320	7090	7180
21	5980	5880	5930	10100	7760	8870	15700	14700	15100	7510	7190	7350
22	6000	5870	5950	10600	9650	10500	14800	14200	14500	7680	7490	7560
23	5900	5770	5830	10500	9930	10300	14300	13900	14100	7850	7680	7760
24	6190	5900	6070	9950	9710	9810	14000	13300	13700	8030	7850	7930
25	6190	5880	6020	10700	9880	10200	13300	12500	12800	8170	7780	7980
26	6230	5900	6040	11100	10700	10900	12500	12100	12300	8100	7570	7910
27	7210	6230	6660	11200	8650	10400	12200	11700	11900	8670	6630	7740
28	7770	7210	7590	9770	8800	9270	11700	11400	11600	7610	6120	6630
29	---	---	---	13600	8330	10200	11600	11300	11400	7750	7380	7580
30	---	---	---	10700	8340	9420	11300	11100	11200	7400	6920	7160
31	---	---	---	11300	10700	10900	---	---	---	7120	6850	7020
MONTH	7770	3770	5860	13600	5360	7780	18700	4070	10600	11100	2780	6110

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7090	6930	7020	---	---	e3400	6250	5920	6140	---	---	e6100
2	7020	6860	6940	---	---	e2900	6450	4840	6160	---	---	e6200
3	6990	6840	6930	---	---	e2900	6240	4380	5450	---	---	---
4	7080	6880	6970	---	---	e3000	7490	4290	6430	---	---	---
5	7160	7050	7100	---	---	e3100	7430	2860	4910	---	---	---
6	7270	7100	7190	---	---	e3600	3020	2860	2940	---	---	---
7	7260	4560	5780	---	---	e4100	3430	3020	3200	---	---	---
8	5880	5670	5750	---	---	e4200	3780	3430	3670	---	---	---
9	6020	5830	5940	---	---	e4400	3950	3780	3900	11200	5860	7780
10	8900	5900	6520	---	---	e3600	4050	3850	3980	6470	2550	4170
11	8640	1320	3440	---	---	e800	4330	4000	4150	5710	2550	4510
12	2020	188	680	---	---	e2800	4360	4240	4310	5440	3810	4420
13	692	182	347	---	---	e4700	---	---	e4400	3980	3390	3580
14	610	426	466	---	---	e5300	---	---	e4400	6210	3970	4980
15	2530	525	1380	---	---	5700	---	---	e4500	4250	3700	3950
16	3930	2530	3230	6270	5910	6170	---	---	e4600	4370	1600	2750
17	4870	3930	4450	6490	6240	6390	---	---	e4700	1810	1320	1500
18	5470	4870	5190	6490	6030	6300	---	---	e4800	2040	1700	1880
19	5960	5470	5720	6450	5010	5950	---	---	e4900	2330	2040	2200
20	6240	5960	6110	5390	2860	4450	---	---	e4800	2750	2330	2550
21	6320	3930	6170	4920	3190	4000	---	---	e4800	2920	2750	2840
22	3930	3000	3270	3950	2940	3480	---	---	e4900	3170	2920	3010
23	4380	3440	3970	3500	2890	3150	---	---	e5000	3560	3170	3360
24	5040	4380	4730	3450	2990	3170	---	---	e5000	3810	3560	3690
25	---	---	e5200	3790	3410	3610	---	---	e5100	4010	3810	3920
26	---	---	e5400	4680	3720	4310	---	---	e5200	4110	4010	4050
27	---	---	e5400	5600	4360	5030	---	---	e5400	4190	4100	4150
28	---	---	e4800	6180	4850	5610	---	---	e5600	4190	4090	4140
29	---	---	e4400	6280	5500	5900	---	---	e5700	4120	3870	3990
30	---	---	e4400	6120	5630	5880	---	---	e5900	3870	3600	3730
31	---	---	---	6050	5680	5890	---	---	e6000	---	---	---
MONTH	---	---	4830	---	---	4320	---	---	4870	---	---	---

e Estimated

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	16.4	14.6	15.7	15.4	10.9	13.2	12.2	8.1	9.9
2	---	---	---	16.1	13.0	14.6	17.8	12.8	15.1	9.9	5.9	7.5
3	---	---	---	15.0	13.6	14.3	17.5	14.6	16.1	5.9	2.9	4.5
4	---	---	---	13.6	11.4	12.4	15.5	12.2	13.9	4.5	1.3	2.6
5	---	---	---	11.4	10.1	10.6	16.3	11.9	14.2	6.1	1.4	3.4
6	---	---	---	10.2	9.5	9.9	16.6	13.0	15.4	7.7	2.8	5.0
7	---	---	---	14.6	9.9	11.6	13.6	10.4	11.9	8.1	3.2	5.5
8	---	---	---	16.1	10.6	12.9	10.8	7.3	8.9	6.5	3.8	5.2
9	---	---	---	19.8	13.8	15.9	8.3	5.2	6.8	5.9	2.0	3.7
10	---	---	---	15.7	10.8	13.1	7.0	6.3	6.6	6.5	1.6	3.7
11	---	---	---	14.8	8.1	11.4	6.3	4.5	5.3	7.9	2.2	4.9
12	---	---	---	13.2	10.9	12.1	7.4	3.3	5.1	8.9	5.2	7.2
13	---	---	---	14.0	11.9	12.8	8.0	3.7	5.7	9.4	5.8	7.4
14	---	---	---	18.0	11.7	13.9	8.7	4.4	6.3	8.5	4.2	6.2
15	---	---	---	16.5	10.8	13.3	8.9	4.6	6.6	8.9	3.3	6.0
16	---	---	---	16.8	10.7	13.2	9.0	4.6	6.7	8.4	4.7	6.7
17	---	---	---	15.8	10.6	13.0	8.3	4.9	6.8	10.4	5.3	7.7
18	---	---	---	17.2	12.2	14.4	10.5	6.8	8.4	10.4	6.0	8.1
19	---	---	---	19.1	13.6	15.6	9.2	7.4	8.1	11.7	5.9	8.7
20	---	---	---	13.6	11.4	12.2	8.8	6.9	7.7	11.8	6.9	9.4
21	---	---	---	15.2	10.8	12.3	8.8	3.1	7.2	12.0	8.9	10.6
22	---	---	---	15.9	9.6	12.3	3.1	.2	1.1	10.6	7.0	8.3
23	---	---	---	17.3	11.7	13.8	1.7	.6	1.1	9.9	4.8	7.2
24	---	---	---	15.8	9.8	12.7	3.4	.5	1.6	10.4	5.5	8.0
25	---	---	---	16.7	12.0	13.7	3.9	.7	2.1	11.0	6.3	8.7
26	---	---	---	15.3	9.5	12.0	4.9	1.3	2.8	12.6	7.9	10.2
27	---	---	---	17.7	11.3	14.2	6.0	2.9	4.3	13.8	8.8	11.4
28	---	---	---	19.1	15.5	17.0	6.5	2.5	4.6	12.7	9.4	11.3
29	---	---	---	18.0	15.0	17.1	8.3	3.7	5.8	9.4	6.7	7.3
30	---	---	---	17.0	12.8	14.5	9.4	4.6	6.9	7.9	5.9	6.7
31	---	---	---	---	---	---	8.6	5.7	7.4	10.2	4.6	7.3
MONTH	---	---	---	19.8	8.1	13.4	17.8	.2	7.5	13.8	1.3	7.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.6	6.8	9.6	18.8	11.7	15.1	22.8	16.5	19.5	20.1	18.1	18.6
2	12.0	7.4	9.8	17.9	12.1	14.8	25.1	18.2	21.3	23.3	16.8	19.8
3	12.4	6.8	9.5	16.3	10.8	13.5	22.6	17.9	20.1	22.2	19.1	20.6
4	12.6	7.1	9.9	15.8	10.2	13.2	22.1	14.7	18.1	22.6	19.8	21.0
5	17.1	11.3	14.0	18.4	12.5	15.2	21.2	14.8	18.3	22.6	17.6	19.8
6	16.8	13.7	15.2	15.6	11.5	13.6	21.3	13.1	17.2	23.8	15.5	19.2
7	15.7	10.0	12.9	13.3	11.0	11.6	23.9	15.9	19.7	25.3	16.0	20.5
8	14.9	10.2	12.6	17.1	10.6	13.5	25.7	20.6	22.8	27.4	18.5	22.8
9	16.2	10.2	13.1	16.9	10.6	13.9	23.0	19.1	21.2	27.4	22.2	24.6
10	17.9	10.7	14.4	20.1	13.7	16.6	23.0	16.4	19.7	28.5	21.5	24.7
11	16.7	10.7	13.8	18.4	12.1	14.9	19.6	14.7	17.5	25.7	22.2	23.8
12	12.0	6.8	9.3	12.1	10.5	11.1	22.0	16.3	18.7	26.3	18.6	22.2
13	11.4	5.3	8.3	10.7	7.8	9.1	23.5	19.6	20.9	24.4	20.3	22.1
14	11.5	5.0	8.4	13.3	5.5	9.2	21.2	16.5	18.8	28.9	21.5	24.7
15	14.4	8.3	11.2	15.5	7.5	11.6	19.0	13.3	16.0	30.9	23.5	26.6
16	14.8	9.5	12.1	15.9	10.7	13.5	16.0	13.2	14.4	31.1	25.0	27.1
17	14.2	9.2	11.9	16.5	13.1	14.9	18.3	11.3	14.3	31.4	23.5	26.6
18	14.7	9.5	11.9	16.0	13.8	15.2	21.9	12.2	16.5	29.3	20.4	24.0
19	14.1	8.2	11.3	17.7	11.4	14.2	24.8	14.3	19.2	29.1	20.6	24.1
20	14.7	9.2	11.9	18.7	10.5	14.5	25.5	16.8	21.0	30.3	21.5	25.1
21	14.0	8.3	11.1	20.3	12.1	16.2	25.0	19.4	22.2	29.7	21.9	25.2
22	12.8	8.6	10.7	22.2	14.6	18.4	27.2	20.0	23.1	30.5	23.0	26.2
23	13.5	7.0	10.2	20.6	15.5	18.2	25.1	19.9	22.5	30.7	22.2	26.1
24	15.1	7.7	11.5	18.1	14.6	15.9	19.9	14.8	16.6	25.7	22.0	23.5
25	18.5	11.7	14.9	19.7	12.9	16.1	21.2	14.0	16.9	28.5	19.9	23.9
26	18.8	15.3	16.7	17.0	14.4	15.6	25.1	17.5	20.9	25.7	21.9	23.8
27	18.5	13.4	15.8	15.4	14.1	14.6	27.1	17.4	21.8	25.8	20.5	23.1
28	17.3	10.7	14.0	15.2	13.7	14.4	27.3	19.5	23.2	26.6	20.7	23.6
29	---	---	---	15.1	13.9	14.4	23.8	19.6	21.4	27.8	22.1	24.3
30	---	---	---	15.3	13.9	14.5	21.8	19.0	20.2	30.5	22.1	25.8
31	---	---	---	21.6	12.1	16.5	---	---	---	30.6	23.7	26.8
MONTH	18.8	5.0	12.0	22.2	5.5	14.3	27.3	11.3	19.5	31.4	15.5	23.6

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	32.2	23.3	27.2	33.0	26.4	29.3	30.8	25.7	28.1	29.5	23.7	26.4
2	28.6	23.0	25.8	32.3	26.5	28.9	31.8	26.5	28.3	29.4	23.7	26.3
3	28.8	23.0	25.5	31.8	25.5	28.3	31.7	25.7	28.3	---	---	---
4	30.5	22.8	25.9	30.7	25.8	27.9	31.0	26.6	28.9	---	---	---
5	27.7	23.3	25.3	31.2	25.2	27.8	30.5	26.6	28.6	---	---	---
6	32.0	23.1	26.8	32.2	25.5	28.6	32.1	26.2	28.9	---	---	---
7	30.4	21.8	25.9	32.5	26.3	29.2	32.6	26.0	29.2	---	---	---
8	31.4	22.8	26.5	32.9	26.1	29.3	32.2	26.5	29.5	---	---	---
9	30.8	23.7	26.7	33.4	26.6	29.8	32.5	27.5	29.9	28.5	22.4	26.5
10	32.8	23.3	27.6	30.4	23.1	26.3	32.3	27.1	29.7	28.9	24.4	26.4
11	31.7	23.8	26.8	25.0	22.7	23.6	31.9	26.6	29.2	30.4	24.7	27.2
12	24.8	17.3	19.5	27.5	23.5	25.2	32.3	26.8	29.4	28.5	25.0	26.7
13	20.5	17.3	19.3	29.3	24.2	26.5	33.2	27.3	30.0	25.0	22.0	23.6
14	22.3	20.0	21.0	30.5	25.1	27.7	32.7	27.2	29.7	25.9	21.6	23.7
15	24.7	21.8	22.9	30.7	25.3	27.9	32.1	26.9	29.3	26.8	21.7	24.2
16	25.9	22.5	24.0	29.9	24.7	27.3	32.6	27.2	29.5	24.7	21.9	23.0
17	25.3	21.4	23.2	30.9	25.3	27.7	32.4	26.1	28.9	25.3	19.6	22.2
18	25.7	21.5	23.6	30.5	25.8	27.9	31.9	25.7	28.5	26.2	21.0	23.4
19	27.4	22.9	25.0	30.7	25.4	27.8	31.6	26.2	28.6	27.5	21.3	24.2
20	27.6	23.6	25.4	32.0	25.7	28.4	32.1	25.7	28.7	25.5	21.8	23.1
21	25.8	23.6	24.8	31.9	26.1	28.6	31.1	25.1	27.9	22.6	18.5	20.5
22	27.0	23.3	24.9	31.6	25.4	28.2	31.5	24.5	27.6	23.5	17.1	20.1
23	29.9	23.8	26.7	32.4	25.3	28.6	29.3	25.2	27.1	22.8	16.9	19.8
24	30.7	25.4	27.9	32.6	25.4	28.9	32.0	24.7	27.6	25.2	18.9	21.7
25	31.3	25.4	28.4	32.0	25.3	28.7	31.3	24.7	27.6	27.4	20.9	23.7
26	32.1	26.2	29.0	31.8	25.9	28.9	31.4	24.4	27.6	26.4	20.5	23.3
27	32.7	26.6	29.4	31.8	26.5	29.1	31.2	24.4	27.6	27.9	22.6	24.8
28	33.3	27.3	29.9	32.0	26.4	29.2	31.2	24.3	27.6	24.5	17.3	20.8
29	30.8	28.1	29.4	32.4	26.3	29.3	30.6	24.2	27.2	21.7	14.7	17.5
30	32.6	26.2	28.9	32.4	27.1	29.8	30.7	23.9	26.9	20.2	13.7	16.8
31	---	---	---	32.3	26.9	29.3	30.2	23.2	26.3	---	---	---
MONTH	33.3	17.3	25.8	33.4	22.7	28.2	33.2	23.2	28.5	---	---	---

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08121000 COLORADO RIVER AT COLORADO CITY, TX

LOCATION.--Lat 32°23'33", long 100°52'42", Mitchell County, Hydrologic Unit 12080002, on right bank at Colorado City, 3,517 ft upstream from bridge on State Highway 377, 4,100 ft upstream from the Texas and Pacific Railroad Company bridge, 1.3 mi downstream from bridge on Interstate Highway 20 and U.S. Highway 80, 1.6 mi upstream from Lone Wolf Creek, and at mile 796.3.

DRAINAGE AREA.--3,966 mi^2, of which 2,381 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Nov 1923 to Aug 1925 (published as "at Colorado"), May 1946 to current year.

REVISED RECORDS.--WSP 1512: 1946(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,030.16 ft above sea level. Nov 28, 1923, to Aug 31, 1925, nonrecording gage at site 1.4 mi downstream at different datum. May 9 to Aug 5, 1946, nonrecording gage at site 185 ft upstream at present datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since Jul 1952 at least 10% of contributing drainage area has been regulated by Lake J.B. Thomas (station 08118000, normal storage 204,000 acre-ft) 31 mi upstream. The Colorado River Municipal Water District diverts low flow into an off channel reservoir 3 mi upstream for brine disposal. There are numerous diversions from Lake J.B. Thomas for municipal use and for oil field operations.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--6 years (water years 1947-52) prior to completion of Lake J.B. Thomas, 85.4 ft^3/s (61,870 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1947-52).--Maximum discharge, 24,900 ft^3/s Jul 6, 1948 (gage height, 22.37 ft, from floodmark); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 35.9 ft Jun 20, 1939, present site and datum, based on floodmarks 1,000 ft upstream and 3,740 ft downstream from gage; discharge, 66,000 ft^3/s, by slope-area measurement of peak flow at site 2.5 mi upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	6.5	.09	.19	.15	.21	.15	.07	.29	.41	.24	.15
2	.04	8.5	.09	.17	.15	.27	.15	.13	.25	5.2	.26	.15
3	.04	.41	.09	.15	.16	.24	4.7	11	.27	.91	.33	.15
4	.04	.17	.09	.15	.15	.24	3.3	35	.21	.35	.41	.15
5	.03	.15	.09	.16	.15	.24	2.8	27	.20	.24	.41	.11
6	.04	.15	.09	.19	.16	.24	.51	16	.25	.22	.65	.08
7	.04	.14	.09	.15	.62	.24	.11	9.2	.91	.15	.47	.09
8	.04	.15	.09	.17	.22	2.9	.09	1.5	.61	.13	.41	.09
9	.05	.13	.09	.15	.16	.29	.05	.38	.41	.12	.37	.09
10	.05	.11	.10	.15	.19	.40	.05	.22	3.8	2.4	.29	.09
11	.05	.07	.16	.15	.21	.24	.04	.18	.65	654	.25	.09
12	.05	.06	.17	.14	.11	.26	.04	.18	386	534	.25	.09
13	.05	.09	.15	.14	.11	.21	21	.20	4010	51	.24	.09
14	.05	.09	.12	.13	.15	.14	10	.21	2610	4.7	.24	.09
15	.06	.08	.10	.14	.17	.46	.21	.22	798	.81	.24	.16
16	.05	.07	.15	.17	.16	.22	1.1	.21	213	.41	.24	.18
17	.05	.06	.15	.14	.16	.15	.18	.18	76	1.2	.24	.16
18	.05	.09	.15	.10	.17	.55	.56	.15	17	.27	.24	.20
19	.05	.09	.15	.10	.15	.57	3.0	.16	5.7	.27	.24	.15
20	.07	.09	.15	.07	.17	2.8	.15	.22	2.1	.26	.25	.14
21	.15	.09	.15	.08	.15	.75	.04	.14	2.5	.24	.24	.13
22	.15	.09	.15	.10	.17	.23	.03	.14	8.9	.24	.25	.13
23	.13	.09	.15	.09	.20	.15	.03	.13	12	.24	.24	.14
24	.10	.09	.15	.07	.24	.15	.21	.13	1.9	.24	.24	.14
25	.10	.09	.15	.11	.24	.20	8.6	.77	1.1	.24	.23	.13
26	.10	.09	.15	.12	.24	.90	4.2	.48	8.6	.24	.20	.14
27	.09	.09	.17	.12	.24	1.7	.25	2.0	11	.24	.17	.15
28	.09	.09	.15	.15	.20	.46	.07	.59	1.3	.31	.15	.15
29	.09	.09	.15	.20	---	.25	.05	.42	8.6	.35	.15	.15
30	.09	.09	.15	.21	---	2.1	.05	.41	1.3	.27	.15	.15
31	4.3	---	.17	.15	---	.23	---	.39	---	.26	.15	---
TOTAL	6.33	18.10	4.05	4.31	5.35	17.99	61.72	108.01	8182.85	1259.92	8.44	3.91
MEAN	.20	.60	.13	.14	.19	.58	2.06	3.48	273	40.6	.27	.13
MAX	4.3	8.5	.17	.21	.62	2.9	21	35	4010	654	.65	.20
MIN	.03	.06	.09	.07	.11	.14	.03	.07	.20	.12	.15	.08
AC-FT	13	36	8.0	8.5	11	36	122	214	16230	2500	17	7.8

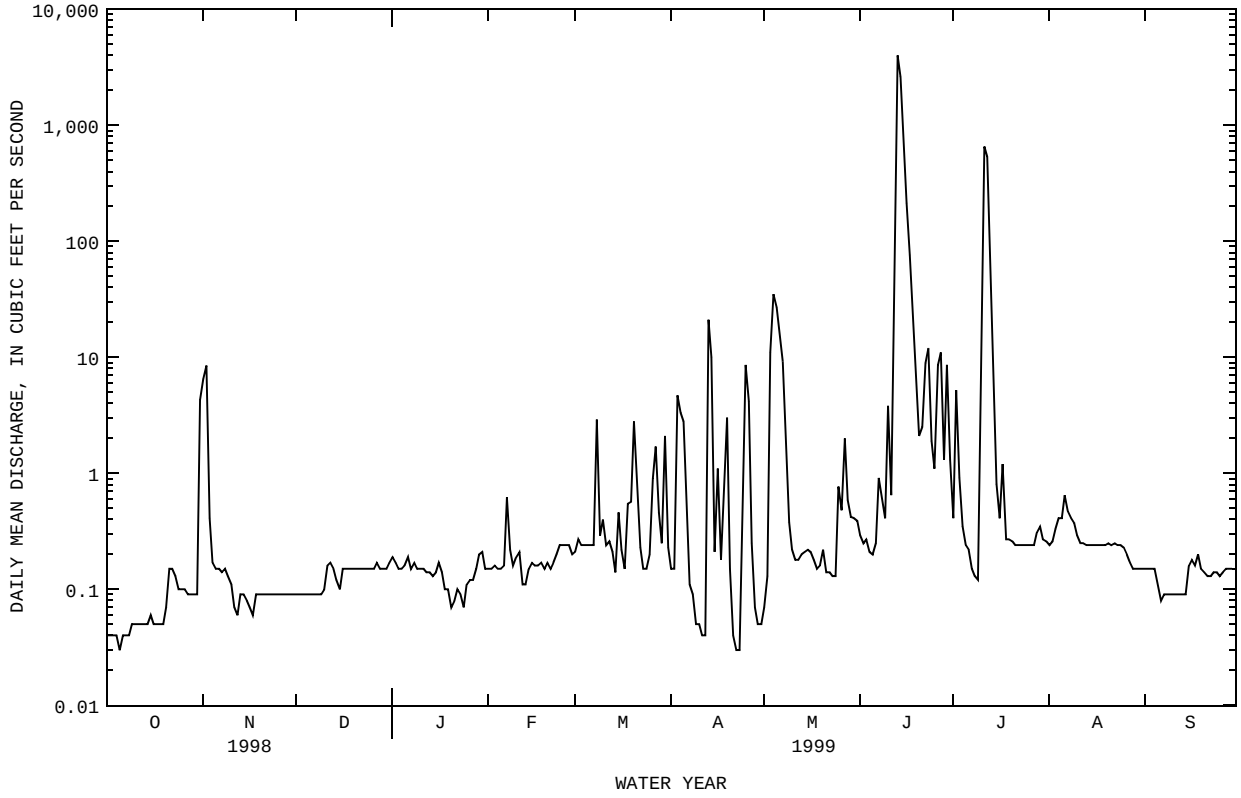
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1999z, BY WATER YEAR (WY)

MEAN	37.0	7.53	5.67	4.41	10.2	7.53	36.6	97.9	83.1	21.0	40.4	57.2
MAX	339	61.1	49.6	33.6	99.0	88.3	332	1048	745	197	684	817
(WY)	1987	1985	1992	1992	1957	1973	1957	1957	1982	1961	1971	1962
MIN	.000	.000	.026	.051	.061	.000	.010	.001	.000	.000	.000	.000
(WY)	1969	1956	1955	1971	1971	1956	1955	1970	1953	1974	1954	1954

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1953 - 1999z	
ANNUAL TOTAL	101.99		9680.98			
ANNUAL MEAN	.28		26.5		34.1	
HIGHEST ANNUAL MEAN					143	1957
LOWEST ANNUAL MEAN					.34	1998
HIGHEST DAILY MEAN	8.5	Nov 2	4010	Jun 13	9560	May 25 1957
LOWEST DAILY MEAN	.01	Jul 22	.03	Oct 5	.00	Oct 4 1952
ANNUAL SEVEN-DAY MINIMUM	.01	Jul 22	.04	Oct 1	.00	Oct 4 1952
INSTANTANEOUS PEAK FLOW			6360	Jun 13	13000	May 25 1957
INSTANTANEOUS PEAK STAGE			22.97	Jun 13	27.81	Sep 29 1980
ANNUAL RUNOFF (AC-FT)	202		19200		24700	
10 PERCENT EXCEEDS	.55		2.8		25	
50 PERCENT EXCEEDS	.10		.16		.52	
90 PERCENT EXCEEDS	.02		.07		.00	

z Period of regulated streamflow.



08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: May 1946 to Sep 1954, Nov 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1946 to Sep 1954 and Nov 1956 to current year (local observer).
WATER TEMPERATURE: Nov 1952 to Sep 1954 and Nov 1956 to current year (local observer).

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and a regression relation between each chemical constituent and specific conductance. New regression equations were developed based on data from water years 1990 to 1999. The standard error of estimate for dissolved solids is 6%, chloride is 72%, sulfate is 29% and for hardness is 32%. Regression equations developed for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 76,000 microsiemens, Sep 21, 1998; minimum daily, 240 microsiemens, Sep 29, 1980.
WATER TEMPERATURE: Maximum daily, 39.0°C, Jul 21, 1995; minimum daily, 0.0°C, on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 74,000 microsiemens, Oct 15,16; minimum daily, 300 microsiemens, Jun 13.
WATER TEMPERATURE: Maximum daily, 36.0°C, Jun 30, Jul 23, 29, Aug 14; minimum daily, 2.0°C, Dec 24.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT									
07...	1110	.04	70200	24.5	5900	5700	1400	611	20300
JAN									
04...	1010	.15	27700	.5	2300	2100	540	242	6800
MAY									
05...	1630	22	5090	22.0	720	540	170	71	815
JUN									
12...	1740	727	1420	19.7	170	130	48	12	204
13...	1710	6350	188	20.0	67	6	23	2.3	8.0
15...	1300	729	745	23.0	170	75	52	9.3	75

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT								
07...	110	52	220	5500	29000	.75	13	56400
JAN								
04...	61	18	230	2400	10000	.63	.92	20100
MAY								
05...	13	16	180	530	1300	1.0	7.8	3010
JUN								
12...	7	5.4	43	110	330	.30	6.1	745
13...	.4	5.0	61	11	8.4	.25	7.1	102
15...	3	6.0	93	75	120	.27	8.1	406

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1998 TO SEPTEMBER 1999

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1998	6.33	46880	33780	577	17000	290	3700	63.3	3700
NOV.	1998	18.1	23070	14980	732	7200	352	2200	106	2000
DEC.	1998	4.05	28710	19070	209	9300	101	2600	28.5	2400
JAN.	1999	4.31	29790	19870	231	9700	113	2700	31.3	2500
FEB.	1999	5.35	28350	18820	272	9100	132	2600	37.2	2400
MAR.	1999	17.99	19040	12190	592	5800	283	1800	88.6	1700
APR.	1999	61.72	11530	7140	1190	3400	559	1200	193	1000
MAY	1999	108.01	7010	4260	1240	2000	577	720	210	640
JUNE	1999	8182.85	775	461	10190	210	4680	82	1800	71
JULY	1999	1259.92	5970	3620	12300	1700	5710	620	2100	540
AUG.	1999	8.44	14640	9170	209	4300	98.7	1400	32.9	1300
SEPT	1999	3.91	24610	16150	170	7800	82.3	2300	24.0	2100
TOTAL		9680.98	**	**	27910	**	12980	**	4710	**
WTD.AVG.		27	1760	1070	**	500	**	180	**	160

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73600	25900	24500	29600	29000	23300	14300	9920	7210	10800	12600	17000
2	73100	21000	24600	29500	26900	23300	14300	9730	7100	14100	12500	16900
3	72400	23000	25300	30400	32400	23300	17800	9500	7700	13000	12900	16800
4	72400	22400	25800	29500	29900	23300	12800	8000	7720	10300	12900	16600
5	72100	22200	25800	29500	26900	23300	12500	6000	7720	10300	13100	16600
6	73000	22200	27200	29500	26900	24200	12400	5490	7050	12500	14100	16800
7	70300	22200	27200	30400	32400	24200	11800	5110	7080	13100	14500	17400
8	70300	21600	27100	30000	29900	24200	11600	5600	7620	12500	14400	19400
9	73300	23100	28100	30000	e28500	24500	11900	5960	7620	10100	14800	19800
10	73100	23100	27700	30000	26900	24500	12200	6450	5000	9500	15000	20100
11	73200	24300	27700	30000	32400	e25000	12200	6650	6000	8000	15000	20700
12	72800	24100	27100	30300	32400	25200	10300	7070	3000	3500	15100	20200
13	72800	22800	27400	29800	e32000	23300	11000	7310	300	4000	15000	20600
14	72400	22800	27200	29900	e31000	22000	8830	7510	500	6500	15100	20500
15	74000	22800	28200	29900	e30000	19700	10300	7830	1150	7400	15100	23300
16	74000	22500	28800	30300	e29500	20600	14800	8120	3000	8480	15200	26000
17	71000	22100	28800	29900	e29000	21100	14500	8370	2500	9190	15200	26800
18	71000	22100	29500	30300	e28500	17500	15100	8590	7150	9790	15200	28100
19	70100	22100	29400	29800	e28000	18000	14400	8940	12100	10300	15100	30300
20	66800	22100	29400	30100	e27500	16000	14400	8930	12100	10500	15000	30900
21	58000	e22500	30200	30300	e27000	13500	14100	9050	13100	10700	15100	30800
22	50000	22900	30200	30300	e26500	13300	14000	9110	15700	11000	15100	30300
23	44800	e22500	31100	30300	26000	16100	12100	9300	11700	11300	15100	30000
24	51000	22300	31000	30300	e25500	23800	12000	9290	9250	11700	15200	29100
25	50300	22000	30900	27700	e25000	23900	10700	8860	10100	11800	15300	29100
26	54000	23600	31000	29900	e24500	17200	9810	9330	11900	11700	15400	29100
27	56700	23700	e30500	27200	e24000	16100	10300	8500	9450	11900	15800	29100
28	55000	23700	29900	27900	e23500	14200	10600	8210	9800	12100	16500	e29000
29	52900	24600	30000	30300	---	14300	10700	7550	10800	12200	16500	28800
30	52700	e24500	29000	30500	---	16000	12000	7420	10500	12400	16800	29200
31	40000	---	29400	e30000	---	14600	---	7140	---	12500	16900	---
MEAN	64700	22900	28400	29800	28300	20300	12500	7900	7730	10400	14900	24000
MAX	74000	25900	31100	30500	32400	25200	17800	9920	15700	14100	16900	30900
MIN	40000	21000	24500	27200	23500	13300	8830	5110	300	3500	12500	16600

e Estimated

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	16.0	17.0	12.0	15.0	18.0	26.0	25.0	32.0	32.0	35.0	34.0
2	30.0	18.0	18.0	10.0	16.0	19.0	26.0	26.0	30.0	32.0	33.0	33.0
3	34.0	16.0	18.0	10.0	16.0	20.0	22.0	26.0	30.0	34.0	34.0	34.0
4	34.0	16.0	20.0	10.0	16.0	20.0	25.0	25.0	33.0	33.0	34.0	34.0
5	28.0	16.0	19.0	12.0	18.0	20.0	22.0	23.0	31.0	32.0	34.0	33.0
6	28.0	16.0	16.0	10.0	21.0	15.0	20.0	25.0	30.0	33.0	35.0	34.0
7	25.0	16.0	14.0	12.0	16.0	14.0	22.0	26.0	34.0	34.0	27.0	35.0
8	28.0	18.0	10.0	8.0	18.0	19.0	24.0	25.0	31.0	34.0	35.0	33.0
9	34.0	20.0	10.0	8.0	19.0	18.5	24.0	25.0	30.0	32.0	35.0	34.0
10	32.0	15.0	12.0	10.0	19.0	20.0	21.0	25.0	31.0	32.0	35.0	35.0
11	28.0	16.0	10.0	10.0	21.0	15.0	20.0	25.0	31.0	32.0	34.0	35.0
12	30.0	16.0	10.0	10.0	21.0	14.0	21.0	27.0	20.0	34.0	35.0	33.0
13	28.0	16.0	10.0	12.0	20.0	14.0	22.0	27.0	20.0	32.0	35.0	30.0
14	28.0	18.0	10.0	11.0	19.0	19.0	20.0	29.0	25.0	35.0	36.0	32.0
15	28.0	17.0	12.0	11.0	18.0	21.0	20.0	31.0	23.0	30.0	35.0	30.0
16	26.0	20.0	12.0	12.0	18.0	20.0	20.0	29.0	22.0	32.0	33.0	25.0
17	26.0	20.0	12.0	11.0	17.0	18.0	22.0	30.0	24.0	33.0	35.0	28.0
18	22.0	20.0	11.0	11.0	16.0	17.0	24.0	27.0	25.0	32.0	35.0	30.0
19	21.0	20.0	10.0	12.0	17.0	17.0	24.0	28.0	---	33.0	34.0	28.0
20	17.0	16.0	4.0	12.0	16.0	19.0	29.0	30.0	24.0	31.0	35.0	27.0
21	16.0	18.0	2.0	10.0	20.0	25.0	24.0	30.0	26.0	33.0	33.0	28.0
22	18.0	18.0	2.0	11.0	19.0	27.0	24.0	32.0	34.0	35.0	34.0	28.0
23	20.0	16.0	3.0	10.0	18.0	25.0	23.0	32.0	24.0	36.0	34.0	31.0
24	22.0	16.0	2.0	15.0	18.0	24.0	23.0	26.0	34.0	33.0	33.0	30.0
25	23.0	15.0	4.0	12.0	17.0	25.0	23.0	30.0	34.0	33.0	33.0	30.0
26	22.0	16.0	6.0	11.0	18.0	24.0	25.0	26.0	32.0	35.0	35.0	32.0
27	22.0	16.0	12.0	17.0	20.0	16.0	29.0	28.0	34.0	34.0	35.0	32.0
28	25.0	20.0	12.0	15.0	18.0	15.0	29.0	27.0	35.0	35.0	34.0	28.0
29	23.0	20.0	10.0	15.0	---	14.0	25.0	29.0	33.0	36.0	35.0	26.0
30	24.0	---	14.0	15.0	---	14.0	22.0	31.0	36.0	35.0	35.0	24.0
31	20.0	---	14.0	---	---	25.0	---	31.0	---	35.0	35.0	---
MEAN	25.5	---	10.8	---	18.0	19.1	23.4	27.6	---	33.3	34.2	30.9
MAX	34.0	---	20.0	---	21.0	27.0	29.0	32.0	---	36.0	36.0	35.0
MIN	16.0	---	2.0	---	15.0	14.0	20.0	23.0	---	30.0	27.0	24.0

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08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX

LOCATION.--Lat 32°20'41", long 100°55'10", Mitchell County, Hydrologic Unit 12080002, on left bank at municipal water-intake structure, 1.7 mi upstream from Colorado City Dam on Morgan Creek, 2.2 mi downstream from the Texas and Pacific Railway Co. bridge, 2.5 mi upstream from mouth, and 4.0 mi southwest of Colorado City.

DRAINAGE AREA.--345 mi^2, of which 42.7 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Apr 1949 to current year.
Water-quality records.--Chemical data: Dec 1969 to May 1984.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Aug 23, 1950, nonrecording gages at or near powerplant about 0.7 mi downstream at same datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily contents, which are fair. The lake is formed by a rolled earthfill dam 4,800 ft long. Storage began in Apr 1949, and the dam was completed in Sep 1949. The dam and lake are owned by the Texas Utilities Electric Co. to operate their thermal electric powerplant. The uncontrolled spillway is an excavated cut channel through natural ground 1,200 ft wide located 600 ft upstream and to the left of left end of dam. The spillway is designed to discharge 150,000 ft^3/s at the maximum design flood elevation. The service spillway is an uncontrolled rectangular drop inlet located 100 ft upstream from dam with two uncontrolled openings of 10.0 by 12.0 ft. The spillway is designed for a maximum discharge of 5,000 ft^3/s. A service outlet is provided for small releases downstream through a 30-inch valve-controlled concrete pipe. Record of pumpage from Champion Creek Reservoir (station 08123600), into Lake Colorado City can be obtained from the Texas Utilities Electric Co. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	2,090.0
Design flood	2,086.7
Crest of spillway	2,073.7
Crest of service spillway (top of conservation pool)	2,070.2
Lowest gated outlet (invert)	2,024.3

COOPERATION.--Capacity curve dated Oct 1, 1964 was furnished by the Texas Utilities Electric Co. Record of diversions for municipal use can be obtained from the city of Colorado City.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,280 acre-ft, Sep 7, 1962 (elevation, 2,075.10 ft); minimum contents after initial filling, 9,740 acre-ft, Aug 30, 31, and Sep 1, 1953 (elevation, 2,051.30 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,270 acre-ft, Jun 26 (elevation, 2,058.42 ft); minimum contents, 14,040 acre-ft, Mar 25 (elevation, 2,056.22 ft).

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

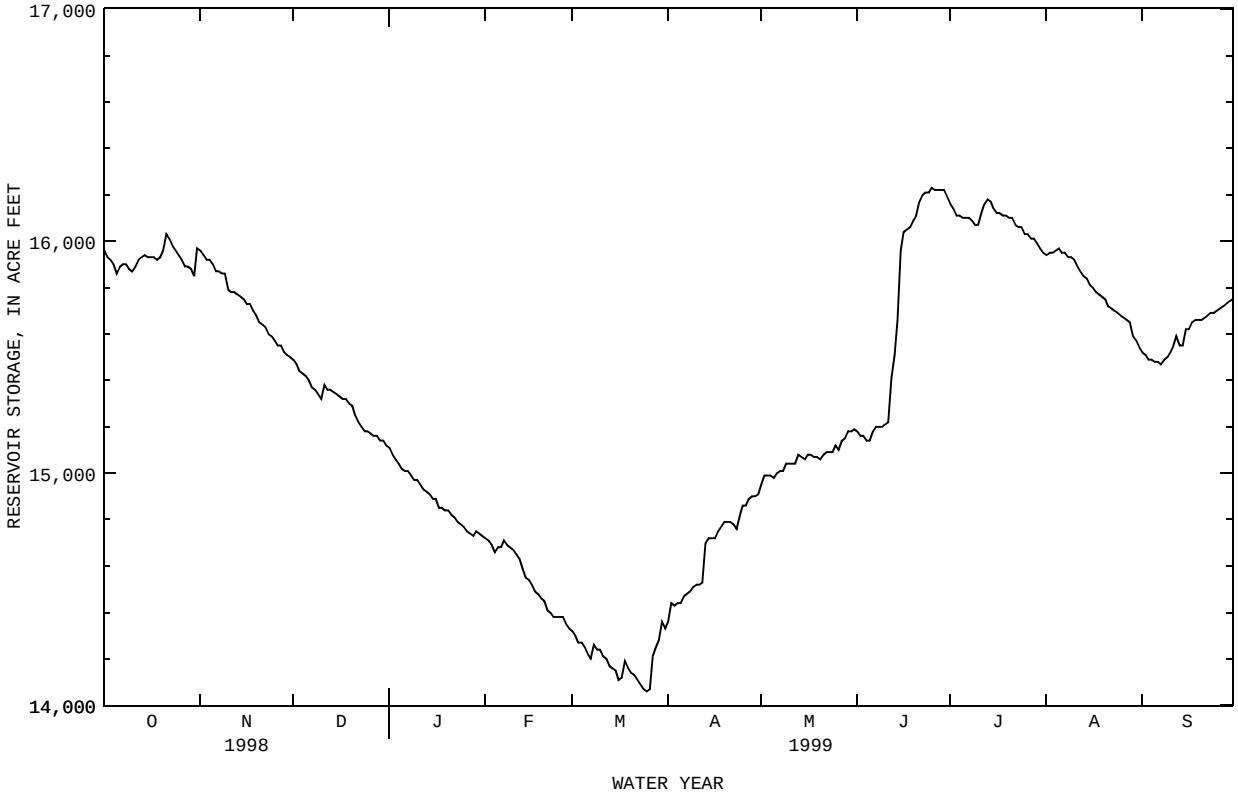
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15960	15960	15490	15110	14720	14320	14360	14950	15180	16160	15940	15520
2	15930	15940	15470	15080	14710	14300	14440	14990	15160	16140	15950	15510
3	15920	15920	15440	15060	14690	14270	14430	14990	15160	16110	15950	15490
4	15900	15920	15430	15040	14660	14270	14440	14990	15140	16110	15960	15490
5	15860	15900	15420	15020	14680	14250	14440	14980	15140	16100	15970	15480
6	15890	15870	15400	15010	14680	14220	14470	15000	15180	16100	15950	15480
7	15900	15870	15370	15010	14710	14200	14480	15010	15200	16100	15950	15470
8	15900	15860	15360	14990	14690	14260	14490	15010	15200	16090	15930	15490
9	15880	15860	15340	14970	14680	14240	14510	15040	15200	16070	15930	15500
10	15870	15790	15320	14970	14670	14240	14520	15040	15210	16070	15920	15520
11	15890	15780	15380	14950	14650	14210	14520	15040	15220	16120	15890	15550
12	15920	15780	15360	14930	14630	14200	14530	15040	15410	16160	15870	15590
13	15930	15770	15360	14920	14590	14170	14700	15080	15510	16180	15850	15550
14	15940	15760	15350	14910	14550	14160	14720	15070	15660	16170	15840	15550
15	15930	15750	15340	14890	14540	14150	14720	15060	15960	16140	15810	15620
16	15930	15730	15330	14890	14520	14110	14720	15080	16040	16120	15800	15620
17	15930	15730	15320	14850	14490	14120	14750	15080	16050	16120	15780	15650
18	15920	15700	15320	14850	14480	14190	14770	15070	16060	16110	15770	15660
19	15930	15680	15300	14840	14460	14160	14790	15070	16090	16110	15760	15660
20	15960	15650	15290	14840	14450	14140	14790	15060	16110	16100	15750	15660
21	16030	15640	15250	14820	14410	14130	14790	15080	16170	16100	15720	15670
22	16010	15630	15220	14810	14400	14110	14780	15090	16200	16070	15710	15680
23	15980	15600	15200	14790	14380	14090	14760	15090	16210	16060	15700	15690
24	15960	15590	15180	14780	14380	14070	14810	15090	16210	16060	15690	15690
25	15940	15570	15180	14770	14380	14060	14860	15120	16230	16030	15680	e15700
26	15920	15550	15170	14750	14380	14070	14860	15100	16220	16030	15670	e15710
27	15890	15550	15160	14740	14350	14210	14890	15140	16220	16010	15660	e15720
28	15890	15520	15160	14730	14330	14250	14900	15150	16220	16010	15650	e15730
29	15880	15510	15140	14750	---	14280	14900	15180	16220	15990	15590	e15740
30	15850	15500	15140	14740	---	14360	14910	15180	16190	15970	15570	e15750
31	15970	---	15120	14730	---	14330	---	15190	---	15950	15540	---
MAX	16030	15960	15490	15110	14720	14360	14910	15190	16230	16180	15970	15750
MIN	15850	15500	15120	14730	14330	14060	14360	14950	15140	15950	15540	15470
(+)	2058.14	2057.69	2057.31	2056.93	2056.52	2056.52	2057.11	2057.38	2058.35	2058.12	2057.73	2057.93
(@)	0	-470	-380	-390	-400	0	+580	+280	+1000	-240	-410	+210

CAL YR 1998 MAX 19830 MIN 15120 (@) -4710
WTR YR 1999 MAX 16230 MIN 14060 (@) -220

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

e Estimated

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX--Continued



08123600 CHAMPION CREEK RESERVOIR NEAR COLORADO CITY, TX

LOCATION.--Lat 32°16'53", long 100°51'30", Mitchell County, Hydrologic Unit 12080002, 50 ft downstream from service outlet structure at Champion Creek Dam on Champion Creek, 1.0 mi upstream from mouth, 4.8 mi downstream from State Highway 208, and 7.2 mi south of Colorado City.

DRAINAGE AREA.--207 mi^2, of which 20.8 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1959 to Sep 1987 and May 1997 to current year.
Water-quality records.--Chemical data: Aug 1967 to May 1984.

REVISED RECORDS.--WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Sep 29, 1959, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily contents, which are fair. The reservoir is formed by a rolled earthfill dam about 6,800 ft long. The dam was completed on Apr 30, 1959. Closure and storage began in Feb 1959. The capacity curve is based on U.S. Geological Survey topographic map surveyed in 1950: excavation for borrow, estimated not to exceed 1,200 acre-ft, is not included. The dam and reservoir are owned and operated by the Texas Utilities Electric Company. Water may be pumped from the reservoir through a 24-inch pipeline to Lake Colorado City (station 08123000) for municipal use and for cooling operations of a steam generating powerplant. There are two spillways. The uncontrolled emergency spillway, 450 ft wide and 800 ft long, is located at the right end of dam. The controlled service spillway, is a cut channel 50 ft wide, about 1,800 ft long, and 8 ft deep, and cut into the emergency spillway at the extreme right end. There is a controlled drop-inlet structure, 4.0 by 5.0 ft, with a side opening of 1.5 by 3.0 ft. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	2,109.0
Design flood	2,104.0
Crest of spillway	2,091.0
Crest of spillway (top of conservation pool	2,083.0
Lowest gated outlet (invert)	2,020.0

COOPERATION.--The capacity table dated Apr 14, 1959, was prepared from curve furnished by Feese and Nichols, Consulting Engineers, Fort Worth, Texas. Record of diversions into Lake Colorado City may be obtained from Texas Utilities Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 47,060 acre-ft, Jun 29, 1982 (elevation, 2,085.79 ft); minimum contents after initial filling, 1,720 acre-ft, Apr 11-15, 1971 (elevation, 2,026.75 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,840 acre-ft, Oct 1 (elevation, 2,053.52 ft); minimum contents, 6,020 acre-ft, Sep 30 (elevation, 2,042.49 ft).

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

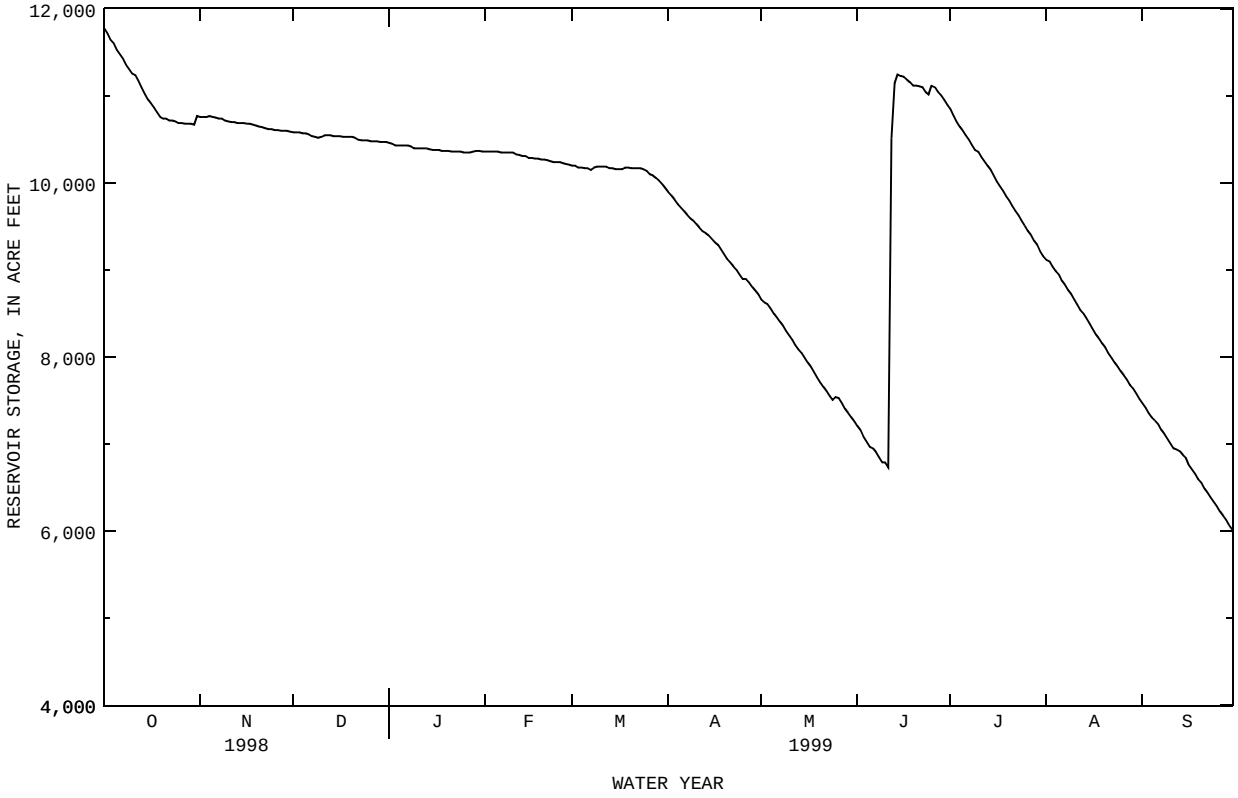
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11780	10760	10580	10460	10360	10200	9900	8660	7210	10850	9120	7470
2	11720	10760	10580	10450	10360	10200	9860	8630	7160	10780	9100	7420
3	11650	10760	10580	10430	10360	10180	9810	8610	7090	10710	9040	7360
4	11610	10770	10570	10430	10360	10180	9760	8560	7030	10650	8990	7310
5	11530	10760	10570	10430	10360	10170	e9720	8500	6970	10600	8950	7270
6	11480	10750	10560	10430	10350	10170	e9680	8460	6950	10550	8880	7230
7	11430	10740	10540	10430	10350	10150	e9640	8410	6910	10500	8830	7170
8	11360	10740	10530	10420	10350	10180	e9600	8360	6850	10440	8770	7120
9	11310	10720	10520	10400	10350	10190	e9570	8300	6790	10380	8720	7060
10	11260	10710	10530	10400	10350	10190	e9530	8250	6790	10360	8660	7010
11	11240	10700	10550	10400	10330	10190	e9490	8200	6730	10300	8600	6950
12	e11170	10700	10550	10400	10320	10190	e9450	8140	10510	10250	8540	6940
13	e11100	10690	10550	10400	10310	10170	e9430	8090	11150	10200	8500	6920
14	11030	10690	10540	10390	10310	10170	e9400	8050	11250	10150	8440	6880
15	10960	10690	10540	10380	10290	10160	9360	7990	11230	10090	8380	6840
16	10920	10680	10540	10380	10290	10160	9320	7940	11220	10020	8320	6760
17	10870	10680	10530	10380	10280	10160	9290	7890	11190	9970	8260	6710
18	10820	10670	10530	10370	10280	10180	9240	7830	11160	9910	8210	6660
19	10760	10660	10530	10370	10270	10180	9180	7770	11120	9850	8160	6600
20	10740	10650	10530	10370	10270	10170	9130	7710	11120	9800	8110	6560
21	10740	10640	10520	10360	10260	10170	9090	7660	11110	9740	8050	6490
22	10720	10630	10500	10360	10250	10170	9040	7610	11100	9680	7990	6440
23	10720	10620	10490	10360	10240	10170	9000	7560	11050	9630	7940	6390
24	10710	10620	10490	10360	10240	10160	8950	7510	11020	9570	7890	6340
25	10690	10610	10490	10350	10240	10140	8900	7540	11120	9510	7840	6290
26	10690	10610	10480	10350	10230	10100	8900	7530	11100	9450	7790	6230
27	10680	10600	10480	10350	10220	10090	8860	7470	11050	9400	7740	6180
28	10680	10600	10480	10360	10210	10060	8810	7410	11010	9340	7680	6130
29	10680	10600	10470	10370	---	10030	8770	7360	10960	9290	7640	6070
30	10670	10590	10470	10370	---	9990	8720	7310	10900	9220	7580	6020
31	10770	---	10470	10360	---	9940	---	7260	---	9160	7520	---
MAX	11780	10770	10580	10460	10360	10200	9900	8660	11250	10850	9120	7470
MIN	10670	10590	10470	10350	10210	9940	8720	7260	6730	9160	7520	6020
(+)	2051.81	2051.50	2051.29	2051.11	2050.84	2050.35	2048.07	2045.21	2052.03	2048.92	2045.73	2042.49
(@)	-1070	-180	-120	-110	-150	-270	-1220	-1460	+3640	-1740	-1640	-1500

CAL YR 1998 MAX 20260 MIN 10470 (@) -9600
WTR YR 1999 MAX 11780 MIN 6020 (@) -5820

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

e Estimated

08123600 CHAMPION CREEK RESERVOIR NEAR COLORADO CITY, TX--Continued



08123800 BEALS CREEK NEAR WESTBROOK, TX

LOCATION.--Lat 32°11'57", long 101°00'49", Mitchell County, Hydrologic Unit 12080007, on left bank at downstream side of bridge on State Highway 163, 2.1 mi downstream from Hackberry Creek, 10.8 mi south of Westbrook, 15.7 mi southwest of Colorado City, and 19.1 mi upstream from mouth.

DRAINAGE AREA.--9,802 mi^2, of which 7,814 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct 1958 to current year.

REVISED RECORDS.--WRD TX-72-1: 1971. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,048.74 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Low flow is affected by diversion upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1908, about 24.5 ft in 1922, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

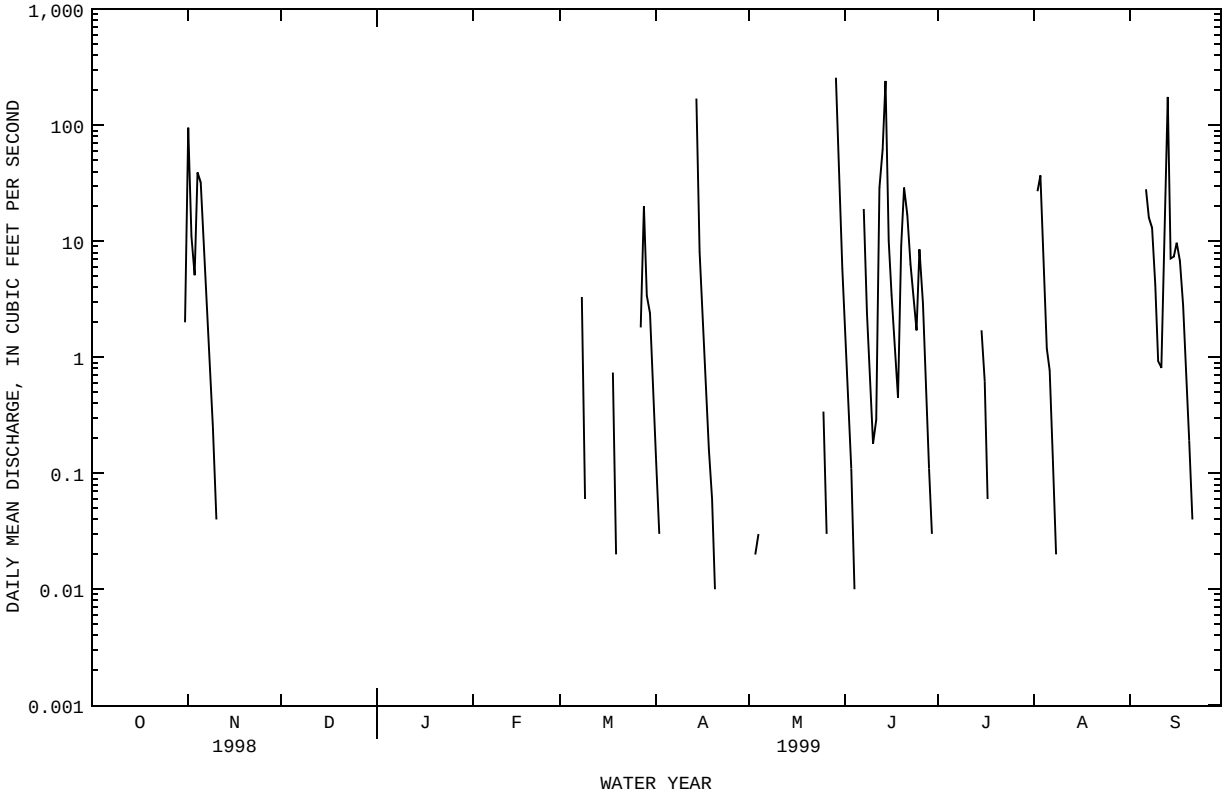
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	95	.00	.00	.00	.00	.13	.00	2.1	.00	.00	.00
2	.00	11	.00	.00	.00	.00	.03	.00	.49	.00	27	.00
3	.00	5.1	.00	.00	.00	.00	.00	.02	.11	.00	37	.00
4	.00	39	.00	.00	.00	.00	.00	.03	.01	.00	6.1	.00
5	.00	32	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00
6	.00	11	.00	.00	.00	.00	.00	.00	.00	.00	.77	28
7	.00	3.2	.00	.00	.00	.00	.00	.00	19	.00	.13	16
8	.00	.87	.00	.00	.00	3.3	.00	.00	2.4	.00	.02	13
9	.00	.25	.00	.00	.00	.06	.00	.00	.77	.00	.00	4.2
10	.00	.04	.00	.00	.00	.00	.00	.00	.18	.00	.00	.92
11	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00	.81
12	.00	.00	.00	.00	.00	.00	.00	.00	29	.00	.00	15
13	.00	.00	.00	.00	.00	.00	.00	.00	62	.00	.00	175
14	.00	.00	.00	.00	.00	.00	169	.00	240	.00	.00	7.1
15	.00	.00	.00	.00	.00	.00	8.1	.00	10	1.7	.00	7.4
16	.00	.00	.00	.00	.00	.00	2.1	.00	3.4	.62	.00	9.7
17	.00	.00	.00	.00	.00	.00	.58	.00	1.4	.06	.00	6.8
18	.00	.00	.00	.00	.00	.74	.16	.00	.45	.00	.00	2.8
19	.00	.00	.00	.00	.00	.02	.06	.00	9.1	.00	.00	.89
20	.00	.00	.00	.00	.00	.00	.01	.00	29	.00	.00	.19
21	.00	.00	.00	.00	.00	.00	.00	.00	17	.00	.00	.04
22	.00	.00	.00	.00	.00	.00	.00	.00	6.4	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	3.3	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	1.7	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.34	8.5	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.03	2.9	.00	.00	.00
27	.00	.00	.00	.00	.00	1.8	.00	.00	.56	.00	.00	.00
28	.00	.00	.00	.00	.00	20	.00	.00	.11	.00	.00	.00
29	.00	.00	.00	.00	---	3.4	.00	256	.03	.00	.00	.00
30	.00	.00	.00	.00	---	2.4	.00	51	.00	.00	.00	.00
31	2.0	---	.00	.00	---	.59	---	5.8	---	.00	.00	---
TOTAL	2.00	197.46	0.00	0.00	0.00	32.31	180.17	313.22	450.20	2.38	72.22	287.85
MEAN	.065	6.58	.000	.000	.000	1.04	6.01	10.1	15.0	.077	2.33	9.60
MAX	2.0	95	.00	.00	.00	20	169	256	240	1.7	37	175
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	4.0	392	.00	.00	.00	64	357	621	893	4.7	143	571

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1999, BY WATER YEAR (WY)

MEAN	39.7	6.22	5.32	5.05	8.65	6.93	19.3	58.5	41.7	25.2	18.5	62.8
MAX	572	29.4	49.2	47.0	94.9	75.6	256	334	254	258	168	680
(WY)	1987	1987	1992	1987	1992	1973	1966	1994	1987	1961	1971	1980
MIN	.000	.060	.000	.000	.000	.046	.012	.14	.009	.000	.005	.000
(WY)	1964	1990	1999	1999	1999	1996	1998	1962	1998	1964	1970	1998

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1959 - 1999	
ANNUAL TOTAL	1514.72		1537.81			
ANNUAL MEAN	4.15		4.21		24.9	
HIGHEST ANNUAL MEAN					107	1987
LOWEST ANNUAL MEAN					3.92	1998
HIGHEST DAILY MEAN	574	Aug 19	256	May 29	5890	Sep 29 1980
LOWEST DAILY MEAN	.00	Jun 4	.00	Oct 1	.00	Oct 1 1958
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 4	.00	Oct 1	.00	Oct 1 1958
INSTANTANEOUS PEAK FLOW			670	May 29	8780	May 19 1961
INSTANTANEOUS PEAK STAGE			7.59	May 29	21.94	Sep 29 1980
ANNUAL RUNOFF (AC-FT)	3000		3050		18010	
10 PERCENT EXCEEDS	.09		3.4		24	
50 PERCENT EXCEEDS	.00		.00		2.1	
90 PERCENT EXCEEDS	.00		.00		.01	



08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Nov 1958 to current year.
BIOCHEMICAL DATA: Nov 1974 to Oct 1977.
SEDIMENT DATA: Oct 1974 to Oct 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Nov 1958 to Feb 1981 (local observer) and Mar 1981 to current year.
WATER TEMPERATURE: Nov 1958 to Feb 1981 (local observer) and Mar 1981 to current year.

INSTRUMENTATION.--Water-quality monitor since Mar 5, 1981.

REMARKS.--Interruptions in the maximum and minimum specific conductance and water temperature values were due to malfunction of the instrument. No flow for many days. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and a regression relation between each chemical constituent and specific conductance. New regression equations were developed based on data from water years 1989 to 1998. The standard error of estimate for dissolved solids is 5%, chloride is 22%, sulfate is 21% and for hardness is 7%. Regression equations developed for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 24,500 microsiemens, Aug 9, 1989; minimum, 59 microsiemens, Nov 1, 1998.
WATER TEMPERATURE: Maximum daily, 37.0°C, Jun 28, 1960, and Jul 3, 1976; minimum, 0.0°C, on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 4,420 microsiemens, Jul 17; minimum, 59 microsiemens, Nov 1.
WATER TEMPERATURE: Maximum, 36.5°C, Jun 28; minimum, 9.6°C, Apr 14.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
NOV									
02...	1125	6.7	927	14.8	170	110	47	14	118
05...	1105	25	864	10.5	170	97	46	13	109
APR									
19...	1135	.07	648	17.7	140	60	39	10	68
JUN									
01...	1155	2.2	634	26.6	140	63	40	8.8	66
JUL									
15...	1225	3.6	1530	27.7	340	220	88	30	163
SEP									
09...	1405	3.4	2140	27.5	410	320	94	42	260

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
NOV								
02...	4	3.9	60	76	210	.40	4.2	512
05...	4	4.0	71	65	200	.31	4.7	482
APR								
19...	2	4.0	79	42	120	.32	4.7	333
JUN								
01...	2	4.7	73	46	110	.47	7.3	326
JUL								
15...	4	7.5	120	160	310	.58	6.8	837
SEP								
09...	6	14	85	300	430	.48	8.4	1200

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1998 TO SEPTEMBER 1999

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1998	2	730	422	2.3	180	0.98	77	0.42	150
NOV.	1998	197.46	680	393	210	170	89.6	72	38.3	140
DEC.	1998	0	--	--	--	--	--	--	--	--
JAN.	1999	0	--	--	--	--	--	--	--	--
FEB.	1999	0	--	--	--	--	--	--	--	--
MAR.	1999	32.31	416	240	20.9	100	9.0	44	3.8	85
APR.	1999	180.17	675	390	190	170	81.1	71	34.7	140
MAY	1999	313.22	1220	708	599	300	255	130	111	250
JUNE	1999	450.2	548	317	385	140	165	58	70.3	110
JULY	1999	2.38	2480	1460	9.4	620	4.0	280	1.8	510
AUG.	1999	72.22	366	211	41.2	90	17.6	38	7.5	74
SEPT	1999	287.85	714	414	322	180	138	76	59.3	150
TOTAL		1537.81	**	**	1780	**	760	**	327	**
WTD.AVG.		4.2	739	428	**	180	**	79	**	150

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	3310	59	606	---	---	---	---	---	---
2	---	---	---	933	707	859	---	---	---	---	---	---
3	---	---	---	740	640	661	---	---	---	---	---	---
4	---	---	---	1450	287	527	---	---	---	---	---	---
5	---	---	---	1780	793	969	---	---	---	---	---	---
6	---	---	---	887	737	780	---	---	---	---	---	---
7	---	---	---	910	735	795	---	---	---	---	---	---
8	---	---	---	1010	910	968	---	---	---	---	---	---
9	---	---	---	1030	1010	1020	---	---	---	---	---	---
10	---	---	---	1050	1030	1040	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	995	256	730	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	e400	---	---	---
2	---	---	---	---	---	---	---	---	e400	---	---	---
3	---	---	---	---	---	---	---	---	---	2680	2510	2610
4	---	---	---	---	---	---	---	---	---	2680	2090	2190
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	570	---	---	---	---	---	---
9	---	---	---	---	---	e700	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	2740	228	685	---	---	---
15	---	---	---	---	---	---	532	488	516	---	---	---
16	---	---	---	---	---	---	541	527	533	---	---	---
17	---	---	---	---	---	---	---	---	500	---	---	---
18	---	---	---	271	196	239	---	---	e600	---	---	---
19	---	---	---	---	---	285	---	---	640	---	---	---
20	---	---	---	---	---	---	786	662	725	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	3420	1700	2240
26	---	---	---	---	---	---	---	---	---	2690	2420	2580
27	---	---	---	471	390	433	---	---	---	---	---	---
28	---	---	---	---	---	e400	---	---	---	---	---	---
29	---	---	---	---	---	e400	---	---	---	2770	200	1360
30	---	---	---	---	---	e400	---	---	---	583	527	557
31	---	---	---	---	---	e400	---	---	---	625	583	607
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	658	620	640	---	---	---	---	---	---	---	---	---
2	685	650	670	---	---	---	808	108	292	---	---	---
3	701	685	691	---	---	---	917	121	408	---	---	---
4	715	700	707	---	---	---	480	413	459	---	---	---
5	---	---	---	---	---	---	413	288	326	---	---	---
6	---	---	---	---	---	---	314	286	295	---	---	e600
7	705	214	307	---	---	---	356	314	337	---	---	e500
8	420	264	317	---	---	---	376	343	357	---	---	e900
9	483	414	455	---	---	---	---	---	---	---	---	2010
10	517	482	496	---	---	---	---	---	---	2490	2360	2440
11	591	508	526	---	---	---	---	---	---	2560	2310	2440
12	1730	351	740	---	---	---	---	---	---	2500	953	2300
13	2390	411	908	---	---	---	---	---	---	1960	301	642
14	781	316	425	---	---	---	---	---	---	308	301	302
15	442	405	418	2490	1540	1900	---	---	---	316	221	306
16	481	442	470	4380	2280	3870	---	---	---	267	166	216
17	472	451	460	4420	4330	4370	---	---	---	325	228	277
18	464	450	457	---	---	---	---	---	---	316	250	293
19	472	204	430	---	---	---	---	---	---	317	307	313
20	408	230	325	---	---	---	---	---	---	325	311	317
21	657	349	414	---	---	---	---	---	---	328	320	324
22	2080	657	1700	---	---	---	---	---	---	---	---	---
23	1550	1170	1310	---	---	---	---	---	---	---	---	---
24	1200	1160	1180	---	---	---	---	---	---	---	---	---
25	1440	894	1150	---	---	---	---	---	---	---	---	---
26	1110	933	1040	---	---	---	---	---	---	---	---	---
27	1180	1110	1150	---	---	---	---	---	---	---	---	---
28	1230	1180	1200	---	---	---	---	---	---	---	---	---
29	1290	1230	1260	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

e Estimated

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	18.7	15.6	16.9	---	---	---	---	---	---
2	---	---	---	17.5	13.8	15.7	---	---	---	---	---	---
3	---	---	---	16.2	14.5	15.1	---	---	---	---	---	---
4	---	---	---	13.8	11.1	12.4	---	---	---	---	---	---
5	---	---	---	10.9	10.4	10.6	---	---	---	---	---	---
6	---	---	---	10.5	9.9	10.2	---	---	---	---	---	---
7	---	---	---	15.1	10.4	12.4	---	---	---	---	---	---
8	---	---	---	17.1	11.6	14.1	---	---	---	---	---	---
9	---	---	---	20.1	14.9	17.1	---	---	---	---	---	---
10	---	---	---	16.6	13.0	14.8	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	19.8	18.7	19.8	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	27.5	15.9	20.3	---	---	---
2	---	---	---	---	---	---	28.8	15.0	22.2	---	---	---
3	---	---	---	---	---	---	---	---	---	22.9	20.8	22.6
4	---	---	---	---	---	---	---	---	---	23.2	19.9	21.2
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	14.5	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	18.5	9.6	13.0	---	---	---
15	---	---	---	---	---	---	16.8	10.0	13.0	---	---	---
16	---	---	---	---	---	---	16.0	11.2	13.3	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	18.2	13.8	15.4	---	---	---	---	---	---
19	---	---	---	---	---	14.5	---	---	20.0	---	---	---
20	---	---	---	---	---	---	23.2	16.4	20.1	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	31.2	20.9	24.7
26	---	---	---	---	---	---	---	---	---	25.6	21.8	23.5
27	---	---	---	13.8	13.0	13.2	---	---	---	---	---	---
28	---	---	---	14.2	12.7	13.5	---	---	---	---	---	---
29	---	---	---	14.7	13.1	13.8	---	---	---	22.7	19.0	20.4
30	---	---	---	14.9	13.5	14.0	---	---	---	27.5	19.6	23.0
31	---	---	---	23.2	12.2	17.1	---	---	---	30.3	24.0	26.9
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	32.0	24.6	27.8	---	---	---	---	---	---	---	---	---
2	30.1	25.0	27.3	---	---	---	27.1	23.4	24.9	---	---	---
3	28.5	24.2	26.1	---	---	---	29.4	22.9	25.8	---	---	---
4	28.9	23.4	26.3	---	---	---	29.7	26.3	27.9	---	---	---
5	---	---	---	---	---	---	31.0	25.8	28.0	---	---	---
6	---	---	---	---	---	---	33.4	26.0	29.1	28.5	24.5	25.4
7	28.8	19.8	24.2	---	---	---	35.2	25.8	29.8	29.0	23.8	26.2
8	31.3	23.6	27.0	---	---	---	34.1	26.2	29.4	29.4	24.8	26.9
9	30.1	24.7	27.1	---	---	---	---	---	---	30.0	25.0	27.3
10	33.4	23.6	27.5	---	---	---	---	---	---	30.8	24.9	27.3
11	30.1	22.7	26.0	---	---	---	---	---	---	31.7	24.1	27.5
12	26.5	20.5	24.1	---	---	---	---	---	---	30.2	23.6	26.4
13	26.2	22.4	23.8	---	---	---	---	---	---	23.6	21.1	22.3
14	25.1	20.8	23.0	---	---	---	---	---	---	25.5	21.2	23.2
15	27.6	22.6	24.9	31.8	24.7	27.4	---	---	---	26.9	21.8	23.8
16	30.0	23.3	26.5	31.9	24.6	27.7	---	---	---	23.6	21.2	22.3
17	27.5	21.6	24.5	30.9	25.1	27.6	---	---	---	24.9	19.9	22.3
18	28.6	22.5	25.3	---	---	---	---	---	---	26.6	21.2	23.6
19	30.4	23.3	25.9	---	---	---	---	---	---	28.7	21.6	24.7
20	27.6	22.2	24.6	---	---	---	---	---	---	25.7	21.3	23.0
21	25.5	23.6	24.4	---	---	---	---	---	---	23.5	18.7	20.4
22	28.1	23.6	25.4	---	---	---	---	---	---	---	---	---
23	32.8	24.9	28.3	---	---	---	---	---	---	---	---	---
24	32.1	26.3	28.8	---	---	---	---	---	---	---	---	---
25	31.8	26.3	28.8	---	---	---	---	---	---	---	---	---
26	34.1	27.2	30.2	---	---	---	---	---	---	---	---	---
27	35.4	27.7	30.8	---	---	---	---	---	---	---	---	---
28	36.5	28.1	31.3	---	---	---	---	---	---	---	---	---
29	32.0	28.4	30.1	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

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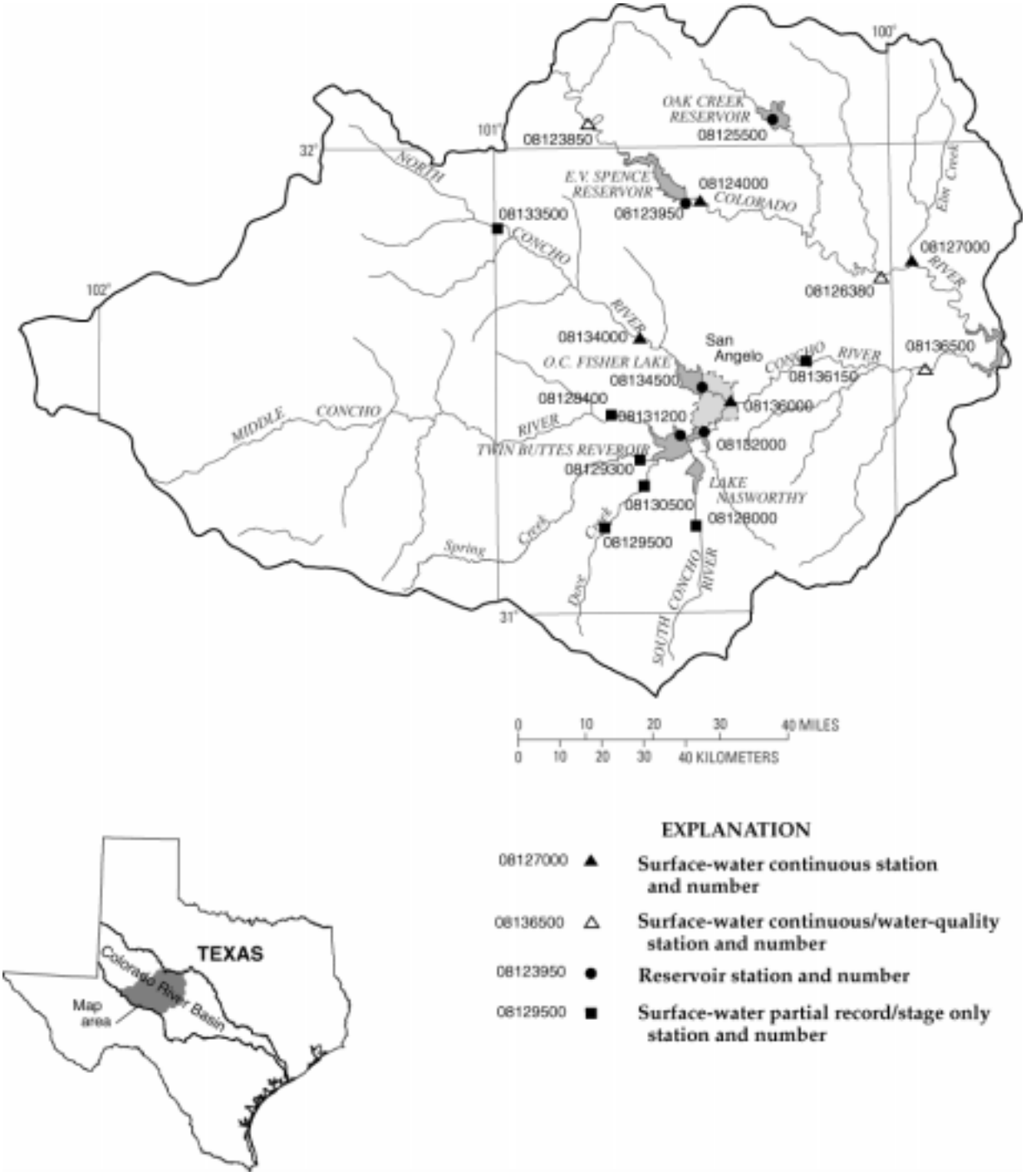


Figure 4.--Map showing location of gaging stations in the second section of the Colorado River Basin

08123850 COLORADO RIVER ABOVE SILVER, TX

LOCATION.--Lat 32°03'13", long 100°45'42", Coke County, Hydrologic Unit 12080008, on right bank 25 ft downstream from Pan American Oil Co. bridge, 4.7 mi west of Silver, and at mile 756.0.

DRAINAGE AREA.--14,910 mi^2, of which 10,260 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Aug 1967 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,907.66 ft above sea level. Prior to Oct 4, 1972, water-stage recorder at site 0.5 mi downstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in Aug 1967, at least 10% of contributing drainage area has been regulated by Lake J.B. Thomas (station 08118000, normal storage 204,000 acre-ft). Additional regulation by Lake Colorado City (station 08123000), and by Champion Creek Reservoir (station 08123600), combined normal storage 74,140 acre-ft. The Colorado River Municipal Water District diverts low flow into an off channel reservoir 3 mi above Colorado River at Colorado City (station 08121000) for brine disposal. There are numerous diversions from Lake J.B. Thomas for municipal use and for oil field operations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

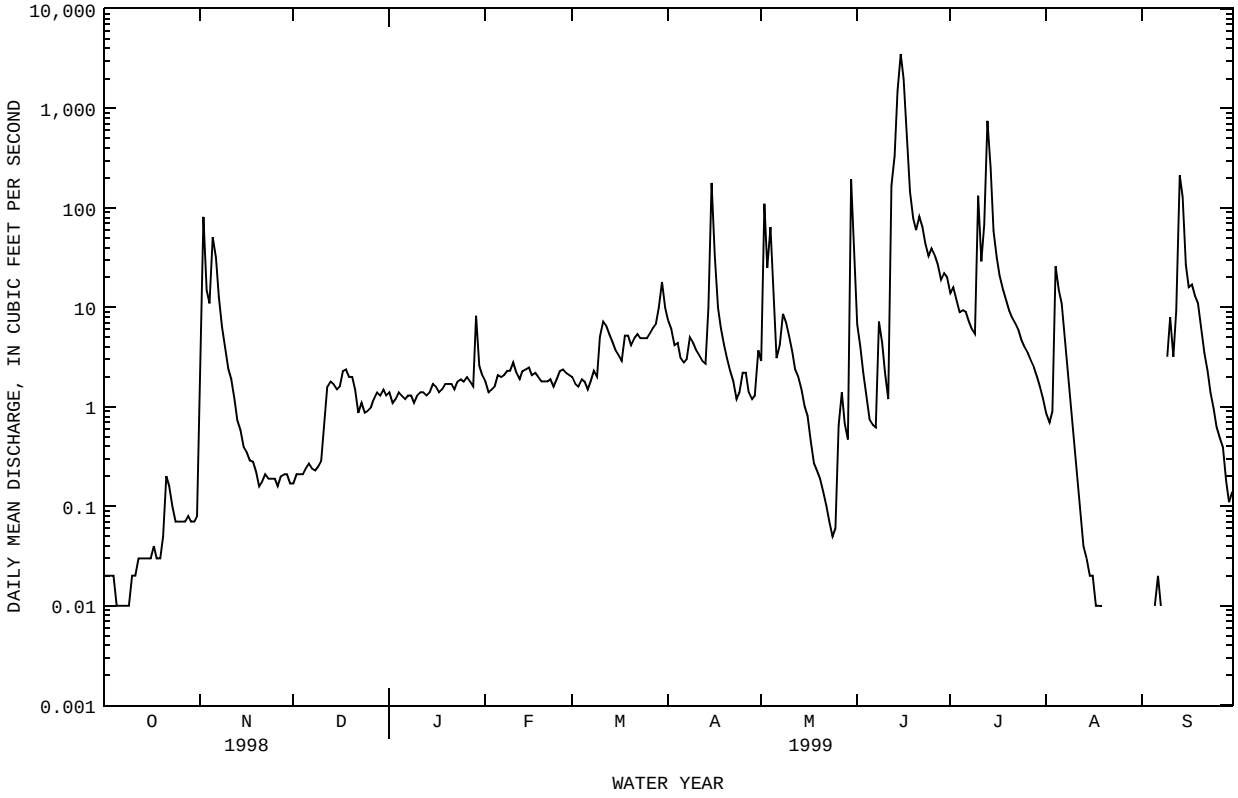
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	1.7	.17	1.4	1.8	2.0	7.4	2.9	6.8	14	.85	.00
2	.02	81	.21	1.1	1.4	1.7	6.1	110	4.0	16	.70	.00
3	.02	15	.21	1.2	1.5	1.6	4.2	25	2.2	12	.90	.00
4	.02	11	.21	1.4	1.6	1.9	4.4	64	1.3	9.0	26	.00
5	.01	51	.24	1.3	2.1	1.8	3.1	13	.74	9.4	15	.01
6	.01	32	.27	1.2	2.0	1.5	2.8	3.1	.66	9.1	11	.02
7	.01	13	.24	1.3	2.1	1.8	3.0	4.2	.62	7.2	4.2	.01
8	.01	6.4	.23	1.3	2.3	2.3	5.0	8.6	7.2	6.1	1.8	.00
9	.01	4.2	.25	1.1	2.3	2.0	4.4	7.0	4.4	5.4	.83	3.2
10	.02	2.4	.29	1.3	2.8	5.1	3.7	5.2	2.2	132	.45	8.0
11	.02	1.9	.68	1.4	2.2	7.2	3.3	3.6	1.2	29	.20	3.2
12	.03	1.2	1.6	1.4	1.9	6.5	2.9	2.4	168	68	.10	9.3
13	.03	.73	1.8	1.3	2.3	5.3	2.7	2.0	335	749	.04	213
14	.03	.58	1.7	1.4	2.4	4.5	9.9	1.5	1490	253	.03	130
15	.03	.39	1.5	1.7	2.5	3.7	179	1.0	3540	59	.02	27
16	.03	.35	1.6	1.6	2.1	3.3	33	.81	2000	32	.02	16
17	.04	.29	2.3	1.4	2.2	2.9	10	.45	536	21	.01	17
18	.03	.28	2.4	1.5	2.0	5.2	6.2	.27	146	15	.01	13
19	.03	.22	2.0	1.7	1.8	5.2	4.2	.23	79	12	.01	11
20	.05	.16	2.0	1.7	1.8	4.2	3.1	.19	60	9.3	.00	6.0
21	.20	.18	1.5	1.7	1.8	4.9	2.3	.14	82	7.9	.00	3.5
22	.16	.21	.87	1.5	1.9	5.4	1.8	.10	64	6.9	.00	2.3
23	.10	.19	1.1	1.8	1.6	4.9	1.2	.07	44	5.9	.00	1.4
24	.07	.19	.88	1.9	1.9	4.9	1.4	.05	33	4.7	.00	.96
25	.07	.19	.91	1.8	2.3	4.9	2.2	.06	39	4.0	.00	.63
26	.07	.16	.98	2.0	2.4	5.5	2.2	.65	33	3.5	.00	.49
27	.07	.20	1.2	1.8	2.2	6.2	1.4	1.4	27	2.9	.00	.39
28	.08	.21	1.4	1.6	2.1	6.9	1.2	.68	19	2.5	.00	.18
29	.07	.21	1.3	8.2	---	10	1.3	.47	22	2.0	.00	.11
30	.07	.17	1.5	2.6	---	18	3.7	193	20	1.6	.00	.14
31	.08	---	1.3	2.1	---	9.9	---	28	---	1.2	.00	---
TOTAL	1.51	225.71	32.84	54.7	57.3	151.2	317.1	480.07	8768.32	1510.6	62.17	466.84
MEAN	.049	7.52	1.06	1.76	2.05	4.88	10.6	15.5	292	48.7	2.01	15.6
MAX	.20	81	2.4	8.2	2.8	18	179	193	3540	749	26	213
MIN	.01	.16	.17	1.1	1.4	1.5	1.2	.05	.62	1.2	.00	.00
AC-FT	3.0	448	65	108	114	300	629	952	17390	3000	123	926

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

MEAN	122	19.6	18.6	17.6	30.6	27.7	50.7	153	167	51.9	84.6	150
MAX	1834	67.5	120	90.7	256	280	599	681	1242	313	1122	1853
(WY)	1987	1973	1992	1987	1992	1973	1981	1994	1982	1988	1971	1980
MIN	.000	.000	.30	1.17	1.02	.36	.70	1.91	.17	.000	.010	.000
(WY)	1969	1971	1971	1971	1971	1971	1998	1984	1998	1970	1984	1968

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	1596.07		12128.36			
ANNUAL MEAN	4.37		33.2		74.8	
HIGHEST ANNUAL MEAN					298	1987
LOWEST ANNUAL MEAN					4.69	1998
HIGHEST DAILY MEAN	529	Aug 20	3540	Jun 15	15900	Sep 30 1980
LOWEST DAILY MEAN	.00	Jun 21	.00	Aug 20	.00	Aug 2 1968
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 21	.00	Aug 20	.00	Aug 2 1968
INSTANTANEOUS PEAK FLOW			3830	Jun 15	18900	Sep 9 1980
INSTANTANEOUS PEAK STAGE			13.31	Jun 15	22.73	Sep 9 1980
ANNUAL RUNOFF (AC-FT)	3170		24060		54220	
10 PERCENT EXCEEDS	4.1		25		95	
50 PERCENT EXCEEDS	.28		1.8		8.7	
90 PERCENT EXCEEDS	.00		.03		.19	

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued



08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Aug 1967 to current year.
BIOCHEMICAL DATA: Nov 1977 to Aug 1994.
PESTICIDE DATA: Oct 1969 to Aug 1981.
SEDIMENT DATA: Aug 1977 to Aug 1994.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Dec 1967 to current year.
WATER TEMPERATURE: Dec 1967 to May 1981 (local observer) and Jun 1981 to current year.

INSTRUMENTATION.--Specific conductance recorder since Dec 1967. Water-temperature recorder since Jun 1981.

REMARKS.--Interruptions in the maximum and minimum specific conductance values were due to malfunction of the instrument. No flow Aug 20 to Sep 4 and Sep 8. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and a regression relation between each chemical constituent and specific conductance. New regression equations were developed based on data from water years 1990 to 1999. The standard error of estimate for dissolved solids is 6%, chloride is 29%, sulfate is 47% and for hardness is 28%. Regression equations developed for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 19,900 microsiemens, Sep 10, 1988; minimum, 154 microsiemens, Sep 21, 1990.
WATER TEMPERATURE: Maximum, 35.5°C, Aug 2, 7, 1985; minimum, 0.0°C, on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 11,500 microsiemens, Mar 24; minimum observed, 233 microsiemens, Jun 15.
WATER TEMPERATURE: Maximum, 34.7°C, Jun 28; minimum, 0.4°C, Dec 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
JAN											
07...	1140	1.4	7240	8.0	7.9	12.1	112	2000	1900	550	156
FEB											
18...	1210	2.2	8750	8.2	14.0	9.8	106	2200	2100	570	196
APR											
15...	1310	140	2920	7.6	15.3	7.1	76	520	460	130	47
JUN											
15...	1315	3730	233	7.8	21.5	5.4	65	82	6	28	3.1
JUL											
22...	1300	7.1	5640	7.8	28.0	7.7	107	990	860	250	89

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)
JAN										
07...	1020	10	9.4	100	1600	1700	.44	4.4	5050	--
FEB										
18...	1340	12	12	100	2000	2100	.46	.96	6270	2.67
APR										
15...	425	8	7.0	59	250	750	.37	4.4	1650	.577
JUN										
15...	11	.5	4.9	76	16	14	.21	6.3	131	.378
JUL										
22...	828	11	10	130	880	1300	.38	7.6	3460	--

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
JAN										
07...	<.010	<.050	.042	.41	.45	<.050	<.010	--	3	88
FEB										
18...	.052	2.72	.024	.70	.72	<.050	<.010	--	2	61
APR										
15...	.024	.601	.065	.39	.45	<.050	.015	.05	<1	304
JUN										
15...	.033	.411	.160	.24	.40	.072	.040	.12	3	71
JUL										
22...	<.010	<.050	<.020	--	.59	<.050	<.010	--	4	277

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JAN										
07...	<1.0	<1.0	<1.0	<50	<1.0	E12	<.1	5	<1.0	<100
FEB										
18...	<1.0	<1.0	<1.0	<50	<1.0	54	<.1	4	<1.0	<100
APR										
15...	<1.0	<1.0	1.6	<30	<1.0	<9.0	<.1	<1	<1.0	<60
JUN										
15...	<1.0	<1.0	<1.0	E5.7	<1.0	E1.6	<.1	<1	<1.0	<20
JUL										
22...	<1.0	<5.0	<1.0	<30	<1.0	E8.6	<.1	<1	<1.0	<60

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1998 TO SEPTEMBER 1999

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1998	1.51	6690	4480	18.3	1500	6.1	1400	5.7	1600
NOV.	1998	225.71	2200	1370	837	440	267	420	255	530
DEC.	1998	32.84	5020	3270	290	1100	95.4	1000	89.3	1200
JAN.	1999	54.7	8400	5800	857	2000	292	1800	267	2000
FEB.	1999	57.3	8510	5870	909	2000	310	1800	283	2000
MAR.	1999	151.2	9320	6540	2670	2300	920	2000	834	2200
APR.	1999	317.1	4040	2620	2250	860	738	810	691	970
MAY	1999	480.07	2970	1900	2460	620	799	580	754	710
JUNE	1999	8768.32	838	518	12270	160	3900	160	3740	200
JULY	1999	1510.6	3300	2130	8670	690	2830	650	2660	790
AUG.	1999	62.17	7170	4870	818	1600	276	1500	254	1700
SEPT	1999	466.84	1270	786	991	250	315	240	302	300
TOTAL		12128.36	**	**	33040	**	10740	**	10130	**
WTD.AVG.		33	1580	1010	**	330	**	310	**	380

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6330	6200	6260	6460	5150	6310	5170	5120	5140	6230	5880	6020
2	6370	6270	6340	5890	899	2650	5190	5150	5170	6560	6230	6400
3	6450	6300	6400	943	750	835	5230	5190	5200	6940	6540	6740
4	6530	6370	6460	2950	943	1710	5340	5220	5250	7100	6920	7010
5	6640	6530	6570	3120	1500	2560	5270	5230	5250	7220	7090	7150
6	6760	6680	6720	1760	1280	1440	5300	5240	5260	7300	7220	7270
7	6860	6710	6790	1320	1250	1280	5340	5300	5310	7400	7300	7350
8	7040	6820	6880	1540	1320	1420	5370	5310	5350	7670	7400	7500
9	6960	6840	6920	1790	1540	1650	5400	5360	5380	7880	7660	7780
10	7010	6900	6960	2080	1790	1940	5400	5360	5380	8180	7840	8000
11	7090	6870	6980	2390	2080	2240	5380	5210	5330	8410	8170	8270
12	7060	6860	6980	2740	2390	2550	5240	5060	5150	8790	8380	8590
13	7040	6900	6980	3060	2740	2890	5070	4840	4940	9130	8790	8960
14	7050	6900	6990	3330	3060	3210	4960	4850	4900	9530	9080	9350
15	7100	6970	7060	3530	3330	3440	4960	4910	4930	9740	9530	9630
16	7120	7010	7090	3690	3530	3610	4950	4880	4930	9790	9700	9750
17	7140	6990	7090	3850	3690	3790	4910	4810	4890	9790	9670	9730
18	7190	7050	7140	3990	3850	3910	4920	4780	4870	9730	9580	9650
19	7230	7000	7180	4140	3940	4050	4850	4750	4810	9640	9340	9520
20	7230	7040	7130	4280	4140	4210	4780	4670	4720	9460	9340	9400
21	7080	6560	6850	4380	4280	4320	4730	4640	4670	9370	9110	9280
22	6590	6450	6520	4480	4370	4420	4820	4710	4760	9310	9170	9250
23	6520	6410	6470	4600	4480	4540	4880	4750	4820	9190	8940	9090
24	6520	6380	6470	4740	4590	4650	4950	4870	4910	9110	8900	8980
25	6500	6410	6460	4780	4690	4730	5000	4890	4950	9000	8870	8940
26	6490	6450	6470	4890	4780	4820	5020	4890	4950	8950	8850	8900
27	6530	6460	6500	4900	4590	4760	5090	4890	4980	8880	8750	8820
28	6580	6460	6520	4970	4580	4810	5300	5090	5190	8770	8720	8750
29	6630	6540	6580	5040	4960	4990	5470	5300	5380	8750	7680	8140
30	6680	6610	6640	5120	4700	4930	5650	5450	5560	8010	7470	7730
31	6710	6460	6670	---	---	---	5880	5650	5760	7570	7400	7470
MONTH	7230	6200	6740	6460	750	3420	5880	4640	5100	9790	5880	8370

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7510	7430	7480	9200	9050	9150	8370	7690	8000	3260	3230	3250
2	7590	7510	7560	9220	9130	9170	9060	8370	8750	3230	1220	2530
3	7780	7570	7680	9270	9170	9220	9210	9060	9140	1930	892	1250
4	7930	7780	7850	9310	9190	9240	9130	8410	8810	944	514	783
5	8090	7930	8020	9270	9130	9200	8410	7900	8120	517	484	496
6	8220	8090	8150	9280	9180	9240	7910	7410	7640	633	517	573
7	8270	8170	8240	9290	9250	9270	7410	7010	7230	774	633	704
8	8250	8130	8200	9270	9120	9200	7010	6730	6840	950	750	825
9	8230	7970	8190	9310	9160	9240	6900	6790	6840	2120	950	1410
10	8220	7970	8150	9580	9280	9370	6910	6800	6840	3790	2120	2950
11	8420	8090	8300	9800	9500	9600	7130	6860	7010	4650	3790	4220
12	8520	8420	8470	10500	9800	10200	7220	7130	7180	5890	4650	5320
13	8570	8430	8510	10800	10500	10700	7230	7080	7190	6790	5890	6360
14	8600	8470	8550	10900	10700	10800	7080	5620	6270	7300	6790	7060
15	8640	8520	8600	10900	10700	10800	7260	2050	3390	7500	7280	7400
16	8700	8620	8660	10900	10800	10800	2500	2110	2370	7590	7490	7530
17	8740	8580	8700	10900	10800	10800	2250	2010	2100	7640	7490	7570
18	8810	8720	8770	10800	9740	10200	2770	2140	2440	7640	7460	7590
19	8860	8780	8830	10300	9720	10100	3210	2770	3010	7630	7490	7580
20	8930	8790	8880	10400	10200	10300	3410	3210	3320	7660	7540	7610
21	8970	8870	8920	10300	10100	10200	3490	3400	3450	7700	7540	7650
22	9040	8940	9000	11000	10300	10600	3550	3460	3500	7740	7590	7680
23	9110	8970	9040	11400	11000	11100	3580	3490	3540	7770	7650	7720
24	9070	8910	9000	11500	11300	11400	3620	3540	3580	7810	7680	7750
25	9070	8860	8940	11300	10900	11100	3540	3370	3450	7870	7680	7770
26	9010	8880	8950	10900	10200	10600	3400	3250	3310	7790	6670	7390
27	9050	8930	8990	10200	8400	9450	3280	3250	3260	7310	6580	6910
28	9150	9000	9080	8400	7630	7970	3330	3260	3290	7330	7250	7300
29	---	---	---	7630	6850	7140	3380	3330	3360	7340	7190	7280
30	---	---	---	7220	6870	7010	3390	3240	3300	7490	1440	4550
31	---	---	---	7690	6860	7120	---	---	---	1440	1200	1260
MONTH	9150	7430	8490	11500	6850	9690	9210	2010	5220	7870	484	5040

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1310	1200	1260	---	---	e6800	---	---	e7300	---	---	---
2	1410	1310	1360	---	---	e8100	---	---	e7300	---	---	---
3	1510	1400	1460	---	---	e9200	---	---	e7300	---	---	---
4	1620	1510	1560	---	---	e9400	---	---	e7800	---	---	---
5	1740	1610	1680	---	---	e9300	---	---	e8600	5540	5400	5500
6	1860	1740	1800	---	---	e9000	---	---	e6600	5580	5480	5540
7	1960	1860	1920	---	---	e8600	---	---	e3300	5620	5550	5580
8	2050	1820	1930	---	---	e8400	---	---	e2700	---	---	---
9	1900	1840	1860	---	---	e8300	---	---	e2600	5980	4780	5630
10	1860	1560	1700	---	---	e6400	---	---	e2600	5620	5100	5300
11	1560	1500	1520	---	---	e2600	---	---	e2800	5750	5590	5670
12	---	---	e1600	---	---	e3100	---	---	e2900	5770	2360	5170
13	---	---	e1100	---	---	e2600	---	---	e3100	6340	244	827
14	---	---	900	---	---	e1800	---	---	e3100	2460	796	1310
15	---	---	300	---	---	e2200	---	---	e3300	1220	808	935
16	---	---	e600	---	---	e2800	---	---	e3400	840	735	802
17	---	---	e900	---	---	e3400	---	---	e3600	848	737	783
18	---	---	e1700	---	---	e3900	---	---	e3700	1270	817	1070
19	---	---	e2600	---	---	e4400	---	---	e3800	1650	1090	1240
20	---	---	e3500	---	---	e4800	---	---	---	2350	1640	2110
21	---	---	e4200	---	---	e5100	---	---	---	2630	2340	2500
22	---	---	e4100	---	---	5400	---	---	---	2810	2630	2730
23	---	---	e4400	---	---	e5800	---	---	---	2910	2800	2850
24	---	---	e4700	---	---	e6100	---	---	---	3040	2910	2970
25	---	---	5300	---	---	e6300	---	---	---	3150	3000	3070
26	---	---	e6100	---	---	e6500	---	---	---	3230	3130	3170
27	---	---	e6000	---	---	e6700	---	---	---	3330	3230	3270
28	---	---	e6600	---	---	e6800	---	---	---	3490	3320	3390
29	---	---	e6400	---	---	e6900	---	---	---	3540	3470	3510
30	---	---	e5900	---	---	e7000	---	---	---	3660	3540	3570
31	---	---	---	---	---	e7100	---	---	---	---	---	---
MONTH	---	---	2830	---	---	5960	---	---	---	---	---	---

e Estimated

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	28.3	25.4	26.9	19.1	14.8	16.9	15.8	12.9	14.5	14.1	9.9	11.7
2	29.3	24.4	26.3	16.1	12.5	14.5	17.3	14.6	15.8	11.6	7.0	8.4
3	30.1	24.2	26.3	16.8	13.6	15.0	17.4	15.4	16.2	7.1	4.0	5.5
4	29.8	24.6	26.8	15.1	12.2	13.5	17.3	13.4	15.0	5.4	2.3	3.9
5	27.0	23.5	25.4	12.2	10.1	11.1	17.5	14.3	15.8	7.5	3.2	5.4
6	24.0	19.9	21.6	10.1	9.3	9.6	17.1	14.1	16.0	9.1	5.3	7.2
7	23.7	17.8	19.8	13.6	9.5	11.1	14.1	11.9	12.8	10.4	6.4	8.2
8	23.9	17.8	20.2	15.8	11.0	13.0	11.9	9.7	10.6	10.6	7.8	9.3
9	23.3	18.2	20.7	18.5	13.4	15.6	9.9	7.4	8.9	7.8	4.4	6.2
10	23.7	18.6	21.0	16.3	12.0	13.7	8.7	7.4	8.0	8.2	3.6	6.1
11	24.9	19.2	22.0	13.6	9.6	11.9	7.4	4.1	5.9	10.1	5.1	7.7
12	25.4	21.2	22.9	12.9	11.5	12.1	7.3	4.1	5.8	11.9	8.3	10.1
13	26.1	21.2	23.5	12.9	11.9	12.4	8.7	5.6	7.2	11.1	8.1	9.7
14	26.0	21.9	23.8	16.5	12.1	14.0	9.4	6.6	8.2	9.5	6.4	8.1
15	24.7	20.3	22.3	16.3	12.6	14.2	10.5	7.1	8.8	10.5	5.8	8.2
16	23.3	20.9	21.9	16.5	12.9	14.6	10.5	7.1	9.0	11.9	7.8	9.7
17	25.3	21.5	22.9	15.1	12.8	13.9	10.0	7.2	8.9	12.9	8.7	10.8
18	22.7	19.1	20.9	18.9	13.7	15.9	11.8	8.8	10.2	12.3	9.2	10.9
19	22.6	18.5	20.2	19.8	15.7	17.2	11.2	9.0	9.6	14.6	9.7	11.8
20	20.3	17.4	18.8	15.9	13.0	13.9	10.3	8.2	9.1	14.7	11.4	12.8
21	17.4	15.4	16.0	15.5	12.0	13.5	11.0	5.4	9.6	14.8	11.5	13.0
22	17.8	15.1	16.3	16.6	12.1	14.4	5.4	.4	1.9	12.5	7.9	9.4
23	18.9	15.6	17.2	17.4	14.1	15.6	2.7	.5	1.8	10.8	6.2	8.3
24	20.0	15.3	17.7	16.7	13.6	14.9	3.9	2.4	3.1	12.5	7.9	10.3
25	21.5	16.7	19.0	17.4	14.5	15.7	4.7	3.1	3.9	14.9	10.4	12.5
26	21.6	19.3	20.3	15.6	12.4	14.2	7.1	4.2	5.4	15.4	11.9	13.7
27	21.4	19.6	20.5	18.9	14.2	16.2	8.7	5.8	7.0	16.5	12.9	14.6
28	25.0	20.6	22.3	19.6	16.6	18.0	9.4	5.6	7.5	15.7	11.9	14.1
29	23.6	21.3	22.3	18.4	16.4	17.7	10.3	6.5	8.4	11.9	7.7	8.8
30	22.0	20.2	21.0	17.0	13.9	15.3	11.0	6.9	9.1	8.4	7.0	7.7
31	21.2	19.1	19.9	---	---	---	10.8	8.3	9.7	10.9	5.9	8.3
MONTH	30.1	15.1	21.5	19.8	9.3	14.3	17.5	.4	9.2	16.5	2.3	9.4

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.2	9.0	11.0	19.3	13.2	15.8	24.9	17.3	20.8	21.2	18.7	19.4
2	12.6	9.4	11.2	17.6	13.9	16.0	25.9	19.9	22.8	21.1	17.3	19.4
3	13.6	8.9	11.4	16.6	12.6	14.8	23.7	19.3	21.4	25.0	19.1	21.7
4	13.8	9.4	11.9	16.2	11.4	14.0	22.0	16.3	19.1	23.0	20.7	21.8
5	17.4	12.4	14.6	18.0	13.6	15.5	21.2	15.3	18.6	23.5	18.1	20.5
6	18.9	16.0	17.2	16.4	13.4	15.0	21.1	14.8	18.1	24.4	15.2	19.3
7	17.4	12.4	14.8	14.6	11.6	12.6	24.5	17.1	20.6	26.7	17.5	21.5
8	17.1	12.5	14.6	17.0	11.6	14.2	25.5	21.6	23.4	28.6	20.6	23.9
9	17.9	12.7	15.0	17.5	12.6	15.1	24.5	18.9	21.6	27.9	22.4	24.5
10	19.6	13.8	16.6	20.7	13.9	16.7	23.8	18.4	21.3	28.5	20.3	24.0
11	18.3	11.6	14.7	19.4	14.7	17.0	21.7	16.3	19.1	27.6	21.6	24.4
12	12.2	8.0	10.2	14.7	12.3	13.1	23.8	17.6	20.6	27.2	19.6	23.3
13	11.8	7.4	9.8	12.3	7.8	9.7	24.4	21.2	22.6	25.9	21.2	23.4
14	12.8	8.6	10.6	13.4	5.7	9.3	22.8	17.1	20.3	29.5	22.4	25.7
15	14.4	9.8	12.0	16.4	9.8	13.1	17.6	14.8	16.4	32.0	24.8	27.6
16	15.7	11.4	13.4	17.5	12.4	15.1	16.5	13.4	15.0	30.7	25.5	27.9
17	15.5	11.3	13.4	17.5	14.3	15.9	20.0	11.8	15.3	29.9	25.1	27.1
18	14.8	11.7	13.3	20.0	16.5	17.8	23.6	13.8	17.7	29.4	22.4	25.1
19	15.0	11.3	13.1	18.0	13.8	16.1	26.2	16.2	20.7	28.0	21.7	24.5
20	15.1	11.1	13.4	18.9	12.5	15.9	26.1	18.7	22.4	29.0	21.8	25.2
21	14.6	10.7	12.7	21.4	14.4	17.8	26.3	19.9	23.0	28.9	23.6	26.0
22	12.7	8.8	11.0	22.4	16.2	19.4	28.1	21.0	24.2	30.5	24.7	27.4
23	14.5	8.5	11.2	20.6	17.3	19.1	26.3	21.7	24.0	31.3	25.3	27.6
24	17.2	10.2	13.8	18.8	15.8	16.9	22.3	16.6	18.3	27.9	24.5	26.1
25	20.3	14.6	16.9	19.3	14.0	16.6	21.4	15.6	17.4	28.3	22.5	25.0
26	19.9	16.9	18.1	17.8	15.0	16.2	25.3	19.3	22.1	26.1	22.3	24.0
27	18.8	15.7	17.2	15.5	13.9	14.6	26.6	19.1	22.5	25.7	20.3	22.8
28	18.1	13.0	15.6	15.5	13.5	14.4	27.4	22.0	24.7	27.4	22.0	23.9
29	---	---	---	15.6	14.3	15.0	24.9	20.6	22.4	28.7	22.7	25.2
30	---	---	---	16.4	14.6	15.3	23.3	19.2	21.2	26.2	23.1	24.7
31	---	---	---	23.2	13.7	17.9	---	---	---	30.6	23.9	26.4
MONTH	20.3	7.4	13.5	23.2	5.7	15.4	28.1	11.8	20.6	32.0	15.2	24.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	31.3	24.6	27.5	33.4	25.9	29.4	30.7	25.9	28.2	---	---	---
2	29.8	25.6	27.6	32.4	26.1	29.1	31.2	27.2	28.7	---	---	---
3	28.9	23.8	26.2	31.4	25.2	28.1	31.9	25.9	28.3	---	---	---
4	29.6	23.3	26.3	30.6	24.8	27.5	30.7	26.1	28.8	---	---	---
5	26.6	23.7	24.8	29.9	25.0	27.5	31.4	27.1	29.0	29.6	27.3	28.3
6	29.1	23.6	25.5	32.1	25.7	28.6	33.3	27.0	30.0	29.4	26.0	27.3
7	30.7	23.0	26.5	33.4	26.4	29.7	33.9	26.5	30.0	31.0	26.0	28.5
8	31.2	23.8	27.6	33.3	26.9	30.0	33.9	27.8	30.4	---	---	---
9	30.9	24.5	27.3	33.7	27.3	30.4	33.7	28.1	30.5	31.5	28.1	29.3
10	30.7	23.7	26.9	30.9	23.4	26.2	33.4	28.4	30.8	30.6	25.6	27.9
11	30.5	23.5	27.0	30.0	23.6	26.2	32.9	28.3	30.5	30.6	24.8	27.5
12	27.7	19.4	24.8	30.1	24.5	26.9	33.6	26.9	29.8	29.1	24.1	26.5
13	25.5	18.6	22.1	28.1	25.3	26.3	33.4	27.8	29.9	25.5	21.2	22.8
14	24.5	20.7	22.6	29.8	24.9	27.1	32.6	27.8	29.9	26.3	22.2	24.0
15	22.6	20.5	21.4	31.5	26.5	28.7	32.1	27.7	29.7	27.2	22.6	24.6
16	25.0	22.1	23.4	31.3	25.3	27.9	31.4	27.6	29.2	26.2	22.7	24.2
17	25.2	22.7	23.8	31.7	25.2	28.1	32.9	26.9	29.2	27.0	21.0	23.8
18	25.9	23.1	24.5	31.0	25.8	28.3	33.3	27.1	29.7	27.4	21.9	24.5
19	28.9	24.3	26.2	31.8	25.6	28.6	32.9	28.3	30.6	28.8	21.9	25.0
20	29.7	25.0	26.9	32.7	26.4	29.4	---	---	---	27.2	23.4	25.3
21	26.9	24.5	25.5	31.6	25.9	28.7	---	---	---	24.5	19.5	21.5
22	28.5	24.1	25.9	31.8	25.3	28.4	---	---	---	23.3	18.7	21.0
23	30.4	25.4	27.6	33.1	25.9	29.3	---	---	---	24.9	19.0	21.5
24	29.6	26.5	27.7	33.4	25.7	29.1	---	---	---	26.8	20.3	22.7
25	32.9	26.1	29.1	33.4	26.5	29.7	---	---	---	27.9	22.1	24.5
26	33.4	27.8	30.3	33.3	26.7	29.6	---	---	---	28.8	22.9	25.4
27	33.6	27.2	30.1	32.8	27.2	29.8	---	---	---	29.2	23.4	26.1
28	34.7	27.8	30.7	32.6	26.9	29.7	---	---	---	26.6	20.0	23.8
29	33.1	28.9	30.6	33.3	26.7	29.9	---	---	---	22.1	16.9	19.3
30	33.3	27.0	29.9	33.6	27.5	30.5	---	---	---	22.7	16.8	19.4
31	---	---	---	33.4	27.9	29.7	---	---	---	---	---	---
MONTH	34.7	18.6	26.5	33.7	23.4	28.7	---	---	---	---	---	---

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08123950 E.V. SPENCE RESERVOIR NEAR ROBERT LEE, TX

LOCATION.--Lat 31°52'46", long 100°31'01", Coke County, Hydrologic Unit 12080008, in outlet works of Robert Lee Dam on the Colorado River, 2.2 mi west of Robert Lee, and at mile 716.0.

DRAINAGE AREA.--15,278 mi^2, approximately, of which 10,260 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Dec 1968 to current year.
Water-quality records.--Chemical data: Nov 1969 to Aug 1988. Biochemical data: Jan 1978 to Aug 1988.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Jun 24, 1969, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily contents, which are fair. The reservoir is formed by a rolled earthfill dam 21,500 ft long. Closure was made Dec 30, 1968, and dam was completed in Jun 1969. The dam is the property of the Colorado River Municipal Water District, which has a permit to divert 50,000 acre-ft annually for municipal, mining, and industrial uses. Inflow into the reservoir is partially regulated by Lake J.B. Thomas (station 08118000), Lake Colorado City (station 08123000), and Champion Creek Reservoir (station 08123600). There are two spillways: The controlled service spillway is a morning-glory type that is partially controlled by 12 lift gates, 14.48 by 22.0 ft, and discharges through a 28.0-foot-diameter concrete conduit. The uncontrolled spillway is a 3,200-foot-wide cut through natural ground near the right end of dam. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,928.0
Crest of spillway	1,908.0
Top of gates	1,900.0
Top of conservation pool	1,898.0
Crest of spillway	1,878.0
Lowest gated outlet (invert)	1,815.85

COOPERATION.--Capacity table dated Mar 1972 was furnished by the Colorado River Municipal Water District. Records of diversions can be obtained from the city of San Angelo and from the Colorado River Municipal Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 355,300 acre-ft, Jun 16, 1987 (elevation, 1,887.03 ft); minimum contents after initial filling, 66,750 acre-ft, Sep 30, 1999 (elevation, 1845.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 79,660 acre-ft, Oct 1 (elevation, 1,849.19 ft); minimum contents, 64,610 acre-ft, Jun 12 (elevation, 1,845.06 ft).

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

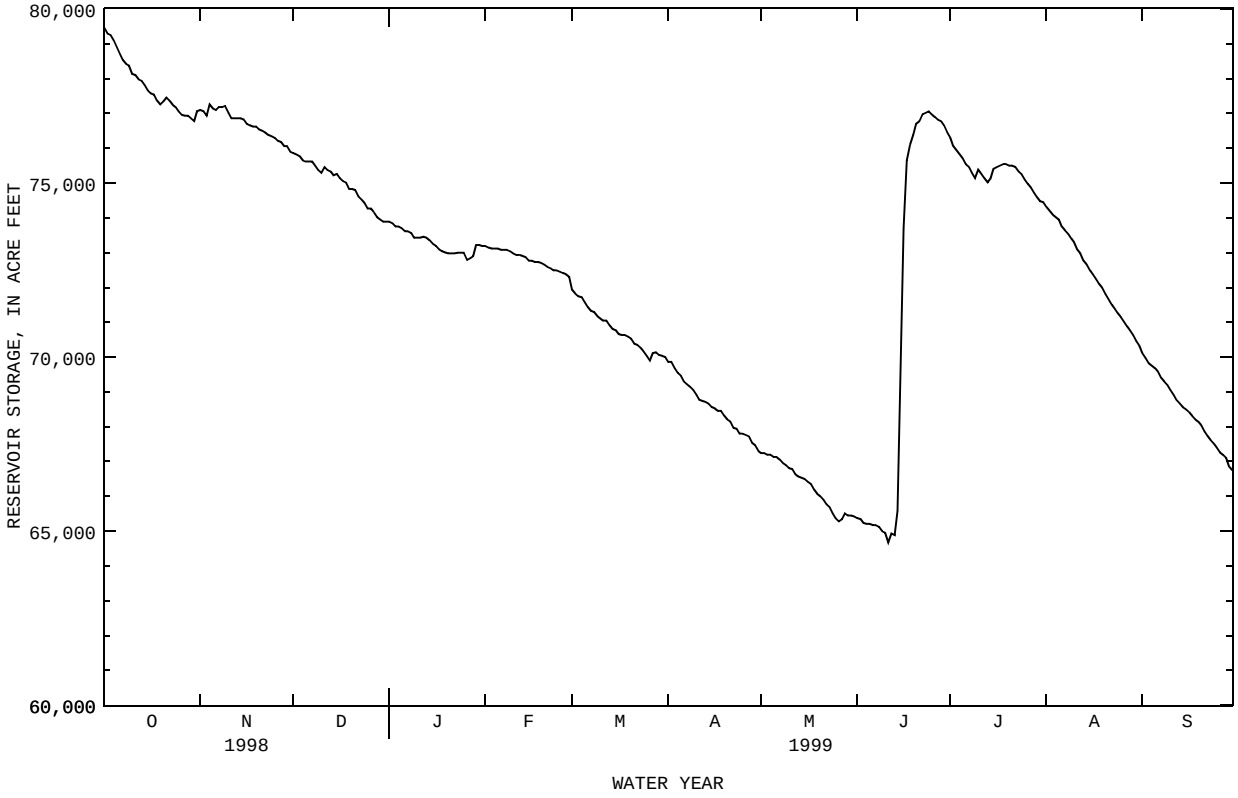
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79460	77100	75860	73890	73190	71930	69860	67240	65380	76300	74310	70110
2	79300	77060	75820	73850	73150	71820	69860	67240	65350	76060	74200	69970
3	79260	76940	75780	73750	73120	71750	69690	67200	65240	75940	74100	69830
4	79100	77260	75660	73750	73120	71720	69550	67200	65210	75820	74030	69760
5	78900	77140	75620	73710	73120	71580	69480	67130	65210	75700	73960	69690
6	78700	77100	75620	73610	73080	71430	69300	67130	65170	75540	73750	69580
7	78540	77180	75620	73610	73080	71330	69230	67060	65170	75460	73640	69410
8	78420	77180	75500	73570	73080	71300	69160	66960	65130	75300	73540	69300
9	78380	77220	75380	73430	73050	71190	69060	66890	65000	75140	73400	69200
10	78140	77020	75300	73430	72980	71120	68920	66810	64960	75380	73290	69060
11	78100	76860	75460	73430	72940	71050	68780	66780	64680	75260	73080	68920
12	77980	76860	75380	73460	72940	71050	68740	66640	64930	75140	72980	68780
13	77940	76860	75340	73430	72910	70910	68710	66570	64890	75020	72770	68670
14	77820	76860	75220	73360	72870	70810	68670	66540	65590	75140	72660	68570
15	77660	76820	75260	73260	72770	70770	68570	66500	68670	75420	72490	68500
16	77580	76700	75140	e73200	72770	70660	68530	66430	73710	75460	72380	68430
17	77540	76660	75060	e73100	72730	70630	68460	66360	75660	75500	72240	68320
18	77380	76620	75020	73040	72730	70630	68460	66190	76100	75540	72100	68220
19	77260	76620	74830	73010	72700	70590	68320	66080	76380	75540	72000	68150
20	77340	76540	74830	72980	72660	70530	68220	66010	76700	75500	71820	68040
21	77460	76500	74800	72980	72590	70390	68150	65910	76780	75500	71680	67870
22	77380	76460	74620	72980	72560	70350	67970	65770	76980	75460	71510	67730
23	77260	76380	74520	e73000	72490	70280	67940	65700	77020	75340	71400	67620
24	77180	76340	74410	e73000	72490	70170	67800	65520	77060	75260	71260	67520
25	77060	76300	74270	e73000	72450	70040	67800	65380	76980	75100	71160	67410
26	76960	76220	74270	72800	72420	69900	67760	65280	76900	74980	71020	67270
27	76940	76180	74170	72840	72380	70110	67730	65350	76820	74870	70880	67200
28	76940	76060	74030	72910	72310	70140	67550	65520	76780	74730	70770	67100
29	76860	76060	73960	73220	---	70070	67480	65450	76660	74590	70630	66850
30	76780	75900	73890	73220	---	70040	67310	65450	76460	74480	70460	66750
31	77060	---	73890	73190	---	70000	---	65420	---	74450	70320	---
MAX	79460	77260	75860	73890	73190	71930	69860	67240	77060	76300	74310	70110
MIN	76780	75900	73890	72800	72310	69900	67310	65280	64680	74450	70320	66750
(+)	1848.54	1848.25	1847.71	1847.51	1847.26	1846.60	1845.83	1845.29	1848.39	1847.87	1846.69	1845.67
(@)	-2520	-1160	-2010	-700	-880	-2310	-2690	-1890	+11040	-2010	-4130	-3570

CAL YR 1998 MAX 124500 MIN 73890 (@) -50610
WTR YR 1999 MAX 79460 MIN 64680 (@) -12830

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

e Estimated

08123950 E.V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued



08124000 COLORADO RIVER AT ROBERT LEE, TX

LOCATION.--Lat 31°53'07", long 100°28'49", Coke County, Hydrologic Unit 12080008, on left bank 190 ft upstream from bridge on State Highway 208 in Robert Lee, 0.4 mi upstream from Mountain Creek, 2.7 mi downstream from Messbox Creek, 3.6 mi downstream from Robert Lee Dam, and at mile 712.4.

DRAINAGE AREA.--15,307 mi^2, of which 10,260 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1923 to Dec 1927, Apr 1939 to May 1956, Oct 1968 to current year. Prior to Dec 1927, published as "near Robert Lee".
Water-quality records.--Chemical data: Oct 1947 to Sep 1957.

REVISED RECORDS.--WSP 1723: 1925(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,771.70 ft above sea level. Prior to Dec 31, 1927, nonrecording gage at site 9 mi downstream at different datum. Apr 18 to Sep 26, 1939, nonrecording gage, and Sep 27, 1939 to May 9, 1956, water-stage recorder at site 200 ft downstream at same datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Beginning Apr 1949, flow was affected by Lake Colorado City (station 08123000, normal storage 31,640 acre-ft) and since Jul 1952, at least 10% of contributing drainage area has been regulated by Lake J.B. Thomas (station 08118000, normal storage 204,000 acre-ft). Since Dec 1968, flow completely regulated by E.V. Spence Reservoir (station 08123950, normal storage 488,760 acre-ft) 3.6 mi upstream. There are many diversions above station for municipal, mining, agricultural, and industrial uses. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--16 years (water years 1925-27, 1940-52) prior to completion of Lake J.B. Thomas, 220 ft^3/s (159,100 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-27, 1940-52).--Maximum discharge, 32,500 ft^3/s Sep 6, 1926 (gage height, 20.20 ft, site and datum then in use), from rating curve extended above 15,000 ft^3/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 26.7 ft Oct 13, 1957, from floodmarks. Flood in Apr 1922 reached a stage of 25.5 ft, present datum, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	10	11	.07	11	8.8	11	11	11	17	18
2	15	9.4	10	11	.07	18	15	11	11	11	17	18
3	15	9.9	10	11	.06	17	14	11	11	11	17	18
4	15	14	10	12	.05	2.8	14	11	11	11	19	18
5	15	11	10	12	.05	.69	13	9.8	11	11	21	18
6	15	11	9.7	12	.05	15	11	9.9	11	11	21	19
7	16	11	9.0	12	.05	20	11	9.8	12	11	20	18
8	15	11	9.2	10	.04	19	12	9.9	11	11	20	18
9	15	10	9.5	11	.04	18	11	10	11	11	19	18
10	15	10	11	12	.05	19	12	10	11	11	19	18
11	15	10	11	9.4	.04	20	11	9.6	11	12	18	17
12	15	10	10	1.6	.05	20	12	9.5	13	11	16	17
13	15	11	9.6	.70	.12	20	12	10	12	12	16	18
14	15	10	9.7	e.30	.16	21	14	10	12	12	16	18
15	15	10	9.6	e.30	.19	18	11	11	12	13	16	18
16	16	9.9	8.4	e.25	.19	16	11	10	12	12	16	18
17	16	10	8.4	e.25	.19	17	12	10	12	11	16	19
18	15	10	9.5	e.25	.18	18	11	10	12	11	16	19
19	15	10	9.6	e.25	.19	15	11	10	12	12	19	19
20	16	10	9.9	e.25	.19	14	10	10	14	11	19	19
21	15	11	9.8	e.25	.20	14	11	10	12	12	19	18
22	12	11	9.5	e.25	.21	14	10	10	13	12	19	19
23	11	11	9.8	e.25	.20	14	11	10	13	12	19	19
24	11	10	9.9	e.25	.21	14	11	10	12	12	19	19
25	11	11	10	e.20	.21	14	11	10	11	12	19	19
26	11	11	9.5	.20	.21	14	12	10	11	11	18	19
27	12	11	9.9	.15	.88	18	10	11	11	11	18	19
28	12	11	10	.10	7.3	14	10	13	11	11	18	19
29	12	11	10	.24	---	13	11	16	11	11	18	19
30	11	10	11	.15	---	13	11	11	11	11	18	19
31	12	---	11	.09	---	12	---	11	---	16	18	---
TOTAL	434	321.2	304.5	129.68	11.45	473.49	344.8	325.5	349	358	561	552
MEAN	14.0	10.7	9.82	4.18	.41	15.3	11.5	10.5	11.6	11.5	18.1	18.4
MAX	16	15	11	12	7.3	21	15	16	14	16	21	19
MIN	11	9.4	8.4	.09	.04	.69	8.8	9.5	11	11	16	17
AC-FT	861	637	604	257	23	939	684	646	692	710	1110	1090

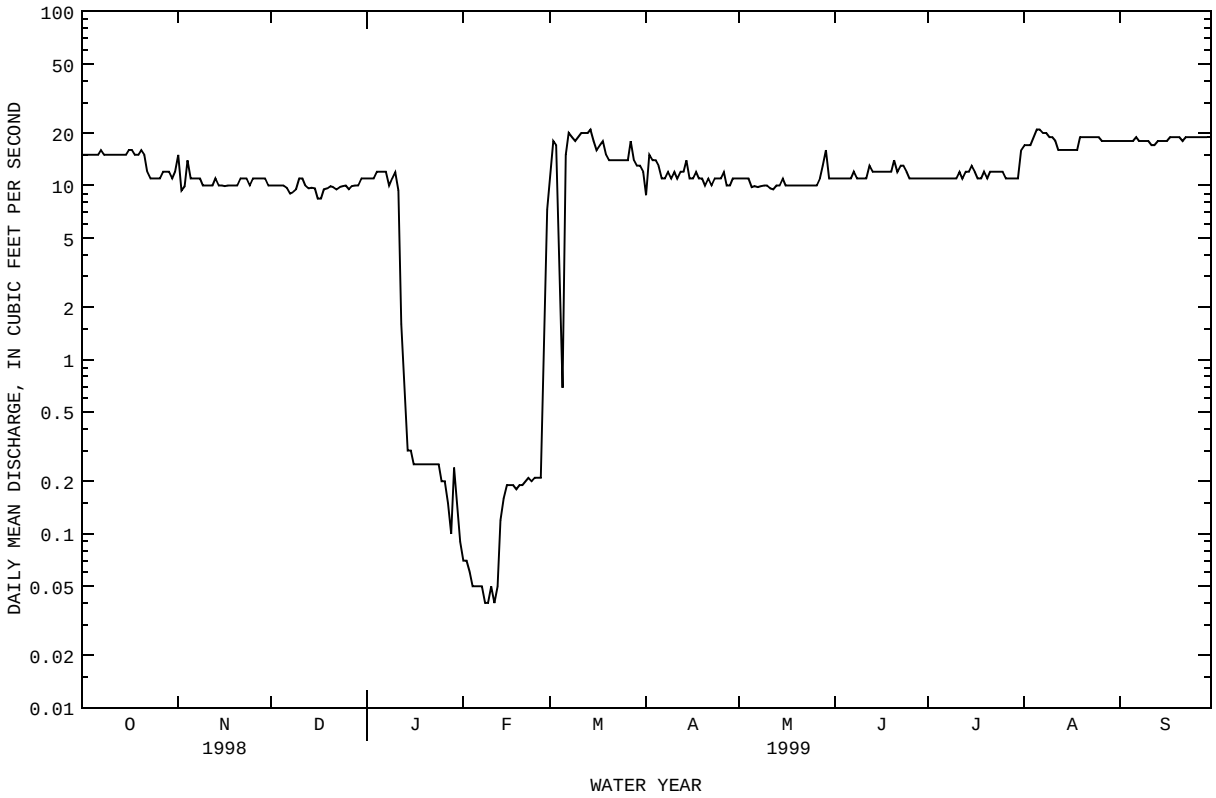
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1999hz, BY WATER YEAR (WY)

MEAN	38.8	10.3	2.47	1.89	4.78	9.66	29.5	96.4	40.6	43.6	54.0	34.8
MAX	578	219	15.0	11.8	102	250	714	1540	473	495	578	438
(WY)	1987	1987	1998	1997	1998	1998	1954	1954	1989	1988	1953	1986
MIN	.000	.000	.000	.000	.000	.000	.000	.011	.000	.000	.000	.000
(WY)	1955	1955	1955	1953	1953	1956	1956	1971	1980	1970	1954	1954

08124000 COLORADO RIVER AT ROBERT LEE, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1953 - 1999hz	
ANNUAL TOTAL	15097.4		4164.62			
ANNUAL MEAN	41.4		11.4		30.4	
HIGHEST ANNUAL MEAN					237	1954
LOWEST ANNUAL MEAN					1.04	1969
HIGHEST DAILY MEAN	471	Feb 24	21	Mar 14	13400	May 12 1954
LOWEST DAILY MEAN	1.4	Jan 29	.04	Feb 8	.00	Oct 4 1952
ANNUAL SEVEN-DAY MINIMUM	7.9	Jan 24	.05	Feb 5	.00	Oct 4 1952
INSTANTANEOUS PEAK FLOW			27	Mar 27	24500	Sep 9 1980
INSTANTANEOUS PEAK STAGE			1.98	Mar 27	20.63	Sep 9 1980
ANNUAL RUNOFF (AC-FT)	29950		8260		22010	
10 PERCENT EXCEEDS	22		18		15	
50 PERCENT EXCEEDS	14		11		.69	
90 PERCENT EXCEEDS	10		.25		.00	

e Estimated
h See PERIOD OF RECORD paragraph.
z Period of regulated streamflow.



08125500 OAK CREEK RESERVOIR NEAR BLACKWELL, TX

LOCATION.--Lat 32°03'25", long 100°17'37", Coke County, Hydrologic Unit 12080008, on left bank at municipal pump station, 1.9 mi upstream from dam on Oak Creek, 2.5 mi southeast of Blackwell, 14 mi north of Bronte, and 20 mi upstream from mouth.

DRAINAGE AREA.--238 mi^2.

PERIOD OF RECORD.--May 1953 to Sep 1983, Mar 1999 to Sep 1999.
Water-quality records.--Chemical data: Apr 1964 to Jan 1967 and Nov 1970 to Apr 1983.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. May 1953 to Sep 1983, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records good. The reservoir is formed by a rolled earthfill dam 3,800 ft long. The dam was completed in May 1952, and deliberate impoundment began May 12, 1953. The uncontrolled emergency spillway is an 800-foot-wide cut through natural ground, located 1,200 ft from right end of dam. The service spillway is an uncontrolled cut channel through natural ground 300 ft wide, located 2,000 ft from right end of dam. The reservoir and dam are the property of city of Sweetwater. The dam was built to impound water for municipal and industrial uses by the cities of Sweetwater, Blackwell, and Bronte. Since Apr 1962, West Texas Utilities Company has operated a steam generating power plant located on the reservoir. There is a gated outlet at the service spillway that can release water downstream to Oak Creek through a 24-inch concrete pipe. The capacity curve is based on a 1950 topographic survey. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	2,014.0
Crest of spillway	2,005.0
Crest of spillway (top of conservation pool)	2,000.0
Lowest gated outlet (invert)	1,951.0

COOPERATION.--Capacity table dated Nov 9, 1953 prepared from curve furnished by city of Sweetwater.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 49,100 acre-ft, Oct 13, 1957 (elevation, 2,003.80 ft); minimum observed, 6,050 acre-ft, Sep 6-8, 1980 (elevation, 1,974.5 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,780 acre-ft, Mar 27 (elevation, 1,990.17 ft); minimum contents, 15,750 acre-ft, Sep 30 (elevation, 1,986.28 ft).

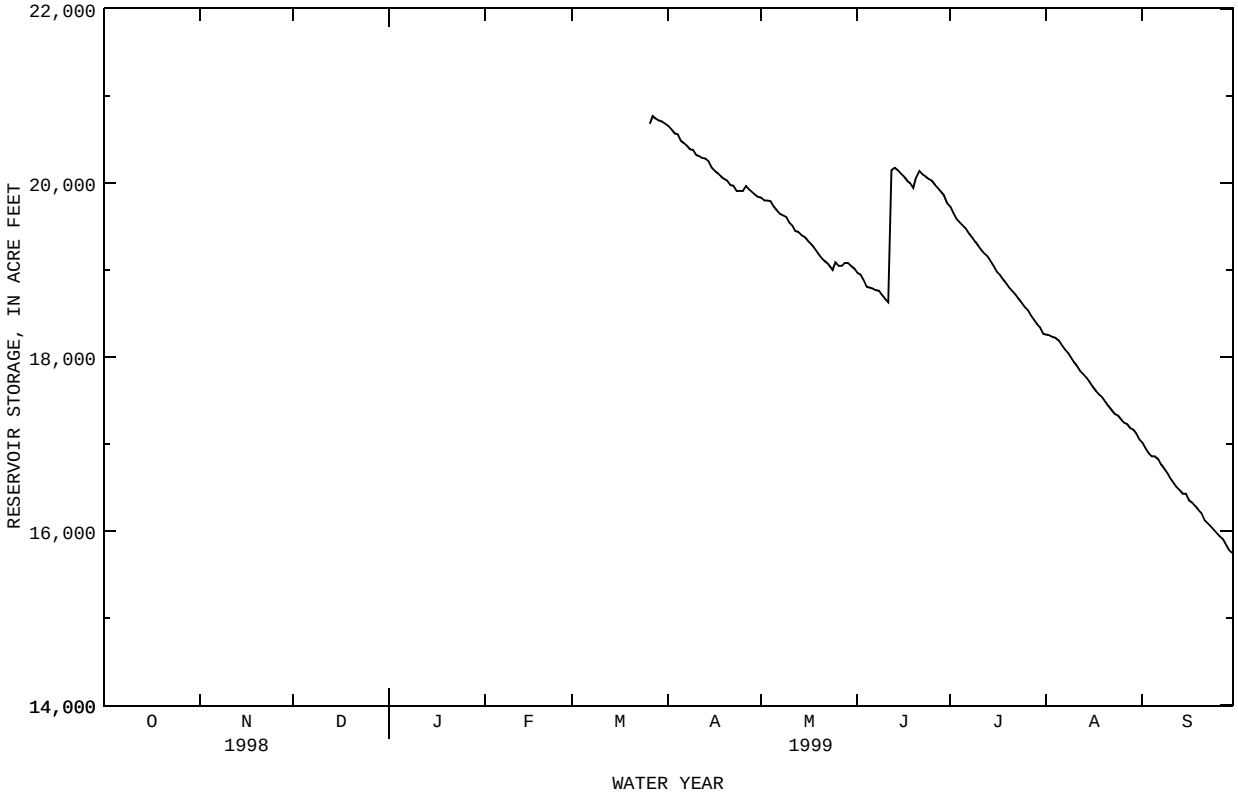
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	20660	19830	18970	19730	18260	17020
2	---	---	---	---	---	---	20620	19800	18950	19660	18250	16950
3	---	---	---	---	---	---	20570	19800	18890	19590	18230	16900
4	---	---	---	---	---	---	20560	19790	18810	19550	18220	16860
5	---	---	---	---	---	---	20490	19730	18800	19510	18190	16860
6	---	---	---	---	---	---	20460	19690	18790	19480	18140	16830
7	---	---	---	---	---	---	20430	19650	18770	19420	18090	16770
8	---	---	---	---	---	---	20390	19630	18760	19380	18050	16720
9	---	---	---	---	---	---	20380	19610	18710	19330	17990	16670
10	---	---	---	---	---	---	20320	19550	18670	19280	17940	16610
11	---	---	---	---	---	---	20310	19510	18630	19230	17890	16560
12	---	---	---	---	---	---	20290	19450	20150	19190	17840	16510
13	---	---	---	---	---	---	20280	19440	20180	19160	17800	16470
14	---	---	---	---	---	---	20250	19400	20150	19100	17760	16430
15	---	---	---	---	---	---	20180	19380	20110	19050	17710	16430
16	---	---	---	---	---	---	20140	19340	20080	18980	17660	16360
17	---	---	---	---	---	---	20110	19300	20030	18950	17610	16330
18	---	---	---	---	---	---	20080	19260	20000	18890	17570	16290
19	---	---	---	---	---	---	20050	19210	19940	18850	17540	16250
20	---	---	---	---	---	---	20030	19160	20070	18800	17490	16210
21	---	---	---	---	---	---	19980	19120	20140	18760	17440	16130
22	---	---	---	---	---	---	19970	19090	20100	18720	17390	16090
23	---	---	---	---	---	---	19910	19050	20080	18670	17350	16060
24	---	---	---	---	---	---	19910	19000	20050	18630	17330	16020
25	---	---	---	---	---	---	19910	19090	20030	18580	17290	15980
26	---	---	---	---	---	20680	19970	19050	19980	18540	17250	15940
27	---	---	---	---	---	20770	19930	19050	19940	18480	17230	15910
28	---	---	---	---	---	20740	19900	19080	19900	18430	17190	15840
29	---	---	---	---	---	20720	19870	19080	19860	18380	17170	15780
30	---	---	---	---	---	20710	19840	19050	19770	18340	17120	15750
31	---	---	---	---	---	20680	---	19020	---	18270	17050	---
MAX	---	---	---	---	---	---	20660	19830	20180	19730	18260	17020
MIN	---	---	---	---	---	---	19840	19000	18630	18270	17050	15750
(+)							1989.51	1988.92	1989.46	1988.35	1987.39	1986.28
(@)							-840	-820	+750	-1500	-1220	-1300

WTR YR 1999 MAX 20770 MIN 15750

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

08125500 OAK CREEK RESERVOIR NEAR BLACKWELL, TX--Continued



08126380 COLORADO RIVER NEAR BALLINGER, TX

LOCATION.--Lat 31°42'55", long 100°01'34", Runnels County, Hydrologic Unit 12090101, at left downstream end of bridge on Farm Road 2111, 0.4 mi upstream from Rocky Creek, 5.0 mi northwest of Ballinger, and at mile 665.8.

DRAINAGE AREA.--16,358 mi^2, approximately, of which 10,260 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jun 1907 to Sep 1979 (published as "at Ballinger", station 08126500) and Oct 1979 to current year. Monthly discharge only for some periods published in WSP 1312. Gage-height records collected in this vicinity from 1903-29 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1118: Drainage area. WSP 1512: 1916-17, 1919-20, 1921(M), 1922-25, 1928(M), 1930(M). WSP 1712: 1935, 1954-55(M). WDR TX-78-3: 1975-77.

GAGE.--Water-stage recorder. Datum of gage is 1,606.51 ft above sea level. Prior to Nov 29, 1930, nonrecording gages at several sites and at various datums near site 5.4 mi downstream. Nov 29, 1930, to May 1, 1975, water-stage recorder at site 6.2 mi downstream and May 1, 1975,08117995.1999.sw.plt.raw to Sep 30, 1979, water-stage recorder at site 5.4 mi downstream, both at datum 12.77 ft lower. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since water year 1980 at least 10% of contributing drainage area has been regulated by E.V. Spence Reservoir (station 08123950, normal storage 488,760 acre-ft). Many diversions upstream from station for irrigation, municipal supplies, and for oil field operations. Flow is also affected by Oak Creek Reservoir (station 08125500), and at times by discharge from the floodwater-retarding structures in the Kickapoo and Valley Creeks drainage basins.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--61 years (water years 1908-68) prior to completion of E.V. Spence Reservoir, 336 ft^3/s (243,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1908-68).--Maximum discharge, 75,400 ft^3/s Sep 18, 1936 (gage height, 28.6 ft, at former site and datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 36 ft sometime in 1884, at former site and datum, from information by local residents. Flood of Aug 6, 1906, reached a stage of about 32.0 ft, at former site and datum, from floodmarks (backwater from Elm Creek).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	126	16	15	16	4.6	19	21	23	8.5	6.8	6.3
2	13	123	16	14	12	4.0	17	24	17	8.0	5.4	9.1
3	8.9	47	17	14	8.9	2.4	16	33	14	7.5	4.5	9.0
4	9.8	26	17	14	7.4	3.2	14	26	13	7.5	3.1	9.0
5	9.9	23	16	14	6.4	3.2	12	20	13	8.4	8.4	8.7
6	17	25	16	12	6.3	3.7	13	19	13	8.3	7.6	6.8
7	13	22	15	12	5.9	11	13	19	29	6.3	7.5	8.3
8	8.2	19	15	13	5.7	12	14	18	55	6.7	12	7.1
9	9.7	17	15	13	5.6	8.6	12	17	25	4.2	11	7.7
10	9.3	16	16	13	5.5	15	11	17	15	7.3	8.6	5.0
11	9.2	16	17	12	5.5	19	13	17	12	10	8.7	5.6
12	10	16	17	9.6	4.7	21	13	17	16	13	4.8	9.3
13	10	16	18	12	5.1	22	13	17	82	9.6	6.7	10
14	11	16	17	12	5.2	20	67	16	65	9.0	5.9	8.8
15	10	17	17	12	5.1	19	60	18	24	13	4.4	11
16	11	17	16	10	5.0	20	30	17	15	10	5.1	13
17	13	16	15	8.6	5.0	20	19	17	12	6.9	3.8	16
18	12	16	17	7.4	5.1	24	16	14	11	6.5	4.0	13
19	11	17	16	7.0	5.0	19	14	16	11	5.5	4.7	14
20	13	16	16	6.1	5.2	16	13	13	13	3.9	8.5	14
21	16	16	16	5.5	5.0	14	12	13	14	3.0	8.2	14
22	17	15	15	5.3	5.0	14	12	14	16	7.7	8.4	15
23	16	14	15	5.1	4.9	16	12	14	17	10	10	15
24	16	15	15	5.2	5.0	16	12	13	14	7.8	11	15
25	15	16	15	5.1	5.0	15	13	14	12	6.2	10	15
26	14	16	16	4.5	5.0	13	296	20	12	5.4	11	16
27	14	16	16	5.3	5.0	20	152	27	11	4.4	9.3	15
28	14	16	16	5.6	4.6	84	63	18	11	4.3	7.1	15
29	15	16	15	80	---	67	32	21	9.8	4.0	6.2	15
30	15	16	15	67	---	36	22	23	9.1	3.4	5.5	15
31	15	---	14	27	---	24	---	36	---	6.3	5.4	---
TOTAL	392.0	763	493	446.3	170.1	586.7	1025	589	603.9	222.6	223.6	341.7
MEAN	12.6	25.4	15.9	14.4	6.08	18.9	34.2	19.0	20.1	7.18	7.21	11.4
MAX	17	126	18	80	16	84	296	36	82	13	12	16
MIN	8.2	14	14	4.5	4.6	2.4	11	13	9.1	3.0	3.1	5.0
AC-FT	778	1510	978	885	337	1160	2030	1170	1200	442	444	678

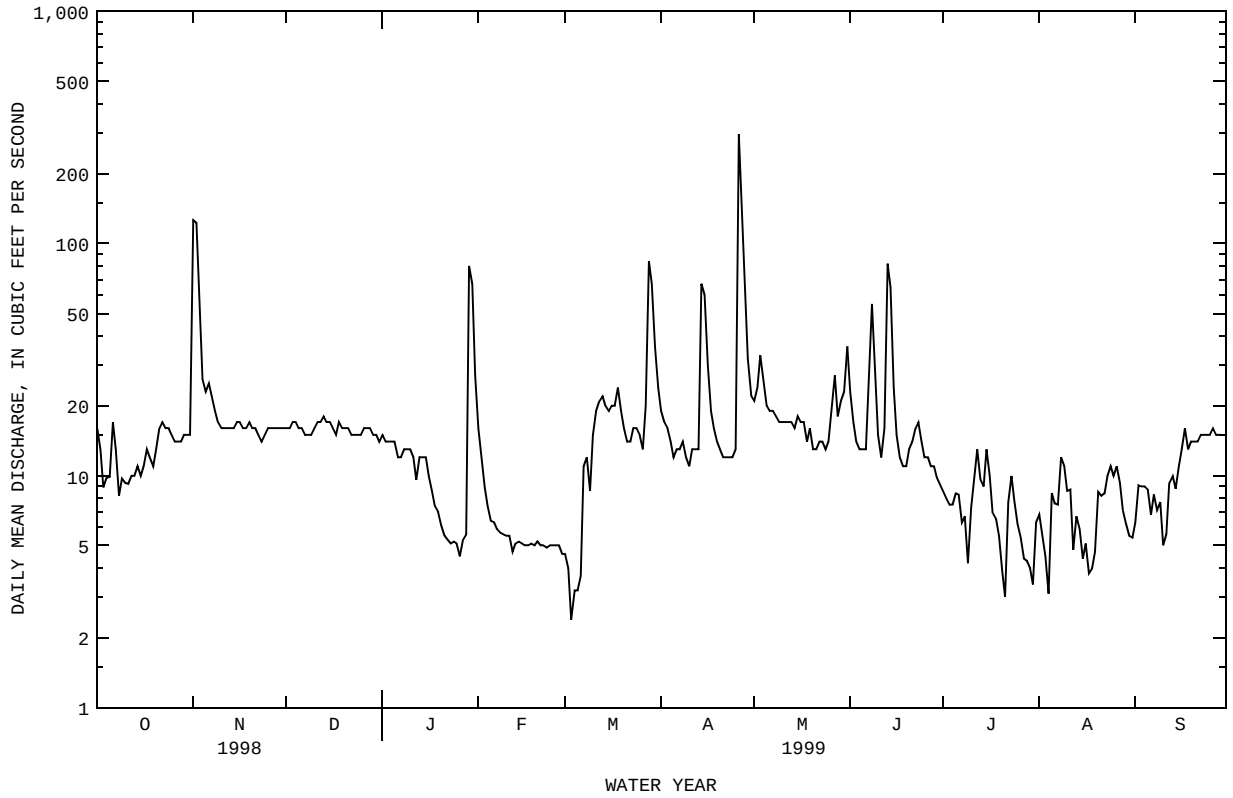
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999z, BY WATER YEAR (WY)

MEAN	99.4	40.8	33.1	28.3	57.2	48.7	41.5	91.9	129	51.3	97.0	127
MAX	1194	374	259	159	756	299	161	427	739	455	639	833
(WY)	1987	1987	1992	1992	1992	1987	1996	1996	1982	1987	1987	1986
MIN	.78	.82	2.33	2.48	1.52	.67	.47	1.07	1.13	.000	.000	.23
(WY)	1980	1980	1984	1986	1984	1980	1980	1971	1974	1984	1984	1983

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999z	
ANNUAL TOTAL	18317.1		5856.9			
ANNUAL MEAN	50.2		16.0		70.4	
HIGHEST ANNUAL MEAN					405	1987
LOWEST ANNUAL MEAN					7.18	1984
HIGHEST DAILY MEAN	682	Jun 10	296	Apr 26	9220	Aug 28 1986
LOWEST DAILY MEAN	3.4	May 15	2.4	Mar 3	.00	Mar 20 1971
ANNUAL SEVEN-DAY MINIMUM	5.9	May 10	3.7	Feb 28	.00	Mar 20 1971
INSTANTANEOUS PEAK FLOW			607	Apr 26	g16600	Aug 3 1978
INSTANTANEOUS PEAK STAGE			7.17	Apr 26	27.50	Sep 21 1990
ANNUAL RUNOFF (AC-FT)	36330		11620		50990	
10 PERCENT EXCEEDS	53		22		120	
50 PERCENT EXCEEDS	17		13		14	
90 PERCENT EXCEEDS	11		5.1		1.2	

z Period of regulated streamflow.
g At site and datum then in use.



08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Sep 1961 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct 1961 to Sep 1997 (local observer).
WATER TEMPERATURE: Oct 1961 to Sep 1997 (local observer).
SUSPENDED SEDIMENT DISCHARGE: Jan 1978 to Sep 1981 (local observer).

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed for previous years using daily (or continuous) records of specific conductance and regression relations between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,500 microsiemens, May 3, 1963; minimum daily, 244 microsiemens, Sep 9, 1980.
WATER TEMPERATURE: Maximum daily, 39.0°C, Jul 3, 1977; minimum daily, 0.0°C, Jan 9-11, 1973.
SEDIMENT CONCENTRATION: Maximum daily mean, 3,740 mg/L, Sep 9 1980; minimum daily mean, 4 mg/L, Feb 2, 1980.
SEDIMENT LOADS: Maximum daily, 94,100 tons Aug 3, 1978; minimum daily, 0 tons on many days during 1978 and 1980-81.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT									
02...	1245	14	4030	27.5	980	860	210	108	506
JAN									
27...	1200	5.5	4880	13.5	1500	1300	350	147	556
APR									
26...	1000	572	2900	19.7	640	530	140	70	362
27...	1030	141	583	20.6	160	92	43	14	48
JUN									
24...	1215	13	1930	26.5	480	350	120	45	200
SEP									
03...	1330	10	6450	28.2	1500	1400	310	174	860

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT								
02...	7	16	120	830	800	.56	11	2560
JAN								
27...	6	14	160	1300	900	.59	8.0	3370
APR								
26...	6	12	110	500	600	.47	1.1	1750
27...	2	5.9	71	89	73	.23	5.1	321
JUN								
24...	4	9.1	130	360	320	.47	8.0	1140
SEP								
03...	10	31	130	1300	1400	.80	11	4180

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08127000 ELM CREEK AT BALLINGER, TX

LOCATION.--Lat 31°44'57", long 99°56'51", Runnels County, Hydrologic Unit 12090101, on right bank 1,000 ft upstream from storage dam at Ballinger and 1.9 mi upstream from mouth.

DRAINAGE AREA.--450 mi^2, of which 63.5 mi^2 is above Lake Winters Dam.

PERIOD OF RECORD.--Apr 1932 to current year.
Water-quality records.--Chemical data: Sep 1958, Mar 1964 to Aug 1991. Specific conductance: Oct 1967 to Sep 1991. Water temperature: Oct 1967 to Sep 1991.

REVISED RECORDS.--WSP 1442: 1935, 1946, 1954. WDR TX-81-3: Drainage area. WDR TX-96-3.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,617.72 ft above sea level. Satellite telemeter at station.

REMARKS.--Records good except those below 10 ft^3/s, which are fair. The stage-discharge relation during periods of low flow are affected by wind action and by occasional accumulation of drift on dam. Since water year 1983 at least 10% of contributing drainage area has been regulated by New Lake Winters (normal storage, 8,370 acre-ft) The city of Winters diverts water from New Lake Winters for municipal use. Prior to Jun 1982, capacity of Old Lake Winters (just upstream from new dam) was 3,060 acre-ft.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--50 years (water years 1933-82) prior to completion of New Lake Winters, 47.6 ft^3/s (34,490 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1933-82).--Maximum discharge, 50,000 ft^3/s Oct 13, 1957 (gage height, 14.20 ft, from floodmark); no flow at times. Highest stage not affected by backwater from the Colorado River since at least 1904, was that of Oct 13, 1957, from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in Aug 1906 reached a stage of 14.5 ft, affected by backwater from Colorado River.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	16	.38	9.1	2.4	.58	.40	.00	.00
2	.00	.00	.00	.00	8.5	.41	6.6	8.1	.38	.18	.00	.00
3	.00	.00	.00	.00	5.0	.27	4.1	14	.23	.07	.00	.00
4	.00	.00	.00	.00	2.3	.22	2.3	8.0	.12	.03	.00	.00
5	.00	.00	.00	.00	1.3	.23	2.3	4.3	.06	.01	.00	.00
6	.00	.00	.00	.00	1.0	.19	1.3	2.0	.05	.00	.00	.00
7	.00	.00	.00	.00	.87	.17	1.0	1.2	113	.00	.00	.00
8	.00	.00	.00	.00	.76	.29	1.1	.95	34	.00	.00	.00
9	.00	.00	.00	.00	.69	.34	.88	.82	12	.00	.00	.00
10	.00	.00	.00	.00	.65	.46	.78	.83	4.5	.00	.00	.00
11	.00	.00	.00	.00	.61	1.1	.64	.84	1.4	5.5	.00	.00
12	.00	.00	.00	.00	.35	2.2	.60	.77	1.8	2.7	.00	.00
13	.00	.00	.00	.00	.30	1.4	1.0	.60	1.3	.89	.00	.00
14	.00	.00	.00	.00	.28	1.1	28	.51	25	.55	.00	.00
15	.00	.00	.00	.00	.28	2.9	9.0	.43	15	.29	.00	.00
16	.00	.00	.00	.00	.31	2.4	5.0	.36	7.8	.12	.00	.00
17	.00	.00	.00	.00	.32	1.6	2.5	.30	3.7	.04	.00	.00
18	.00	.00	.00	.00	.52	7.2	1.5	.18	1.8	.01	.00	.00
19	.00	.00	.00	.00	.62	8.0	1.2	.09	.96	.00	.00	.00
20	.00	.00	.00	.00	.71	5.1	.88	.04	.90	.00	.00	.00
21	.00	.00	.00	.00	.59	2.8	.84	.03	.99	.00	.00	.00
22	.00	.00	.00	.00	.47	1.9	.75	.01	1.0	.00	.00	.00
23	.00	.00	.00	.00	.45	1.5	.72	.00	.87	.00	.00	.00
24	.00	.00	.00	.00	.41	1.1	.64	.00	.77	.00	.00	.00
25	.00	.00	.00	.00	.45	.94	.78	.00	.78	.00	.00	.00
26	.00	.00	.00	.00	.48	.78	194	4.7	48	.00	.00	.00
27	.00	.00	.00	.00	.51	3.6	27	8.6	14	.00	.00	.00
28	.00	.00	.00	.00	.41	11	12	5.8	6.0	.00	.00	.00
29	.00	.00	.00	.00	---	24	5.8	2.8	2.1	.00	.00	.00
30	.00	.00	.00	9.2	---	17	3.2	1.0	.75	.00	.00	.00
31	.00	---	.00	26	---	13	---	.78	---	.00	.00	---
TOTAL	0.00	0.00	0.00	35.20	45.14	113.58	325.51	70.44	299.84	10.79	0.00	0.00
MEAN	.000	.000	.000	1.14	1.61	3.66	10.9	2.27	9.99	.35	.000	.000
MAX	.00	.00	.00	26	16	24	194	14	113	5.5	.00	.00
MIN	.00	.00	.00	.00	.28	.17	.60	.00	.05	.00	.00	.00
AC-FT	.00	.00	.00	70	90	225	646	140	595	21	.00	.00
CFSM	.00	.00	.00	.00	.00	.01	.02	.01	.02	.00	.00	.00
IN.	.00	.00	.00	.00	.00	.01	.03	.01	.02	.00	.00	.00

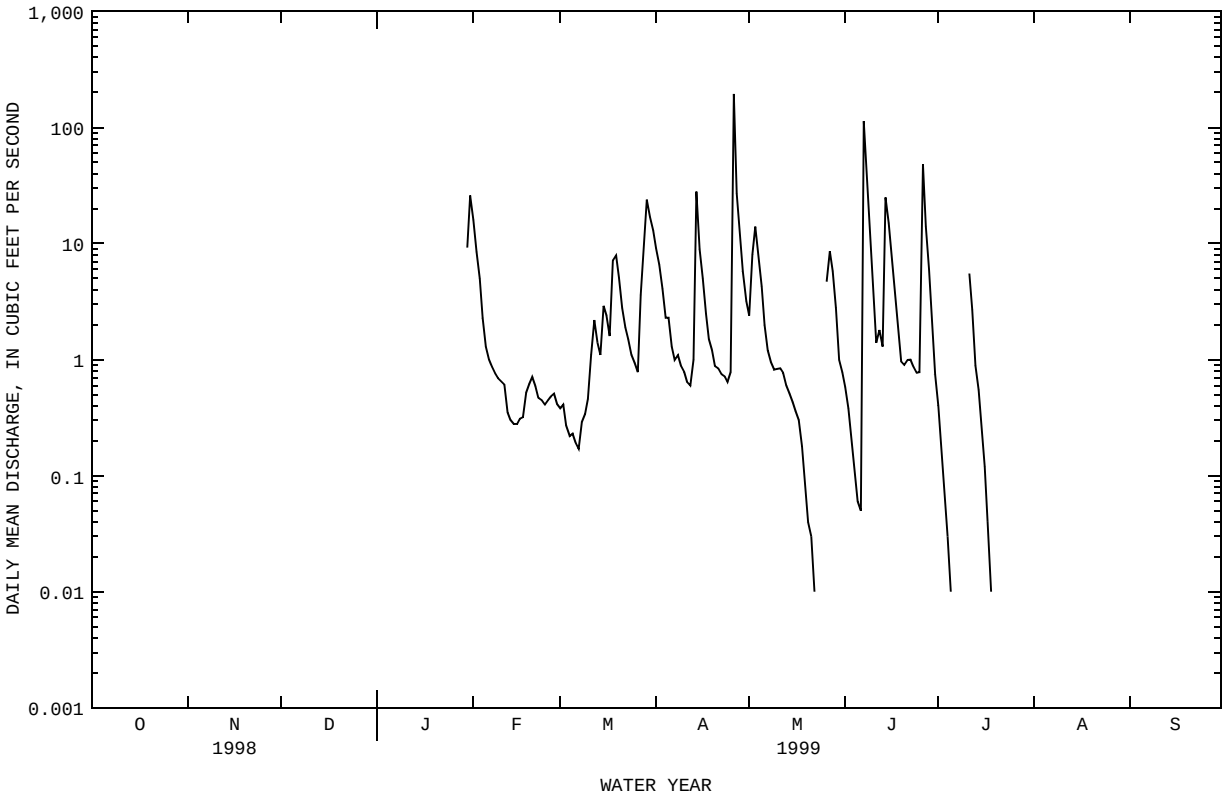
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999z, BY WATER YEAR (WY)

MEAN	25.3	14.4	46.0	20.6	73.5	38.1	21.1	78.9	118	7.67	12.2	63.4
MAX	165	59.7	576	164	911	268	76.4	655	770	42.5	90.1	760
(WY)	1987	1987	1992	1992	1992	1992	1992	1994	1997	1997	1995	1996
MIN	.000	.000	.000	.42	.85	.39	.17	.000	1.07	.000	.000	.000
(WY)	1984	1989	1999	1986	1984	1986	1986	1984	1984	1984	1983	1983

08127000 ELM CREEK AT BALLINGER, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999z	
ANNUAL TOTAL	2527.48		900.50			
ANNUAL MEAN	6.92		2.47		42.9	
HIGHEST ANNUAL MEAN					188	1992
LOWEST ANNUAL MEAN					.96	1984
HIGHEST DAILY MEAN	432	May 27	194	Apr 26	12400	Sep 15 1996
LOWEST DAILY MEAN	.00	Jul 3	.00	Oct 1	.00	Jul 20 1983
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 15	.00	Oct 1	.00	Jul 20 1983
INSTANTANEOUS PEAK FLOW			676	Apr 26	16700	Jun 23 1997
INSTANTANEOUS PEAK STAGE			4.56	Apr 26	9.06	Jun 23 1997
ANNUAL RUNOFF (AC-FT)	5010		1790		31090	
ANNUAL RUNOFF (CFSM)	.015		.005		.095	
ANNUAL RUNOFF (INCHES)	.21		.07		1.30	
10 PERCENT EXCEEDS	14		4.8		61	
50 PERCENT EXCEEDS	.16		.00		2.7	
90 PERCENT EXCEEDS	.00		.00		.00	

z Period of regulated streamflow.



08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°11'13", long 100°30'06", Tom Green County, Hydrologic Unit 12090102, on left upstream side of U.S. Highway 277 bridge, 9.5 mi upstream from Twin Buttes Dam, and 23.7 mi upstream from mouth.

DRAINAGE AREA.--413 mi^2, of which 58.6 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Feb 1930 to Sep 1995 (daily mean discharge). Oct 1995 to current year (peak discharges greater than base discharge).

REVISED RECORDS.--WSP 1118: 1943(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,010.22 ft above sea level. Prior to Jul 17, 1930, nonrecording gage at same site and datum. Jul 17, 1930, to Nov 15, 1977, water-stage recorder at same site and datum. Nov 16, 1977, to May 5, 1987, water-stage recorder at site 160 ft downstream at same datum. Satellite telemeter at station.

REMARKS.--Records good. No known regulation. Low flow is affected by diversions to the South Concho Irrigation Company canal 800 ft upstream from station.

AVERAGE DISCHARGE.--65 years (water years 1931-95), 31.4 ft^3/s (22,770 acre-ft/year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft^3/s Jul 23, 1938 (gage height, 21.95 ft, from floodmark), from rating curve extended above 15,100 ft^3/s on basis of slope-area measurement of 80,100 ft^3/s; prior to Oct 1, 1995, no flow Feb 28 and Mar 1, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1882, about 23 ft Aug 6, 1906 (discharge, 115,000 ft^3/s), from rating curve extended as noted above, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

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08128400 MIDDLE CONCHO RIVER ABOVE TANKERSLEY, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°25'38", long 100°42'39", Irion County, Hydrologic Unit 12090103, on left bank 0.3 mi upstream from East Rocky Creek, 0.5 mi southwest of Tullos Ranch Headquarters, 6.7 mi northwest of Tankersley, and 20.9 mi upstream from mouth.

DRAINAGE AREA.--2,084 mi^2, of which 968 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Mar 1961 to Sep 1995 (daily mean discharge). Oct 1995 to current year (peak discharges greater than base discharge).
Water-quality records.--Chemical data: Aug 1964 to Apr 1965.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,986.47 ft above sea level. Satellite telemeter at station.

REMARKS.--Records good. No known regulation or diversions.

AVERAGE DISCHARGE.--34 years (water years 1962-95), 16.7 ft^3/s (12,060 acre-ft/year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft^3/s Sep 21, 1974 (gage height, 24.98 ft); prior to Oct 1, 1995, no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 29.5 ft Sep 26, 1936. A flood in 1900 reached the same stage, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 24	2300	4,300	a15.38	Jun 23	1515	3,980	15.00
Jun 6	2345	643	9.65				

a From floodmark.

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08129300 SPRING CREEK ABOVE TANKERSLEY, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°19'48", long 100°38'24", Tom Green County, Hydrologic Unit 12090102, on right bank at downstream side of bridge on Farm Road 2335, 1.4 mi south of Tankersley, 2.5 mi upstream from Dove Creek, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--425 mi^2, of which 19.7 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1960 to Sep 1995 (daily mean discharge). Oct 1995 to current year (peak discharges greater than base discharge).
Water-quality records.--Chemical data: Sep 1964 to May 1967.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,964.72 ft above sea level. Prior to Nov 10, 1960, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. There are many small diversions above station for irrigation.

AVERAGE DISCHARGE.--35 years (water years 1961-95), 13.1 ft^3/s (9,490 acre-ft/year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft^3/s Aug 12, 1971 (gage height, 16.57 ft); prior to Oct 1, 1995, no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Notable floods since at least 1853 occurred in 1882 and 1884. Flood of Oct 3, 1959, reached a stage of 18.4 ft, from floodmarks. At former gage near Tankersley 8 mi downstream, the flood of Oct 3, 1959, had a discharge of 82,100 ft^3/s and was found to be about 3 ft lower than the 1882 flood, the greatest at that location since at least 1853.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 26	1500	664	5.74	No other peak greater than base discharge.			

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08130500 DOVE CREEK AT KNICKERBOCKER, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°16'26", long 100°37'50", Tom Green County, Hydrologic Unit 12090102, on left downstream end of bridge on Farm Road 2335, 0.5 mi west of Knickerbocker, and 5.7 mi upstream from mouth.

DRAINAGE AREA.--226 mi^2, of which 8.4 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1960 to Sep 1995 (daily mean discharge). Oct 1995 to current year (peak discharges greater than base discharge).

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,001.45 ft above sea level. Prior to Nov 10, 1960, nonrecording gage, Nov 10, 1960 to Mar 17, 1986, water-stage recorder, both at site 278 ft to the right at present datum. Satellite telemeter at station.

REMARKS.--Records good. No known regulation. Flow is affected by diversions from two small upstream channel dams, and by small upstream diversions (for irrigation). Flow is sustained by springflow from Dove Creek Spring about 9 mi upstream.

AVERAGE DISCHARGE.--35 years (water years 1961-95), 16.2 ft^3/s (11,740 acre-ft/year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft^3/s Aug 12, 1971 (gage height, 20.66 ft); prior to Oct 1, 1995, no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 30.4 ft in 1906 and Oct 3, 1959; floods in 1882 and 1884 reached about the same stage, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 26	1000	1,340	9.93	No other peak greater than base discharge.			

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08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

LOCATION.--Lat 31°22'55", long 100°32'17", Tom Green County, Hydrologic Unit 12090102, in outlet control tower at Twin Buttes Dam on Middle Concho River, Spring Creek, and South Concho River, 3.8 mi upstream from Lake Nasworthy Dam, 8.1 mi southwest of San Angelo, and 75.0 mi upstream from mouth.

DRAINAGE AREA.--3,868 mi^2, of which 1,055 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1962 to current year.
Water-quality records.--Chemical data: May 1965 to Nov 1966 and Jul 1970 to Apr 1984.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder on Middle Concho-Spring Creek pool and nonrecording gage on South Concho pool. Datum of gage is sea level. Satellite telemeter at station.

REMARKS.--Records good except those for estimated combined daily contents, which are fair. The South Concho and Middle Concho-Spring Creek pools were not equalized. The reservoir is formed by a rolled earthfill dam 8.1 mi long, including a 200-foot-wide uncontrolled off-channel concrete gravity spillway with ogee weir section. Outlet works consist of three 15.5-foot concrete conduits, each controlled by a 12.0- by 15.0-foot fixed-wheel gate and a 12.0- by 15.0-foot radial gate, located in the Middle Concho-Spring Creek pool. Low-flow releases are made through 2.0- by 2.0-foot gates located in the center of three fixed-wheel gates. The South Concho and Middle Concho-Spring Creek pools are connected by a 3.22-mile equalizing channel. At an elevation of 1,926.5 ft, the two pools join to form one lake. Below elevation 1,926.5 ft, daily contents are obtained from capacity tables for South Concho and Middle Concho-Spring Creek pools and summed to obtain combined daily contents. Lake level elevations below 1,926.5 ft represent Middle Concho-Spring Creek pool only. Deliberate impoundment of water began on Dec 1, 1962; dam was completed Feb 13, 1963. In Jun 1999, construction of a cutoff wall to stop seepage was completed. Capacity curve is based on a survey made in 1958. Reservoir was built for flood control, irrigation, and municipal uses. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,991.0
Crest of spillway	1,969.1
Top of conservation storage	1,940.2
Bottom of equalizing channel (Middle Concho-Spring Creek pool)	1,926.5
Dead storage in South Concho pool	1,926.5
Lowest gated outlet (invert at Middle Concho-Spring Creek pool)	1,885.0

COOPERATION.--Capacity curve dated Mar 1964 furnished by the U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 205,200 acre-ft, May 12, 1975 (elevation, 1,942.20 ft); minimum since first appreciable storage, 2,120 acre-ft, Apr 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum combined daily contents, 28,470 acre-ft, Jun 27; minimum combined daily, 18,080 acre-ft, Sep 30.

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

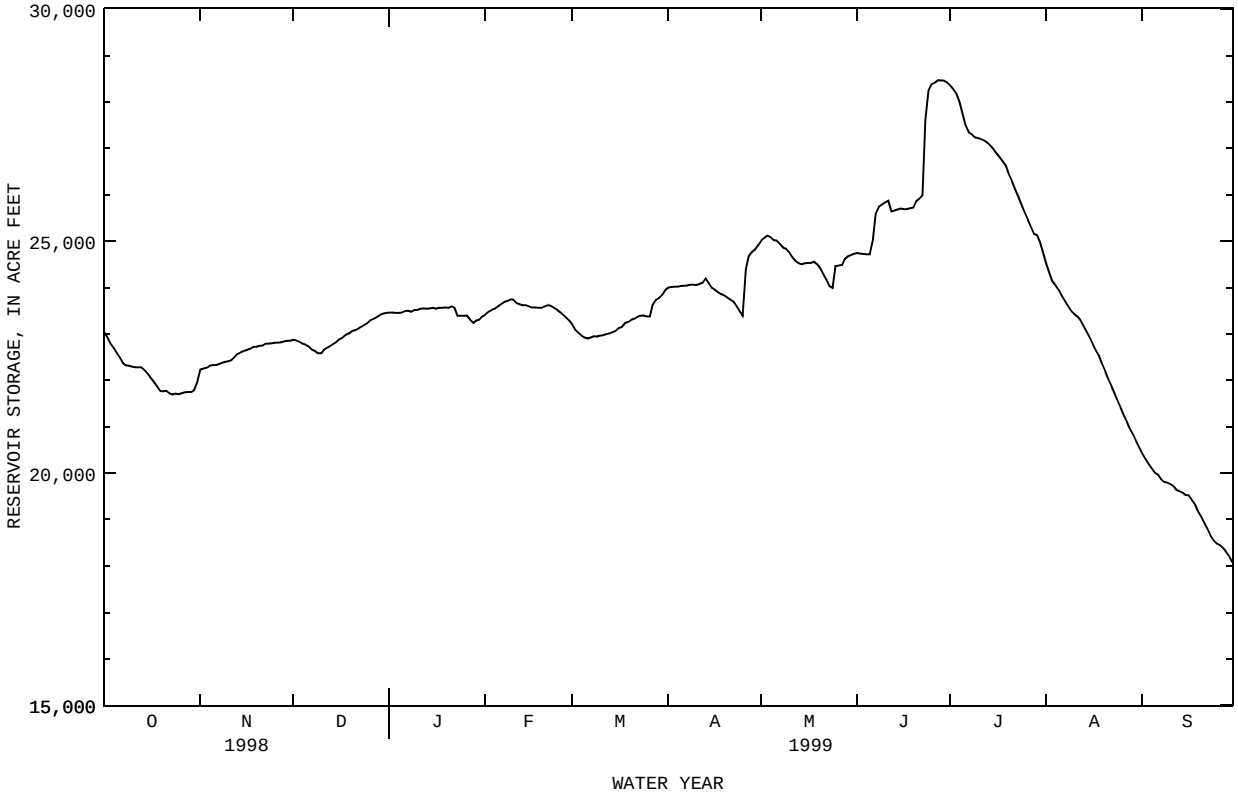
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23040	22230	22870	23460	23420	23200	24000	25010	24740	28350	24510	20420
2	22920	22250	22860	23460	23480	23090	24010	25070	24730	28270	24300	20300
3	22800	22270	22830	23450	23520	23030	24020	25120	24720	28180	24130	20200
4	22700	22310	22790	23450	23540	22960	e24020	25090	24710	27990	24040	20110
5	22590	22330	22770	23460	23600	22920	e24030	25020	24710	27730	23940	20010
6	22490	22330	22730	23490	23650	22900	e24040	25010	25030	27490	23820	19970
7	22380	22350	22660	23500	23690	22920	e24040	24940	25600	27340	23710	19870
8	22320	22380	22630	23480	23710	22950	24060	24860	25750	27300	23600	19810
9	22310	22400	22580	23510	23740	22940	24060	24830	25800	27230	23490	19800
10	22290	22410	22580	23510	23740	22960	e24050	24760	25840	27220	23430	19770
11	22280	22430	22670	23540	23670	22970	e24070	24650	25870	27200	23380	19720
12	22280	22500	22710	23550	23640	23000	e24100	24580	25640	27170	23300	19640
13	22280	22570	22750	23540	23620	23010	24200	24530	25660	27120	23170	19610
14	22220	22600	22790	23550	23620	23040	24100	24500	25680	27050	23050	19580
15	22140	22630	22840	23560	23600	23070	24000	24520	25700	26980	22910	19530
16	22050	22650	22890	23540	23570	23120	23960	24530	25690	26880	22780	19520
17	21960	22680	22930	23560	23570	23150	23900	24530	25690	26800	22640	19420
18	21880	22720	22980	23560	23560	23230	23860	24560	25710	26700	22520	19320
19	21770	22720	23010	23570	23560	23260	23830	24510	25720	26620	22350	19180
20	21760	22740	23070	23560	23590	23300	23790	24420	25860	26420	22200	19060
21	21780	22750	23080	23600	23620	23330	23740	24290	25910	26280	22030	18920
22	21720	22790	23120	23570	23610	23370	23700	24160	25980	26110	21870	18790
23	21690	22790	23160	23390	23570	23390	23600	24030	27610	25950	21720	18650
24	21710	22800	23200	23390	23530	23400	23490	23990	28260	25790	21550	18550
25	21700	22810	23240	23390	23470	23380	23390	24460	28380	25620	21410	18490
26	21720	22810	23300	23400	23420	23380	24390	24470	28420	25470	21250	18450
27	21740	22820	23330	23310	23360	23640	24680	24490	28470	25290	21100	18390
28	21750	22840	23370	23240	23290	23740	24770	24620	28460	25160	20960	18300
29	21750	22850	23410	23290	---	23770	24820	24670	28460	25130	20830	18210
30	21790	22850	23440	23310	---	23840	24920	24700	28420	24980	20680	18080
31	21950	---	23450	23380	---	23950	---	24730	---	24740	20540	---
MAX	23040	22850	23450	23600	23740	23950	24920	25120	28470	28350	24510	20420
MIN	21690	22230	22580	23240	23290	22900	23390	23990	24710	24740	20540	18080
(+)	1898.68	1899.10	1899.47	1899.73	1899.83	1900.38	1901.10	1901.02	1903.48	1901.23	1898.24	1896.36
(@)	-1210	+900	+600	-70	-90	+660	+970	-190	+3690	-3680	-4200	-2460

CAL YR 1998 MAX 46430 MIN 21690 (@) -20180
WTR YR 1999 MAX 28470 MIN 18080 (@) -5080

(+) Elevation, in feet, at end of month of Middle Concho and Spring Creek pool.
(@) Change in combined contents, in acre-feet.

e Estimated

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX--Continued



08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX

LOCATION.--Lat 31°23'19", long 100°28'41", Tom Green County, Hydrologic Unit 12090102, on left bank 250 ft upstream from Nasworthy Dam on South Concho River, 3.8 mi downstream from Twin Buttes Dam, 6.0 mi southwest of San Angelo, and 68.9 mi upstream from mouth.

DRAINAGE AREA.--3,975 mi^2, of which 3,868 mi^2 is above Twin Buttes Reservoir and 1,055 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Mar 1930 to current year. Prior to Oct 1969, end of month contents only.
Water-quality records.--Chemical data: Mar 1964 to May 1965 and Nov 1969 to Apr 1984.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Oct 1, 1996, datum was 1,840.00 ft. Satellite telemeter at station.

REMARKS.--Records fair. The lake is formed by a 6,090-foot dam with a 5,590-foot earthen section that has an earthen spillway 300 ft long, a concrete spillway 475 ft long with a bank of fifteen 25.0- by 18.0-foot tainter gates, and a 25.0- by 3.0-foot collapsible floodgate. The dam was completed and storage began Mar 28, 1930. Since Jul 1966, West Texas Utilities Co. has operated a steam generating powerplant on the lake. Since Sep 1962, the lake has been almost totally controlled by releases or pumpage from Twin Buttes Reservoir (station 08131200). Siltation surveys in Dec 1938 and May 1953 by the National Resource Conservation Service (formerly the Soil Conservation Service) show that 1,191 acre-ft of silt was deposited from Mar 1930 to Dec 1938 and an additional 1,023 acre-ft was deposited from Dec 1938 to May 1953, totaling 2,214 acre-ft. Water is used for part of San Angelo municipal supply and for irrigation east of San Angelo. The capacity curve is based on a survey by the Texas Water Development Board in Aug and Sep 1993 and has been used since Oct 1995. The city of San Angelo is in the process of planning and securing necessary permits to dredge Lake Nasworthy in the near future. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,883.5
Crest of spillway (300 ft)	1,879.1
Top of gates	1,873.2
Top of collapsible floodgate	1,872.2
Lowest outlet to canal (invert)	1,867.5
Crest of spillway (tainter gates sill)	1,855.3
Lowest gated outlet (invert)	1,836.0

COOPERATION.--Capacity curve dated Dec 2, 1993, furnished by city of San Angelo.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 26,900 acre-ft, Sep 15, 1936 (elevation, 1,878.36 ft); minimum, 209 acre-ft, Aug 22, 1964 (elevation, 1,853.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,490 acre-ft, Jun 8 (elevation, 1,871.83 ft); minimum contents, 8,520 acre-ft, Sep 21-22 (elevation, 1,871.05 ft).

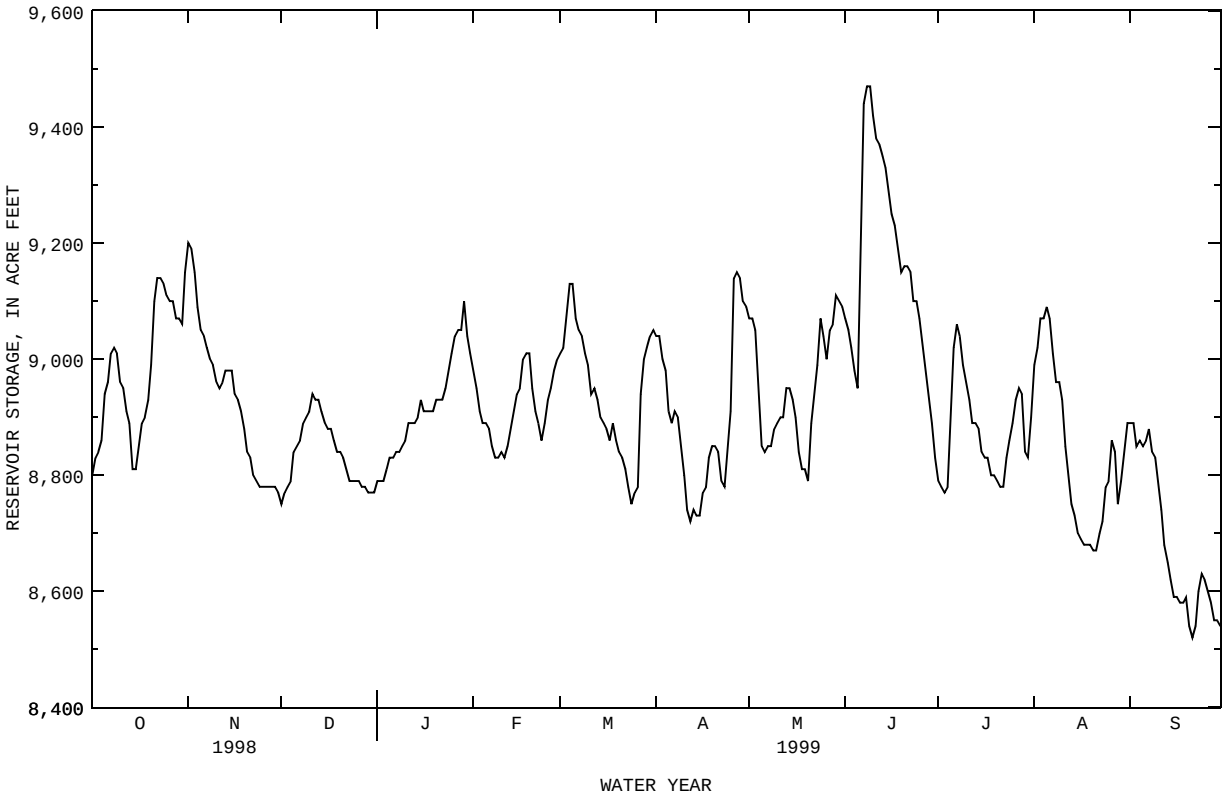
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8800	9200	8750	8790	8980	9010	9040	9070	9070	8790	8990	8890
2	8830	9190	8770	8790	8950	9020	9040	9070	9050	8780	9020	8890
3	8840	9150	8780	8790	8910	9070	9000	9050	9020	8770	9070	8850
4	8860	9090	8790	8810	8890	9130	8980	8960	8980	8780	9070	8860
5	8940	9050	8840	8830	8890	9130	8910	8850	8950	8910	9090	8850
6	8960	9040	8850	8830	8880	9070	8890	8840	9250	9020	9070	8860
7	9010	9020	8860	8840	8850	9050	8910	8850	9440	9060	9010	8880
8	9020	9000	8890	8840	8830	9040	8900	8850	9470	9040	8960	8840
9	9010	8990	8900	8850	8830	9010	8850	8880	9470	8990	8960	8830
10	8960	8960	8910	8860	8840	8990	8800	8890	9420	8960	8930	8790
11	8950	8950	8940	8890	8830	8940	8740	8900	9380	8930	8850	8740
12	8910	8960	8930	8890	8850	8950	8720	8900	9370	8890	8800	8680
13	8890	8980	8930	8890	8880	8930	8740	8950	9350	8890	8750	8650
14	8810	8980	8910	8900	8910	8900	8730	8950	9330	8880	8730	8620
15	8810	8980	8890	8930	8940	8890	8730	8930	9290	8840	8700	8590
16	8850	8940	8880	8910	8950	8880	8770	8900	9250	8830	8690	8590
17	8890	8930	8880	8910	9000	8860	8780	8840	9230	8830	8680	8580
18	8900	8910	8860	8910	9010	8890	8830	8810	9190	8800	8680	8580
19	8930	8880	8840	8910	9010	8860	8850	8810	9150	8800	8680	8590
20	8990	8840	8840	8930	8950	8840	8850	8790	9160	8790	8670	8540
21	9100	8830	8830	8930	8910	8830	8840	8890	9160	8780	8670	8520
22	9140	8800	8810	8930	8890	8810	8790	8940	9150	8780	8700	8540
23	9140	8790	8790	8950	8860	8780	8780	8990	9100	8830	8720	8600
24	9130	8780	8790	8980	8890	8750	8840	9070	9100	8860	8780	8630
25	9110	8780	8790	9010	8930	8770	8910	9040	9070	8890	8790	8620
26	9100	8780	8790	9040	8950	8780	9140	9000	9020	8930	8860	8600
27	9100	8780	8780	9050	8980	8940	9150	9050	8980	8950	8840	8580
28	9070	8780	8780	9050	9000	9000	9140	9060	8930	8940	8750	8550
29	9070	8780	8770	9100	---	9020	9100	9110	8890	8840	8790	8550
30	9060	8770	8770	9040	---	9040	9090	9100	8830	8830	8840	8540
31	9150	---	8770	9010	---	9050	---	9090	---	8900	8890	---
MAX	9150	9200	8940	9100	9010	9130	9150	9110	9470	9060	9090	8890
MIN	8800	8770	8750	8790	8830	8750	8720	8790	8830	8770	8670	8520
(+)	1871.56	1871.25	1871.25	1871.45	1871.44	1871.48	1871.51	1871.51	1871.30	1871.36	1871.35	1871.07
(@)	+360	-380	0	+240	-10	+50	+40	0	-260	+70	-10	-350

CAL YR 1998 MAX 9230 MIN 8650 (@) -130
WTR YR 1999 MAX 9470 MIN 8520 (@) -250

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX--Continued



08133500 NORTH CONCHO RIVER AT STERLING CITY, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°49'48", long 100°59'36", Sterling County, Hydrologic Unit 12090104, on right bank 100 ft upstream from bridge on State Highway 163, 0.5 mi south of Sterling City, 4.0 mi upstream from Sterling Creek, 5.1 mi downstream from Lacy Creek, and at mile 57.2.

DRAINAGE AREA.--588 mi^2, of which 19.6 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1939 to Sep 1985 (daily mean discharge), Oct 1985 to Sep 1995 (daily discharges greater than 100 ft^3/s), Oct 1995 to current year (peak discharges greater than base discharge).

REVISED RECORDS.--WSP 1512: 1945, 1948. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,242.36 ft above sea level. Prior to Dec 6, 1939, nonrecording gage at same site and datum. Satellite telemeter at station.

AVERAGE DISCHARGE.--46 years (water years 1940-85), 7.80 ft^3/s (5,650 acre-ft/year).

REMARKS.--Records good. No known regulation. There are several small diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft^3/s Jul 6, 1948 (gage height, 23.70 ft); prior to Oct 1, 1985, no flow at times each year. Maximum stage since at least 1891, that of Jul 6, 1948.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

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08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX
(Hydrologic index station)

LOCATION.--Lat 31°35'33", long 100°38'12", Tom Green County, Hydrologic Unit 12090104, near left bank at downstream side of bridge on county road, 0.6 mi southeast of Carlsbad, 1.5 mi upstream from Mule Creek, 2.5 mi upstream from Grape Creek, 16.2 mi upstream from O.C. Fisher Dam, and 21.3 mi upstream from mouth.

DRAINAGE AREA.--1,266 mi^2, of which 75.1 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Mar 1924 to current year.
Water-quality records.--Chemical data: Apr 1980 to Jul 1982. Biochemical data: Apr 1980 to Jul 1982.

REVISED RECORDS.--WSP 1512: 1924(M), 1925, 1926(M), 1928, 1930, 1932(M), 1935, 1937-38(M), 1941(M), 1945(M), 1947-49(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,968.02 ft above sea level. Prior to Feb 4, 1925, and Sep 27, 1936, to Feb 7, 1937, nonrecording gage; Feb 4, 1925, to Sep 26, 1936, and Feb 8, 1937, to Nov 6, 1955, water-stage recorder, all at site 2.5 mi upstream at datum 32.76 ft higher. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. There are several diversions (by pumping) upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since Jun 1853, that of Sep 26, 1936.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

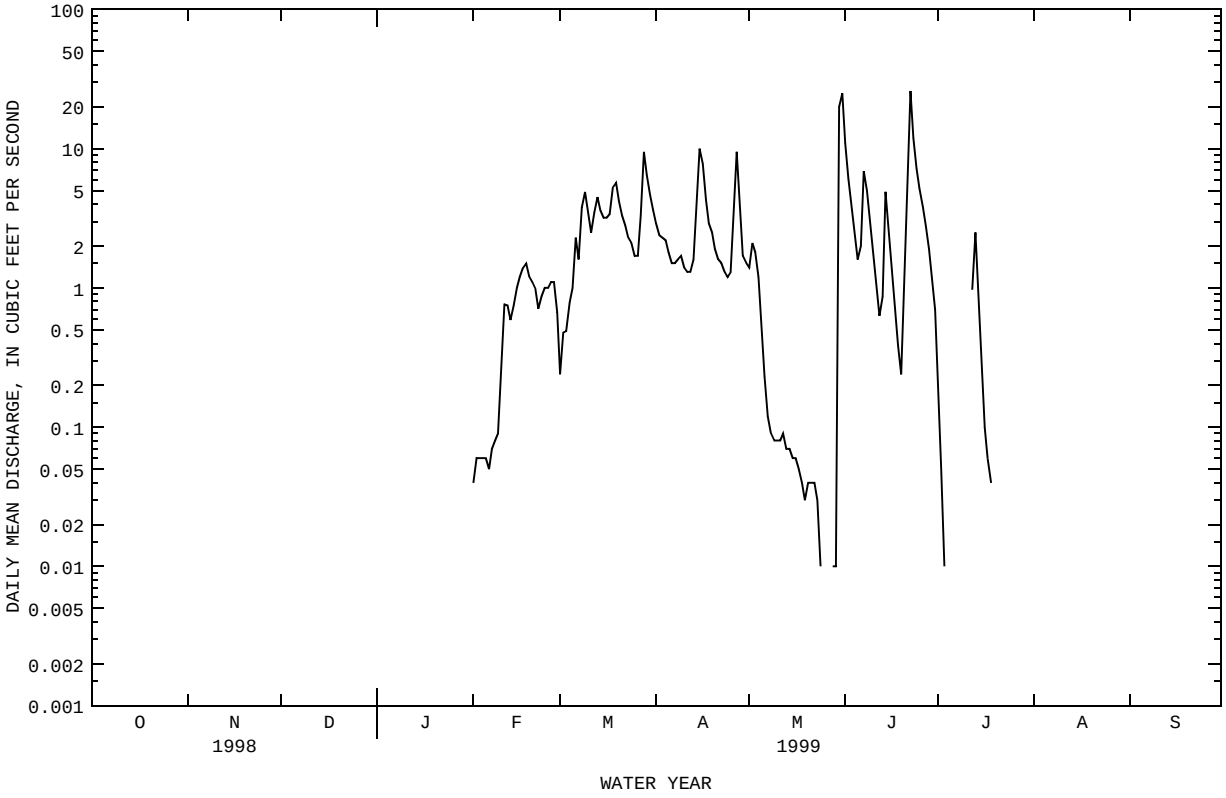
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.04	.24	2.9	1.4	11	.23	.00	.00
2	.00	.00	.00	.00	.06	.48	2.4	2.1	6.1	.05	.00	.00
3	.00	.00	.00	.00	.06	.49	2.3	1.8	4.0	.01	.00	.00
4	.00	.00	.00	.00	.06	.79	2.2	1.2	2.6	.00	.00	.00
5	.00	.00	.00	.00	.06	1.0	1.8	.55	1.6	.00	.00	.00
6	.00	.00	.00	.00	.05	2.3	1.5	.23	2.0	.00	.00	.00
7	.00	.00	.00	.00	.07	1.6	1.5	.12	6.9	.00	.00	.00
8	.00	.00	.00	.00	.08	3.8	1.6	.09	5.0	.00	.00	.00
9	.00	.00	.00	.00	.09	4.9	1.7	.08	2.9	.00	.00	.00
10	.00	.00	.00	.00	.25	3.6	1.4	.08	1.8	.00	.00	.00
11	.00	.00	.00	.00	.76	2.5	1.3	.08	1.1	.00	.00	.00
12	.00	.00	.00	.00	.75	3.5	1.3	.09	.63	.97	.00	.00
13	.00	.00	.00	.00	.59	4.5	1.6	.07	.87	2.5	.00	.00
14	.00	.00	.00	.00	.75	3.6	4.2	.07	4.9	1.1	.00	.00
15	.00	.00	.00	.00	1.0	3.2	10	.06	2.5	.43	.00	.00
16	.00	.00	.00	.00	1.2	3.2	7.8	.06	1.3	.10	.00	.00
17	.00	.00	.00	.00	1.4	3.4	4.3	.05	.70	.06	.00	.00
18	.00	.00	.00	.00	1.5	5.3	2.9	.04	.39	.04	.00	.00
19	.00	.00	.00	.00	1.2	5.7	2.5	.03	.24	.00	.00	.00
20	.00	.00	.00	.00	1.1	4.2	1.9	.04	1.3	.00	.00	.00
21	.00	.00	.00	.00	.98	3.3	1.6	.04	5.3	.00	.00	.00
22	.00	.00	.00	.00	.71	2.8	1.5	.04	26	.00	.00	.00
23	.00	.00	.00	.00	.87	2.3	1.3	.03	12	.00	.00	.00
24	.00	.00	.00	.00	1.0	2.1	1.2	.01	7.2	.00	.00	.00
25	.00	.00	.00	.00	1.0	1.7	1.3	.00	5.2	.00	.00	.00
26	.00	.00	.00	.00	1.1	1.7	4.3	.00	3.8	.00	.00	.00
27	.00	.00	.00	.00	1.1	3.3	9.5	.00	2.8	.00	.00	.00
28	.00	.00	.00	.00	.67	9.5	3.7	.01	1.9	.00	.00	.00
29	.00	.00	.00	.00	---	6.5	1.7	.01	1.2	.00	.00	.00
30	.00	.00	.00	.00	---	4.7	1.5	20	.70	.00	.00	.00
31	.00	---	.00	.00	---	3.6	---	25	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	18.50	99.80	84.7	53.38	123.93	5.49	0.00	0.00
MEAN	.000	.000	.000	.000	.66	3.22	2.82	1.72	4.13	.18	.000	.000
MAX	.00	.00	.00	.00	1.5	9.5	10	25	26	2.5	.00	.00
MIN	.00	.00	.00	.00	.04	.24	1.2	.00	.24	.00	.00	.00
AC-FT	.00	.00	.00	.00	37	198	168	106	246	11	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1999, BY WATER YEAR (WY)

MEAN	36.0	4.02	4.15	3.96	6.75	10.2	35.2	78.6	26.8	39.6	16.4	82.4
MAX	1463	65.2	20.1	16.0	85.0	307	631	1355	252	1195	255	4019
(WY)	1958	1935	1931	1937	1935	1926	1925	1925	1937	1948	1953	1936
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1934	1934	1953	1953	1953	1953	1963	1967	1934	1924	1929	1930

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX--Continued
(Hydrologic index station)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1924 - 1999	
ANNUAL TOTAL	1190.83		385.80			
ANNUAL MEAN	3.26		1.06		28.9	
HIGHEST ANNUAL MEAN					336	1936
LOWEST ANNUAL MEAN					.000	1970
HIGHEST DAILY MEAN	354	May 26	26	Jun 22	62900	Sep 17 1936
LOWEST DAILY MEAN	.00	May 17	.00	Oct 1	.00	Jun 20 1924
ANNUAL SEVEN-DAY MINIMUM	.00	May 17	.00	Oct 1	.00	Jun 20 1924
INSTANTANEOUS PEAK FLOW			62	May 30	94600	Sep 26 1936
INSTANTANEOUS PEAK STAGE			5.09	May 30	29.10	Sep 26 1936
ANNUAL RUNOFF (AC-FT)	2360		765		20920	
10 PERCENT EXCEEDS	3.7		3.3		12	
50 PERCENT EXCEEDS	.00		.00		1.5	
90 PERCENT EXCEEDS	.00		.00		.00	



08134500 O.C. FISHER LAKE AT SAN ANGELO, TX

LOCATION.--Lat 31°29'04", long 100°28'53", Tom Green County, Hydrologic Unit 12090104, in intake structure of O.C. Fisher Dam on North Concho River, 3.1 mi northwest of San Angelo, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--1,488 mi^2, of which 105 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Feb 1952 to current year. Published as "San Angelo Reservoir" prior to Oct 1970, and as "San Angelo Lake", Oct 1970 to Sep 1974.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to May 12, 1953, non-recording gage at same site and datum. Satellite telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 40,885 ft long, including spillway. Closure was completed Mar 7, 1951, and the dam was completed May 3, 1951. Deliberate impoundment began Feb 1, 1952. The lake is operated for flood control and recreation with part as municipal supply for the city of San Angelo. The spillway is an uncontrolled off-channel concrete gravity dam with ogee weir section 1,150 ft wide located to the right and upstream from the right end of dam. The spillway is designed to discharge 356,000 ft^3/s at maximum design flood level. The control outlet works consist of six gate-controlled outlets, 7.5 by 14.5 ft, opening into two 18.0-foot-diameter concrete conduits, and two 2.5-foot gate-controlled outlets for water-supply outlets. Since Feb 1973, the capacity is based on a survey made in 1962. Prior to 1973, the capacity was based on a survey made in 1944. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,964.0
Design flood	1,958.0
Crest of spillway	1,938.5
Top of conservation pool	1,908.0
Lowest gated outlet (invert)	1,840.0

COOPERATION.--Record of contents furnished by the U.S. Army Corps of Engineers and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 174,100 acre-ft, Oct 14, 1957 (elevation, 1,916.47 ft); minimum since first appreciable storage, lake dry Jul 16, 1970, to Apr 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,150 acre-ft, Oct 1 (elevation, 1,873.66 ft); minimum contents, 9,020 acre-ft, Sep 30 (elevation, 1,868.56 ft).

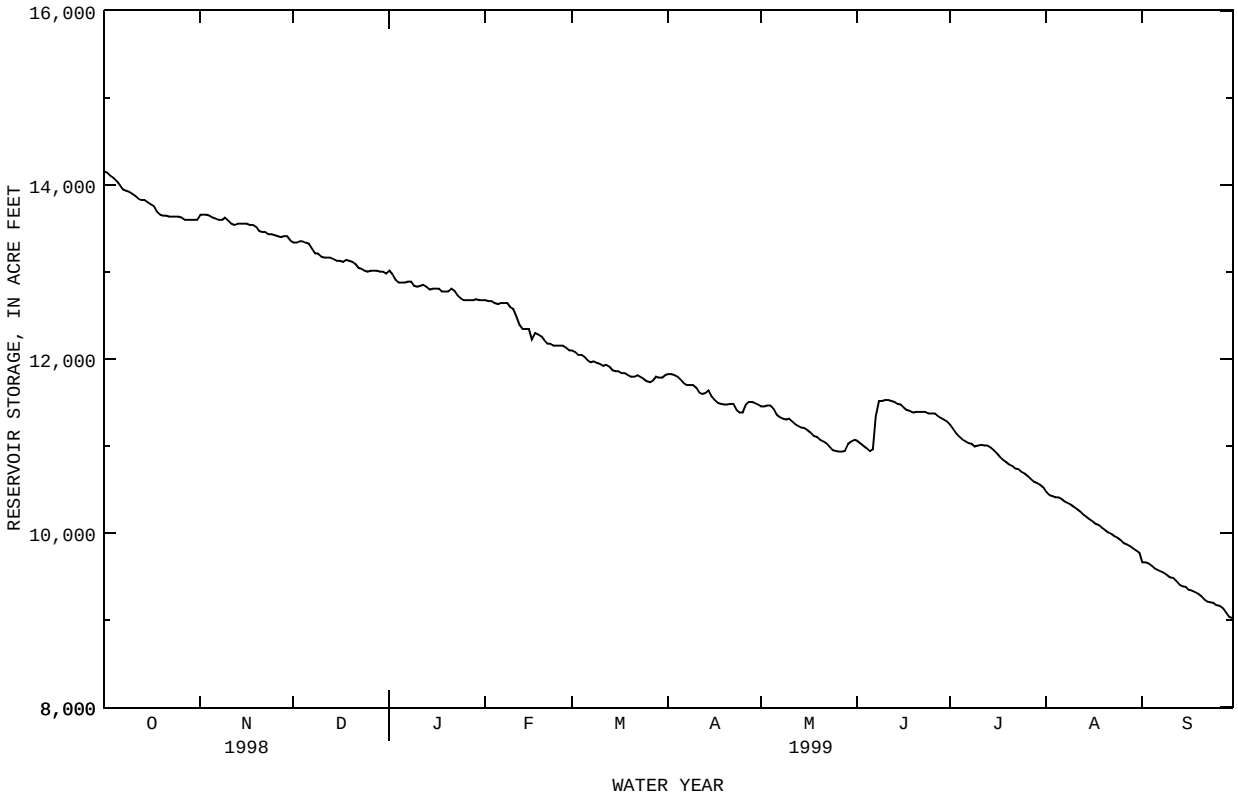
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14150	13660	13340	13020	12680	12100	11830	11460	11060	11240	10470	9660
2	14140	13660	13340	12970	12670	12080	11830	11460	11030	11190	10440	9660
3	14110	13660	13350	12910	12670	12050	11820	11470	11010	11140	10430	9650
4	14080	13650	13350	12880	12640	12050	11800	11470	10980	11100	10410	9630
5	14050	13630	13340	12880	12630	12030	11770	11430	10950	11070	10410	9590
6	14000	13610	13330	12880	12640	11990	11720	11370	10970	11050	10390	9580
7	13950	13600	13270	12890	12640	11960	11700	11340	11350	11030	10360	9560
8	13940	13600	13210	12890	12640	11980	11700	11310	11520	11030	10350	9540
9	13930	13630	13210	12850	12600	11950	11700	11300	11520	11000	10330	9520
10	13900	13590	13180	12830	12580	11940	11670	11310	11530	11010	10300	9490
11	13880	13550	13170	12850	12490	11920	11620	11280	11530	11020	10280	9480
12	13840	13540	13170	12860	12390	11930	11600	11250	11520	11010	10250	9450
13	13830	13550	13170	12830	12350	11910	11610	11230	11510	11010	10210	9410
14	13830	13550	13150	12800	12350	11870	11640	11210	11490	10990	10190	9390
15	13810	13550	13130	12810	12350	11860	11570	11200	11480	10960	10160	9380
16	13780	13550	13130	12810	12230	11860	11530	11180	11450	10920	10130	9350
17	13760	13540	13120	12810	12300	11840	11500	11150	11420	10880	10110	9340
18	13700	13540	13140	12780	12280	11840	11490	11110	11410	10840	10090	9320
19	13660	13520	13130	12780	12260	11820	11480	11100	11390	10820	10060	9310
20	13650	13470	13120	12780	12220	11800	11480	11070	11400	10790	10040	9280
21	13650	13460	13100	12810	12180	11800	11490	11050	11400	10770	10010	9240
22	13640	13460	13050	12790	12180	11820	11490	11030	11400	10740	9990	9210
23	13640	13440	13040	12730	12150	11800	11420	11000	11400	10740	9970	9210
24	13640	13440	13020	12700	12150	11780	11390	10960	11380	10710	9950	9200
25	13640	13420	13000	12680	12150	11750	11390	10950	11380	10690	9920	9170
26	13630	13410	13020	12680	12150	11730	11480	10940	11380	10660	9890	9160
27	13600	13400	13020	12680	12130	11760	11510	10940	11350	10620	9870	9140
28	13600	13410	13020	12680	12100	11800	11510	10950	11320	10590	9850	9090
29	13600	13410	13000	12690	---	11790	11500	11030	11300	10580	9830	9040
30	13600	13370	13000	12680	---	11790	11480	11050	11280	10560	9800	9020
31	13600	---	12980	12680	---	11820	---	11070	---	10530	9780	---
MAX	14150	13660	13350	13020	12680	12100	11830	11470	11530	11240	10470	9660
MIN	13600	13370	12980	12680	12100	11730	11390	10940	10950	10530	9780	9020
(+)	1873.21	1873.01	1872.67	1872.40	1871.88	1871.61	1871.28	1870.87	1871.08	1870.30	1869.46	1868.56
(@)	-580	-230	-390	-300	-580	-280	-340	-410	+210	-750	-750	-760

CAL YR 1998 MAX 18460 MIN 12980 (@) -3250
WTR YR 1999 MAX 14150 MIN 9020 (@) -5160

(+) Elevation, in feet, at end of month.
(@) Change in Contents, in acre-feet.

08134500 O.C. FISHER LAKE AT SAN ANGELO, TX--Continued



08136000 CONCHO RIVER AT SAN ANGELO, TX

LOCATION.--Lat 31°27'16", long 100°24'37", Tom Green County, Hydrologic Unit 12090105, on left bank 0.4 mi downstream from confluence of North and South Concho Rivers, 1.8 mi southeast of Tom Green County Courthouse, in San Angelo at Rio Concho Sports Complex on Rio Concho Dr. below Bell St. bridge, and 61.9 mi upstream from mouth.

DRAINAGE AREA.--5,542 mi^2, of which 1,131 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1915 to current year. Prior to Oct 1969, published as "near San Angelo".

REVISED RECORDS.--WSP 568: 1915-16, 1919-22. WSP 1148: 1916-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37. WSP 1512: 1917-18. WSP 1712: 1936. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,776.79 ft above sea level. Prior to Aug 11, 1917, nonrecording gage at same site and datum. Aug 11, 1917, to May 15, 1963, water-stage recorder on right bank at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good except those above 500 ft^3/s, which are fair. Since water year 1931 at least 10% of contributing drainage area has been regulated by Lake Nasworthy (station 08132000, normal storage 13,990 acre-ft). There are many diversions upstream from station for irrigation, industrial, and municipal supply. Since Dec 1962, flow regulated by Twin Buttes Reservoir (station 08131200, normal storage 186,203 acre-ft) on the South Concho River and since Feb 1952 by O.C. Fisher Lake (station 08134500, normal storage 119,200 acre-ft) on the North Concho River. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--15 years (water years 1916-30) prior to completion of Lake Nasworthy, 142 ft^3/s (102,600 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1916-30).--Maximum discharge, 92,000 ft^3/s Apr 26, 1922 (gage height, 36.8 ft, from floodmarks), on basis of slope-area measurements of 167,000 and 230,000 ft^3/s in 1936; no flow at times in 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1853, 47.5 ft Aug 6, 1906 (discharge, about 246,000 ft^3/s), from information by local resident. Other large floods are known to have occurred in Jun 1853, Aug 1882, and Apr 1900.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	172	2.8	.05	1.5	.06	3.4	9.4	5.6	.05	.05	.04
2	.07	12	1.5	.06	.08	.07	3.7	9.9	5.9	.05	.04	.03
3	.07	4.9	.12	.06	1.2	.08	3.6	6.5	3.1	.05	.03	.03
4	.07	5.8	.12	.05	1.5	.06	3.7	5.6	.07	.05	.03	.03
5	11	12	.11	.05	2.9	.07	6.3	3.1	.14	.06	.04	.04
6	35	5.9	.20	.05	3.8	.07	.07	1.5	368	.13	.03	.04
7	7.6	4.7	.12	.05	2.2	.06	.06	3.9	785	.06	.03	.04
8	2.8	4.6	.10	.05	1.3	.11	.14	2.7	28	.05	.05	.03
9	1.8	11	.08	.06	.10	.28	.07	4.3	9.0	.06	.03	.03
10	.22	6.0	.09	.06	11	.08	.04	8.9	7.7	.07	.02	.03
11	.11	3.5	.15	.06	18	.06	.04	6.6	2.5	1.0	.03	.03
12	.11	5.8	.14	.06	22	.23	.03	3.6	.19	2.6	.03	.03
13	.10	16	.12	.06	2.5	.08	.07	4.4	3.4	2.6	.05	.05
14	.10	8.8	.09	.06	4.0	.07	19	5.0	3.0	2.8	.04	.04
15	.13	4.6	.08	.07	2.6	.08	5.4	2.5	2.0	1.3	.04	.04
16	.14	4.7	.08	.09	4.8	.06	2.9	1.3	4.1	.06	.10	.03
17	.16	1.7	.08	.09	.10	.06	3.2	.42	2.1	.07	.05	.03
18	.18	.16	.08	.07	.10	22	3.6	2.3	.18	.05	.02	.03
19	1.0	.17	.08	.06	.08	8.6	1.6	2.6	.11	.04	.02	.03
20	5.4	.27	.08	.06	.10	4.6	.06	3.5	32	.04	.02	.03
21	23	.32	.08	.06	.08	3.9	.05	1.9	13	.37	.03	.03
22	13	4.9	.08	.06	.07	1.9	.04	.12	11	.11	.03	.03
23	4.0	4.9	.08	.06	.07	.08	.04	2.7	3.5	.07	.03	.03
24	2.7	5.2	.08	.05	.06	.07	.03	4.0	6.2	.07	.03	.03
25	2.3	4.5	.08	.05	.06	.07	.05	2.2	1.6	.05	.03	.04
26	2.3	4.6	.08	.05	.07	.07	318	1.1	.08	.05	.03	.04
27	2.5	5.4	.07	.06	.07	64	23	19	.06	.04	.03	.03
28	1.3	4.9	.07	.06	.06	64	6.2	20	.07	.03	.10	.04
29	.19	5.3	.08	4.3	---	7.7	4.6	142	.06	.03	.08	.03
30	.63	4.4	.11	12	---	4.4	6.1	14	.05	.04	.06	.03
31	15	---	.06	2.6	---	3.7	---	6.2	---	.08	.05	---
TOTAL	133.05	329.02	7.09	20.57	80.40	186.67	415.09	301.24	1297.71	12.13	1.25	1.01
MEAN	4.29	11.0	.23	.66	2.87	6.02	13.8	9.72	43.3	.39	.040	.034
MAX	35	172	2.8	12	22	64	318	142	785	2.8	.10	.05
MIN	.07	.16	.06	.05	.06	.06	.03	.12	.05	.03	.02	.03
AC-FT	264	653	14	41	159	370	823	598	2570	24	2.5	2.0

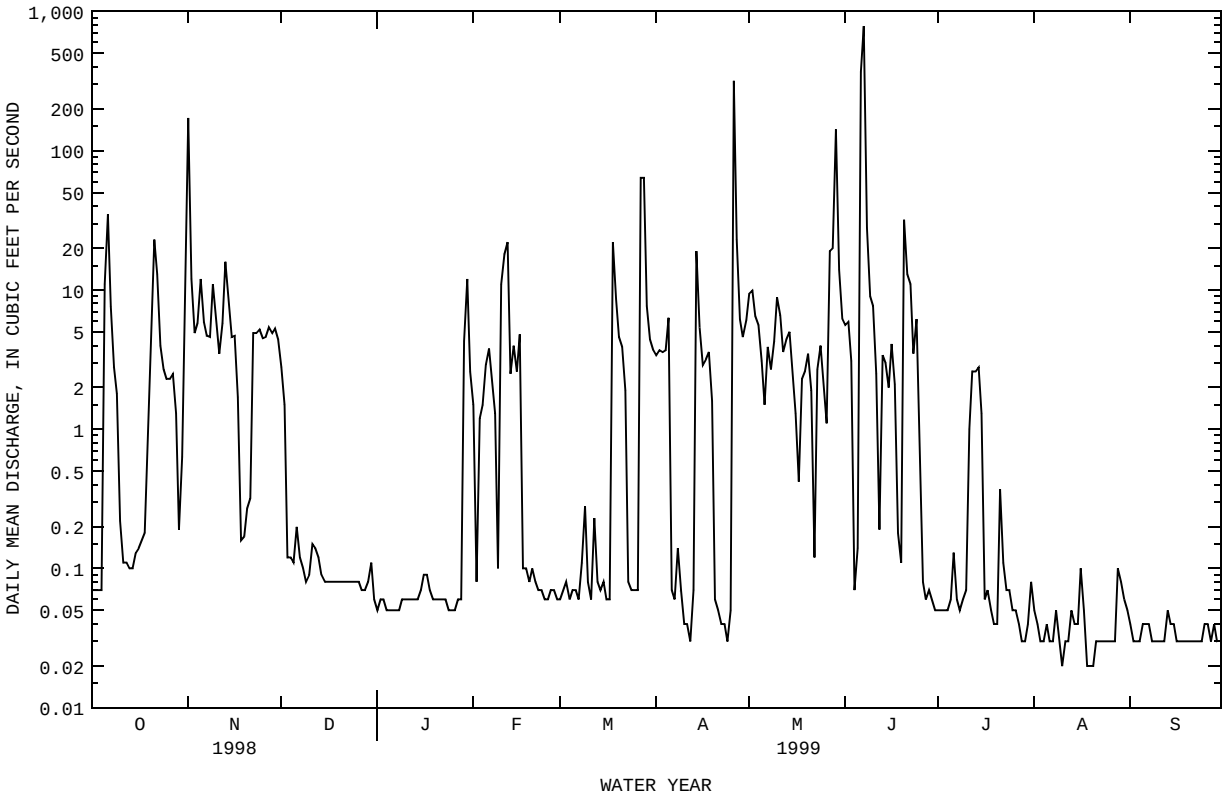
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999z, BY WATER YEAR (WY)

MEAN	122	33.2	34.1	30.5	35.9	29.1	95.0	190	86.4	105	40.6	259
MAX	2659	434	274	205	213	242	1604	3984	1132	2137	900	13190
(WY)	1960	1975	1975	1938	1975	1941	1949	1957	1941	1938	1942	1936
MIN	.077	.11	.095	.055	.062	.050	.067	.083	.090	.069	.040	.034
(WY)	1953	1971	1974	1974	1971	1971	1972	1971	1971	1969	1999	1999

08136000 CONCHO RIVER AT SAN ANGELO, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1931 - 1999z	
ANNUAL TOTAL	1610.83		2785.23			
ANNUAL MEAN	4.41		7.63		88.5	
HIGHEST ANNUAL MEAN					1132	1936
LOWEST ANNUAL MEAN					1.62	1952
HIGHEST DAILY MEAN	254	May 27	785	Jun 7	128000	Sep 17 1936
LOWEST DAILY MEAN	.02	Jul 9	.02	Aug 10	.00	Sep 14 1952
ANNUAL SEVEN-DAY MINIMUM	.03	Jul 8	.03	Aug 18	.00	Sep 16 1952
INSTANTANEOUS PEAK FLOW			3660	Jun 6	c230000	Sep 17 1936
INSTANTANEOUS PEAK STAGE			a7.95	Jun 6	a46.60	Sep 17 1936
ANNUAL RUNOFF (AC-FT)	3200		5520		64110	
10 PERCENT EXCEEDS	10		8.1		68	
50 PERCENT EXCEEDS	.11		.10		7.3	
90 PERCENT EXCEEDS	.04		.03		.12	

z Period of regulated streamflow.
a From floodmark.
c From rating curve extended above 105,000 ft^3/s on basis of slope-area measurements of 167,000 and 230,000 ft^3/s.



08136150 CONCHO RIVER NEAR VERIBEST, TX

LOCATION.--Lat 31°32'15", long 100°13'09", Tom Green County, Hydrologic Unit 12090105, at upper end of county park, about 0.1 mi above low-water crossing on FM 2334, also known as Mullins Crossing, 2.8 mi downstream from Crownest Creek, 4.5 mi northeast of Veribest, and 17.3 mi downstream from Concho River at San Angelo (station 08136000).

DRAINAGE AREA.--5,541 mi^2, of which 1,131 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Apr 1970 to Apr 1974 (periodic discharge measurements). Jul 1998 to current year (gage heights only).
Water-quality records.--Chemical data: Feb 1969 to Sep 1981. Biochemical data: Feb 1969 to Sep 1981.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,694.66 ft above sea level. From Jul 28, 1970, to Sep 30, 1981, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records good. Interruptions in the maximum and minimum gage heights were the result of no flow. Since Feb 1969, at least 10% of contributing drainage area has been regulated by Lake Nasworthy (station 08132000,) and Twin Buttes Reservoir (station 08131200), combined normal storage 200,193 acre-ft, on the South Concho River and by O.C. Fisher Lake (station 08134500, normal storage 119,200 acre-ft) on the North Concho River. There are many diversions upstream from station for irrigation, industrial, and municipal supply.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood on May 9, 1957, reached a stage of 29.76 ft, from U.S. Army Corps of Engineers, Fort Worth.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 5.87 ft Jun 7, 1999; minimum gage height, 0.16 ft at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.87 ft Jun 7; minimum gage height, 0.16 ft several days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	1.70	.79	.94	.93	.83	.78	.84	.72	.43	.41
2	---	---	1.62	1.07	.94	.92	.83	.78	.84	.81	.45	.40
3	---	---	1.07	.93	.94	.91	.82	.80	.83	.79	.43	.40
4	---	---	.94	.88	.92	.89	.84	.81	.81	.78	.47	.41
5	---	---	.88	.84	.90	.88	.86	.79	.82	.80	.45	.43
6	---	---	.89	.84	.90	.86	.79	.63	.80	.78	.45	.40
7	---	---	.90	.86	.86	.84	.63	.58	.80	.76	.41	.38
8	---	---	.87	.83	.86	.83	.58	.53	.78	.76	.43	.38
9	---	---	.85	.81	.83	.81	.53	.50	.84	.77	.39	.20
10	---	---	.83	.80	.85	.81	.77	.50	.79	.66	.20	.16
11	.34	.17	.86	.83	.87	.83	.79	.53	.66	.54	---	---
12	.70	.34	.85	.82	.86	.84	.53	.26	.56	.53	---	---
13	.70	.60	.85	.83	.84	.83	.26	.16	.94	.56	---	---
14	.65	.56	.94	.84	.83	.82	---	---	.94	.85	---	---
15	.65	.63	.94	.91	.83	.82	---	---	.85	.76	---	---
16	.74	.63	.92	.88	.84	.82	---	---	.80	.76	---	---
17	.77	.74	.90	.87	.84	.82	---	---	.76	.64	.18	.16
18	.79	.77	.89	.82	.86	.83	.32	.16	.64	.58	.72	.18
19	.80	.79	.83	.80	.85	.82	.67	.32	.60	.58	.71	.69
20	.83	.79	.83	.80	.87	.84	.68	.62	.61	.58	.89	.71
21	.85	.81	.86	.80	.86	.81	.66	.58	.61	.53	.85	.80
22	.85	.84	.85	.79	.84	.81	.68	.64	.54	.45	.80	.74
23	.95	.83	.83	.78	.83	.81	.69	.60	.45	.42	.74	.68
24	.90	.84	.84	.82	.83	.81	.60	.54	.42	.40	.68	.62
25	.84	.81	.91	.84	.85	.83	.54	.50	.41	.39	.63	.52
26	.81	.78	.91	.89	.84	.81	.50	.47	.40	.37	.52	.48
27	.80	.77	.89	.87	.85	.80	.49	.47	.39	.37	.54	.47
28	.79	.77	.88	.86	.87	.85	.50	.46	.41	.39	1.47	.51
29	.77	.75	.93	.87	.87	.81	1.01	.48	---	---	1.28	.96
30	.76	.74	.94	.90	.84	.80	.97	.79	---	---	.96	.85
31	.79	.72	---	---	.81	.79	.79	.72	---	---	.85	.78
MONTH	---	---	1.70	.78	.94	.79	---	---	.94	.37	---	---

08136150 CONCHO RIVER NEAR VERIBEST, TX--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	.78	.75	.77	.72	.83	.68	.45	.39	---	---	---	---
2	.75	.64	.82	.73	.68	.60	.42	.36	---	---	---	---
3	.64	.47	.86	.79	.67	.62	.41	.35	---	---	---	---
4	.47	.41	.83	.71	.65	.60	.39	.34	---	---	---	---
5	.47	.41	.71	.63	.69	.59	.35	.33	---	---	---	---
6	.64	.45	.63	.53	1.10	.62	.35	.33	---	---	---	---
7	.72	.58	.53	.48	5.87	1.10	.34	.32	---	---	---	---
8	.58	.26	.48	.43	2.02	1.18	.33	.16	---	---	---	---
9	.26	.16	.44	.39	1.19	.99	---	---	---	---	---	---
10	---	---	.44	.39	1.00	.90	---	---	---	---	---	---
11	---	---	.42	.38	.91	.87	---	---	---	---	---	---
12	---	---	.40	.36	.90	.83	---	---	---	---	---	---
13	---	---	.38	.35	.87	.81	---	---	---	---	---	---
14	---	---	.39	.35	1.04	.85	---	---	---	---	---	---
15	---	---	.38	.34	.88	.83	---	---	---	---	---	---
16	---	---	.38	.34	.83	.71	---	---	---	---	---	---
17	---	---	.37	.33	.74	.70	---	---	---	---	---	---
18	---	---	.36	.33	.70	.57	---	---	---	---	---	---
19	---	---	.35	.32	.58	.52	---	---	---	---	---	---
20	---	---	.34	.30	.72	.56	---	---	---	---	---	---
21	---	---	.33	.29	1.00	.72	---	---	---	---	---	---
22	---	---	.33	.30	.98	.89	---	---	---	---	---	---
23	---	---	.32	.30	.90	.82	---	---	---	---	---	---
24	---	---	.33	.29	.82	.73	---	---	---	---	---	---
25	---	---	.34	.29	.77	.73	---	---	---	---	---	---
26	2.28	.18	.34	.30	.76	.73	---	---	---	---	---	---
27	1.93	1.12	.38	.32	.77	.74	---	---	---	---	---	---
28	1.12	.92	.37	.34	.74	.64	---	---	---	---	---	---
29	.92	.82	1.58	.36	.64	.50	---	---	---	---	---	---
30	.83	.71	1.43	.98	.50	.43	---	---	---	---	---	---
31	---	---	.99	.82	---	---	---	---	---	---	---	---
MONTH	---	---	1.58	.29	5.87	.43	---	---	---	---	---	---

08136500 CONCHO RIVER AT PAINT ROCK, TX

LOCATION.--Lat 31°30'57", long 99°55'09", Concho County, Hydrologic Unit 12090105, near left bank at downstream end of pier of bridge on U.S. Highway 83, 0.5 mi north of Concho County Courthouse in Paint Rock, 2.7 mi downstream from Kickapoo Creek, and 20.0 mi upstream from mouth.

DRAINAGE AREA.--6,574 mi^2, of which 1,131 mi^2 probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Sep 1915 to current year. Prior to Oct 1970, published as "near Paint Rock".

REVISED RECORDS.--WSP 458: 1915-16. WSP 568: 1919-20. WSP 1712: 1922(M). WSP 1732: 1918(M), 1923(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,574.36 ft above sea level. See WSP 1922 for history of changes prior to Jan 15, 1940. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since water year 1931 at least 10% of contributing drainage area has been regulated by Lake Nasworthy (station 08132000, capacity 13,990 acre-ft). There are many diversions above station for irrigation and municipal supply. Flow affected at times by discharge from the flood-detention pools of two floodwater-retarding structures with a combined detention capacity of 2,690 acre-ft. These structures control runoff from 16.5 mi^2 in the Willow Creek drainage basin.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--15 years (water years 1916-30) prior to construction of Lake Nasworthy, 186 ft^3/s (134,700 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1916-30).--Maximum discharge, 76,500 ft^3/s Apr 27, 1922 (gage height, 27.50 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in Aug 1882 reached a stage of about 39.9 ft, and flood in Aug 1906 reached a stage of 39.5 ft, from information by local resident. Maximum stage since at least 1853, 43.3 ft Sep 17, 1936.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	5.3	6.7	1.1	20	.12	17	18	25	1.5	.00	.00
2	.00	68	8.3	.32	15	.10	13	15	13	.53	.00	.00
3	.00	74	12	.22	11	.02	7.9	12	6.3	.17	.00	.00
4	.00	33	14	.20	10	.04	4.0	9.3	2.0	.10	.00	.00
5	.00	20	13	.21	11	.08	1.9	7.3	.50	.11	.00	.00
6	.00	15	13	.49	9.4	.05	.68	8.5	1.1	.08	.00	.00
7	.00	13	10	.93	7.4	.05	.96	6.5	862	.05	.00	.00
8	.00	13	8.4	.63	7.3	.17	1.1	3.6	635	.04	.00	.00
9	.00	14	7.0	.21	6.7	.07	.38	1.5	148	.03	.00	.00
10	.00	10	7.8	.41	6.5	.24	.30	.88	58	.04	.00	.00
11	.00	8.0	8.5	.85	4.5	.46	.24	.46	30	.05	.00	.00
12	.00	8.9	9.1	1.2	4.6	1.3	.23	.13	30	.07	.00	.00
13	.00	12	9.3	.99	2.2	.40	.55	.05	27	.15	.00	.00
14	.07	14	8.6	.61	1.0	.16	1.1	.05	23	.18	.00	.00
15	.13	13	8.3	.39	.89	.31	.00	.05	33	.08	.00	.00
16	.30	15	7.8	.25	1.2	.37	.02	.03	24	.04	.00	.00
17	.66	18	7.2	.18	1.8	.42	.07	.02	14	.03	.00	.00
18	.49	18	7.0	.12	1.5	2.3	.18	.00	10	.01	.00	.00
19	.26	14	6.4	.16	.85	.64	.21	.00	7.7	.00	.00	.00
20	.84	12	5.2	.17	.62	.41	.14	.00	6.9	.00	.00	.00
21	1.6	11	4.7	.13	.41	.38	.10	.00	6.7	.00	.00	.00
22	1.1	10	2.4	.04	.31	.40	.09	.00	6.2	.02	.00	.00
23	.92	10	3.6	.03	.17	.31	.06	.00	5.3	.05	.00	.00
24	.38	9.1	5.4	.08	.36	.26	.05	.00	18	.04	.00	.00
25	.32	7.7	6.2	.14	.39	.31	.20	.00	17	.01	.00	.00
26	.27	9.4	6.4	.15	.38	.26	3.5	.49	12	.00	.00	.00
27	.25	9.4	5.9	.19	.34	1.2	163	3.8	8.8	.00	.00	.00
28	.42	8.6	4.1	.20	.14	1.6	103	1.7	6.8	.00	.00	.00
29	.53	13	3.9	.36	---	1.8	40	.92	5.6	.00	.00	.00
30	.48	9.4	2.5	2.0	---	9.8	24	.52	4.1	.00	.00	.00
31	.67	---	1.3	22	---	27	---	1.4	---	.00	.00	---
TOTAL	9.69	495.8	224.0	34.96	125.96	51.03	383.96	92.20	2047.00	3.38	0.00	0.00
MEAN	.31	16.5	7.23	1.13	4.50	1.65	12.8	2.97	68.2	.11	.000	.000
MAX	1.6	74	14	22	20	27	163	18	862	1.5	.00	.00
MIN	.00	5.3	1.3	.03	.14	.02	.00	.00	.50	.00	.00	.00
AC-FT	19	983	444	69	250	101	762	183	4060	6.7	.00	.00

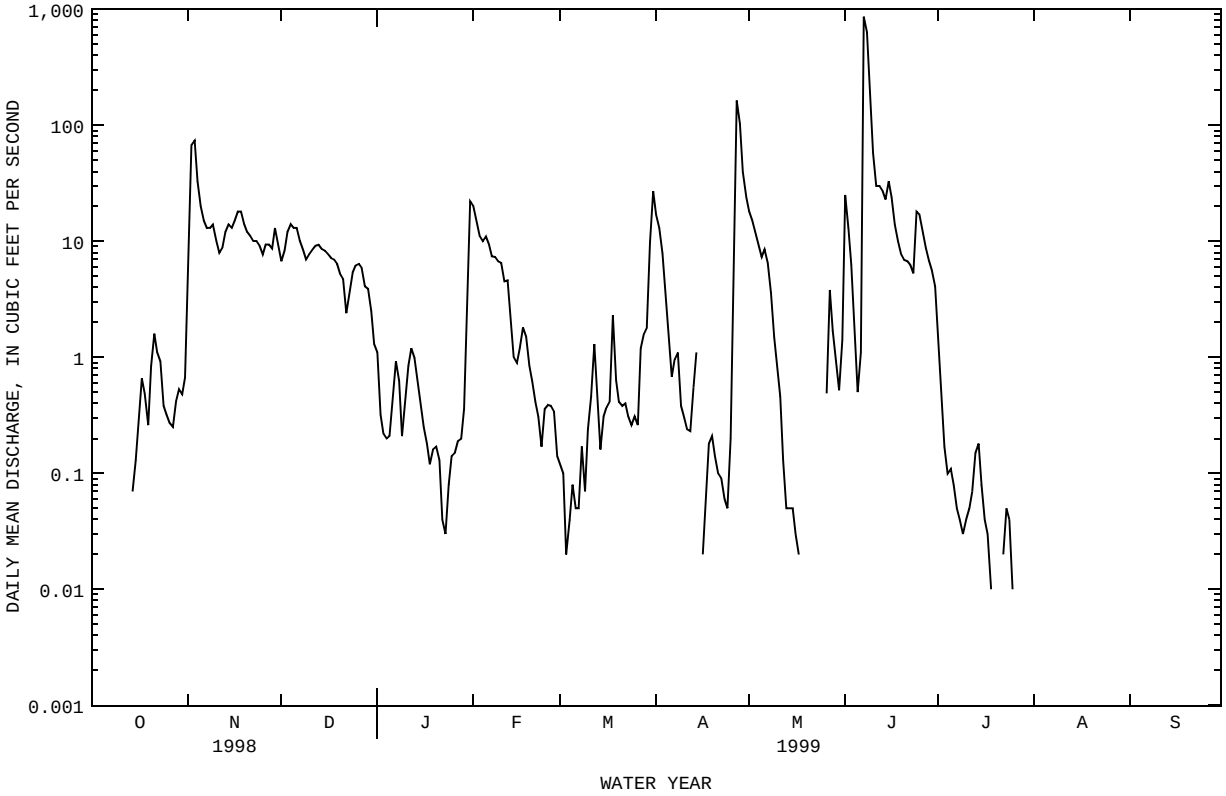
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999z, BY WATER YEAR (WY)

MEAN	201	57.9	57.8	53.7	67.2	53.6	138	301	137	152	58.7	377
MAX	3805	615	367	274	740	318	2131	4756	1227	3519	980	17220
(WY)	1931	1975	1975	1975	1992	1992	1949	1957	1941	1938	1942	1936
MIN	.000	.000	.000	.000	.000	.000	.000	.057	.000	.000	.000	.000
(WY)	1935	1952	1952	1955	1955	1955	1955	1984	1967	1934	1952	1954

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1931 - 1999z	
ANNUAL TOTAL	12082.00		3467.98			
ANNUAL MEAN	33.1		9.50		138	
HIGHEST ANNUAL MEAN					1470	1936
LOWEST ANNUAL MEAN					9.50	1999
HIGHEST DAILY MEAN	8210	May 27	862	Jun 7	134000	Sep 17 1936
LOWEST DAILY MEAN	.00	Apr 23	.00	Oct 1	.00	Sep 28 1931
ANNUAL SEVEN-DAY MINIMUM	.00	Apr 23	.00	Oct 1	.00	Sep 28 1931
INSTANTANEOUS PEAK FLOW			2460	Jun 7	c301000	Sep 17 1936
INSTANTANEOUS PEAK STAGE			15.03	Jun 7	a43.40	Sep 17 1936
ANNUAL RUNOFF (AC-FT)	23960		6880		99960	
10 PERCENT EXCEEDS	24		14		129	
50 PERCENT EXCEEDS	2.3		.38		26	
90 PERCENT EXCEEDS	.00		.00		.20	

z Period of regulated streamflow.
a From floodmark.
c From rating curve extended above 98,000 ft^3/s on basis of slope-area measurements of 144,000 and 301,000 ft^3/s.



08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Apr 1946 to Oct 1949 and Mar 1964 to current year.
BIOCHEMICAL DATA: Mar 1964 to current year.
PESTICIDE DATA: Apr 1968 to Oct 1981.
SEDIMENT DATA: Feb 1978 to Sep 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Apr 1946 to Oct 1949 and Oct 1967 to Sep 1990 (local observer).
WATER TEMPERATURE: Apr 1946 to Oct 1949 and Oct 1967 to Sep 1990 (local observer).
SUSPENDED SEDIMENT DISCHARGE: Feb 1978 to Sep 1981 (local observer).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,690 microsiemens, Jun 28, Aug 12, 1984; minimum daily, 268 microsiemens, Sep 9, 1980.
WATER TEMPERATURE: Maximum daily, 35.0°C, on several days during summer months; minimum daily, 0.0°C, on many days during winter months.
SEDIMENT CONCENTRATION: Maximum daily mean, 4,190 mg/L, Sep 9, 1980; minimum daily mean, 3 mg/L, Feb 2, 1979.
SEDIMENT LOADS: Maximum daily, 269,000 tons Sep 9, 1980; minimum daily, 0.0 tons on several days during Sep 1980.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
JAN											
06...	1120	.39	2690	8.3	7.0	10.9	96	1.6	890	700	190
FEB											
18...	1520	1.2	2860	8.3	14.5	9.9	104	3.0	940	780	200
APR											
27...	1445	339	3130	8.1	23.5	8.1	103	3.9	1100	990	250
JUN											
08...	1130	634	648	7.3	24.2	7.3	93	4.7	180	100	42

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)
JAN											
06...	98	236	3	6.3	190	450	520	.61	14	1640	2.63
FEB											
18...	104	245	3	6.7	160	520	560	.49	7.9	1750	--
APR											
27...	121	252	3	7.0	130	640	590	.51	11	1950	1.90
JUN											
08...	18	56	2	5.1	78	58	110	.24	7.4	348	.372

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
JAN										
06...	.028	2.65	<.020	--	.68	<.050	.011	.03	--	--
FEB										
18...	<.010	<.050	.035	.41	.45	<.050	<.010	--	3	148
APR										
27...	.030	1.93	.031	.56	.59	<.050	.022	.07	--	--
JUN										
08...	.019	.391	.165	.32	.49	E.039	.016	.05	3	64

DATE	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JAN										
06...	--	--	--	--	--	--	--	--	--	--
FEB										
18...	<1.0	<1.0	1.2	<30	1.0	<9.0	<.1	6	<1.0	<60
APR										
27...	--	--	--	--	--	--	--	--	--	--
JUN										
08...	<1.0	<1.0	1.1	<10	<1.0	<3.0	<.1	2	<1.0	<20

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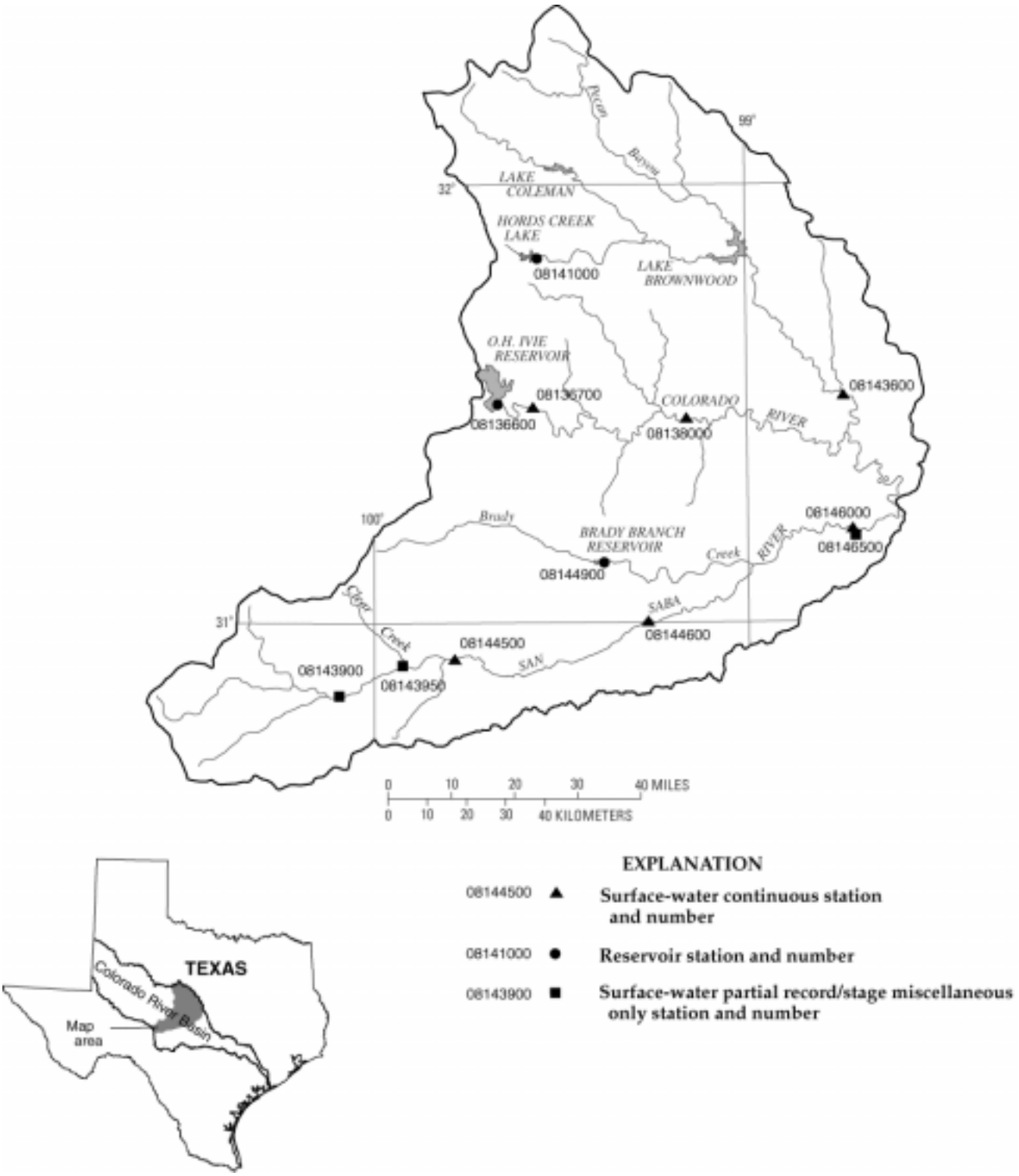


Figure 5.--Map showing location of gaging stations in the third section of the Colorado River Basin

08136600 O.H. IVIE RESERVOIR NEAR VOSS, TX

LOCATION.--Lat 31°30'00", long 99°40'05", Coleman County, Hydrologic Unit 12090106, on left bank, in outlet structure of Freese-Nichols Dam on Colorado River, 8 mi northeast of Millersview, 10 mi southwest of Voss, and at mile 615.1.

DRAINAGE AREA.--24,038 mi^2, of which 11,391 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1990 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level. Satellite telemeter at station.

REMARKS.--Records good. The lake is formed by a concrete dam and spillway with six 50- by 40-foot tainter gates, and a 6,000 ft overflow spillway with a 2,000 ft tapered fuse plug release feature. Total length of the dam is 12,000 ft. The dam was completed and storage began Mar 15, 1990. Recording equipment was installed May 30, 1990, but water did not reach the sensing point until Sep 21, 1990 (at an elevation of 1,502.05 ft). Water is utilized for municipal use for several West Texas communities, the city of San Angelo being the largest user. The capacity curve is based on a survey made in 1989 by Freese and Nichols, Consulting Engineers, Fort Worth, Tex. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,584.0
Crest of overflow spillway	1,563.0
Top of conservation storage	1,551.5
Crest of spillway (tainter gates sill)	1,528.0
Lowest gated outlet (service outlet)	1,440.0

COOPERATION.--The capacity table dated Sep 15, 1990, was furnished by the Colorado River Municipal Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 574,700 acre-ft, Jun 26, 1997 (elevation, 1,552.55 ft); minimum contents after initial filling, 348,900 acre-ft, Sep 30, 1999 (elevation, 1,539.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 448,400 acre-ft, Oct 1 (elevation, 1,545.59 ft); minimum contents, 348,900 acre-ft, Sep 30 (elevation, 1,539.10 ft).

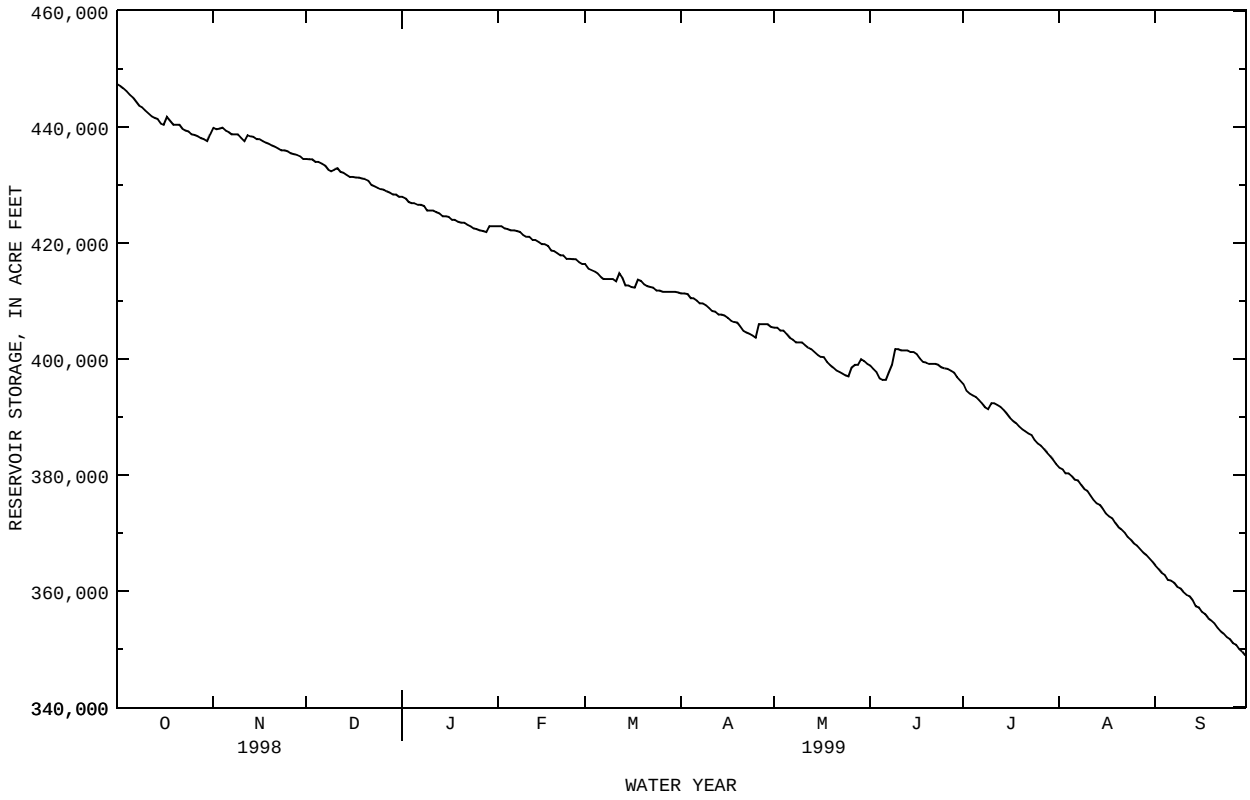
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	447400	439900	434500	428000	422900	416400	411300	405400	398900	395700	381300	364400
2	447100	439600	434400	427700	422900	415600	411300	405400	398300	394600	381000	363800
3	446700	439700	434400	427100	422500	415400	411200	404900	397800	394100	380300	363200
4	446200	439900	434000	426900	422400	415100	410500	404900	396700	393800	380300	362800
5	445600	439400	434000	426900	422200	414800	410500	404300	396400	393500	379800	361900
6	445100	439100	433700	426600	422200	414200	410100	403700	396400	393000	379200	361800
7	444400	438700	433400	426600	422100	413800	409600	403400	397700	392400	379100	361500
8	443700	438700	432700	426400	421900	413800	409600	402900	399000	391700	378300	360800
9	443400	438700	432400	425600	421400	413800	409300	402900	401700	391400	377600	360500
10	442900	438100	432700	425600	421100	413800	408800	402900	401700	392400	377300	359900
11	442400	437600	432900	425600	421100	413400	408300	402400	401500	392400	376500	359400
12	441900	438600	432300	425300	420500	414800	408200	402000	401500	392100	375800	359200
13	441600	438400	432100	425100	420500	414000	407700	401700	401500	391800	375200	358400
14	441400	438300	431800	424600	420200	412700	407700	401200	401200	391200	374900	357400
15	440600	437900	431400	424600	419800	412700	407500	400700	401200	390600	374200	357200
16	440400	437900	431400	424500	419800	412400	407100	400400	400900	389900	373400	356500
17	441700	437600	431300	424000	419500	412300	406600	400300	400100	389400	372900	356100
18	441100	437300	431300	424000	418700	413700	406400	399500	399500	389000	372600	355400
19	440400	437100	431100	423700	418600	413500	406300	399000	399400	388400	371800	355000
20	440400	436800	431000	423500	418300	412900	405700	398600	399200	387900	371100	354500
21	440400	436600	430800	423500	417900	412600	404900	398100	399200	387600	370700	353700
22	439700	436300	430000	423200	417900	412400	404600	397800	399200	387200	370100	353100
23	439400	436000	429800	422900	417300	412300	404400	397500	399000	386900	369400	352700
24	439200	436000	429500	422500	417300	411800	404100	397200	398600	386100	368900	352100
25	438700	435800	429300	422400	417200	411800	403700	397000	398400	385500	368300	351800
26	438600	435500	429200	422200	417200	411600	406000	398600	398300	385100	367900	351100
27	438400	435300	428900	422100	416700	411600	406000	399000	398000	384500	367300	350800
28	438100	435200	428700	421900	416400	411600	406000	399000	397700	383900	366700	350000
29	437900	435000	428400	422900	---	411600	406000	400000	396900	383300	366300	349600
30	437600	434500	428400	422900	---	411600	405500	399700	396300	382700	365700	348900
31	438700	---	428000	422900	---	411500	---	399200	---	381900	365100	---
MAX	447400	439900	434500	428000	422900	416400	411300	405400	401700	395700	381300	364400
MIN	437600	434500	428000	421900	416400	411500	403700	397000	396300	381900	365100	348900
(+)	1545.01	1544.75	1544.35	1544.03	1543.62	1543.31	1542.93	1542.52	1542.33	1541.38	1540.24	1539.10
(@)	-9700	-4200	-6500	-5100	-6500	-4900	-6000	-6300	-2900	-14400	-16800	-16200

CAL YR 1998 MAX 525700 MIN 428000 (@) -81100
WTR YR 1999 MAX 447400 MIN 348900 (@) -99500

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

08136600 O.H. IVIE RESERVOIR NEAR VOSS, TX--Continued



08136700 COLORADO RIVER NEAR STACY, TX

LOCATION.--Lat 31°29'37", long 99°34'25", Coleman County, Hydrologic Unit 12090106, on left bank at downstream side of bridge on Farm Road 503, 1.2 mi upstream from Bois d'Arc Creek, 1.8 mi northeast of Stacy, 10.5 mi downstream from O.H. Ivie Reservoir, 24 mi downstream from Concho River, and at mile 604.8.

DRAINAGE AREA.--24,193 mi^2, of which approximately 11,391 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Mar 1968 to current year. Prior to Oct 1970, published as "at Stacy".
Water-quality records.--Chemical data: Dec 1961 to Jul 1994. Biochemical data: Oct 1974 to Aug 1977. Pesticide data: Apr 1975 to Aug 1977. Sediment data: Oct 1974 to Oct 1977. Specific conductance: Apr 1968 to Sep 1994. Water temperature: Apr 1968 to Sep 1994.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,394.66 ft above sea level (Texas Department of Transportation bridge plans). Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in Mar 1968, at least 10% of contributing drainage area has been regulated by upstream reservoirs, and since Mar 15, 1990, flow completely regulated by O.H. Ivie Reservoir (station 08136600, normal storage 554,340 acre-ft), 10.5 mi upstream. There are many diversions above station for irrigation, municipal, and oil field operations. Wastewater effluent is returned to the river from numerous wastewater plants above station. At times flow may be slightly affected by discharge from the flood-detention pools of 42 floodwater-retarding structures with a combined detention capacity of 56,730 acre-ft. These structures control runoff from 277 mi^2 above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1882, 356,000 ft^3/s Sep 18, 1936 (gage height, 64.59 ft), by slope-area measurement of peak flow. The flood of Sep 18, 1936, was 4 ft higher than the 1906 flood and 7 to 8 ft higher than the 1882 flood, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

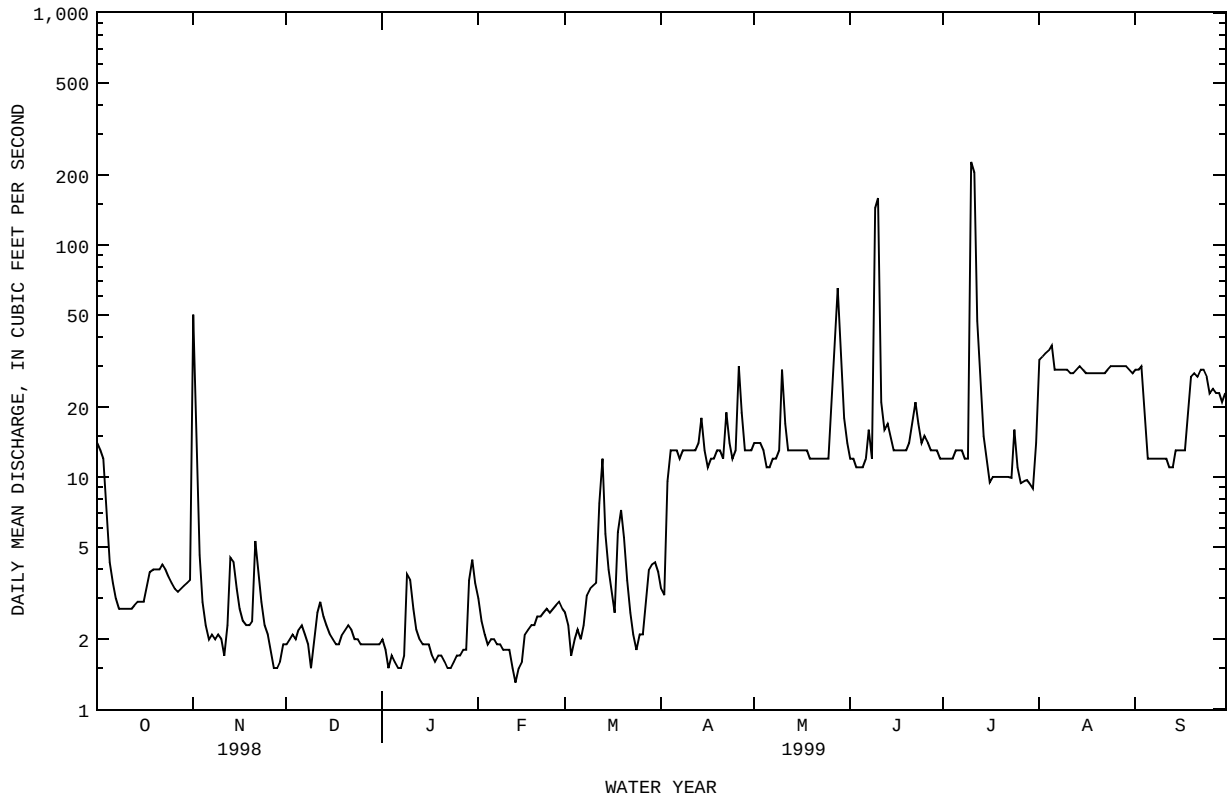
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	50	1.9	2.0	3.0	2.6	3.3	14	12	12	32	29
2	13	14	2.0	1.8	2.4	2.3	3.1	14	12	12	33	29
3	12	4.6	2.1	1.5	2.1	1.7	9.6	14	11	12	34	30
4	7.1	2.9	2.0	1.7	1.9	2.0	13	13	11	12	35	20
5	4.3	2.3	2.2	1.6	2.0	2.2	13	11	11	13	37	12
6	3.5	2.0	2.3	1.5	2.0	2.0	13	11	12	13	29	12
7	3.0	2.1	2.1	1.5	1.9	2.3	12	12	16	13	29	12
8	2.7	2.0	1.9	1.7	1.9	3.1	13	12	12	12	29	12
9	2.7	2.1	1.5	3.8	1.8	3.3	13	13	144	12	29	12
10	2.7	2.0	2.0	3.6	1.8	3.4	13	29	159	228	29	12
11	2.7	1.7	2.6	2.7	1.8	3.5	13	17	21	205	28	12
12	2.7	2.3	2.9	2.2	1.5	7.7	13	13	16	47	28	11
13	2.8	4.5	2.5	2.0	1.3	12	14	13	17	28	29	11
14	2.9	4.3	2.3	1.9	1.5	5.7	18	13	15	15	30	13
15	2.9	3.3	2.1	1.9	1.6	4.0	13	13	13	12	29	13
16	2.9	2.7	2.0	1.9	2.1	3.3	11	13	13	9.5	28	13
17	3.4	2.4	1.9	1.7	2.2	2.6	12	13	13	10	28	13
18	3.9	2.3	1.9	1.6	2.3	5.8	12	13	13	10	28	19
19	4.0	2.3	2.1	1.7	2.3	7.2	13	12	13	10	28	27
20	4.0	2.4	2.2	1.7	2.5	5.5	13	12	14	10	28	28
21	4.0	5.3	2.3	1.6	2.5	3.6	12	12	17	10	28	27
22	4.2	4.0	2.2	1.5	2.6	2.6	19	12	21	10	28	29
23	4.0	2.9	2.0	1.5	2.7	2.1	14	12	17	9.9	29	29
24	3.7	2.3	2.0	1.6	2.6	1.8	12	12	14	16	30	27
25	3.5	2.1	1.9	1.7	2.7	2.1	13	12	15	11	30	23
26	3.3	1.8	1.9	1.7	2.8	2.1	30	20	14	9.4	30	24
27	3.2	1.5	1.9	1.8	2.9	2.8	19	39	13	9.6	30	23
28	3.3	1.5	1.9	1.8	2.7	4.0	13	65	13	9.7	30	23
29	3.4	1.6	1.9	3.6	---	4.2	13	35	13	9.3	30	21
30	3.5	1.9	1.9	4.4	---	4.3	13	18	12	8.9	29	23
31	3.6	---	1.9	3.5	---	3.9	---	14	---	14	28	---
TOTAL	136.9	137.1	64.3	64.7	61.4	115.7	396.0	526	697	813.3	922	589
MEAN	4.42	4.57	2.07	2.09	2.19	3.73	13.2	17.0	23.2	26.2	29.7	19.6
MAX	14	50	2.9	4.4	3.0	12	30	65	159	228	37	30
MIN	2.7	1.5	1.5	1.5	1.3	1.7	3.1	11	11	8.9	28	11
AC-FT	272	272	128	128	122	229	785	1040	1380	1610	1830	1170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1999, BY WATER YEAR (WY)

MEAN	235	120	103	104	106	146	143	332	376	117	172	272
MAX	1475	1344	562	470	666	732	873	1440	1783	623	1516	2953
(WY)	1987	1975	1975	1975	1975	1987	1977	1987	1996	1987	1978	1980
MIN	4.42	4.57	2.07	2.09	2.19	3.73	.41	.000	.000	.000	2.24	.000
(WY)	1999	1999	1999	1999	1999	1999	1986	1984	1984	1974	1983	1983

08136700 COLORADO RIVER NEAR STACY, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1968 - 1999	
ANNUAL TOTAL	18728.3		4523.4			
ANNUAL MEAN	51.3		12.4		184	
HIGHEST ANNUAL MEAN					719	1987
LOWEST ANNUAL MEAN					12.4	1999
HIGHEST DAILY MEAN	654	Mar 21	228	Jul 10	31300	Sep 10 1980
LOWEST DAILY MEAN	1.5	Nov 27	1.3	Feb 13	.00	Jun 22 1974
ANNUAL SEVEN-DAY MINIMUM	1.7	Nov 26	1.6	Jan 18	.00	Jun 22 1974
INSTANTANEOUS PEAK FLOW			1280	Jul 10	45000	Sep 10 1980
INSTANTANEOUS PEAK STAGE			7.41	Jul 10	28.00	Sep 10 1980
ANNUAL RUNOFF (AC-FT)	37150		8970		133300	
10 PERCENT EXCEEDS	30		29		383	
50 PERCENT EXCEEDS	14		9.6		46	
90 PERCENT EXCEEDS	2.2		1.9		6.5	



08138000 COLORADO RIVER AT WINCHELL, TX

LOCATION.--Lat 31°28'04", long 99°09'43", McCulloch-Brown County line, Hydrologic Unit 12090106, near left bank at downstream end of pier of old abandoned bridge, 300 ft upstream from bridge on U.S. Highway 377, 0.3 mi south of Winchell, 5.9 mi downstream from Home Creek, and at mile 560.7.

DRAINAGE AREA.--25,179 mi^2, approximately, of which 11,391 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Nov 1923 to Sep 1934 (published as "near Milburn"), Jun 1939 to Sep 1993, and Oct 1997 to current year. Water-quality records.--Chemical data: Nov 1967 to Sep 1985, Dec 1990 to Sep 1993. Biochemical data: Dec 1990 to Aug 1993. Specific conductance: Feb 1991 to Sep 1993. Water temperature: Feb 1991 to Sep 1993.

REVISED RECORDS.--WDR TX-81-3: Drainage area. WDR TX-88-3: 1985.

GAGE.--Water-stage recorder. Datum of gage is 1,264.86 ft above sea level. Nov 1923 to Sep 1934, nonrecording gage at site 4.2 mi downstream at datum 10.14 ft lower. Jan 13, 1939, to Mar 24, 1940, nonrecording gage at present site and datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are many diversions above station for irrigation, municipal supply, and for oil field operation. Since water year 1931, at least 10% of contributing drainage area has been regulated by Lake Nasworthy (station 08132000, normal storage 13,990 acre-ft). Since Mar 15, 1990, 95 percent of the drainage area above this station has been regulated by O.H. Ivie Reservoir (station 08136600), 54.4 miles upstream, and by eight other upstream reservoirs, with a total combined (9 reservoirs) capacity of 1,676,000 acre-ft at conservation level. At times, flow may also be affected by discharge from the flood-detention pools of 89 floodwater-retarding structures with a combined detention capacity of 105,100 acre-ft. These flood-detention structures control runoff from 512 mi^2 above this station.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, and computes and publishes streamflow record.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--6 years (water years 1925-30) prior to construction of Lake Nasworthy, 798 ft^3/s (578,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1925-30).--Maximum discharge, 42,300 ft^3/s Jun 15, 1930 (gage height, 38.3 ft, at site 4.2 mi downstream at datum 10.14 ft lower); no flow Aug 8-10, Sep 1-5, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stages since 1882 were 62.2 ft Sep 19, 1936, and 56.2 ft Aug 8, 1906, at railway bridge 1,000 ft upstream and converted to present site and datum, from information by Gulf, Colorado, and Santa Fe Railway Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	32	1.9	1.9	3.7	.11	4.7	13	59	19	6.6	18
2	6.3	40	1.8	1.6	2.5	.04	4.1	9.5	36	14	5.7	15
3	5.4	61	1.8	1.5	2.2	.00	2.9	7.6	26	11	4.5	14
4	4.6	39	2.7	1.4	3.0	.00	2.2	6.3	20	9.8	2.9	16
5	5.1	24	3.1	1.4	3.6	.00	2.0	5.7	17	8.7	1.6	16
6	6.1	17	2.6	1.4	3.6	.00	2.2	5.9	13	8.0	3.7	20
7	6.4	11	1.8	e1.4	3.4	.00	1.8	5.6	13	7.3	17	20
8	9.9	8.5	1.4	1.5	3.0	.00	1.6	5.3	11	6.5	18	17
9	8.6	6.8	1.1	1.5	2.9	.03	1.5	5.1	10	5.3	15	13
10	6.3	5.4	1.9	1.4	2.7	.08	1.1	125	560	55	13	11
11	4.9	3.7	2.4	1.2	2.2	7.4	6.3	94	310	442	13	9.8
12	3.4	3.1	2.3	1.2	1.7	9.6	8.0	28	87	391	13	8.4
13	2.4	3.2	2.3	1.4	1.3	6.9	8.2	16	44	202	12	7.4
14	1.8	10	2.2	1.3	1.2	6.8	10	20	27	76	15	6.9
15	1.0	8.0	2.0	1.2	1.1	4.6	8.5	17	42	38	12	6.2
16	.66	5.1	2.0	1.0	1.1	7.1	8.3	13	32	24	12	5.2
17	19	3.9	2.2	.84	1.0	6.8	7.8	9.0	19	16	14	4.6
18	77	3.6	2.5	.62	.92	81	8.7	10	14	13	13	5.0
19	26	3.7	2.7	.46	.65	205	8.6	9.7	12	11	13	5.8
20	12	4.1	2.9	.46	.56	60	7.5	8.3	12	9.8	13	6.0
21	9.1	4.5	3.1	.41	.49	28	5.7	6.2	13	9.0	12	8.1
22	8.8	5.9	2.8	.32	.42	19	4.2	4.1	13	8.4	12	9.0
23	6.4	5.8	2.5	.19	.27	14	3.7	2.8	14	8.2	13	11
24	4.6	4.6	2.6	.18	.21	10	3.5	2.5	16	7.9	14	15
25	3.6	3.8	2.7	.17	.19	9.1	3.7	2.8	93	7.5	14	15
26	3.1	3.1	2.5	.38	.16	7.2	16	30	339	6.7	15	16
27	3.4	2.8	2.3	1.0	.25	6.5	39	135	164	6.3	14	15
28	2.5	2.7	2.2	1.8	.19	6.9	29	127	108	6.3	15	14
29	1.9	2.4	2.0	4.7	---	5.9	21	79	57	6.4	16	12
30	1.9	2.2	2.0	15	---	5.3	17	319	31	6.9	17	11
31	2.0	---	1.8	6.7	---	5.2	---	136	---	7.1	18	---
TOTAL	260.86	330.9	70.1	55.53	44.51	512.56	248.8	1258.4	2212	1448.1	378.0	351.4
MEAN	8.41	11.0	2.26	1.79	1.59	16.5	8.29	40.6	73.7	46.7	12.2	11.7
MAX	77	61	3.1	15	3.7	205	39	319	560	442	18	20
MIN	.66	2.2	1.1	.17	.16	.00	1.1	2.5	10	5.3	1.6	4.6
AC-FT	517	656	139	110	88	1020	493	2500	4390	2870	750	697

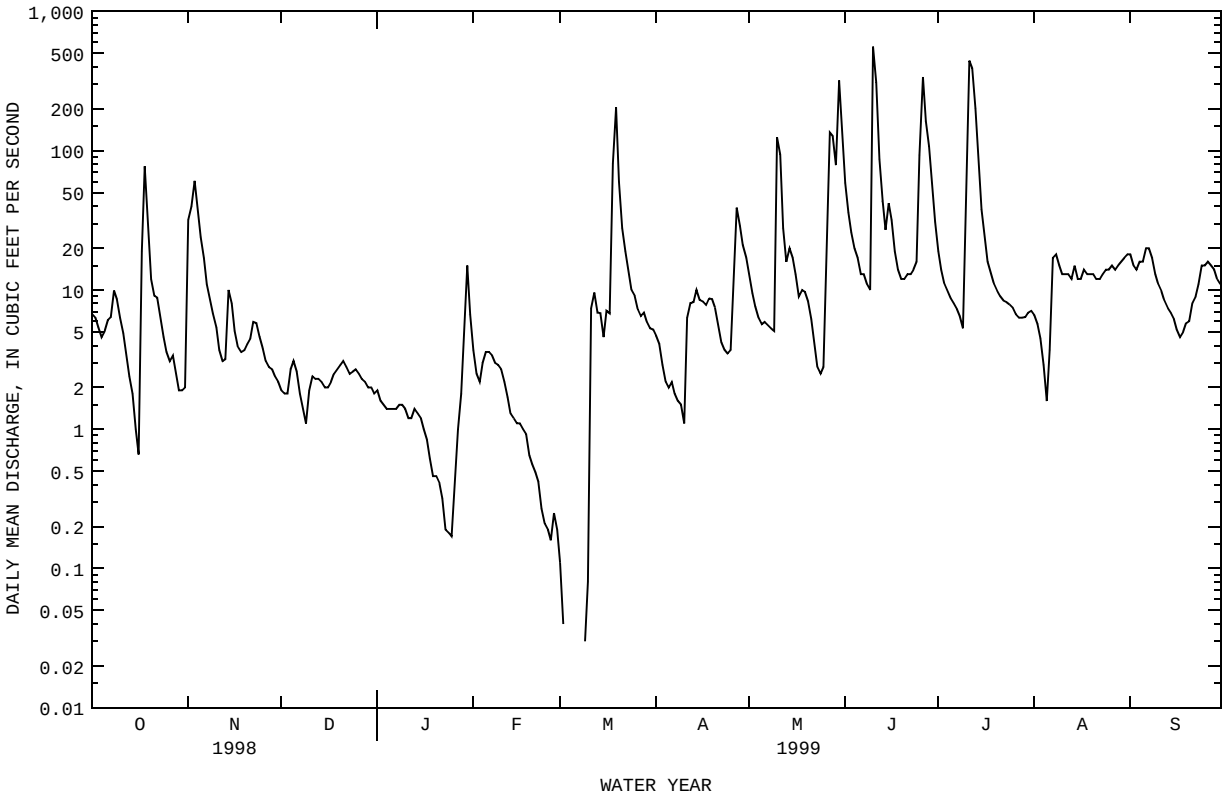
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999hz, BY WATER YEAR (WY)

MEAN	720	149	160	151	176	198	490	1310	762	424	271	559
MAX	9878	1515	1907	1718	2453	1069	4576	13910	5313	4746	2227	6020
(WY)	1931	1975	1992	1968	1992	1987	1949	1957	1941	1945	1942	1932
MIN	.074	1.09	.000	.000	.000	.000	.29	.000	.000	.000	.000	.000
(WY)	1964	1952	1952	1952	1952	1952	1959	1984	1984	1974	1952	1954

08138000 COLORADO RIVER AT WINCHELL, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1931 - 1999hz	
ANNUAL TOTAL	24156.83		7171.16			
ANNUAL MEAN	66.2		19.6		445	
HIGHEST ANNUAL MEAN					2070	1957
LOWEST ANNUAL MEAN					19.6	1999
HIGHEST DAILY MEAN	4440	Mar 16	560	Jun 10	67000	Oct 14 1930
LOWEST DAILY MEAN	.00	Aug 4	.00	Mar 3	.00	Aug 15 1934
ANNUAL SEVEN-DAY MINIMUM	.05	Aug 3	.00	Mar 3	.00	Aug 15 1934
INSTANTANEOUS PEAK FLOW			1520	Jun 10	76100	Oct 15 1930
INSTANTANEOUS PEAK STAGE			6.94	Jun 10	51.80	Oct 15 1930
ANNUAL RUNOFF (AC-FT)	47920		14220		322700	
10 PERCENT EXCEEDS	192		30		667	
50 PERCENT EXCEEDS	6.1		6.4		60	
90 PERCENT EXCEEDS	1.8		1.1		2.9	

e Estimated
h See PERIOD OF RECORD paragraph.
z Period of regulated streamflow.



08141000 HORDS CREEK LAKE NEAR VALERA, TX

LOCATION.--Lat 31°49'58", long 99°33'38", Coleman County, Hydrologic Unit 12090108, at outlet-works structure near right end of dam on Hords Creek, 5.6 mi north of Valera, and 8.8 mi west of Coleman.

DRAINAGE AREA.--48 mi^2, approximately.

PERIOD OF RECORD.--Apr 1948 to current year. Prior to Oct 1970, published as "Hords Creek Reservoir".
Water-quality records.--Chemical data: Oct 1969 to Aug 1982.

GAGE.--Water-stage recorder. Datum of gage is sea level. Satellite telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 6,800 ft long, including spillway. Deliberate impoundment of water began Apr 7, 1948, and the dam was completed in Jun 1948. The spillway is an excavated channel through natural ground, 500 ft wide, located about 600 ft from the right end of dam. The spillway consists of three concrete conduits; two controlled by 5.0- by 6.0-foot slide gates, and a third uncontrolled ogee spillway 4.0 ft wide and 19.5 ft high. The lake is operated for flood control and municipal water supply for the city of Coleman. The capacity table of Aug 1974 is based on a sedimentation survey made in 1948. Flow is affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a detention capacity of 1,370 acre-ft. This structure controls runoff from 6.82 mi^2 in the Jim Ned Creek drainage basin. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,939.0
Design flood	1,933.6
Crest of spillway	1,920.0
Crest of spillway (top of conservation pool)	1,900.0
Lowest gated outlet (invert)	1,856.0

COOPERATION.--Record of contents furnished by U.S. Army Corps of Engineers and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 12,790 acre-ft, May 1, 1956 (elevation 1906.86 ft); maximum elevation, Mar 4, 1992 (elevation, 1907.31 ft); minimum since first appreciable storage in Jun 1951, 1,550 acre-ft, Sep 2, 1984 (elevation, 1878.01 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,580 acre-ft, Oct 1 (elevation, 1,894.22 ft); minimum contents, 3,990 acre-ft, Sep 30 (elevation, 1,889.42 ft).

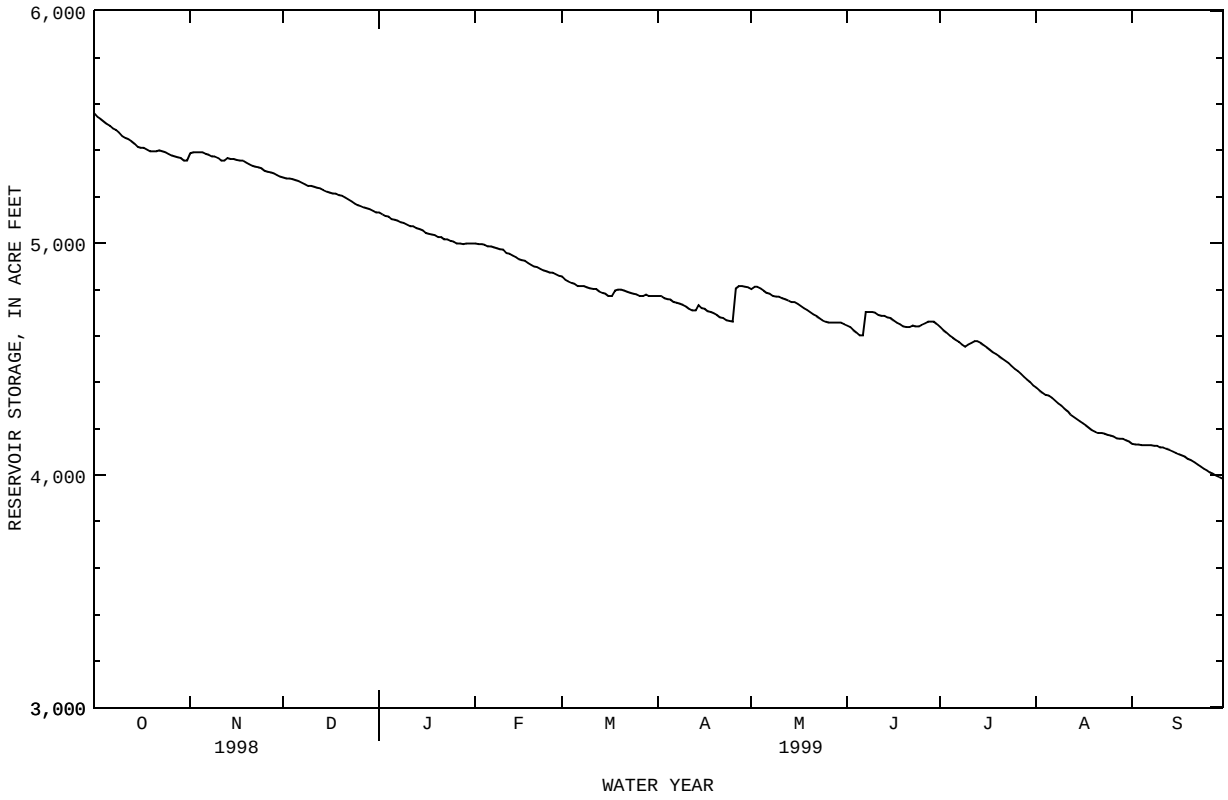
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5560	5390	5280	5130	5000	4860	4770	4800	4650	4640	4380	4140
2	5540	5390	5280	5120	5000	4840	4770	4810	4640	4630	4370	4130
3	5540	5390	5280	5120	5000	4840	4760	4810	4630	4620	4360	4130
4	5530	5390	5280	5110	4990	4830	4760	4810	4620	4600	4350	4130
5	5510	5390	5270	5100	4990	4830	4760	4800	4600	4590	4340	4130
6	5510	5380	5270	5100	4990	4820	4750	4790	4600	4580	4330	4130
7	5500	5380	5260	5100	4980	4820	4740	4780	4700	4570	4320	4130
8	5490	5370	5250	5090	4980	4820	4740	4770	4700	4560	4310	4130
9	5480	5370	5250	5090	4970	4810	4730	4770	4700	4550	4300	4130
10	5460	5370	5250	5080	4970	4810	4730	4770	4700	4560	4290	4120
11	5450	5360	5240	5070	4960	4800	4720	4760	4690	4570	4280	4120
12	5450	5360	5240	5070	4950	4800	4710	4760	4690	4580	4260	4110
13	5440	5370	5240	5070	4950	4790	4710	4750	4690	4580	4250	4110
14	5430	5360	5230	5060	4940	4790	4730	4750	4680	4570	4240	4100
15	5410	5360	5220	5050	4930	4780	4720	4750	4680	4560	4230	4100
16	5410	5360	5220	5040	4930	4770	4720	4740	4670	4550	4220	4090
17	5410	5360	5210	5040	4920	4770	4710	4730	4660	4540	4220	4090
18	5400	5360	5210	5040	4910	4800	4700	4720	4650	4530	4200	4080
19	5400	5350	5210	5030	4910	4800	4700	4710	4640	4520	4190	4070
20	5400	5340	5200	5030	4900	4800	4690	4700	4640	4510	4190	4060
21	5400	5330	5200	5030	4900	4800	4680	4690	4640	4500	4180	4060
22	5400	5330	5190	5020	4890	4790	4680	4690	4650	4490	4180	4050
23	5400	5330	5180	5020	4880	4790	4670	4680	4640	4480	4180	4040
24	5390	5320	5170	5010	4880	4780	4660	4670	4640	4470	4170	4030
25	5380	5310	5160	5010	4870	4780	4660	4660	4650	4460	4170	4020
26	5380	5310	5160	5000	4870	4770	4810	4660	4650	4450	4170	4010
27	5370	5300	5150	5000	4870	4770	4820	4660	4660	4440	4160	4010
28	5370	5300	5150	5000	4860	4780	4820	4660	4660	4420	4160	4000
29	5370	5290	5150	5000	---	4770	4810	4660	4660	4410	4160	3990
30	5360	5290	5140	5000	---	4770	4810	4660	4650	4400	4150	3990
31	5360	---	5130	5000	---	4770	---	4650	---	4390	4140	---
MAX	5560	5390	5280	5130	5000	4860	4820	4810	4700	4640	4380	4140
MIN	5360	5290	5130	5000	4860	4770	4660	4650	4600	4390	4140	3990
(+)	1893.64	1893.45	1893.00	1892.63	1892.22	1891.95	1892.07	1891.58	1891.58	1890.77	1889.95	1889.43
(@)	-210	-70	-160	-130	-140	-90	+40	-160	0	-260	-250	-150

CAL YR 1998 MAX 7070 MIN 5130 (@) -1520
WTR YR 1999 MAX 5560 MIN 3990 (@) -1580

(+) Elevation, in feet, at end of month.
(@) Change in Contents, in acre-feet.

08141000 HORDS CREEK LAKE NEAR VALERA, TX--Continued



08143600 PECAN BAYOU NEAR MULLIN, TX

LOCATION.--Lat 31°31'02", long 98°44'25", Mills County, Hydrologic Unit 12090107, on right bank 44 ft downstream from bridge on Farm Road 573, 0.6 mi downstream from Blanket Creek, 5.5 mi southwest of Mullin, and 13.6 mi upstream from mouth.

DRAINAGE AREA.--2,073 mi^2.

PERIOD OF RECORD.--Oct 1967 to current year.
Water-quality records.--Chemical data: Oct 1967 to Aug 1996. Biochemical data: Nov 1991 to Aug 1996. Specific conductance: Oct 1967 to Sep 1991. Water temperature: Oct 1967 to Sep 1991.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,202.93 ft above sea level. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in water year 1968, at least 10% of contributing drainage area has been regulated by Lake Brownwood (station 08143000, normal storage 118,900 acre-ft) 45 miles upstream. In addition, flow from 152 mi^2 (from an intervening drainage area of 641 mi^2) above this station and below Lake Brownwood was partly controlled by 41 floodwater-retarding structures, with a combined detention capacity of 43,420 acre-ft below the flood-spillway crests.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

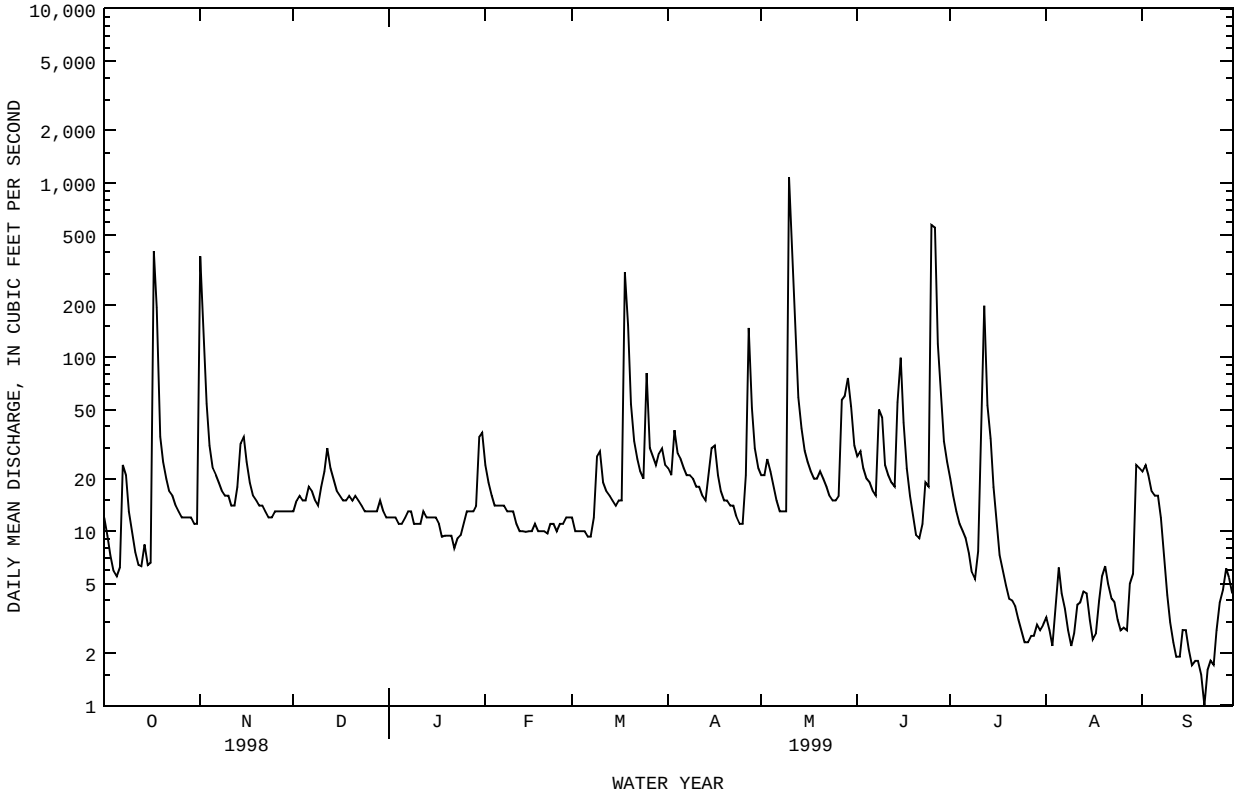
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	380	13	12	24	12	23	21	27	20	3.2	22
2	9.4	163	15	12	19	10	21	21	29	16	2.7	24
3	7.3	54	16	12	16	10	38	26	23	13	2.2	21
4	5.9	31	15	11	14	10	28	22	20	11	3.8	17
5	5.5	23	15	11	14	10	26	18	19	10	6.2	16
6	6.2	21	18	12	14	9.3	23	15	17	9.1	4.4	16
7	24	19	17	13	14	9.3	21	13	16	7.5	3.6	12
8	21	17	15	13	13	12	21	13	50	5.8	2.7	7.1
9	13	16	14	11	13	27	20	13	45	5.3	2.2	4.3
10	10	16	18	11	13	29	18	1080	24	7.7	2.6	3.0
11	7.6	14	22	11	11	19	18	458	21	51	3.8	2.3
12	6.4	14	30	13	10	17	16	152	19	197	3.9	1.9
13	6.3	18	23	12	10	16	15	59	18	53	4.5	1.9
14	8.4	32	20	12	9.9	15	21	39	55	34	4.4	2.7
15	6.4	35	17	12	10	14	30	29	99	18	3.1	2.7
16	6.6	25	16	12	10	15	31	25	42	11	2.4	2.1
17	406	19	15	11	11	15	21	22	23	7.3	2.6	1.7
18	193	16	15	9.3	10	308	17	20	16	5.8	4.0	1.8
19	35	15	16	9.4	10	152	15	20	12	4.9	5.5	1.8
20	25	14	15	9.4	10	54	15	22	9.5	4.1	6.3	1.5
21	20	14	16	9.4	9.7	33	14	20	9.1	4.0	5.0	1.0
22	17	13	15	8.0	11	26	14	18	11	3.7	4.1	1.6
23	16	12	14	9.1	11	22	12	16	19	3.1	3.9	1.8
24	14	12	13	9.5	10	20	11	15	18	2.7	3.1	1.7
25	13	13	13	11	11	81	11	15	575	2.3	2.7	2.7
26	12	13	13	13	11	30	21	16	555	2.3	2.8	3.9
27	12	13	13	13	12	27	147	57	119	2.5	2.7	4.6
28	12	13	13	13	12	24	51	60	56	2.5	5.0	6.1
29	12	13	15	14	---	28	30	76	33	2.9	5.7	5.4
30	11	13	13	35	---	30	23	52	25	2.7	24	4.4
31	11	---	12	37	---	24	---	31	---	2.9	23	---
TOTAL	965.0	1071	495	401.1	343.6	1108.6	772	2464	2004.6	523.1	156.1	196.0
MEAN	31.1	35.7	16.0	12.9	12.3	35.8	25.7	79.5	66.8	16.9	5.04	6.53
MAX	406	380	30	37	24	308	147	1080	575	197	24	24
MIN	5.5	12	12	8.0	9.7	9.3	11	13	9.1	2.3	2.2	1.0
AC-FT	1910	2120	982	796	682	2200	1530	4890	3980	1040	310	389

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1999, BY WATER YEAR (WY)

MEAN	151	82.5	194	146	241	247	231	294	356	55.5	26.6	80.8
MAX	987	1227	4741	1965	4416	2361	3510	1975	2898	434	195	980
(WY)	1975	1975	1992	1968	1992	1992	1990	1994	1997	1997	1971	1991
MIN	.59	4.79	3.90	4.57	6.55	5.45	3.63	.12	.000	.000	.000	.79
(WY)	1989	1989	1984	1986	1983	1996	1984	1984	1984	1974	1980	1989

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1968 - 1999	
ANNUAL TOTAL	44715.1		10500.1			
ANNUAL MEAN	123		28.8		175	
HIGHEST ANNUAL MEAN					1245	1992
LOWEST ANNUAL MEAN					9.01	1984
HIGHEST DAILY MEAN	6060	Mar 16	1080	May 10	37000	Apr 27 1990
LOWEST DAILY MEAN	4.2	Sep 7	1.0	Sep 21	.00	Jun 29 1974
ANNUAL SEVEN-DAY MINIMUM	4.8	Sep 6	1.6	Sep 17	.00	Jun 29 1974
INSTANTANEOUS PEAK FLOW			2600	May 10	38300	Apr 27 1990
INSTANTANEOUS PEAK STAGE			8.00	May 10	42.15	Apr 27 1990
ANNUAL RUNOFF (AC-FT)	88690		20830		126700	
10 PERCENT EXCEEDS	97		35		271	
50 PERCENT EXCEEDS	20		14		15	
90 PERCENT EXCEEDS	6.2		3.1		3.0	

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued



08144500 SAN SABA RIVER AT MENARD, TX

LOCATION.--Lat 30°55'08", long 99°47'07", Menard County, Hydrologic Unit 12090109, at downstream side of bridge on U.S. Highway 83 in Menard, 1.1 mi downstream from Las Moras Creek, 1.9 mi upstream from Volkmann Draw, and 116.3 mi upstream from mouth.

DRAINAGE AREA.--1,135 mi^2, of which 6.6 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1915 to Sep 1993 and Oct 1997 to current year.
Water-quality records.--Chemical data: Nov 1964 to Jul 1967.

REVISED RECORDS.--WDR TX-81-3: Drainage area. WSP 1512: 1918-20, 1922-25, 1926(M), 1927-32, 1934(M), 1936, 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,863.05 ft above sea level. Sep 14, 1915, to Mar 12, 1924, nonrecording gage at site 635 ft downstream at datum 2.20 ft lower. Mar 13, 1924, to Feb 21, 1939, nonrecording gage at site 1,000 ft upstream at datum 2.00 ft higher. Feb 22, 1939, to Jan 25, 1940, nonrecording gage at present site and datum. Jan 26, 1940, to Sep 19, 1957, water-stage recorder at site 240 ft to right at present datum. Feb 8, 1962, to Jan 22, 1963, nonrecording gage at site 600 ft downstream at present datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since about 1890, low flow regulated during irrigation season by diversions to Noyes Canal 4.6 mi upstream and diversions by pumping at several locations upstream.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 23.3 ft Jun 6, 1899, present site and datum, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 670 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 12	1015	1,060	6.30	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	46	25	25	24	20	15	13	12	11	7.7	7.7
2	20	39	26	25	23	20	15	13	9.9	9.8	7.9	7.0
3	20	33	26	24	22	19	15	14	8.9	8.8	7.8	7.4
4	20	26	27	23	22	19	16	14	8.8	9.3	7.6	7.3
5	21	27	27	23	22	19	15	14	8.4	10	9.2	7.4
6	21	25	27	23	24	19	16	12	8.1	9.7	9.9	7.7
7	19	24	26	e23	23	20	16	11	8.3	9.6	9.0	8.3
8	19	24	26	24	22	22	15	11	8.6	8.7	8.2	8.1
9	19	24	26	23	29	24	16	11	7.9	8.2	8.6	9.1
10	19	23	28	23	33	22	14	13	7.6	11	7.9	9.0
11	19	22	30	24	28	21	12	13	7.7	59	7.6	9.4
12	20	22	29	24	25	188	13	13	7.0	31	7.6	9.4
13	20	27	27	24	27	123	13	12	8.1	27	7.3	9.2
14	27	28	26	24	25	41	18	12	8.7	18	6.9	9.0
15	29	27	26	24	18	27	16	13	10	17	6.5	8.8
16	30	26	26	23	16	22	14	12	12	15	6.3	7.8
17	30	24	26	23	18	21	13	12	10	14	5.9	7.9
18	30	24	26	22	21	105	13	13	9.5	13	6.0	7.9
19	30	25	26	24	21	35	13	12	9.4	13	6.4	7.9
20	31	25	26	24	22	23	12	11	19	12	6.5	8.1
21	31	25	26	25	23	17	13	11	30	11	6.1	7.9
22	32	25	26	25	22	15	12	11	37	11	6.0	8.2
23	31	26	24	22	23	14	12	11	26	10	6.6	8.3
24	29	26	24	22	23	14	11	11	19	10	6.7	8.6
25	29	26	25	22	24	14	12	11	16	10	7.9	8.7
26	30	26	24	22	23	14	22	10	15	10	8.2	9.6
27	28	26	24	22	22	15	21	14	14	10	8.3	9.4
28	21	26	24	23	22	25	17	17	14	9.9	8.4	9.4
29	22	26	24	49	---	22	14	18	13	9.4	9.3	7.8
30	22	26	23	33	---	18	13	15	12	8.5	9.5	7.3
31	22	---	24	27	---	16	---	13	---	8.0	9.0	---
TOTAL	760	799	800	764	647	994	437	391	385.9	422.9	236.8	249.6
MEAN	24.5	26.6	25.8	24.6	23.1	32.1	14.6	12.6	12.9	13.6	7.64	8.32
MAX	32	46	30	49	33	188	22	18	37	59	9.9	9.6
MIN	19	22	23	22	16	14	11	10	7.0	8.0	5.9	7.0
AC-FT	1510	1580	1590	1520	1280	1970	867	776	765	839	470	495

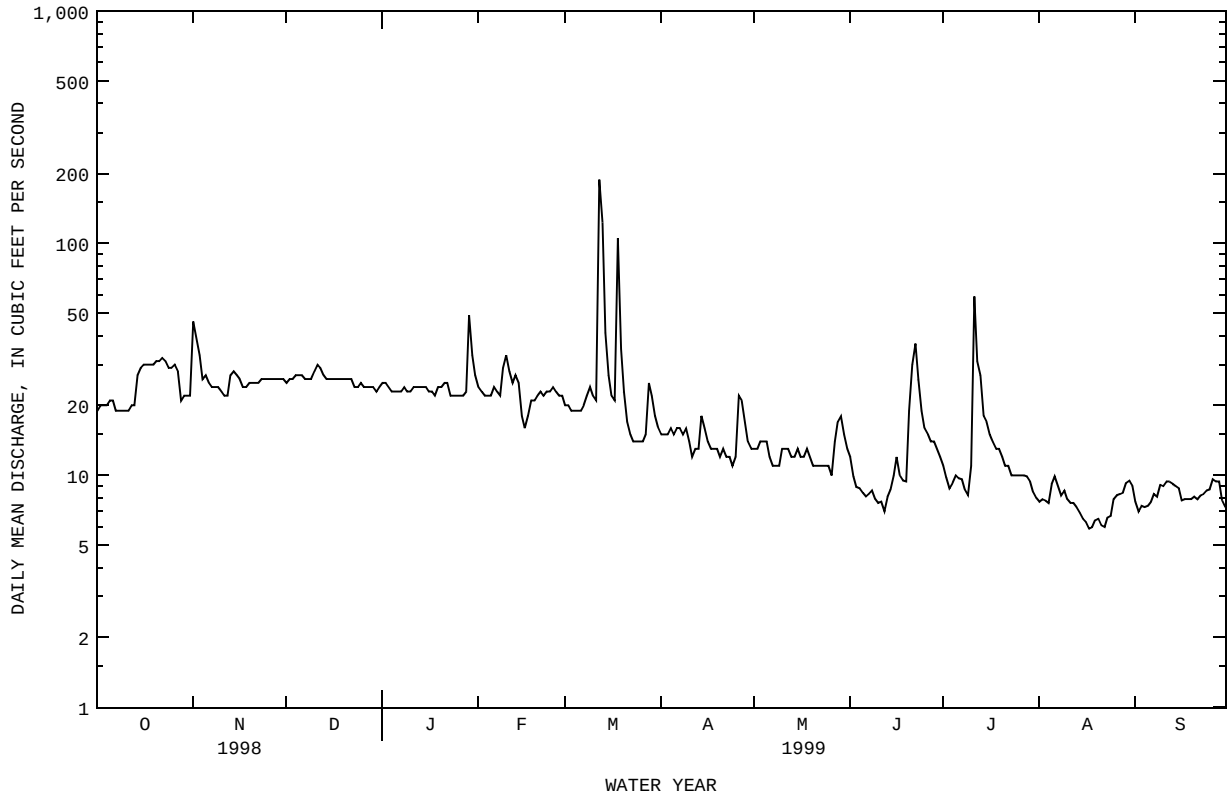
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 1999h, BY WATER YEAR (WY)

MEAN	88.9	36.6	31.8	32.0	38.4	33.2	68.9	77.7	57.8	104	43.1	136
MAX	914	383	152	80.4	261	251	1206	1631	667	5140	869	2870
(WY)	1942	1924	1985	1985	1958	1922	1922	1957	1958	1938	1974	1936
MIN	.000	.000	.000	.035	.82	.99	.89	1.22	.000	.000	.000	.000
(WY)	1957	1957	1955	1957	1955	1956	1955	1964	1953	1952	1952	1954

08144500 SAN SABA RIVER AT MENARD, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1916 - 1999h	
ANNUAL TOTAL	8563.4		6887.2			
ANNUAL MEAN	23.5		18.9		62.4	
HIGHEST ANNUAL MEAN					485	1938
LOWEST ANNUAL MEAN					6.12	1952
HIGHEST DAILY MEAN	1530	Aug 26	188	Mar 12	53300	Jul 23 1938
LOWEST DAILY MEAN	3.0	Aug 2	5.9	Aug 17	.00	Jul 12 1918
ANNUAL SEVEN-DAY MINIMUM	3.3	Jul 28	6.2	Aug 16	.00	Jul 19 1918
INSTANTANEOUS PEAK FLOW			1060	Mar 12	c130000	Jul 23 1938
INSTANTANEOUS PEAK STAGE			6.30	Mar 12	a22.20	Jul 23 1938
ANNUAL RUNOFF (AC-FT)	16990		13660		45180	
10 PERCENT EXCEEDS	27		27		59	
50 PERCENT EXCEEDS	18		18		23	
90 PERCENT EXCEEDS	7.7		7.9		2.1	

e Estimated
h See PERIOD OF RECORD paragraph.
c From rating curve extended above 56,000 ft^3/s on basis of slope-area measurement of 130,000 ft^3/s.
a From floodmark.



08144600 SAN SABA RIVER NEAR BRADY, TX

LOCATION.--Lat 31°00'14", long 99°16'07", McCulloch County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on U.S. Highways 87 and 377, 0.4 mi upstream from Hudson Branch, and 8.4 mi southeast of Brady, and 72.9 mi upstream from mouth.

DRAINAGE AREA.--1,633 mi^2, of which 6.60 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jul 1979 to Sep 1993 and Oct 1997 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,530.98 ft above sea level. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records poor. No known regulation. Noyes Canal at Menard (discontinued station 08144000) diverts water from right bank of San Saba River 4.6 mi upstream from Menard for irrigation near Menard. First diversion was about 1890.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, and computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stage since Jun 1899, 33.8 ft Jul 23, 1938, from floodmark on left bank 150 ft upstream from present site.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 12	1515	2,460	6.17	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	65	29	34	49	25	54	36	23	16	1.9	.13
2	12	55	29	33	45	26	51	31	19	13	1.4	.12
3	12	40	29	32	42	24	48	31	17	11	1.0	.12
4	13	39	29	32	40	21	45	32	15	9.3	.75	.13
5	12	37	30	32	40	21	43	35	11	9.6	.55	.13
6	19	32	29	32	40	20	40	35	7.5	8.0	.33	.12
7	25	29	28	e33	36	18	40	32	5.4	6.3	.25	.12
8	20	28	29	33	33	22	41	30	4.0	4.9	.20	.12
9	16	28	29	32	33	21	42	28	3.2	7.3	.17	.13
10	16	26	38	32	33	22	39	27	2.7	11	.16	.13
11	18	24	45	32	34	27	37	21	5.7	17	.15	.13
12	17	24	39	33	37	489	37	21	6.2	21	.13	.13
13	17	27	38	33	34	251	30	22	98	52	.12	.12
14	16	35	36	33	32	168	35	23	41	40	.12	.12
15	16	31	33	31	35	84	36	22	14	33	.11	.13
16	17	31	33	30	37	65	39	19	13	25	.11	.15
17	22	31	34	33	30	51	41	18	14	19	.11	.16
18	27	29	34	32	26	101	39	21	8.5	19	.11	.16
19	23	28	34	33	21	144	35	21	5.9	18	.11	.15
20	25	26	34	33	22	97	30	21	5.0	15	.10	.09
21	29	26	35	33	22	70	34	20	9.5	11	.11	.09
22	28	26	34	33	26	55	33	19	60	11	.11	.05
23	29	27	32	33	28	49	29	16	64	8.9	.11	.02
24	29	27	34	33	28	46	28	12	46	7.2	.11	.02
25	29	28	34	33	30	45	29	11	39	5.1	.13	.01
26	28	28	34	34	30	43	35	15	31	3.5	.13	.00
27	27	29	35	33	33	49	42	23	29	2.6	.14	.00
28	28	29	35	32	29	59	43	18	26	1.9	.13	.00
29	28	29	35	39	---	59	47	17	24	1.4	.15	.00
30	25	29	35	48	---	61	42	35	21	1.1	.15	.00
31	19	---	34	65	---	61	---	28	---	1.9	.13	---
TOTAL	655	943	1036	1064	925	2294	1164	740	668.6	411.0	9.28	2.78
MEAN	21.1	31.4	33.4	34.3	33.0	74.0	38.8	23.9	22.3	13.3	.30	.093
MAX	29	65	45	65	49	489	54	36	98	52	1.9	.16
MIN	12	24	28	30	21	18	28	11	2.7	1.1	.10	.00
AC-FT	1300	1870	2050	2110	1830	4550	2310	1470	1330	815	18	5.5

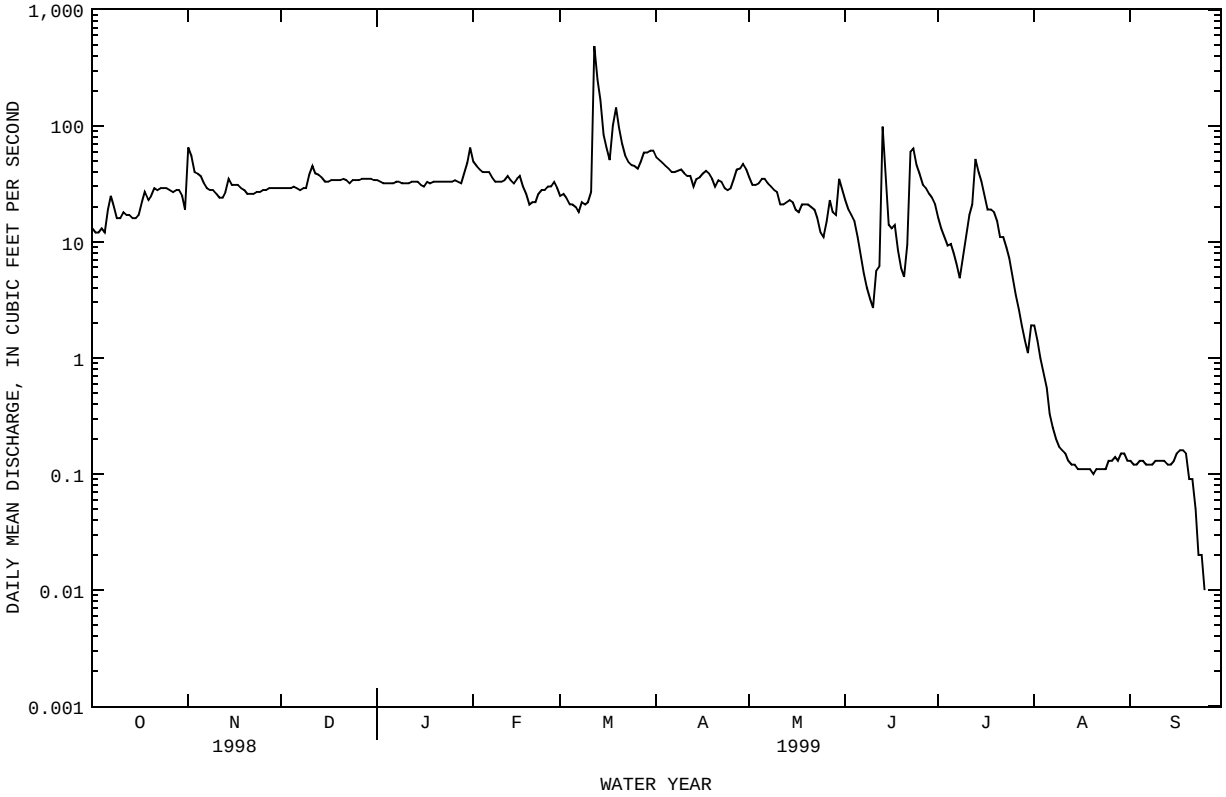
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1999h, BY WATER YEAR (WY)

MEAN	48.9	44.6	87.2	68.0	75.4	64.5	51.5	62.8	97.8	81.9	55.7	195
MAX	118	91.3	516	282	400	160	144	167	511	901	543	1631
(WY)	1991	1991	1985	1985	1992	1992	1992	1987	1987	1990	1990	1980
MIN	10.5	19.0	22.6	26.8	33.0	24.1	16.3	6.35	.75	.49	.30	.074
(WY)	1984	1998	1986	1986	1999	1986	1986	1984	1984	1998	1999	1984

08144600 SAN SABA RIVER NEAR BRADY, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1979 - 1999h	
ANNUAL TOTAL	10049.01		9912.66			
ANNUAL MEAN	27.5		27.2		78.4	
HIGHEST ANNUAL MEAN					256	1990
LOWEST ANNUAL MEAN					17.0	1984
HIGHEST DAILY MEAN	886	Aug 27	489	Mar 12	23900	Sep 8 1980
LOWEST DAILY MEAN	.16	Aug 2	.00	Sep 26	.00	Sep 26 1999
ANNUAL SEVEN-DAY MINIMUM	.17	Jul 29	.00	Sep 24	.00	Sep 24 1999
INSTANTANEOUS PEAK FLOW			2460	Mar 12	66000	Sep 8 1980
INSTANTANEOUS PEAK STAGE			6.17	Mar 12	25.50	Sep 8 1980
ANNUAL RUNOFF (AC-FT)	19930		19660		56790	
10 PERCENT EXCEEDS	38		44		91	
50 PERCENT EXCEEDS	26		28		40	
90 PERCENT EXCEEDS	.40		.13		6.3	

e Estimated
h See PERIOD OF RECORD paragraph.



08144900 BRADY CREEK RESERVOIR NEAR BRADY, TX

LOCATION.--Lat 31°08'17", long 99°23'07", McCulloch County, Hydrologic Unit 12090110, at mouth of Bear Creek on Brady Creek, 280 ft upstream from Farm Road 3022 over Brady Creek Dam, 3.0 mi west of Brady, and 34.1 mi upstream from mouth.

DRAINAGE AREA.--523 mi^2.

PERIOD OF RECORD.--May 1963 to Sep 1983, Jan 1999 to Sep 1999.
Water-quality records.--Chemical data: Sep 1964 to Apr 1983.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. Satellite telemeter at station.

REMARKS.--Records good. The reservoir is formed by a compacted earthfill dam 8,400 ft long. The dam was completed and storage began in May 1963. The dam was built by the city of Brady in cooperation with the Soil Conservation Service and the Farmers Home Administration for flood control, municipal, and industrial water supply. The spillway is a cut channel through natural ground 1,000 ft wide located at right end of dam. The top of conservation pool is an uncontrolled concrete drop-inlet structure that discharges through a 7.0 by 7.0-foot concrete box conduit and is designed to discharge 4,000 ft^3/s at a 19.4-ft head. The gated outlet is a 36-inch pipe that extends through the embankment and is equipped with three sluice gates for controlled releases downstream. Flow into reservoir is affected at times by discharge from the flood-detention pools of 35 floodwater-retarding structures with a combined detention capacity of 77,950 acre-ft. These structures were built during the period Feb 1955 to Jul 1962 and control runoff from 263 mi^2 in the Brady Creek watershed above this station. Figures given herein represent total contents. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,783.0
Crest of emergency spillway	1,762.4
Crest of service spillway (top of conservation pool)	1,743.0
Lowest gated outlet (invert)	1,712.0

COOPERATION.--The capacity table dated May 22, 1963 was prepared from curve obtained from the city of Brady. The capacity curve is based on U.S. Geological Survey topographic map but was not adjusted for borrow. Records of diversions may be obtained from the city of Brady.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,880 acre-ft, Sep 24, 1971 (elevation, 1,747.70 ft); minimum since first appreciable storage, 1,030 acre-ft Sep 18, 1964 (elevation, 1,710.40 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,000 acre-ft, Jan 30 (elevation, 1,731.88 ft); minimum contents, 9,750 acre-ft, Sep 30 (elevation, 1,728.75 ft).

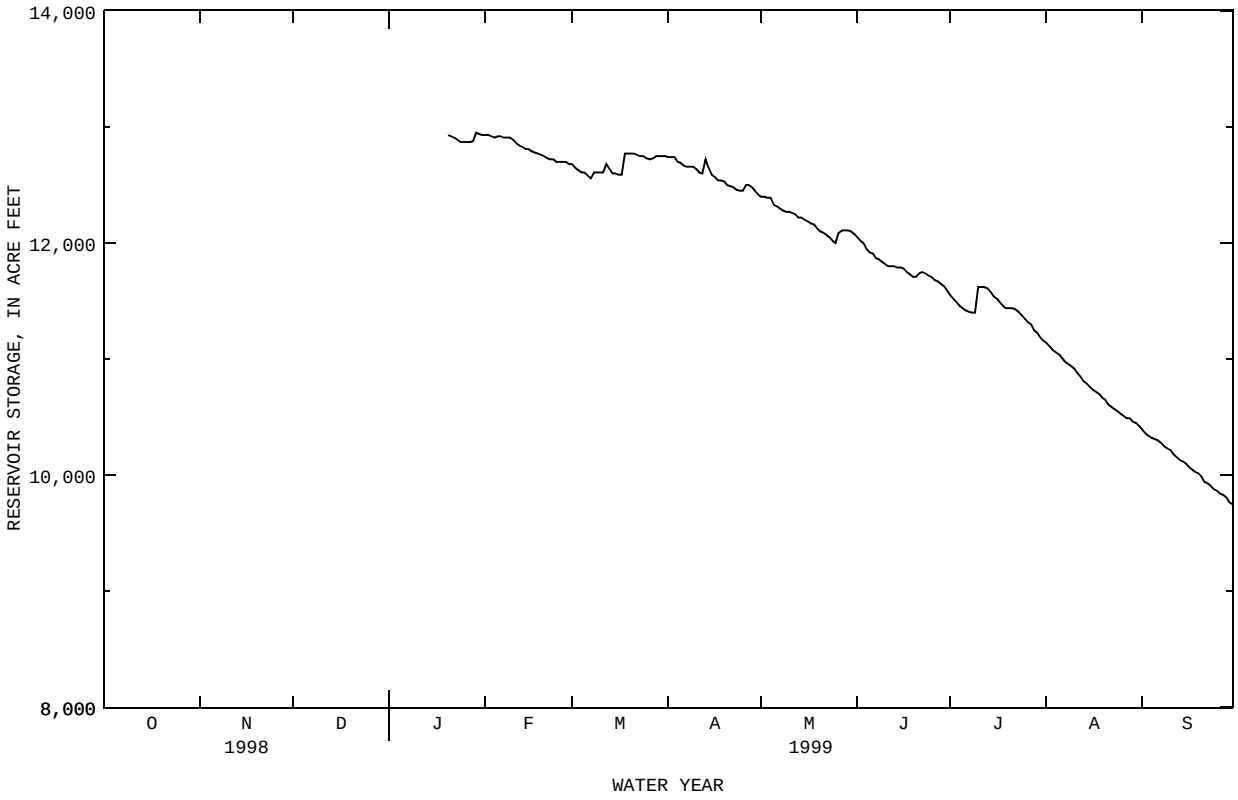
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	12930	12680	12740	12400	12050	11550	11140	10390
2	---	---	---	---	12930	12650	12740	12400	12020	11520	11110	10360
3	---	---	---	---	12920	12630	12740	12390	12000	11490	11080	10340
4	---	---	---	---	12910	12610	12700	12390	11950	11460	11060	10320
5	---	---	---	---	12920	12610	12690	12330	11920	11440	11040	10310
6	---	---	---	---	12920	12580	12670	12320	11910	11420	11010	10300
7	---	---	---	---	12910	12560	12660	12300	11870	11410	10980	10280
8	---	---	---	---	12910	12610	12660	12280	11860	11400	10960	10250
9	---	---	---	---	12910	12610	12660	12270	11840	11400	10940	10230
10	---	---	---	---	12890	12610	12640	12270	11820	11620	10920	10220
11	---	---	---	---	12860	12610	12610	12260	11800	11620	10880	10180
12	---	---	---	---	12840	12680	12600	12250	11800	11620	10850	10160
13	---	---	---	---	12830	12640	12720	12220	11800	11610	10810	10130
14	---	---	---	---	12810	12600	12650	12220	11790	11580	10790	10120
15	---	---	---	---	12810	12600	12590	12200	11790	11540	10760	10100
16	---	---	---	---	12790	12590	12570	12190	11780	11520	10740	10070
17	---	---	---	---	12780	12590	12540	12170	11750	11490	10720	10050
18	---	---	---	---	12770	12770	12540	12160	11730	11460	10700	10030
19	---	---	---	---	12760	12770	12530	12130	11710	11440	10670	10020
20	---	---	---	12930	12750	12770	12500	12100	11710	11440	10650	9990
21	---	---	---	12920	12730	12770	12490	12090	11740	11440	10610	9940
22	---	---	---	12910	12720	12760	12480	12070	11750	11430	10590	9930
23	---	---	---	12890	12720	12750	12460	12050	11740	11410	10570	9910
24	---	---	---	12870	12700	12750	12450	12020	11720	11380	10550	9880
25	---	---	---	12870	12700	12730	12450	12000	11710	11350	10530	9870
26	---	---	---	12870	12700	12720	12500	12090	11680	11320	10510	9840
27	---	---	---	12870	12700	12730	12500	12110	11670	11300	10490	9830
28	---	---	---	12880	12680	12750	12480	12110	11650	11250	10490	9810
29	---	---	---	12950	---	12750	12450	12110	11630	11230	10460	9770
30	---	---	---	12940	---	12750	12420	12100	11590	11190	10450	9750
31	---	---	---	12930	---	12750	---	12080	---	11160	10420	---
MAX	---	---	---	---	12930	12770	12740	12400	12050	11620	11140	10390
MIN	---	---	---	---	12680	12560	12420	12000	11590	11160	10420	9750
(+)					1731.60	1731.66	1731.37	1731.06	1730.60	1730.19	1729.45	1728.75
(@)					-250	+70	-330	-340	-490	-430	-740	-670

WTR YR 1999 MAX 12950 MIN 9750

(+) Elevation, in feet, at end of month.
(@) Change in contents, in acre-feet.

08144900 BRADY CREEK RESERVOIR NEAR BRADY, TX--Continued



08146000 SAN SABA RIVER AT SAN SABA, TX

LOCATION.--Lat 31°12'47", long 98°43'09", San Saba County, Hydrologic Unit 12090109, on left bank near left downstream end of bridge on State Highway 16, 1.2 mi north of San Saba, 2.7 mi upstream from Mill Creek, 4.8 mi downstream from China Creek, and 16.8 mi upstream from mouth.

DRAINAGE AREA.--3,046 mi^2, of which 6.6 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Dec 1904 to Dec 1906 (gage heights only), Sep 1915 to Sep 1993, and Oct 1997 to current year. Published as "near San Saba" Dec 1904 to Dec 1906 and Sep 1915 to Aug 1930.
Water-quality records.--Chemical data: Sep 1947 to Feb 1949, Nov 1958 to Sep 1969. Water temperature: Sep 1962 to Sep 1969.

REVISED RECORDS.--WSP 458: 1915-16. WSP 1282: WDR TX-81-3: Drainage area. WSP 1512: 1918-19(M), 1922, 1931(M), 1935 WSP 1922: 1917.

GAGE.--Water-stage recorder. Datum of gage is 1,162.16 ft above sea level. See WSP 1922 for brief history of changes prior to Jul 8, 1953. From Oct 1956 to Sep 1993, at site 250 ft to right and supplementary water-stage recorder 2,780 ft to right of main channel gage used for floodflows at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Many diversions above station for irrigation and municipal use that affect low flows. Flow partly affected by Brady Creek Reservoir (station 08144900).

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, and computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jun 6, 1899, reached a stage of 36.7 ft, present site and datum, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	398	83	91	90	83	102	76	155	82	28	21
2	53	238	84	92	104	79	97	83	135	75	33	21
3	54	183	85	90	101	74	498	80	120	66	31	23
4	52	147	84	86	97	71	188	75	108	60	28	28
5	54	117	84	87	95	73	106	67	98	58	24	30
6	77	110	84	88	94	70	91	61	89	53	22	31
7	71	106	82	e90	92	67	85	59	84	50	23	34
8	63	102	80	88	89	72	85	60	82	46	27	34
9	59	99	79	86	89	74	84	60	74	45	27	27
10	64	95	91	86	86	74	82	81	69	43	23	24
11	65	90	106	86	84	71	79	188	85	58	22	24
12	61	87	105	88	82	76	78	496	82	75	22	24
13	59	92	105	88	76	462	76	222	80	76	22	22
14	61	123	100	86	78	432	87	136	75	93	22	22
15	59	103	96	86	79	325	90	124	72	77	22	22
16	59	97	97	86	82	211	73	120	132	103	22	21
17	81	99	95	85	79	141	72	114	111	92	22	21
18	245	96	94	83	81	141	72	109	92	85	22	21
19	95	96	94	84	82	149	75	100	81	76	22	20
20	100	93	94	85	78	195	76	94	77	68	22	21
21	103	88	94	84	74	225	73	94	86	56	22	20
22	86	86	92	84	71	157	70	95	95	49	22	21
23	79	84	89	81	69	125	66	94	93	49	22	24
24	79	84	91	81	69	109	66	94	81	46	24	22
25	78	83	92	83	70	102	67	92	138	43	24	22
26	79	84	92	82	74	94	77	106	130	41	26	23
27	79	84	93	83	80	91	83	116	120	38	25	21
28	79	84	93	82	86	97	79	234	108	34	25	22
29	78	85	93	83	---	103	75	254	97	28	27	21
30	78	86	92	83	---	113	73	162	87	22	32	23
31	79	---	90	84	---	105	---	246	---	24	27	---
TOTAL	2387	3419	2833	2651	2331	4261	2925	3992	2936	1811	762	710
MEAN	77.0	114	91.4	85.5	83.3	137	97.5	129	97.9	58.4	24.6	23.7
MAX	245	398	106	92	104	462	498	496	155	103	33	34
MIN	52	83	79	81	69	67	66	59	69	22	22	20
AC-FT	4730	6780	5620	5260	4620	8450	5800	7920	5820	3590	1510	1410

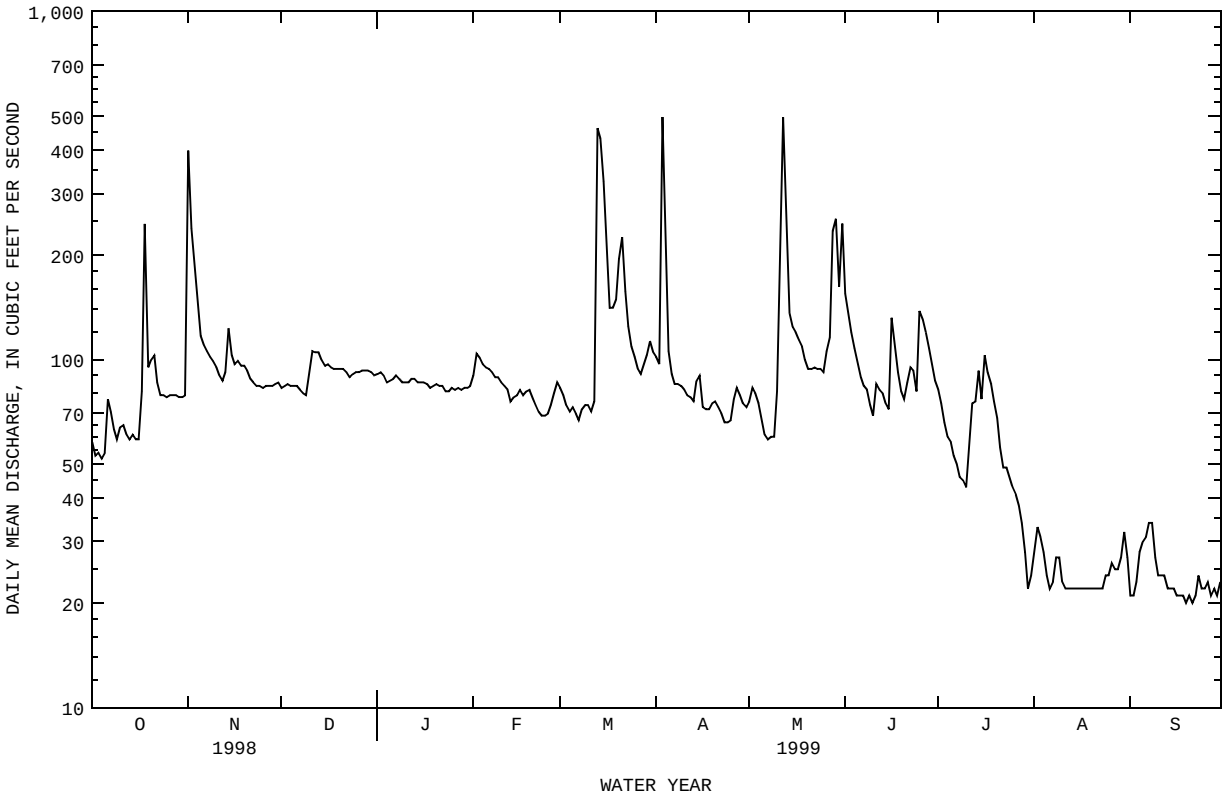
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 1999h, BY WATER YEAR (WY)

MEAN	270	137	139	156	171	154	274	373	247	286	124	320
MAX	2150	791	893	896	1542	635	5157	3031	1873	12050	1768	4164
(WY)	1931	1924	1992	1968	1992	1992	1922	1957	1935	1938	1971	1936
MIN	11.9	11.6	16.1	14.9	21.3	14.8	23.4	10.3	5.31	.32	.25	5.40
(WY)	1957	1957	1957	1957	1957	1955	1986	1984	1984	1964	1954	1954

08146000 SAN SABA RIVER AT SAN SABA, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1916 - 1999h	
ANNUAL TOTAL	44982		31018			
ANNUAL MEAN	123		85.0		221	
HIGHEST ANNUAL MEAN					1318	1938
LOWEST ANNUAL MEAN					29.2	1984
HIGHEST DAILY MEAN	4150	Mar 16	498	Apr 3	117000	Jul 23 1938
LOWEST DAILY MEAN	31	Aug 3	20	Sep 19	.00	Jul 6 1918
ANNUAL SEVEN-DAY MINIMUM	34	Jul 29	21	Sep 16	.00	Jul 13 1954
INSTANTANEOUS PEAK FLOW			1310	Apr 3	c203000	Jul 23 1938
INSTANTANEOUS PEAK STAGE			7.15	Apr 3	39.30	Jul 23 1938
ANNUAL RUNOFF (AC-FT)	89220		61520		160100	
10 PERCENT EXCEEDS	162		118		290	
50 PERCENT EXCEEDS	91		82		88	
90 PERCENT EXCEEDS	47		23		26	

e Estimated
h See PERIOD OF RECORD paragraph.
c From rating curve extended above 41,000 ft^3/s on basis of slope-area measurement of 203,000 ft^3/s.



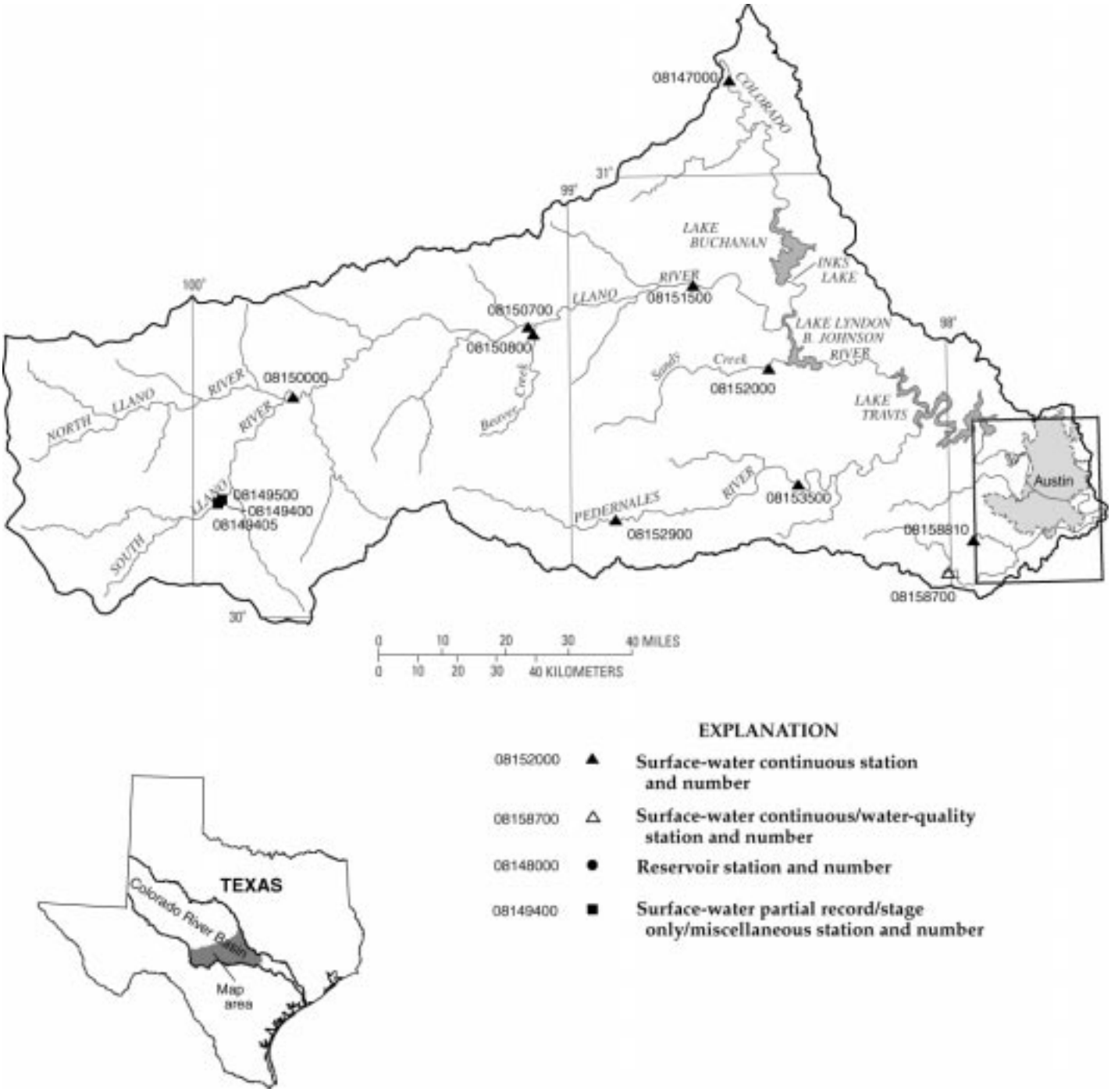


Figure 6.--Map showing location of gaging stations in the fourth section of the Colorado River Basin

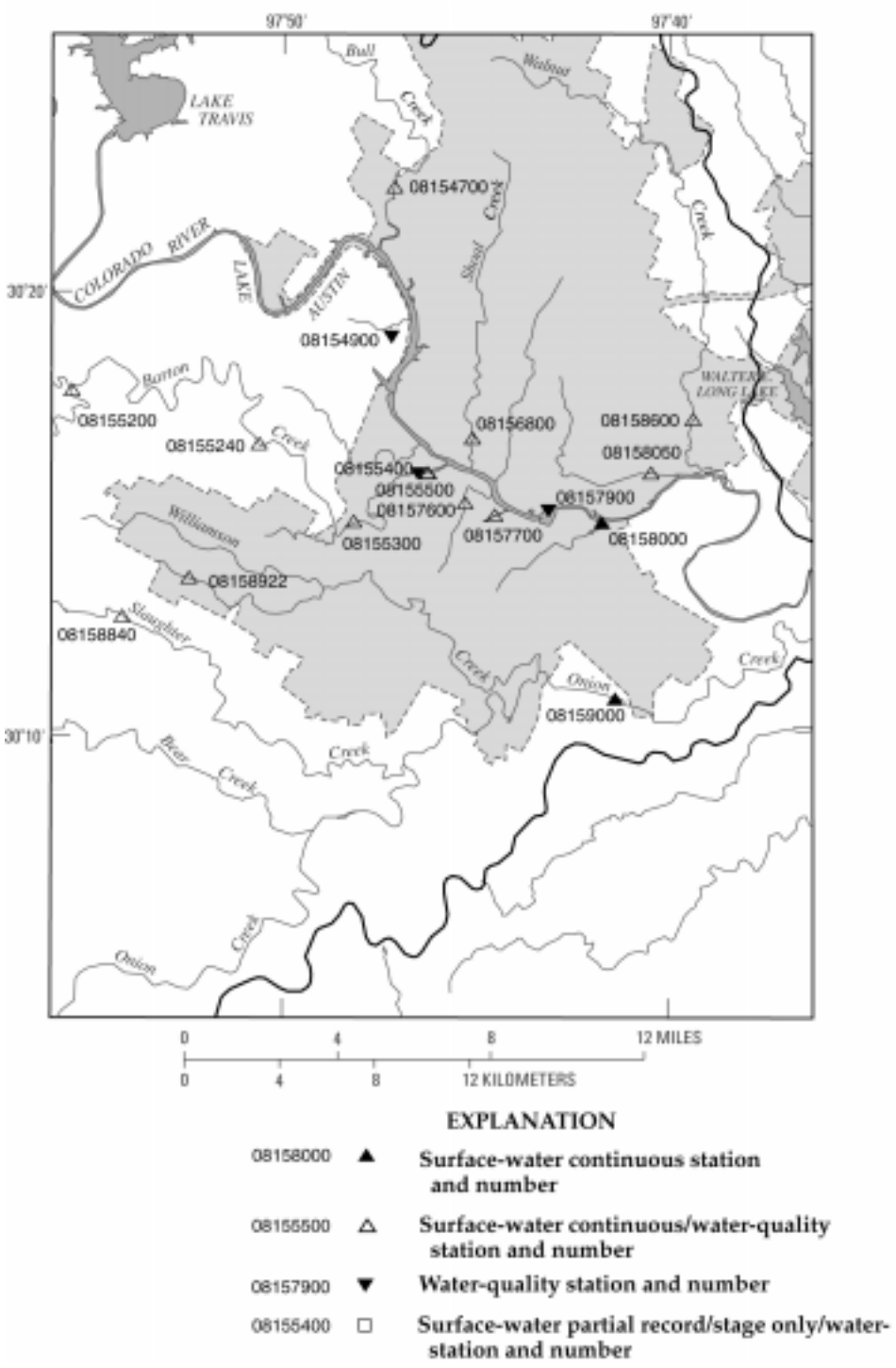


Figure 7.--Map showing location of gaging stations in the Austin inset of the Colorado River Basin

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08147000 COLORADO RIVER NEAR SAN SABA, TX

LOCATION.--Lat 31°13'04", long 98°33'51", San Saba-Lampasas County line, Hydrologic Unit 12090201, on left bank at downstream side of bridge on U.S. Highway 190, 5.2 mi downstream from San Saba River, 9.2 mi east of San Saba, and at mile 474.3.

DRAINAGE AREA.--31,217 mi^2, approximately, of which 11,398 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1915 to Oct 1922 (published as "near Chadwick"), Oct 1923 to Aug 1930 (published as "near Tow"), Sep 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.
Water-quality records.--Chemical data: Aug 1941, Sep 1947 to Sep 1967, Jan 1968 to Aug 1993. Biochemical data: Jan 1968 to Aug 1993. Pesticide data: Jan 1968 to Apr 1982. Sediment data: May 1951 to Oct 1962 and Oct 1977 to Aug 1993. Suspended sediment discharge: Dec 1950 to Sep 1962. Specific conductance: Sep 1947 to Sep 1992. Water temperature: Sep 1947 to Sep 1992.

REVISED RECORDS.--WSP 458: 1916. WSP 858: 1900(M), 1936(M). WDR TX-81-3: Drainage area. WSP 1512: 1916-18(M), 1936. WSP 1732: 1925-26(M).

GAGE.--Water-stage recorder. Datum of gage is 1,096.22 ft above sea level. See WSP 1922 for brief history of changes prior to May 23, 1940. From May 1940 to Nov 1996, at site 150 ft right at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since water year 1931 at least 10% of contributing drainage area has been regulated by Lake Nasworthy (station 08132000, capacity 13,990 acre-ft). Since Mar 15, 1990, 66% of the drainage area above this station has been controlled by O.H. Ivie Reservoir (station 08136600), 140.8 miles upstream, and by an additional twelve reservoirs (8 above and 4 below O.H. Ivie Reservoir), for a total combined capacity (13 reservoirs) of 1,897,000 acre-ft at conservation level. Flow is also affected at times by discharge from the flood-detention pools of 187 floodwater-retarding structures with a combined capacity of 205,700 acre-ft. These flood-detention structures control runoff from an 944 mi^2 area above this station. There are many diversions above station for irrigation, municipal use, and for oil field operations.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation of low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, and computes and publishes streamflow record.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--12 years (water years 1917-19, 1921-22, 1924-30) prior to completion of Lake Nasworthy, 1,440 ft^3/s (1,040,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1917-19, 1921-22, 1924-30).--Maximum discharge, 130,000 ft^3/s Apr 26, 1922 (gage height about 54.0 ft, present site), from information by local residents; minimum observed discharge, 1.5 ft^3/s Aug 22, 23, 1918.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1878 to Jul 22, 1938, 58.4 ft Sep 25, 1900 (discharge, 184,000 ft^3/s, present site), from floodmarks at former site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	1110	122	123	90	86	146	152	491	194	16	38
2	71	1430	120	121	110	86	142	158	317	147	18	29
3	70	553	117	120	112	88	1610	159	228	116	22	26
4	70	372	120	115	99	91	1310	151	178	102	25	25
5	70	283	118	112	96	90	410	141	146	95	23	27
6	129	254	121	109	92	87	272	132	126	86	21	32
7	112	221	121	109	88	86	213	121	111	81	19	36
8	90	197	118	108	84	93	182	113	100	72	19	38
9	83	180	121	105	82	95	164	109	91	61	21	37
10	85	169	151	105	83	94	154	137	83	54	25	34
11	98	157	155	105	83	94	144	1130	88	74	21	29
12	98	148	155	101	81	112	138	1360	524	88	17	28
13	97	460	153	98	80	146	134	726	506	627	12	29
14	95	552	154	96	81	547	140	341	482	500	11	30
15	95	282	147	94	88	302	133	239	201	338	12	28
16	94	219	e145	93	95	251	131	193	198	211	13	25
17	98	189	e140	92	91	184	123	166	196	160	15	24
18	2160	165	e140	90	88	162	133	150	151	125	15	24
19	816	145	e135	87	88	527	134	142	141	100	15	23
20	457	138	e135	86	87	486	130	130	125	84	14	22
21	421	136	e135	86	83	480	127	120	113	70	14	21
22	267	132	e135	85	81	328	122	116	108	59	13	20
23	192	126	e135	81	77	234	114	115	108	46	15	19
24	158	123	e135	80	75	186	109	114	98	42	17	22
25	143	122	e135	78	73	164	111	117	87	37	24	30
26	136	120	e130	78	74	188	133	123	580	33	26	27
27	130	120	e130	77	82	181	142	130	674	31	28	25
28	125	120	130	77	83	158	179	214	490	28	29	25
29	122	123	125	82	---	149	211	825	332	24	29	20
30	116	124	126	83	---	150	160	410	252	22	33	21
31	113	---	122	83	---	150	---	393	---	18	36	---
TOTAL	6878	8470	4126	2959	2426	6075	7351	8627	7325	3725	618	814
MEAN	222	282	133	95.5	86.6	196	245	278	244	120	19.9	27.1
MAX	2160	1430	155	123	112	547	1610	1360	674	627	36	38
MIN	67	120	117	77	73	86	109	109	83	18	11	19
AC-FT	13640	16800	8180	5870	4810	12050	14580	17110	14530	7390	1230	1610

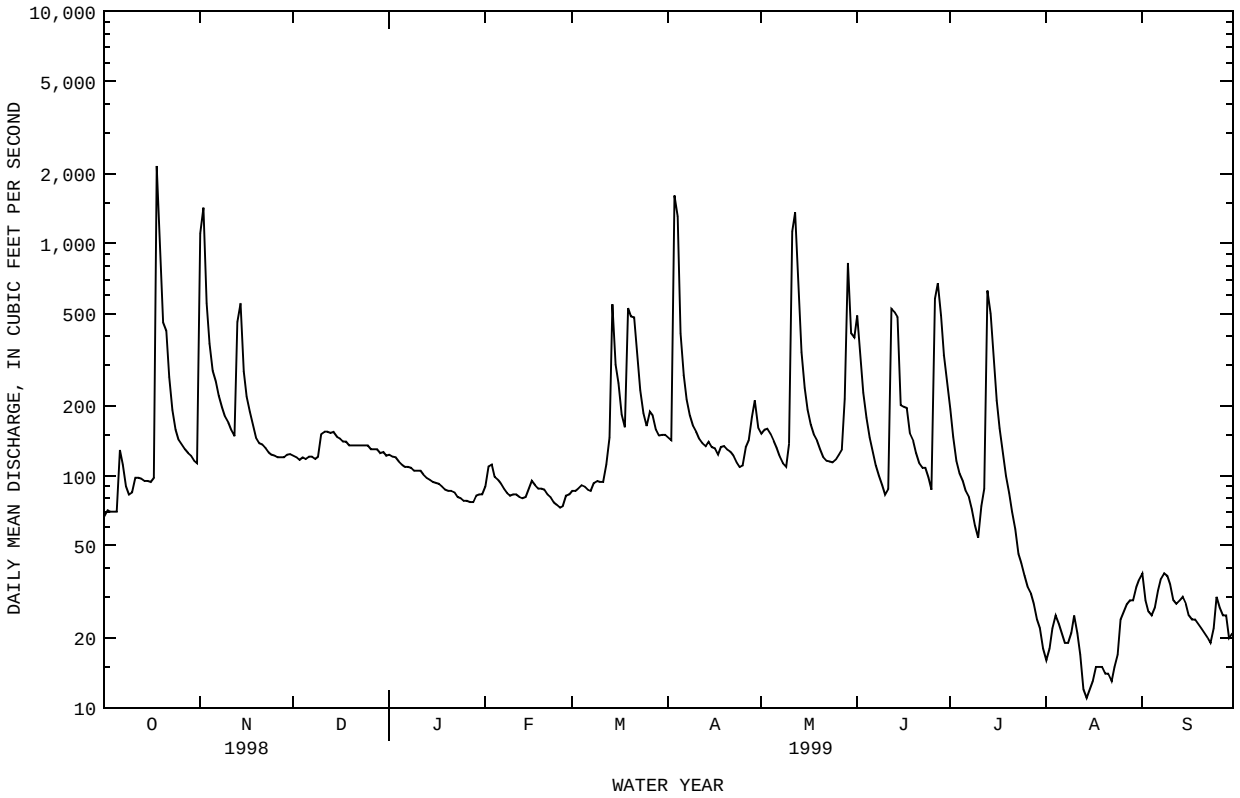
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999z, BY WATER YEAR (WY)

MEAN	1366	412	474	519	660	623	1000	2396	1729	1277	483	1540
MAX	15300	3444	9242	5105	10760	5002	6907	23620	10940	32210	3915	29380
(WY)	1931	1975	1992	1968	1992	1992	1957	1957	1935	1938	1971	1936
MIN	29.5	39.3	31.8	41.5	40.5	24.4	33.6	11.2	4.16	2.06	2.68	11.9
(WY)	1952	1952	1955	1955	1952	1952	1986	1984	1984	1964	1952	1954

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1931 - 1999z	
ANNUAL TOTAL	169008		59394			
ANNUAL MEAN	463		163		1041	
HIGHEST ANNUAL MEAN					3880	1938
LOWEST ANNUAL MEAN					84.1	1984
HIGHEST DAILY MEAN	21200	Mar 17	2160	Oct 18	191000	Jul 23 1938
LOWEST DAILY MEAN	32	Aug 2	11	Aug 14	.00	Aug 27 1954
ANNUAL SEVEN-DAY MINIMUM	34	Jul 29	13	Aug 13	.00	Aug 3 1963
INSTANTANEOUS PEAK FLOW			4190	Apr 3	224000	Jul 23 1938
INSTANTANEOUS PEAK STAGE			7.09	Apr 3	aa62.24	Jul 23 1938
ANNUAL RUNOFF (AC-FT)	335200		117800		754400	
10 PERCENT EXCEEDS	696		321		1610	
50 PERCENT EXCEEDS	154		114		225	
90 PERCENT EXCEEDS	57		25		55	

e Estimated
z Period of regulated streamflow.
aa From floodmarks at site then in use adjusted to present datum.



08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION.--Lat 30°30'15", long 99°44'03", Kimble County, Hydrologic Unit 12090204, on right bank 960 ft upstream from abandoned low-water crossing, 1.0 mi east of Junction, 2.6 mi downstream from bridge on Interstate Highway 10, 2.8 mi downstream from confluence of North and South Llano Rivers, 5.3 mi upstream from Johnson Fork, and 114.8 mi upstream from mouth.

DRAINAGE AREA.--1,854 mi^2, of which 5.1 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1915 to May 1993, Oct 1997 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-20, 1922. WDR TX-81-3: Drainage area. WSP 1922: 1920, 1923.

GAGE.--Water-stage recorder. Datum of gage is 1,634.32 ft above sea level. Prior to Aug 14, 1925, nonrecording gage, and Aug 14, 1925, to May 17, 1940, and Aug 18, 1944, to Oct 12, 1981, water-stage recorder at site 5,330 ft downstream at datum 6.0 ft lower, designated as regular gage (destroyed by flood of Oct 13, 1981). Prior to Jun 13, 1990, at datum 2.0 ft higher. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known regulation. There are diversions above station for irrigation.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, and computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, that of Jun 14, 1935. A major flood in 1889 was the highest known prior to Jun 14, 1935.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212	236	172	157	156	142	151	149	132	157	121	112
2	207	219	171	156	e155	142	149	147	129	153	120	111
3	205	216	172	155	e155	141	149	143	128	151	119	112
4	201	210	171	156	152	141	148	142	126	150	120	112
5	201	217	171	155	154	142	146	137	124	151	121	113
6	270	204	171	155	153	141	143	135	123	148	119	112
7	240	201	169	e155	151	142	144	133	123	147	118	111
8	221	198	168	155	150	145	145	133	122	146	118	111
9	211	195	167	154	149	143	144	132	121	145	117	113
10	204	191	177	153	148	145	142	167	121	146	116	114
11	200	186	174	154	149	146	141	153	122	151	115	112
12	196	185	169	155	147	145	140	144	123	152	115	111
13	193	196	166	154	148	144	141	144	178	148	113	111
14	191	199	164	154	149	143	145	142	145	144	114	112
15	188	193	163	153	149	143	140	142	138	141	113	112
16	185	189	162	153	149	143	140	141	140	138	114	112
17	185	186	161	153	148	143	140	139	136	136	113	109
18	182	185	162	152	147	152	140	137	135	135	113	108
19	179	184	161	152	144	152	140	135	136	134	113	109
20	181	180	160	151	144	150	138	134	162	133	114	108
21	179	179	160	153	143	148	136	133	307	132	114	108
22	177	179	157	152	143	147	137	134	304	130	114	108
23	176	177	156	152	143	146	134	131	266	128	115	106
24	175	177	160	151	143	146	135	128	210	126	117	106
25	173	176	162	150	144	146	138	128	184	125	117	106
26	172	175	161	151	143	145	147	134	176	121	116	107
27	171	175	160	151	143	151	146	146	171	120	115	106
28	172	175	159	151	142	171	139	135	168	120	114	105
29	171	174	158	154	---	159	137	137	164	121	113	104
30	170	172	157	155	---	156	138	137	161	120	113	103
31	170	---	157	156	---	155	---	134	---	121	112	---
TOTAL	5958	5729	5098	4758	4141	4555	4253	4306	4775	4270	3586	3284
MEAN	192	191	164	153	148	147	142	139	159	138	116	109
MAX	270	236	177	157	156	171	151	167	307	157	121	114
MIN	170	172	156	150	142	141	134	128	121	120	112	103
AC-FT	11820	11360	10110	9440	8210	9030	8440	8540	9470	8470	7110	6510
CFSM	.10	.10	.09	.08	.08	.08	.08	.08	.09	.07	.06	.06
IN.	.12	.12	.10	.10	.08	.09	.09	.09	.10	.09	.07	.07

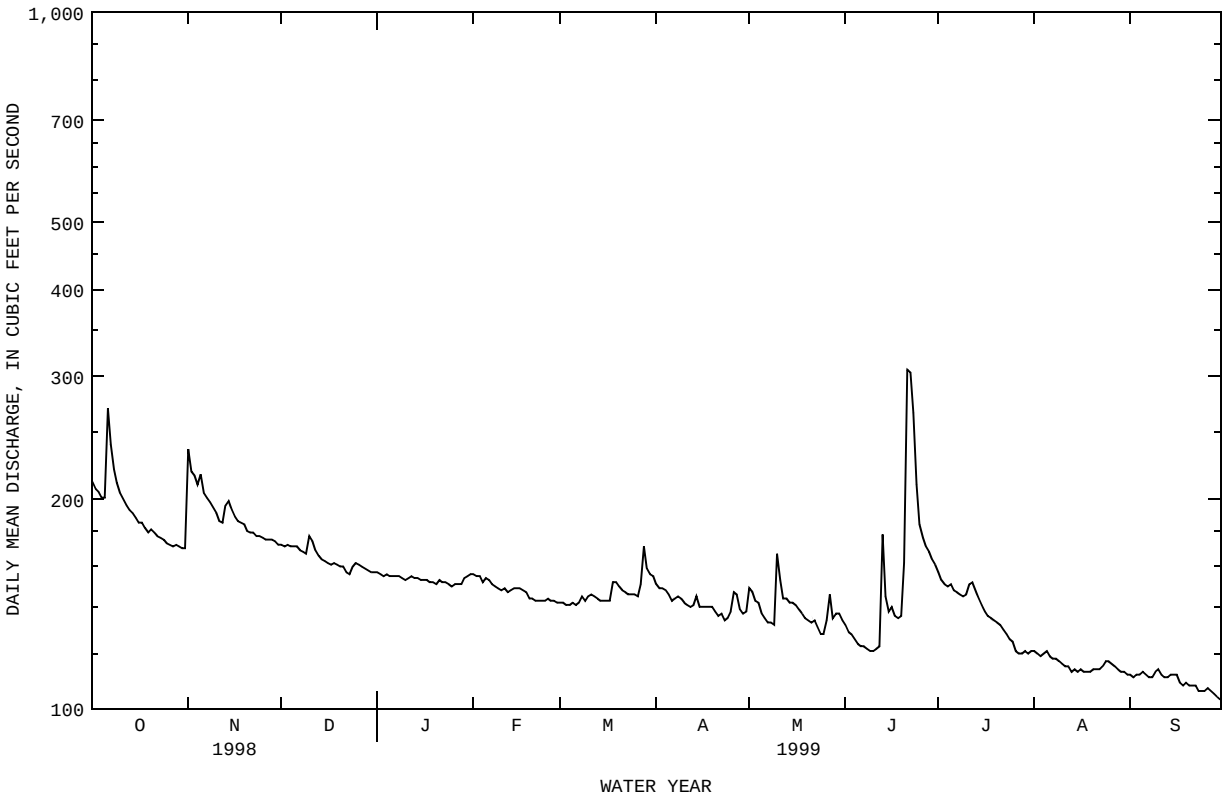
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 1999h, BY WATER YEAR (WY)

MEAN	261	142	140	124	132	117	171	242	293	206	185	338
MAX	2708	1572	1229	641	816	428	1222	2395	5797	4236	2299	4298
(WY)	1924	1924	1985	1968	1958	1992	1977	1925	1935	1938	1974	1932
MIN	15.8	21.5	25.3	26.2	27.9	27.0	21.3	30.3	12.4	10.5	11.4	13.1
(WY)	1957	1957	1957	1957	1954	1954	1955	1954	1953	1956	1956	1956

08150000 LLANO RIVER NEAR JUNCTION, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1916 - 1999h	
ANNUAL TOTAL	82689		54713			
ANNUAL MEAN	227		150		196	
HIGHEST ANNUAL MEAN					708	1935
LOWEST ANNUAL MEAN					29.8	1953
HIGHEST DAILY MEAN	10800	Aug 23	307	Jun 21	124000	Jun 14 1935
LOWEST DAILY MEAN	67	Jul 23	103	Sep 30	3.7	Aug 17 1956
ANNUAL SEVEN-DAY MINIMUM	70	Jul 20	105	Sep 24	4.2	Aug 11 1956
INSTANTANEOUS PEAK FLOW			409	Jun 22	c319000	Jun 14 1935
INSTANTANEOUS PEAK STAGE			1.52	Jun 22	a43.30	Jun 14 1935
ANNUAL RUNOFF (AC-FT)	164000		108500		141900	
ANNUAL RUNOFF (CFSM)	.12		.081		.11	
ANNUAL RUNOFF (INCHES)	1.66		1.10		1.44	
10 PERCENT EXCEEDS	216		185		220	
50 PERCENT EXCEEDS	138		146		99	
90 PERCENT EXCEEDS	75		113		42	

e Estimated
h See PERIOD OF RECORD paragraph.
c From rating curve extended above 54,000 ft^3/s on basis of slope-area measurements of 154,000 and 319,000 ft^3/s.
a From floodmark.



08150700 LLANO RIVER NEAR MASON, TX

LOCATION.--Lat 30°39'38", long 99°06'32", Mason County, Hydrologic Unit 12090204, on right bank 98 ft downstream from downstream bridge on U.S. Highway 87, 1.0 mi upstream from Beaver Creek, 9.1 mi southeast of Mason, 10.2 mi downstream from James River, and 61.1 mi upstream from mouth.

DRAINAGE AREA.--3,247 mi^2, of which 5.1 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Mar 1968 to May 1993 and Oct 1997 to current year.

REVISED RECORDS.--WDR TX-75-3: 1968(P). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,230.36 ft above sea level. Prior to Jan 19, 1971, at site 190 ft upstream at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known regulation or diversion.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, about 46 ft Jun 14, 1935 (discharge, about 380,000 ft^3/s), from information by Texas Department of Transportation; at site 17.0 mi downstream discharge was 388,000 ft^3/s by slope-area measurement. Discharges for other floods are 258,000 ft^3/s, 1952; 218,000 ft^3/s, 1889.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	267	307	223	208	194	178	196	149	165	167	109	88
2	258	327	223	207	195	171	191	158	149	160	108	88
3	250	301	224	201	194	165	189	170	140	155	106	88
4	249	270	224	201	191	167	181	166	133	153	105	88
5	245	282	222	202	192	169	178	153	128	158	109	88
6	311	279	222	203	194	168	169	144	125	153	106	88
7	317	273	218	e205	193	167	168	139	124	152	103	88
8	294	265	215	207	189	173	169	136	122	153	100	88
9	271	259	212	201	188	171	169	134	120	149	99	89
10	259	255	239	199	184	173	166	165	116	157	98	90
11	250	244	255	199	184	172	160	206	115	205	97	91
12	246	241	254	200	175	175	154	206	114	179	94	92
13	245	304	238	201	176	176	152	175	120	176	90	90
14	241	304	229	199	175	166	161	168	189	171	88	90
15	237	290	224	197	177	165	155	162	208	156	88	89
16	233	274	221	196	179	167	153	156	173	145	88	89
17	234	261	218	195	180	166	151	150	152	135	88	89
18	236	253	220	194	181	225	152	149	148	130	88	92
19	234	249	223	195	178	214	152	147	143	129	88	90
20	235	243	219	195	179	199	149	144	147	132	88	89
21	238	244	220	194	176	187	145	140	172	131	88	90
22	235	238	214	188	175	182	146	136	435	127	88	88
23	228	238	211	184	175	177	143	133	386	125	88	88
24	225	238	213	188	174	174	141	133	279	122	90	88
25	221	236	214	187	176	176	145	133	255	121	92	88
26	221	233	215	188	177	173	156	130	220	119	90	91
27	218	233	214	188	179	178	164	148	202	119	89	92
28	219	231	213	188	174	237	168	191	193	116	90	93
29	217	230	213	191	---	232	161	196	185	113	89	92
30	214	227	210	206	---	223	148	239	176	113	88	90
31	212	---	208	197	---	205	---	196	---	110	88	---
TOTAL	7560	7829	6868	6104	5104	5671	4832	4952	5334	4431	2920	2684
MEAN	244	261	222	197	182	183	161	160	178	143	94.2	89.5
MAX	317	327	255	208	195	237	196	239	435	205	109	93
MIN	212	227	208	184	174	165	141	130	114	110	88	88
AC-FT	15000	15530	13620	12110	10120	11250	9580	9820	10580	8790	5790	5320

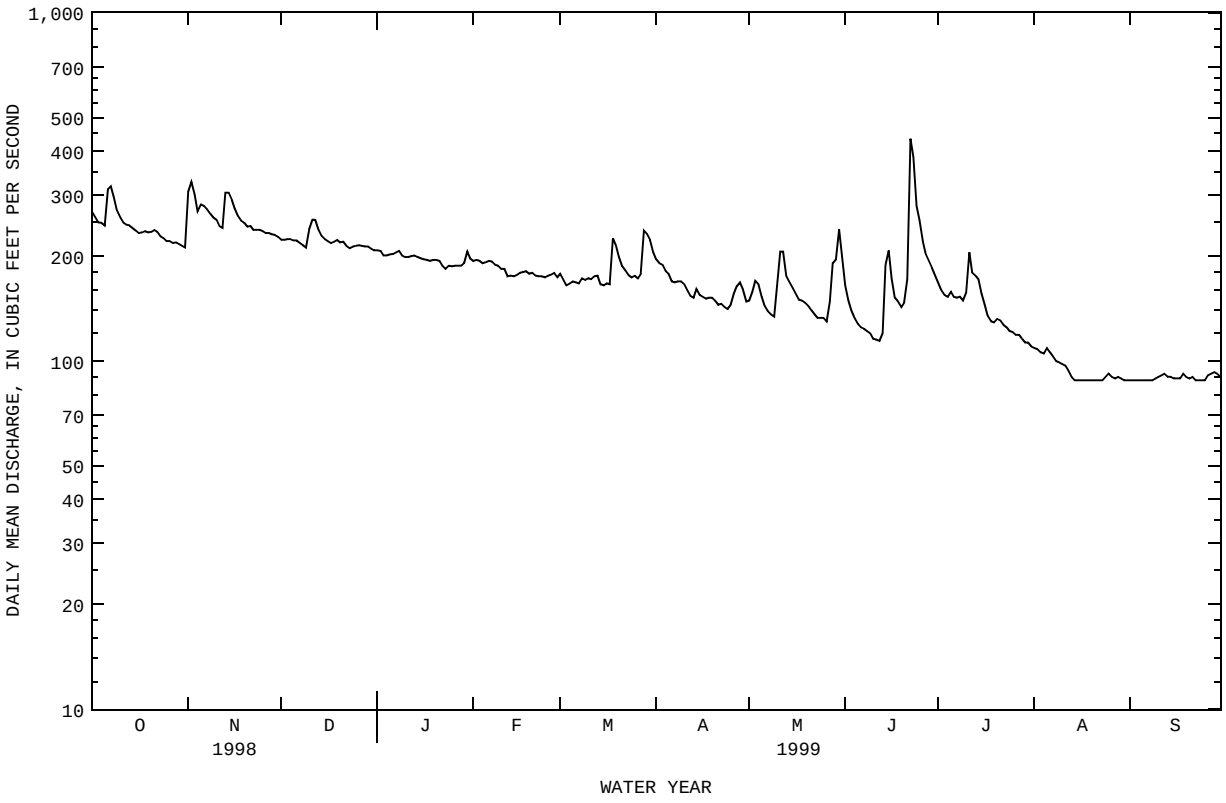
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1999h, BY WATER YEAR (WY)

MEAN	518	237	303	240	262	237	296	371	352	243	414	414
MAX	3222	675	1929	1053	1530	875	2097	1559	1791	1439	3331	3427
(WY)	1974	1975	1985	1985	1992	1992	1977	1990	1987	1988	1974	1980
MIN	72.9	105	108	118	98.5	89.0	71.5	66.0	49.1	38.4	31.2	38.1
(WY)	1984	1969	1984	1984	1984	1984	1984	1984	1984	1980	1980	1984

08150700 LLANO RIVER NEAR MASON, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1968 - 1999h	
ANNUAL TOTAL	101338		64289			
ANNUAL MEAN	278		176		326	
HIGHEST ANNUAL MEAN					835	1974
LOWEST ANNUAL MEAN					77.7	1984
HIGHEST DAILY MEAN	11200	Aug 24	435	Jun 22	69200	Sep 8 1980
LOWEST DAILY MEAN	66	Aug 2	88	Aug 14	10	Jul 17 1984
ANNUAL SEVEN-DAY MINIMUM	69	Jul 28	88	Aug 14	18	Jul 12 1984
INSTANTANEOUS PEAK FLOW			743	Jun 22	c260000	Sep 8 1980
INSTANTANEOUS PEAK STAGE			2.67	Jun 22	a37.00	Sep 8 1980
ANNUAL RUNOFF (AC-FT)	201000		127500		236200	
10 PERCENT EXCEEDS	309		244		420	
50 PERCENT EXCEEDS	193		176		179	
90 PERCENT EXCEEDS	86		90		90	

e Estimated
h See PERIOD OF RECORD paragraph.
c From rating curve extended above 151,000 ft^3/s on basis of slope-area measurement and discharge measurement of 145,000 ft^3/s.
a From floodmark.



08150800 BEAVER CREEK NEAR MASON, TX

LOCATION.--Lat 30°38'36", long 99°05'44", Mason County, Hydrologic Unit 12090204, on left bank at downstream side of downstream bridge on U.S. Highway 87, 1.8 mi upstream from Llano River, 6.4 mi downstream from Spring Creek, and 11.1 mi southeast of Mason.

DRAINAGE AREA.--215 mi^2.

PERIOD OF RECORD.--Jul 1963 to current year.

REVISED RECORDS.--WSP 2122: 1964-65. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,253.24 ft above sea level. Prior to Aug 3, 1978, at site 300 ft upstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good except those for Mar 18-22, which are fair. No known regulation or diversions. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 18	1330	9,340	a8.44	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	108	7.3	7.7	5.7	4.4	19	9.9	7.3	3.0	.22	.08
2	1.8	28	7.4	7.5	5.6	4.0	19	9.9	5.7	2.6	.21	.07
3	1.6	16	7.5	6.7	5.6	3.8	18	9.4	4.9	2.4	.19	.08
4	1.6	13	7.1	6.6	5.5	3.9	17	9.2	4.4	2.3	.20	.07
5	1.6	15	6.9	6.7	5.6	4.5	16	8.4	4.0	2.4	.21	.04
6	7.4	15	6.8	6.6	6.2	5.0	14	7.3	3.8	2.6	.20	.04
7	12	13	6.5	6.9	6.2	5.0	14	7.1	3.7	2.6	.18	.05
8	7.2	12	6.4	7.1	5.5	5.8	14	7.0	3.6	2.5	.17	.02
9	5.3	11	6.4	6.6	5.4	6.7	14	6.8	3.5	2.3	.16	.03
10	4.3	10	9.8	6.2	5.3	5.9	13	12	3.4	4.3	.15	.05
11	3.7	9.1	15	6.3	5.2	5.4	13	63	3.3	7.2	.11	.04
12	3.4	8.7	12	6.5	4.7	5.5	12	61	3.6	6.1	.10	.04
13	3.4	9.8	10	6.5	4.5	17	12	24	4.1	4.5	.09	.04
14	3.4	13	9.7	6.4	4.6	13	13	14	11	2.9	.08	.08
15	3.2	15	9.2	6.2	4.6	8.3	12	10	5.2	2.0	.08	.09
16	2.8	14	8.9	6.0	4.7	6.6	11	8.4	4.0	1.5	.09	.09
17	3.1	12	8.8	5.9	5.0	5.7	11	7.3	3.9	1.1	.08	.08
18	4.1	11	8.9	5.8	5.1	1730	11	7.0	3.9	.94	.10	.07
19	5.5	10	9.3	5.7	4.8	281	10	6.8	3.9	.90	.10	.06
20	10	9.9	8.9	5.8	4.7	74	10	6.1	5.4	.88	.08	.07
21	9.0	9.6	8.7	6.0	4.6	39	9.7	5.3	16	.82	.11	.04
22	7.4	9.3	8.4	5.6	4.6	26	9.8	5.0	11	.77	.10	.05
23	6.3	9.1	8.0	5.2	4.5	23	9.9	4.7	7.2	.71	.11	.06
24	5.5	8.9	8.5	5.5	4.6	21	9.3	4.3	5.5	.62	.14	.07
25	5.0	8.7	8.5	5.4	5.1	19	10	4.1	4.8	.53	.12	.06
26	4.9	8.6	8.3	5.3	5.3	18	15	4.1	4.5	.47	.08	.08
27	4.9	8.4	8.1	5.2	5.8	18	16	7.1	4.2	.42	.09	.07
28	4.9	8.3	8.0	5.3	5.3	32	11	9.0	4.0	.37	.07	.07
29	4.7	8.1	7.8	5.9	---	26	9.7	18	3.9	.32	.16	.04
30	4.3	7.7	7.7	6.2	---	22	9.1	25	3.5	.28	.14	.07
31	4.1	---	7.4	5.7	---	20	---	11	---	.25	.08	---
TOTAL	148.2	440.2	262.2	191.0	144.3	2459.5	382.5	392.2	157.2	60.58	4.00	1.80
MEAN	4.78	14.7	8.46	6.16	5.15	79.3	12.8	12.7	5.24	1.95	.13	.060
MAX	12	108	15	7.7	6.2	1730	19	63	16	7.2	.22	.09
MIN	1.6	7.7	6.4	5.2	4.5	3.8	9.1	4.1	3.3	.25	.07	.02
AC-FT	294	873	520	379	286	4880	759	778	312	120	7.9	3.6
CFSM	.02	.07	.04	.03	.02	.37	.06	.06	.02	.01	.00	.00
IN.	.03	.08	.05	.03	.02	.43	.07	.07	.03	.01	.00	.00

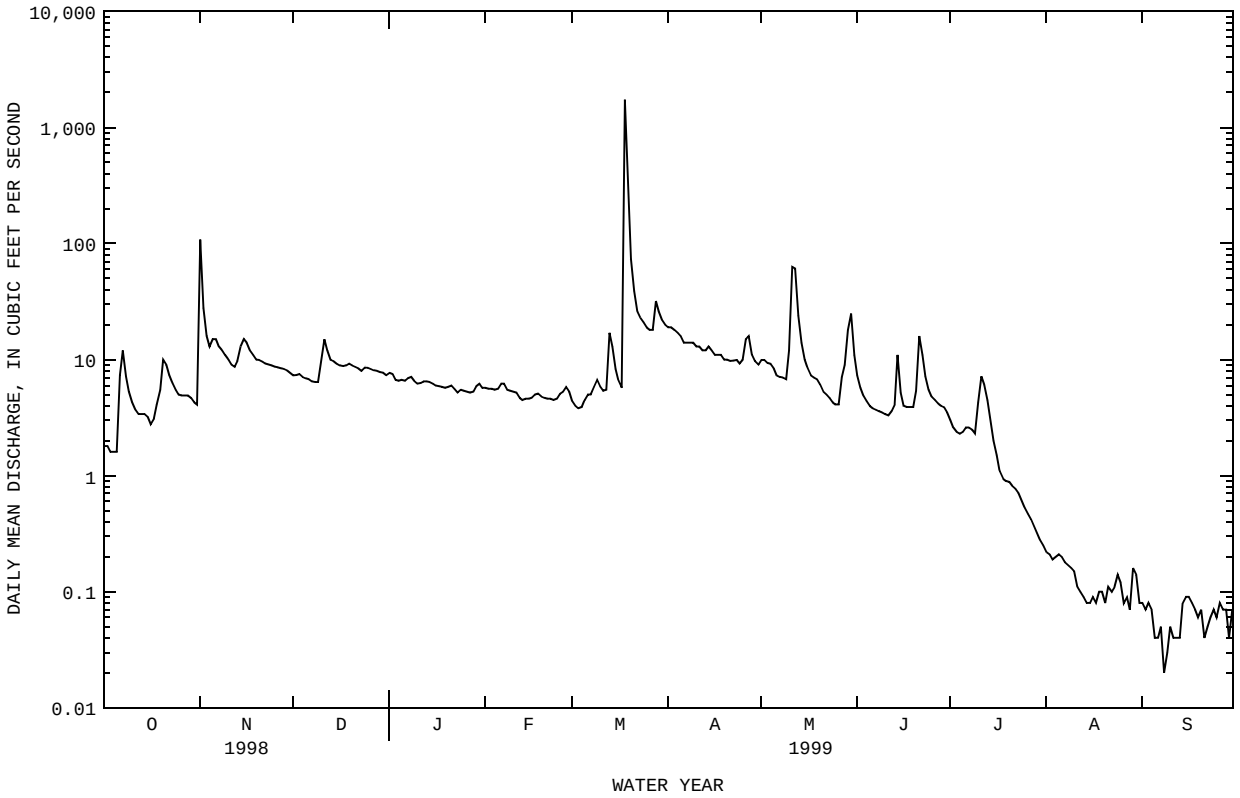
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1999, BY WATER YEAR (WY)

MEAN	30.7	8.16	14.5	13.3	23.2	22.7	19.4	29.2	28.3	3.86	20.0	10.9
MAX	329	32.2	220	183	285	164	132	197	327	24.3	443	167
(WY)	1997	1970	1992	1968	1992	1997	1977	1975	1987	1997	1978	1964
MIN	.37	.91	1.44	1.84	1.41	1.29	.49	.72	.21	.003	.000	.021
(WY)	1983	1980	1983	1971	1984	1967	1984	1996	1971	1964	1985	1977

08150800 BEAVER CREEK NEAR MASON, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1963 - 1999	
ANNUAL TOTAL	2537.99		4643.68			
ANNUAL MEAN	6.95		12.7		18.7	
HIGHEST ANNUAL MEAN					91.5	1997
LOWEST ANNUAL MEAN					1.97	1967
HIGHEST DAILY MEAN	167	Mar 16	1730	Mar 18	12800	Aug 3 1978
LOWEST DAILY MEAN	.03	Aug 3	.02	Sep 8	.00	Aug 3 1963
ANNUAL SEVEN-DAY MINIMUM	.05	Jul 29	.04	Sep 5	.00	Aug 3 1963
INSTANTANEOUS PEAK FLOW			9340	Mar 18	66900	Aug 3 1978
INSTANTANEOUS PEAK STAGE			a8.44	Mar 18	24.00	Aug 3 1978
ANNUAL RUNOFF (AC-FT)	5030		9210		13560	
ANNUAL RUNOFF (CFSM)	.032		.059		.087	
ANNUAL RUNOFF (INCHES)	.44		.80		1.18	
10 PERCENT EXCEEDS	12		14		22	
50 PERCENT EXCEEDS	6.6		5.6		3.2	
90 PERCENT EXCEEDS	.21		.09		.20	

a From floodmark.



08151500 LLANO RIVER AT LLANO, TX

LOCATION.--Lat 30°45'04", long 98°40'10", Llano County, Hydrologic Unit 12090204, on right bank in Llano, 0.4 mi down-stream from bridge on State Highway 16, 7 mi upstream from Little Llano River, and 29.3 mi upstream from mouth.

DRAINAGE AREA.--4,197 mi^2, of which 5.1 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Sep 1939 to current year.
Water-quality records.--Chemical data: Apr 1948 to Oct 1967, Apr 1979 to Sep 1986. Biochemical data: Apr 1979 to Sep 1986. Sediment data: Sep 1964, Apr 1979 to Sep 1986. Specific conductance: Apr 1979 to Sep 1980. Water temperature: Apr 1979 to Sep 1980.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft above sea level. Radio telemeter at station. Satellite telemeter at station.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes and publishes streamflow record.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Part of low flow of the Llano River disappears into various formations, many of which are faulted, between this station and Llano River near Junction (station 08150000) operated by Lower Colorado River Authority.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft Jun 14, 1935 (discharge, 380,000 ft^3/s), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 18	1445	37,800	14.64	May 11	2345	10,400	8.24

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

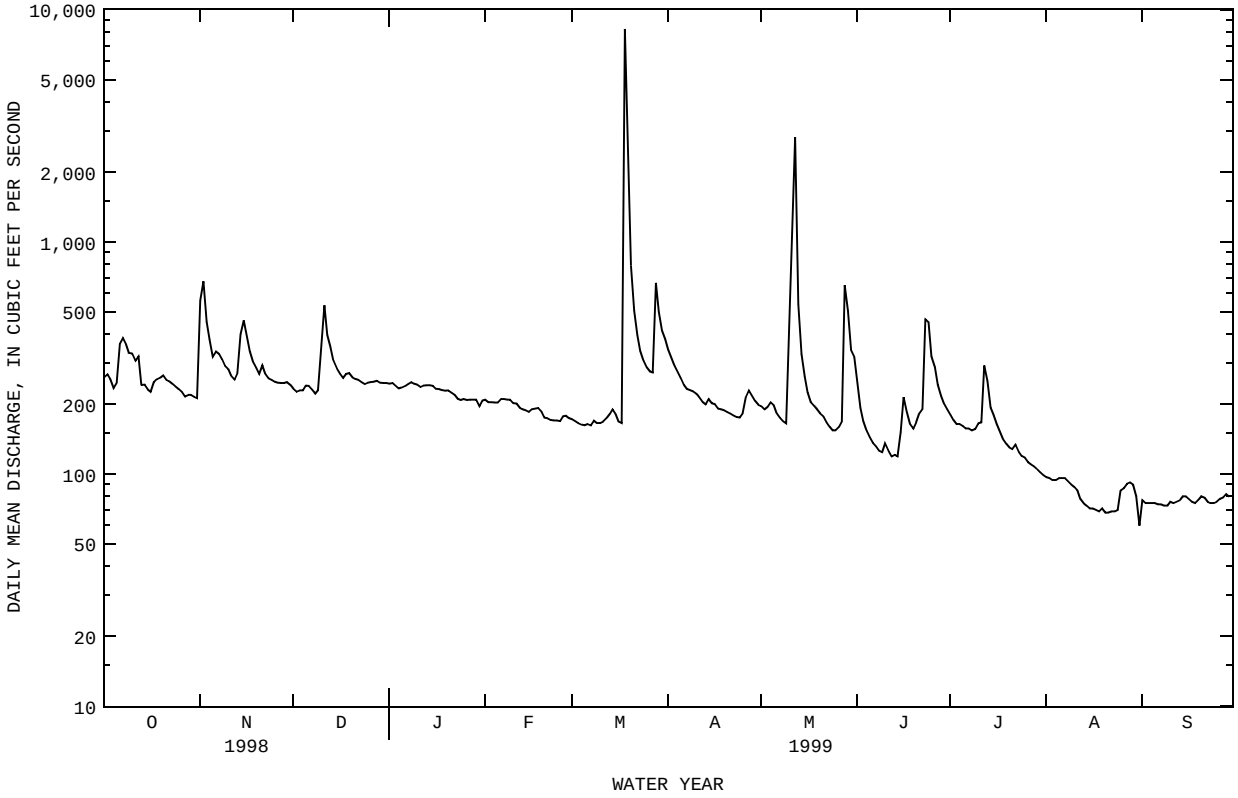
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	559	233	245	209	172	344	196	249	180	97	77
2	268	676	226	246	204	169	318	190	193	171	96	75
3	256	453	229	240	204	166	292	194	169	164	94	75
4	235	381	229	234	203	163	275	204	154	164	94	75
5	248	321	240	236	203	162	259	198	144	161	96	75
6	365	338	239	239	210	164	242	183	136	157	96	74
7	386	330	231	244	210	162	233	175	132	157	96	74
8	362	312	222	249	209	170	230	169	126	154	93	73
9	332	293	230	245	209	166	227	165	124	156	90	73
10	330	283	358	243	202	166	222	573	135	165	88	76
11	308	264	534	237	201	168	214	1310	126	167	85	75
12	322	255	396	240	193	174	205	2820	119	294	78	76
13	242	272	352	241	190	181	200	538	121	252	75	77
14	243	401	308	241	188	190	210	329	119	193	73	80
15	231	460	284	239	185	181	202	263	152	180	71	80
16	226	396	271	233	190	168	200	225	214	164	71	78
17	249	338	259	232	191	166	191	204	185	153	70	76
18	256	304	269	230	192	8260	190	197	164	141	69	75
19	260	286	272	228	186	2740	188	190	157	135	71	77
20	266	269	261	229	175	791	185	182	167	130	68	80
21	254	294	257	224	174	507	182	177	183	128	68	79
22	251	270	254	220	171	396	179	167	191	134	69	76
23	245	258	249	211	170	339	176	160	464	125	69	75
24	238	254	244	208	170	308	175	154	450	120	70	75
25	233	250	247	210	169	288	183	154	321	118	85	76
26	226	247	249	208	177	276	215	159	288	113	87	78
27	216	246	250	209	178	274	229	169	242	110	91	79
28	219	246	252	209	174	665	217	652	217	108	92	82
29	219	249	247	209	---	501	207	507	201	105	90	80
30	215	243	246	196	---	415	199	340	190	102	80	80
31	212	---	246	207	---	381	---	319	---	99	60	---
TOTAL	8174	9748	8384	7082	5337	19029	6589	11463	5833	4700	2532	2301
MEAN	264	325	270	228	191	614	220	370	194	152	81.7	76.7
MAX	386	676	534	249	210	8260	344	2820	464	294	97	82
MIN	212	243	222	196	169	162	175	154	119	99	60	73
AC-FT	16210	19340	16630	14050	10590	37740	13070	22740	11570	9320	5020	4560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1999, BY WATER YEAR (WY)

MEAN	529	234	294	284	387	329	379	520	573	229	321	450
MAX	3700	1005	3179	2483	3754	2798	3115	3350	4620	1796	3605	3891
(WY)	1974	1975	1992	1968	1992	1997	1977	1957	1997	1988	1974	1952
MIN	18.0	20.7	27.5	31.7	37.7	23.7	20.9	41.0	7.93	.000	.087	.56
(WY)	1952	1957	1955	1957	1954	1954	1955	1984	1953	1956	1952	1954

08151500 LLANO RIVER AT LLANO, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1940 - 1999	
ANNUAL TOTAL	124150		91172			
ANNUAL MEAN	340		250		377	
HIGHEST ANNUAL MEAN					1308	1997
LOWEST ANNUAL MEAN					50.0	1954
HIGHEST DAILY MEAN	13300	Aug 24	8260	Mar 18	78100	Jun 23 1997
LOWEST DAILY MEAN	33	Aug 4	60	Aug 31	.00	Aug 5 1952
ANNUAL SEVEN-DAY MINIMUM	47	Jul 30	69	Aug 17	.00	Aug 27 1952
INSTANTANEOUS PEAK FLOW			37800	Mar 18	260000	Jun 23 1997
INSTANTANEOUS PEAK STAGE			14.64	Mar 18	38.86	Jun 23 1997
ANNUAL RUNOFF (AC-FT)	246300		180800		273100	
10 PERCENT EXCEEDS	395		334		535	
50 PERCENT EXCEEDS	240		204		157	
90 PERCENT EXCEEDS	87		79		41	



08152000 SANDY CREEK NEAR KINGSLAND, TX

LOCATION.--Lat 30°33'27", long 98°28'18", Llano County, Hydrologic Unit 12090201, at right downstream end of bridge on State Highway 71, 6.6 mi upstream from mouth.

DRAINAGE AREA.--346 mi^2.

PERIOD OF RECORD.--Oct 1966 to Mar 1993, Oct 1997 to current year.
Water-quality records.--Sediment data: Jan 1968 to Sep 1975.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 862.31 ft above sea level. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. There are several small diversions above station for irrigation.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Sep 11, 1952, the highest since at least 1881, reached a stage of 34.2 ft (discharge, 163,000 ft^3/s), from slope-area measurement at gage site.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	0403	6,810	9.96	Mar 18	1730	11,200	11.41
Nov 1	0804	2,510	8.13	May 18	0030	5,000	9.22
Dec 10	1303	2,510	7.96	May 28	1830	5,120	9.27

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	987	41	51	32	23	96	35	57	9.0	1.2	.00
2	1.5	345	40	51	31	22	87	32	39	7.5	.76	.00
3	1.6	129	41	48	31	20	79	33	33	6.5	.52	.00
4	1.1	83	50	45	31	19	73	32	27	6.0	.39	.00
5	1.9	112	47	46	30	e22	68	29	24	5.8	.29	.00
6	304	117	42	48	31	21	59	26	19	5.7	.21	.00
7	219	100	38	e48	31	20	57	24	17	6.1	.17	.00
8	53	95	36	48	30	25	56	23	15	6.1	.16	.00
9	21	83	e36	44	29	25	55	22	14	5.5	.14	.00
10	10	76	986	43	29	24	51	493	12	5.5	.12	.00
11	6.1	65	755	755	31	26	46	523	10	21	.11	.00
12	4.6	55	367	367	30	34	42	111	9.6	151	.10	.00
13	3.2	74	240	240	29	50	41	61	10	71	.09	.00
14	2.4	199	181	181	27	50	52	50	18	42	.09	.00
15	1.7	482	158	158	27	46	45	42	11	24	.08	.00
16	1.3	304	123	23	28	43	41	35	15	15	.05	.00
17	218	214	91	91	29	40	38	268	11	11	.04	.00
18	2870	152	97	97	28	2500	36	822	9.5	9.6	.02	.00
19	412	104	96	96	26	1500	35	94	8.2	8.0	.01	.00
20	236	86	86	90	26	437	34	66	21	8.5	.01	.00
21	174	70	90	35	25	225	32	53	65	7.8	.00	.00
22	121	64	81	81	25	150	32	48	79	9.1	.00	.00
23	91	60	72	72	24	129	31	46	37	5.6	.00	.00
24	76	52	71	31	23	110	31	47	26	5.3	.00	.00
25	66	49	70	30	25	99	38	215	21	4.5	.00	.00
26	54	45	70	30	26	90	79	88	18	3.6	.00	.00
27	49	44	68	30	26	88	117	253	16	2.9	.00	.00
28	44	44	62	31	24	355	63	1150	15	2.4	.00	.00
29	40	43	56	31	---	275	44	836	14	2.2	.00	.00
30	37	43	50	33	---	129	36	358	11	1.9	.00	.00
31	34	---	49	32	---	106	---	112	---	1.5	.00	---
TOTAL	5155.26	4376	4290	3006	784	6703	1594	6027	682.3	471.6	4.56	0.00
MEAN	166	146	138	97.0	28.0	216	53.1	194	22.7	15.2	.15	.000
MAX	2870	987	986	755	32	2500	117	1150	79	151	1.2	.00
MIN	.86	43	36	23	23	19	31	22	8.2	1.5	.00	.00
AC-FT	10230	8680	8510	5960	1560	13300	3160	11950	1350	935	9.0	.00
CFSM	.48	.42	.40	.28	.08	.62	.15	.56	.07	.04	.00	.00
IN.	.55	.47	.46	.32	.08	.72	.17	.65	.07	.05	.00	.00

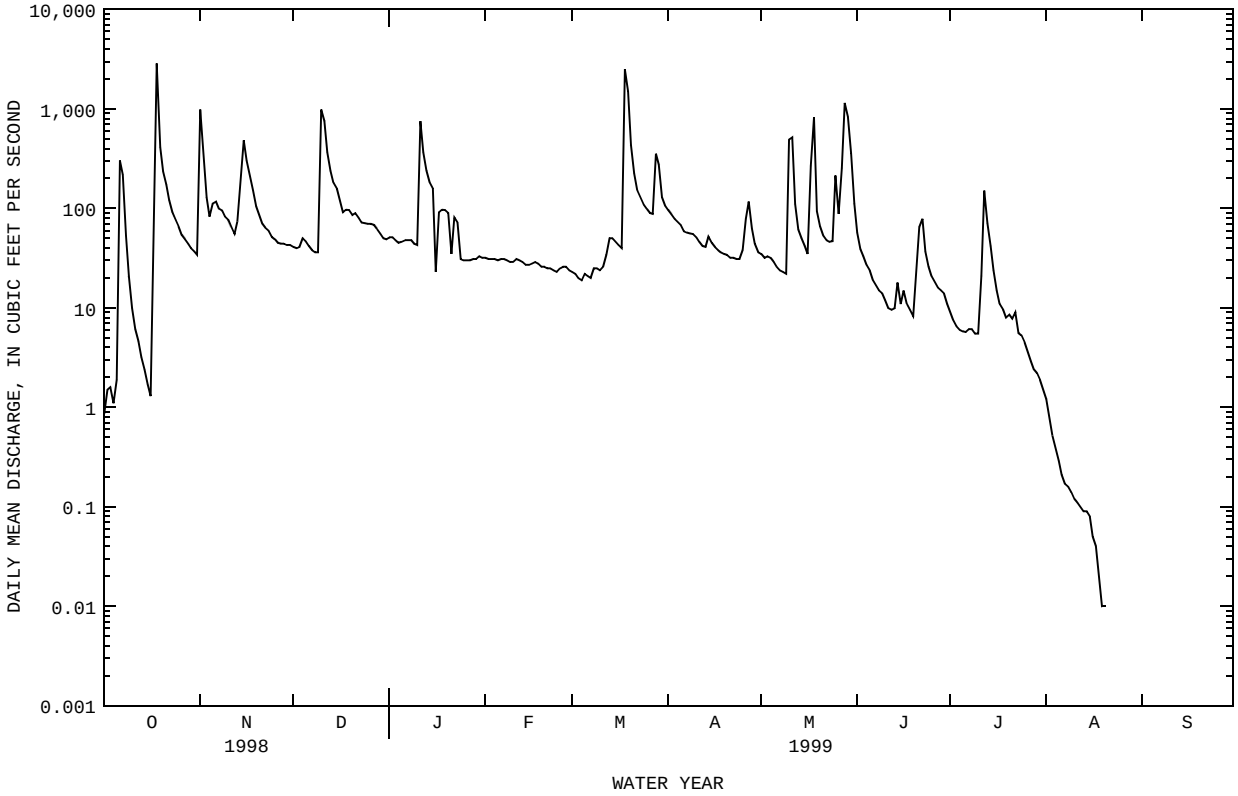
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999h, BY WATER YEAR (WY)

MEAN	67.3	35.3	80.5	58.8	92.2	83.3	60.6	128	120	24.0	23.8	28.6
MAX	306	195	1074	511	936	425	528	510	862	258	358	188
(WY)	1972	1975	1992	1968	1992	1992	1977	1975	1987	1976	1974	1976
MIN	.045	.045	1.10	1.06	4.19	1.86	1.41	.71	.055	.10	.000	.000
(WY)	1990	1989	1990	1990	1967	1967	1984	1984	1971	1980	1989	1989

08152000 SANDY CREEK NEAR KINGSLAND, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999h	
ANNUAL TOTAL	30310.62		33093.72			
ANNUAL MEAN	83.0		90.7		67.4	
HIGHEST ANNUAL MEAN					279	1992
LOWEST ANNUAL MEAN					3.62	1984
HIGHEST DAILY MEAN	3560	Mar 16	2870	Oct 18	14200	Dec 21 1991
LOWEST DAILY MEAN	.00	Aug 12	.00	Aug 21	.00	Jul 16 1967
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 12	.00	Aug 21	.00	Jul 16 1967
INSTANTANEOUS PEAK FLOW			11200	Mar 18	39500	Dec 20 1991
INSTANTANEOUS PEAK STAGE			11.41	Mar 18	17.63	Jun 16 1987
ANNUAL RUNOFF (AC-FT)	60120		65640		48850	
ANNUAL RUNOFF (CFSM)	.24		.26		.19	
ANNUAL RUNOFF (INCHES)	3.26		3.56		2.65	
10 PERCENT EXCEEDS	152		177		98	
50 PERCENT EXCEEDS	23		32		12	
90 PERCENT EXCEEDS	.15		.00		.14	

e Estimated
h See PERIOD OF RECORD paragraph



08152900 PEDERNALES RIVER NEAR FREDERICKSBURG, TX

LOCATION.--Lat 30°13'13", long 98°52'10", Gillespie County, Hydrologic Unit 12090206, on left bank at downstream side of bridge on U.S. Highway 87, 2.0 mi upstream from Mueseback Creek, 3.8 mi south of Fredricksburg, and 88.7 mi upstream from mouth.

DRAINAGE AREA.--369 mi^2.

PERIOD OF RECORD.--July 1979 to May 1993, Mar 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,564,96 ft above sea level. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversion above station.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes and publishes streamflow record.

AVERAGE DISCHARGE.--14 years, 61.8 ft^3/s (44,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,600 ft^3/s May 3, 1990 (gage height, 25.68 ft); no flow July 13-18, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 2, 1978, which is the highest since 1907, reached a stage of 41.6 ft (discharge not determined). The highest known discharge was 64,000 ft^3/s June 1, 1979 (gage height, 34.4 ft, from floodmark), from rating curve extended above a discharge measurement of 42,300 ft^3/s June 1, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	0400	1,510	7.10	May 12	0500	3,420	9.31
Mar 18	1745	6,340	12.08				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	605	46	51	32	23	63	36	32	28	6.2	2.8
2	7.8	247	47	49	31	22	61	40	30	26	6.0	2.8
3	8.2	106	47	46	31	21	59	37	28	24	5.7	2.8
4	9.8	74	49	45	31	20	56	35	27	23	5.4	2.4
5	10	82	48	45	31	21	53	33	25	25	5.4	2.3
6	220	80	48	44	33	21	50	31	23	24	5.2	2.5
7	89	70	46	e45	33	23	48	30	22	22	5.0	2.3
8	44	64	45	45	31	26	48	30	22	21	4.9	2.4
9	29	60	45	43	29	27	48	28	18	18	4.6	2.2
10	20	57	248	40	29	27	47	96	16	17	4.4	2.4
11	17	52	151	40	28	26	44	82	16	143	4.2	2.2
12	15	50	96	41	26	27	40	833	15	48	4.1	2.2
13	15	55	e84	41	23	28	39	129	15	28	3.9	2.3
14	15	76	71	39	23	26	39	74	16	23	3.5	2.3
15	15	96	66	38	25	25	39	59	22	19	3.4	2.2
16	14	80	63	38	25	23	39	50	30	16	3.4	2.6
17	25	71	61	37	25	23	36	44	26	15	2.6	2.3
18	542	65	61	36	25	1480	35	e65	23	14	2.9	2.3
19	100	63	61	36	25	504	35	47	20	13	2.8	2.4
20	64	60	60	37	24	126	34	39	225	13	2.6	2.5
21	54	57	60	37	23	87	33	34	331	12	2.5	2.6
22	46	55	57	35	23	75	33	33	89	15	2.7	2.4
23	38	54	55	33	23	68	33	32	54	12	2.7	2.3
24	33	53	56	32	22	62	33	30	39	10	3.3	2.3
25	29	52	56	32	22	60	35	30	30	9.4	3.3	2.2
26	28	52	56	33	24	57	62	28	102	8.8	2.8	2.3
27	27	49	55	34	24	56	70	28	41	8.1	2.8	2.2
28	27	50	54	34	23	108	45	29	32	7.7	2.8	2.2
29	27	50	53	36	---	92	36	92	30	7.0	2.9	2.1
30	27	48	52	34	---	71	33	89	29	6.6	3.1	2.0
31	27	---	51	33	---	65	---	45	---	6.4	2.8	---
TOTAL	1630.3	2633	2048	1209	744	3320	1326	2288	1428	663.0	117.9	70.8
MEAN	52.6	87.8	66.1	39.0	26.6	107	44.2	73.8	47.6	21.4	3.80	2.36
MAX	542	605	248	51	33	1480	70	833	331	143	6.2	2.8
MIN	7.5	48	45	32	22	20	33	28	15	6.4	2.5	2.0
AC-FT	3230	5220	4060	2400	1480	6590	2630	4540	2830	1320	234	140

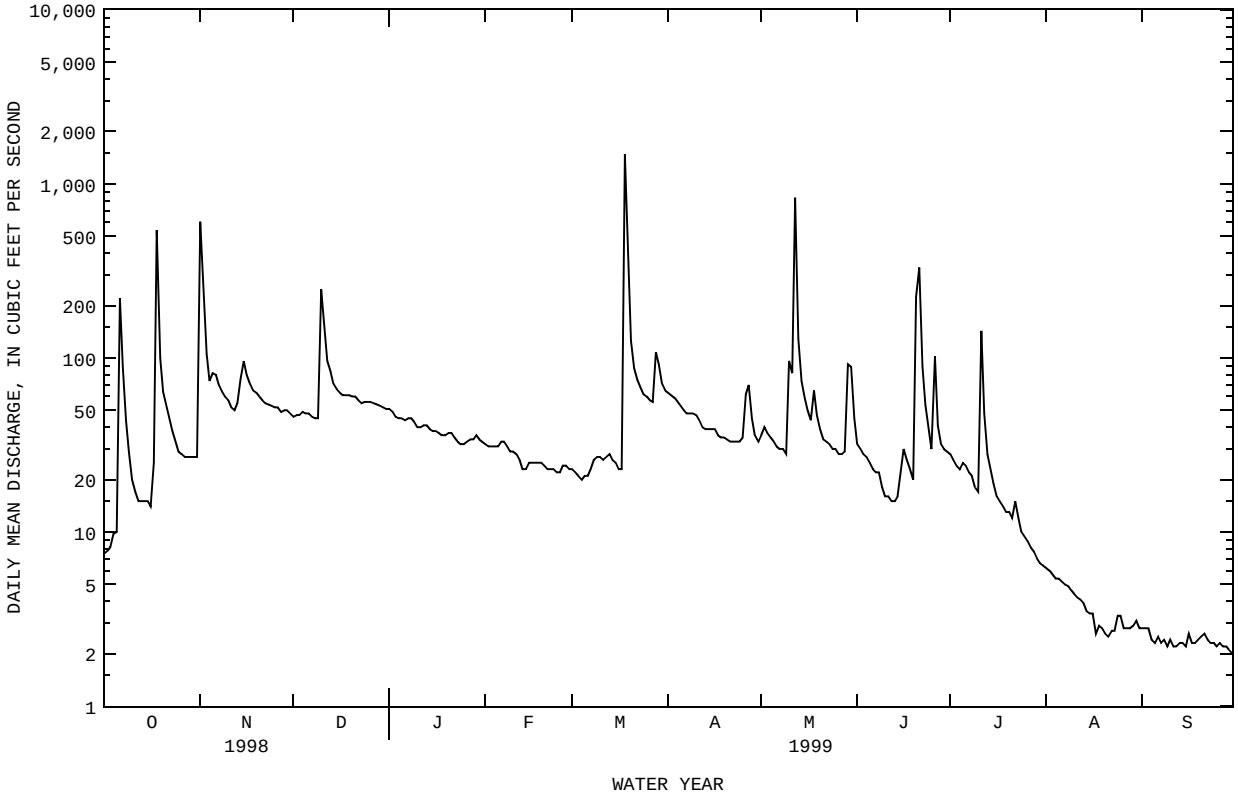
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1999h, BY WATER YEAR (WY)

MEAN	68.2	30.3	107	42.5	76.7	65.8	49.3	91.4	114	39.6	14.7	16.9
MAX	408	87.8	993	173	631	370	224	261	635	191	48.2	48.8
(WY)	1986	1999	1992	1992	1992	1992	1992	1990	1987	1987	1987	1981
MIN	3.45	7.17	7.18	8.78	8.32	9.77	5.96	2.95	2.33	.90	.23	.31
(WY)	1983	1990	1990	1990	1984	1984	1984	1984	1984	1984	1985	1984

08152900 PEDERNALES RIVER NEAR FREDERICKSBURG, TX--Continued

SUMMARY STATISTICS	FOR 1999 WATER YEAR		WATER YEARS 1980 - 1999h	
ANNUAL TOTAL	17478.0			
ANNUAL MEAN	47.9		61.8	
HIGHEST ANNUAL MEAN			244	1992
LOWEST ANNUAL MEAN			5.31	1984
HIGHEST DAILY MEAN	1480	Mar 18	14800	Dec 20 1991
LOWEST DAILY MEAN	2.0	Sep 30	.00	Jul 13 1984
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 24	.01	Jul 12 1984
INSTANTANEOUS PEAK FLOW	6340	Mar 18	49900	Dec 20 1991
INSTANTANEOUS PEAK STAGE	12.08	Mar 18	32.09	Dec 20 1991
ANNUAL RUNOFF (AC-FT)	34670		44750	
10 PERCENT EXCEEDS	72		87	
50 PERCENT EXCEEDS	31		22	
90 PERCENT EXCEEDS	2.8		3.4	

e Estimated
h See PERIOD OF RECORD paragraph.



08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX

LOCATION.--Lat 30°17'30", long 98°23'57", Blanco County, Hydrologic Unit 12090206, near left downstream end of bridge on U.S. Highway 281, 0.2 mi downstream from Towhead Creek, 1.1 mi northeast of Johnson City, 3.4 mi downstream from Buffalo Creek, and 48.0 mi upstream from mouth.

DRAINAGE AREA.--901 mi^2.

PERIOD OF RECORD.--May 1939 to current year.
Water-quality records.--Chemical data: Apr 1948 to Sep 1950, Oct 1971 to Sep 1985.

REVISED RECORDS.--WSP 1632: 1953(M), 1957, 1958(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,096.70 ft above sea level. May 4 to Sep 13, 1939, nonrecording gage, and Sep 14, 1939, to Sep 10, 1952, water-stage recorder at upstream side of bridge at same datum. Sep 11, 1952, to Jun 29, 1953, nonrecording gage, and Jun 30, 1953, to Oct 7, 1954, water-stage recorder at site 360 ft downstream at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--No estimated daily discharge. Records good. There are diversions above station for irrigation. During the year, the city of Fredericksburg discharged varying amounts of wastewater effluent into the river upstream from station. The city of Johnson City diverts varying amounts of water from the pool at gage and discharges wastewater effluent into river below the gage. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 4,580 acre-ft. These structures control runoff from 15.6 mi^2 in the Williamson Creek drainage basin.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jul 1869, reached a stage of 33 ft from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,100 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	0945	9,930	13.75	Nov 1	0945	6,110	12.78
Oct 18	0545	18,900	15.65	Mar 19	0245	5,110	12.51

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

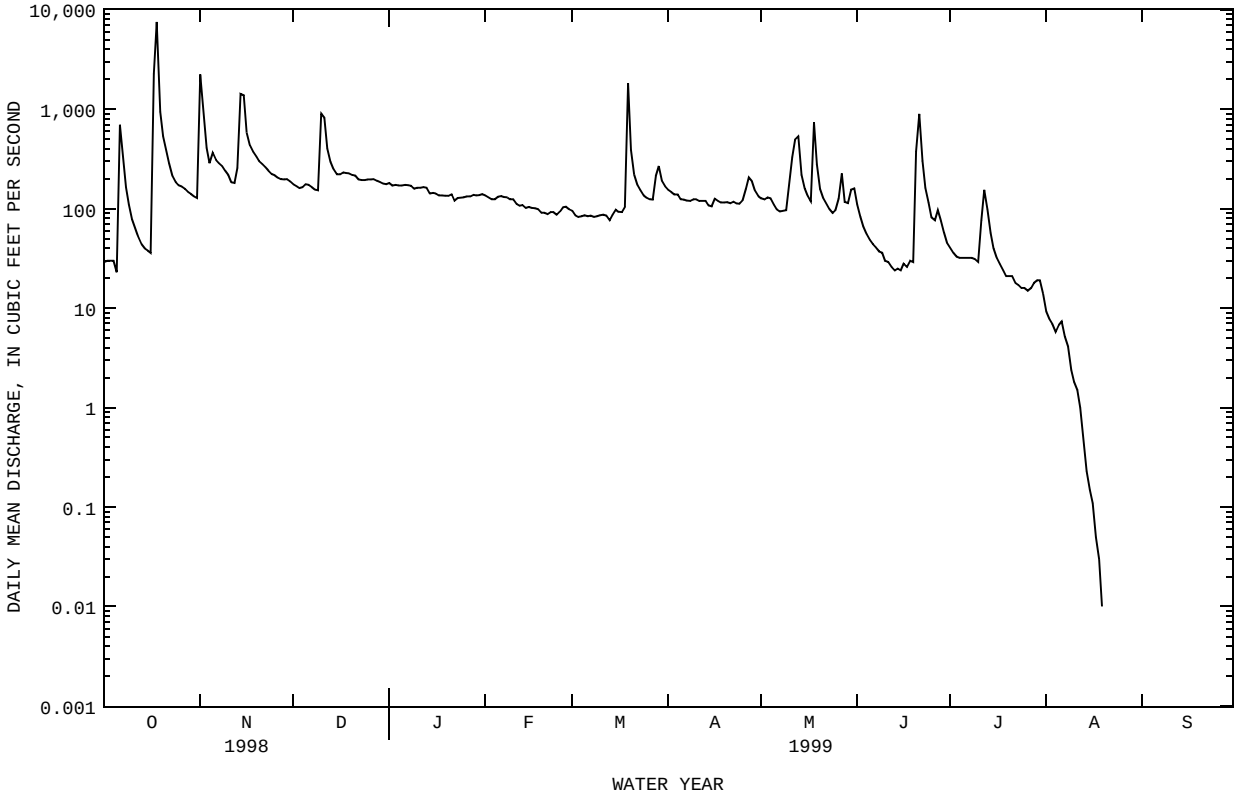
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	2230	176	181	136	96	156	127	110	40	9.2	.00
2	30	921	168	171	130	86	147	124	83	36	7.7	.00
3	30	409	161	174	125	83	139	130	66	33	6.9	.00
4	30	288	165	171	125	84	139	127	56	32	5.8	.00
5	23	364	176	171	132	86	125	110	49	32	6.8	.00
6	699	311	174	173	134	84	123	99	44	32	7.4	.00
7	364	286	165	172	131	85	121	94	41	32	5.2	.00
8	165	268	156	170	130	83	120	95	37	32	4.1	.00
9	110	242	153	159	125	84	125	97	36	31	2.4	.00
10	78	217	899	162	124	86	125	169	30	29	1.8	.00
11	63	184	816	163	112	87	120	330	29	77	1.5	.00
12	51	182	406	164	107	85	120	498	26	155	1.0	.00
13	44	258	296	162	109	77	120	535	24	99	.47	.00
14	40	1420	252	142	102	87	108	220	25	57	.23	.00
15	38	1380	222	144	104	98	106	160	24	40	.15	.00
16	36	586	222	142	102	93	126	135	28	32	.11	.00
17	2270	436	231	136	101	92	120	118	26	28	.05	.00
18	7520	375	228	136	99	105	115	737	30	24	.03	.00
19	949	334	227	135	91	1830	115	282	29	21	.01	.00
20	533	300	218	135	91	392	116	157	377	21	.00	.00
21	378	280	216	140	88	219	114	127	897	21	.00	.00
22	283	263	196	121	92	174	118	111	305	18	.00	.00
23	214	241	194	128	92	154	113	99	163	17	.00	.00
24	186	223	194	129	87	137	112	90	115	16	.00	.00
25	172	217	197	130	94	129	122	97	82	16	.00	.00
26	167	206	197	133	103	124	158	126	77	15	.00	.00
27	159	199	198	133	105	123	206	227	97	16	.00	.00
28	147	197	191	138	99	215	188	117	75	18	.00	.00
29	141	199	185	136	---	269	153	114	58	19	.00	.00
30	133	188	179	137	---	190	134	156	45	19	.00	.00
31	128	---	176	140	---	167	---	160	---	14	.00	---
TOTAL	15210	13204	7634	4628	3070	5704	3904	5768	3084	1072	60.85	0.00
MEAN	491	440	246	149	110	184	130	186	103	34.6	1.96	.000
MAX	7520	2230	899	181	136	1830	206	737	897	155	9.2	.00
MIN	23	182	153	121	87	77	106	90	24	14	.00	.00
AC-FT	30170	26190	15140	9180	6090	11310	7740	11440	6120	2130	121	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

MEAN	230	93.7	181	128	211	181	242	337	332	101	116	196
MAX	2041	600	3161	1177	2794	1289	2369	1673	2905	872	1953	6332
(WY)	1960	1975	1992	1968	1992	1992	1977	1975	1987	1987	1978	1952
MIN	.44	2.51	2.44	1.68	4.83	2.07	.060	2.05	.52	.001	.000	.000
(WY)	1952	1952	1955	1957	1957	1956	1956	1956	1971	1971	1954	1984

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939 - 1999	
ANNUAL TOTAL	87653.56		63338.85			
ANNUAL MEAN	240		174		196	
HIGHEST ANNUAL MEAN					840	1992
LOWEST ANNUAL MEAN					4.12	1956
HIGHEST DAILY MEAN	12400	Mar 16	7520	Oct 18	129000	Sep 11 1952
LOWEST DAILY MEAN	.86	Aug 14	.00	Aug 20	.00	Aug 8 1951
ANNUAL SEVEN-DAY MINIMUM	1.6	Jul 30	.00	Aug 20	.00	Aug 8 1951
INSTANTANEOUS PEAK FLOW			18900	Oct 18	441000	Sep 11 1952
INSTANTANEOUS PEAK STAGE			15.65	Oct 18	42.50	Sep 11 1952
ANNUAL RUNOFF (AC-FT)	173900		125600		142100	
10 PERCENT EXCEEDS	391		281		284	
50 PERCENT EXCEEDS	111		115		51	
90 PERCENT EXCEEDS	14		.00		4.8	



08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX

LOCATION.--Lat 30°22'19", long 97°47'04", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of bridge at Loop 360, 1.0 mi upstream from West Fork Bull Creek and Farm Road 2222, and 7.1 mi northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--22.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Apr 1976 to Jul 1978 (operated as a flood-hydrograph partial-record station), Jul 1978 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 534.08 ft above sea level (levels from city of Austin benchmark). Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 6	0230	1,540	5.85	Oct 18	0400	2,920	6.91
Oct 17	1130	4,790	8.20	Nov 1	0700	1,500	5.82

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

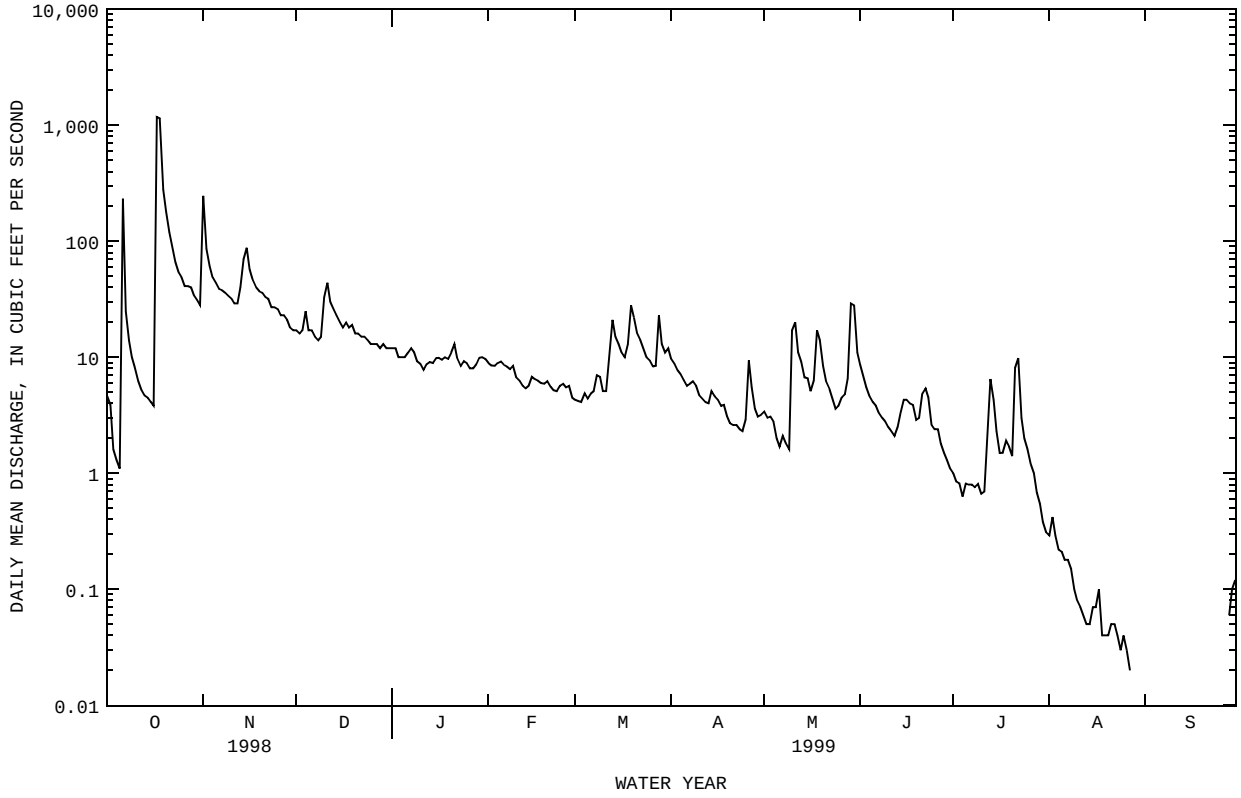
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	246	17	12	8.9	4.3	9.7	3.4	8.6	1.0	.29	.00
2	3.9	86	16	12	8.5	4.2	8.8	3.0	6.8	.85	.42	.00
3	1.6	61	17	10	8.4	4.1	7.7	3.1	5.5	.82	.29	.00
4	1.3	49	25	10	8.9	4.9	7.1	2.8	4.6	.63	.22	.00
5	1.1	44	17	10	9.2	4.4	6.4	2.0	4.1	.82	.21	.00
6	232	39	17	11	8.6	4.9	5.7	1.7	3.8	.80	.18	.00
7	25	38	15	12	8.3	5.1	5.9	2.1	3.3	.80	.18	.00
8	14	36	14	11	7.9	7.0	6.2	1.8	3.0	.76	.15	.00
9	10	34	15	9.3	8.4	6.8	5.7	1.6	2.8	.81	.10	.00
10	8.0	32	33	8.8	6.7	5.1	4.7	17	2.5	.67	.08	.00
11	6.2	29	44	7.8	6.3	5.1	4.4	20	2.3	.70	.07	.00
12	5.2	29	30	8.7	5.7	11	4.1	11	2.1	2.3	.06	.00
13	4.7	40	26	9.1	5.4	21	4.0	9.1	2.5	6.5	.05	.00
14	4.5	70	23	8.9	5.7	15	5.1	6.7	3.3	4.3	.05	.00
15	4.1	88	20	9.8	6.8	13	4.6	6.6	4.3	2.3	.07	.00
16	3.8	57	18	9.9	6.5	11	4.3	5.1	4.3	1.5	.07	.00
17	1180	46	20	9.5	6.3	10	3.8	6.3	4.0	1.5	.10	.00
18	1150	40	18	10	6.0	13	3.9	17	3.9	1.9	.04	.00
19	279	37	19	9.7	5.9	28	3.1	14	2.9	1.7	.04	.00
20	180	36	16	11	6.2	22	2.7	8.4	3.0	1.4	.04	.00
21	120	33	16	13	5.6	16	2.6	6.1	4.9	8.1	.05	.00
22	90	32	15	9.7	5.2	14	2.6	5.3	5.4	9.8	.05	.00
23	66	27	15	8.4	5.1	12	2.4	4.4	4.5	3.0	.04	.00
24	54	27	14	9.3	5.7	10	2.3	3.6	2.6	2.0	.03	.00
25	49	26	13	8.9	5.9	9.4	2.9	3.8	2.4	1.6	.04	.00
26	41	23	13	8.0	5.5	8.3	9.4	4.5	2.4	1.2	.03	.00
27	41	23	13	8.0	5.7	8.4	5.5	4.8	1.8	1.0	.02	.00
28	40	21	12	8.7	4.5	23	3.6	6.6	1.5	.68	.00	.06
29	34	18	13	9.9	---	13	3.1	29	1.3	.54	.00	.10
30	31	17	12	10	---	11	3.2	28	1.1	.38	.00	.12
31	28	---	12	9.7	---	12	---	11	---	.31	.00	---
TOTAL	3713.0	1384	568	304.1	187.8	337.0	145.5	249.8	105.5	60.67	2.97	0.28
MEAN	120	46.1	18.3	9.81	6.71	10.9	4.85	8.06	3.52	1.96	.096	.009
MAX	1180	246	44	13	9.2	28	9.7	29	8.6	9.8	.42	.12
MIN	1.1	17	12	7.8	4.5	4.1	2.3	1.6	1.1	.31	.00	.00
AC-FT	7360	2750	1130	603	373	668	289	495	209	120	5.9	.6
CFSM	5.37	2.07	.82	.44	.30	.49	.22	.36	.16	.09	.00	.00
IN.	6.19	2.31	.95	.51	.31	.56	.24	.42	.18	.10	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	17.4	10.9	16.9	13.1	17.7	15.8	11.9	25.4	27.4	4.29	3.91	3.85
MAX	120	46.1	130	55.9	114	64.7	69.4	58.9	141	22.6	26.3	15.3
(WY)	1999	1999	1992	1992	1992	1992	1997	1992	1987	1997	1991	1987
MIN	.27	.60	.64	1.08	1.92	2.06	1.28	.33	.57	.043	.096	.009
(WY)	1979	1989	1990	1990	1996	1996	1984	1984	1998	1994	1999	1999

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	9730.01		7058.62			
ANNUAL MEAN	26.7		19.3		14.1	
HIGHEST ANNUAL MEAN					40.6	1992
LOWEST ANNUAL MEAN					1.86	1984
HIGHEST DAILY MEAN	1180	Oct 17	1180	Oct 17	1180	Oct 17 1998
LOWEST DAILY MEAN	.00	Aug 1	.00	Aug 28	.00	Jul 4 1984
ANNUAL SEVEN-DAY MINIMUM	.01	Jul 29	.00	Aug 28	.00	Jul 4 1984
INSTANTANEOUS PEAK FLOW			4790	Oct 17	13700	May 13 1982
INSTANTANEOUS PEAK STAGE			8.20	Oct 17	12.31	Oct 7 1994
ANNUAL RUNOFF (AC-FT)	19300		14000		10190	
ANNUAL RUNOFF (CFSM)	1.20		.87		.63	
ANNUAL RUNOFF (INCHES)	16.23		11.77		8.57	
10 PERCENT EXCEEDS	41		31		25	
50 PERCENT EXCEEDS	13		5.7		4.2	
90 PERCENT EXCEEDS	.14		.04		.32	



08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Apr 1978 to current year.
BIOCHEMICAL DATA: Apr 1978 to current year.
RADIOCHEMICAL DATA: Jan to Apr 1980.
PESTICIDE DATA: Jun 1978 to Sep 1986, Jan 1993 to Jun 1995.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
MAR												
03...	0925	4.3	574	7.6	14.5	5	1.0	9.0	89	<10	.5	37
JUN												
30...	0815	1.2	609	7.7	27.0	5	1.4	4.9	63	<10	.4	180

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR											
03...	190	180	2	1	1	<.010	<.050	<.020	--	--	.12
JUN											
30...	280	180	4	2	2	<.010	.063	.024	.27	.19	.21

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR											
03...	<.050	<.050	<.010	--	2.1	E.250	<.100	<1	1	<1	<10
JUN											
30...	E.031	<.050	.016	.05	2.3	E.180	<.100	<1	<1	<1	<40

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08154900 LAKE AUSTIN AT AUSTIN, TX

LOCATION.--Lat 30°18'53", long 97°47'10", Travis County, Hydrologic Unit 12090205, at city of Austin Waterplant No. 2 and 1.5 mi upstream from Tom Miller Dam on the Colorado River at Austin.

DRAINAGE AREA.--38,846 mi^2, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1978 to Aug 1990, Oct 1990 to current year.
BIOCHEMICAL DATA: Oct 1978 to Aug 1990, Oct 1990 to current year.
PESTICIDE DATA: Oct 1978 to Aug 1990.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301739097471601 - LAKE AUSTIN SITE AR

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT							
06...	1348	1.00	497	8.0	25.5	5.4	66
06...	1350	10.0	497	8.0	25.5	5.3	65
06...	1352	20.0	497	8.0	25.5	5.3	65
06...	1354	25.0	497	7.9	25.5	5.2	64

301739097471201 - LAKE AUSTIN SITE AC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
OCT											
06...	1404	1.00	496	8.0	25.5	1.77	1.3	5.2	64	140	289
06...	1406	10.0	497	8.0	25.5	--	--	5.4	66	--	--
06...	1408	20.0	496	8.0	25.5	--	--	5.2	64	--	--
06...	1410	30.0	494	8.0	25.0	--	--	5.1	62	--	--
06...	1412	40.0	501	7.4	22.5	--	--	.0	0	--	--
06...	1414	49.0	509	7.4	22.0	--	2.3	.0	0	170	299

301739097471201 - LAKE AUSTIN SITE AC

DATE	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT											
06...	2	<.010	.060	<.020	<.050	<.050	<.010	--	4.1	1.0	<1.0
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	3	<.010	.057	.198	.039	.037	.035	.11	3.5	<1.0	<1.0

301739097470901 - LAKE AUSTIN SITE AL

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT							
06...	1432	1.00	494	8.0	25.5	5.4	67
06...	1434	10.0	494	8.0	25.5	5.4	67
06...	1436	23.0	494	8.0	25.5	5.4	67

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

302043097472401 - LAKE AUSTIN SITE BC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)
OCT												
06...	1458	1.00	498	8.1	25.5	1.80	1.0	5.7	70	150	290	1
06...	1500	10.0	500	8.1	25.5	--	--	5.8	71	--	--	--
06...	1502	20.0	469	7.9	24.5	--	--	5.4	65	.0	--	--
06...	1504	29.0	395	7.9	22.5	--	20	5.6	65	120	235	28

302043097472401 - LAKE AUSTIN SITE BC

DATE	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT											
06...	--	<.010	.066	<.020	<.050	<.050	<.010	--	3.7	1.2	<1.0
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	.428	.011	.439	.043	.051	.028	.024	.07	6.1	1.1	<1.0

302044097472301 - LAKE AUSTIN SITE BL

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT							
06...	1448	1.00	500	8.0	25.5	5.6	69
06...	1450	10.0	497	8.0	25.5	5.5	68
06...	1452	17.0	485	8.0	25.5	5.3	65

301926097502201 - LAKE AUSTIN SITE CC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
OCT											
06...	1534	1.00	499	7.9	24.5	2.53	.70	4.9	59	150	289
06...	1536	10.0	499	7.9	24.5	--	--	4.8	58	--	--
06...	1538	24.0	499	7.9	24.5	--	.92	5.0	61	150	288

301926097502201 - LAKE AUSTIN SITE CC

DATE	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT											
06...	2	<.010	.078	.034	.010	.013	.011	.03	3.5	1.2	<1.0
06...	--	--	--	--	--	--	--	--	--	--	--
06...	2	<.010	.080	.031	.013	<.050	.010	.03	4.1	1.3	<1.0

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

302021097540001 - LAKE AUSTIN SITE DC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT							
06...	1602	1.00	492	7.9	24.0	4.9	59
06...	1604	10.0	492	7.9	24.0	4.9	59
06...	1606	15.0	492	7.9	24.0	4.8	58

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08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX

LOCATION.--Lat 30°17'46", long 97°55'31", Travis County, Hydrologic Unit 12090205, at upstream side of bridge on State Highway 71, 0.1 mi downstream from Little Barton Creek, and 5.8 mi northwest of Oak Hill.

DRAINAGE AREA.--89.7 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Aug 1975 to Feb 1978 (operated as a flood-hydrograph partial-record station), Feb 1978 to Sep 1982, Jan 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 737.04 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records poor. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1445	8,940	14.83	Nov 1	1200	1,940	7.70
Oct 18	1000	2,000	7.80				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	621	77	38	15	6.3	7.0	2.8	11	16	6.9	.00
2	.39	221	74	37	14	6.0	6.7	2.8	8.0	13	5.0	.00
3	.39	182	73	34	14	5.5	6.3	2.7	7.0	15	4.0	.00
4	.37	161	74	33	13	5.4	6.0	2.6	5.9	20	3.3	.00
5	.36	165	69	32	13	5.6	5.9	2.4	4.9	23	2.6	.00
6	108	146	66	33	13	6.0	4.8	2.1	4.4	20	2.1	.00
7	42	149	63	32	12	6.0	4.7	2.0	3.9	19	1.7	.00
8	20	144	59	31	12	6.3	4.5	1.9	3.6	19	1.3	.00
9	15	137	57	29	12	6.3	4.3	1.9	3.3	17	.92	.00
10	13	130	73	28	12	6.3	4.1	2.7	4.0	14	.68	.00
11	12	116	94	27	11	6.0	3.7	3.6	7.1	53	.60	.00
12	11	117	84	27	9.6	6.7	3.5	3.8	6.5	60	.55	.00
13	10	144	72	26	9.5	7.9	3.5	3.8	5.8	40	.53	.00
14	10	204	67	25	9.5	6.0	3.6	3.1	5.5	33	.51	.00
15	9.9	218	64	24	9.5	5.5	3.4	2.6	5.6	28	.47	.00
16	9.2	177	61	24	9.5	5.0	3.2	2.3	5.4	25	.14	.00
17	1880	166	60	23	9.6	4.7	3.1	2.4	5.3	24	.14	.00
18	1130	154	59	22	8.5	5.2	3.0	4.6	5.1	24	.13	.00
19	470	145	57	21	7.8	11	3.0	2.6	7.6	23	.11	.00
20	445	138	54	21	7.7	11	2.9	2.1	51	23	.10	.00
21	299	131	54	22	7.6	7.9	2.8	1.9	92	23	.08	.00
22	231	125	50	20	7.6	6.5	2.8	1.7	59	29	.07	.00
23	196	116	49	19	7.5	5.9	2.8	1.6	46	26	.07	.00
24	177	108	48	18	7.3	5.5	3.3	1.6	35	21	.07	.00
25	156	103	47	17	7.6	5.1	3.4	53	30	21	.05	.00
26	143	99	46	17	7.6	4.9	4.0	25	29	20	.03	.00
27	129	93	45	17	7.5	4.8	4.1	88	26	17	.03	.00
28	123	91	44	17	6.8	8.7	3.6	26	23	15	.03	.00
29	113	88	41	17	---	9.5	3.5	66	20	14	.01	.00
30	103	82	39	17	---	8.3	3.1	26	18	12	.02	.00
31	97	---	38	16	---	7.4	---	15	---	9.6	.00	---
TOTAL	5954.00	4671	1858	764	281.7	203.2	120.6	360.6	538.9	716.6	32.24	0.00
MEAN	192	156	59.9	24.6	10.1	6.55	4.02	11.6	18.0	23.1	1.04	.000
MAX	1880	621	94	38	15	11	7.0	88	92	60	6.9	.00
MIN	.36	82	38	16	6.8	4.7	2.8	1.6	3.3	9.6	.00	.00
AC-FT	11810	9260	3690	1520	559	403	239	715	1070	1420	64	.00
CFSM	2.14	1.74	.67	.27	.11	.07	.04	.13	.20	.26	.01	.00
IN.	2.47	1.94	.77	.32	.12	.08	.05	.15	.22	.30	.01	.00

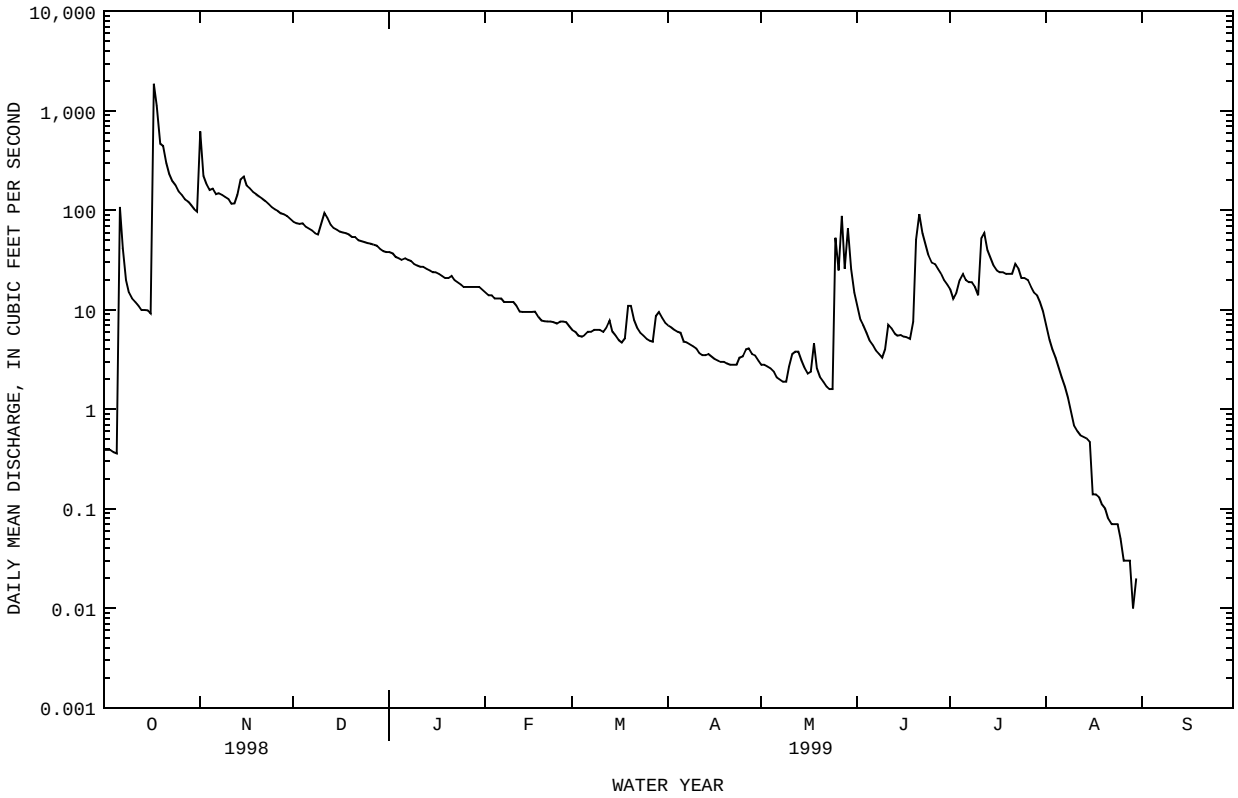
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999h, BY WATER YEAR (WY)

MEAN	24.8	18.3	53.3	47.7	66.1	64.8	47.9	70.8	106	13.1	2.95	2.26
MAX	192	156	520	293	465	338	196	226	613	56.5	15.2	24.2
(WY)	1999	1999	1992	1992	1992	1992	1979	1992	1981	1997	1991	1991
MIN	.000	.059	.039	.046	.072	.020	.057	.001	.000	.000	.000	.000
(WY)	1991	1990	1990	1990	1990	1996	1996	1996	1996	1978	1996	1999

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999h	
ANNUAL TOTAL	27597.10		15500.84			
ANNUAL MEAN	75.6		42.5		46.2	
HIGHEST ANNUAL MEAN					182	1992
LOWEST ANNUAL MEAN					.17	1996
HIGHEST DAILY MEAN	1880	Oct 17	1880	Oct 17	4960	Dec 21 1991
LOWEST DAILY MEAN	.00	Aug 16	.00	Aug 31	.00	Feb 7 1978
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 25	.00	Aug 31	.00	Feb 7 1978
INSTANTANEOUS PEAK FLOW			8940	Oct 17	14900	Dec 20 1991
INSTANTANEOUS PEAK STAGE			14.83	Oct 17	18.10	Dec 20 1991
ANNUAL RUNOFF (AC-FT)	54740		30750		33440	
ANNUAL RUNOFF (CFSM)	.84		.47		.51	
ANNUAL RUNOFF (INCHES)	11.44		6.43		6.99	
10 PERCENT EXCEEDS	167		110		93	
50 PERCENT EXCEEDS	38		9.5		4.6	
90 PERCENT EXCEEDS	.02		.04		.03	

h See PERIOD OF RECORD paragraph.



08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Apr 1978 to Sep 1982, Feb 1989 to current year.
BIOCHEMICAL DATA: Apr 1978 to Sep 1982, Feb 1989 to current year.
RADIOCHEMICAL DATA: Oct 1979 to Sep 1980.
PESTICIDE DATA: Apr 1978 to Sep 1982, Jan 1993 to Jun 1995.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
OCT											
06...	0325	--	291	255	6.8	19.0	50	260	--	--	14
06...	0510	--	183	157	7.9	19.0	60	240	--	--	11
06...	1100	--	236	341	8.1	--	30	27	--	--	<10
07...	1110	--	125	361	7.6	20.5	20	5.0	7.8	88	<10
MAR											
02...	0935	--	6.5	500	7.8	18.0	5	1.0	8.9	97	<10
MAY											
17...	1105	--	2.2	497	7.6	26.0	<1	10	7.0	89	<10
MAY											
26-27	2030	95	--	364	8.2	--	20	60	--	--	<10
JUN											
20-21	1755	105	--	448	7.9	--	10	3.0	--	--	<10
29...	0830	--	21	496	8.0	28.5	<1	1.5	6.0	80	<10
JUL											
11-11	0555	64	--	492	7.7	--	5	1.6	--	--	<10
AUG											
16...	1040	--	.16	540	7.6	29.0	11	.24	5.0	67	<10

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT											
06...	4.7	46000	42000	59	624	76	548	.246	.011	.257	.054
06...	4.8	24000	56000	59	368	56	312	.271	.023	.294	<.020
06...	2.0	4400	12000	130	57	9	48	--	<.010	.170	.068
07...	1.7	K1300	4700	130	8	5	3	--	<.010	.114	<.020
MAR											
02...	.5	K5	140	170	3	1	2	--	<.010	<.050	<.020
MAY											
17...	.7	21	K2700	160	<1	3	--	--	<.010	.053	<.020
MAY											
26-27	2.6	E5000	K7000	120	77	20	57	--	<.010	.131	.025
JUN											
20-21	1.2	8400	K3600	150	8	1	7	--	<.010	<.050	<.020
29...	.1	K16	360	160	2	1	1	--	<.010	<.050	.021
JUL											
11-11	.9	K400	K1400	150	<1	2	--	--	<.010	<.050	<.020
AUG											
16...	.8	120	220	160	<1	<1	--	--	<.010	.050	<.020

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT											
06...	--	--	--	.358	<.050	<.010	--	28	--	--	--
06...	1.4	--	1.1	.174	E.033	<.010	--	17	--	--	--
06...	.80	.56	.63	.064	<.050	<.010	--	4.7	--	--	--
07...	.34	--	.22	<.050	<.050	<.010	--	3.9	--	--	--
MAR											
02...	--	--	E.07	<.050	<.050	<.010	--	1.7	<.100	<.100	--
MAY											
17...	--	--	<.10	<.050	<.050	<.010	--	2.4	.120	<.100	--
MAY											
26-27	.69	.53	.56	.053	<.050	.012	.04	39	--	--	71
JUN											
20-21	--	--	.31	E.044	<.050	.013	.04	3.2	--	--	3
29...	--	.49	.51	<.050	<.050	.010	.03	3.0	E.170	<.100	--
JUL											
11-11	--	--	.16	<.050	<.050	<.010	--	3.4	--	--	5
AUG											
16...	.18	--	.13	<.050	<.050	<.010	--	1.3	.340	<.100	--

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT											
06...	--	--	--	--	--	--	<1	--	--	--	7
06...	--	--	--	--	--	--	<1	--	--	--	5
06...	--	--	--	--	--	--	<1	--	--	--	1
07...	--	--	--	--	--	--	<1	--	--	--	2
MAR											
02...	--	--	--	--	--	--	<1	--	--	--	<1
MAY											
17...	--	--	--	--	--	--	<1	--	--	--	<1
MAY											
26-27	18	98	D26	<1.0	22	<1.0	<1	<1.0	<1.0	<1.0	2
JUN											
20-21	.85	100	--	--	--	--	<1	--	--	--	<1
29...	--	--	--	--	--	--	<1	--	--	--	<1
JUL											
11-11	.87	91	--	--	--	--	<1	--	--	--	<1
AUG											
16...	--	--	--	--	--	--	<1	--	--	--	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
OCT										
06...	--	11	--	--	--	--	--	30	--	--
06...	--	7	--	--	--	--	--	20	--	--
06...	--	1	--	--	--	--	--	<10	--	--
07...	--	<1	--	--	--	--	--	<10	--	--
MAR										
02...	--	<1	--	--	--	--	--	<10	--	--
MAY										
17...	--	<1	--	--	--	--	--	<40	--	--
MAY										
26-27	<1.0	3	<1.0	1.2	14	4.4	<1.0	<40	4.6	<1.0
JUN										
20-21	--	<1	--	--	--	--	--	<40	--	--
29...	--	<1	--	--	--	--	--	<40	--	--
JUL										
11-11	--	<1	--	--	--	--	--	<40	--	--
AUG										
16...	--	<1	--	--	--	--	--	<40	--	--

08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX

LOCATION.--Lat 30°16'26", long 97°50'40", Travis County, Hydrologic Unit 12090205, 1.4 mi southwest of intersection of Lost Creek Boulevard and Loop 360, and 6.2 mi west of State Capitol Building in Austin.

DRAINAGE AREA.--107 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jan 1979 to Sep 1980 (periodic gage heights and discharge measurements only). Dec 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 600 ft above sea level, from topographic map. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. No flow at times. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date (discharge 39,400 ft^3/s), based on slope-area measurement of peak flow at a site about 2.1 mi downstream.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1815	7,210	9.55	Nov 1	1445	1,790	5.51
Oct 18	1230	2,130	5.84				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

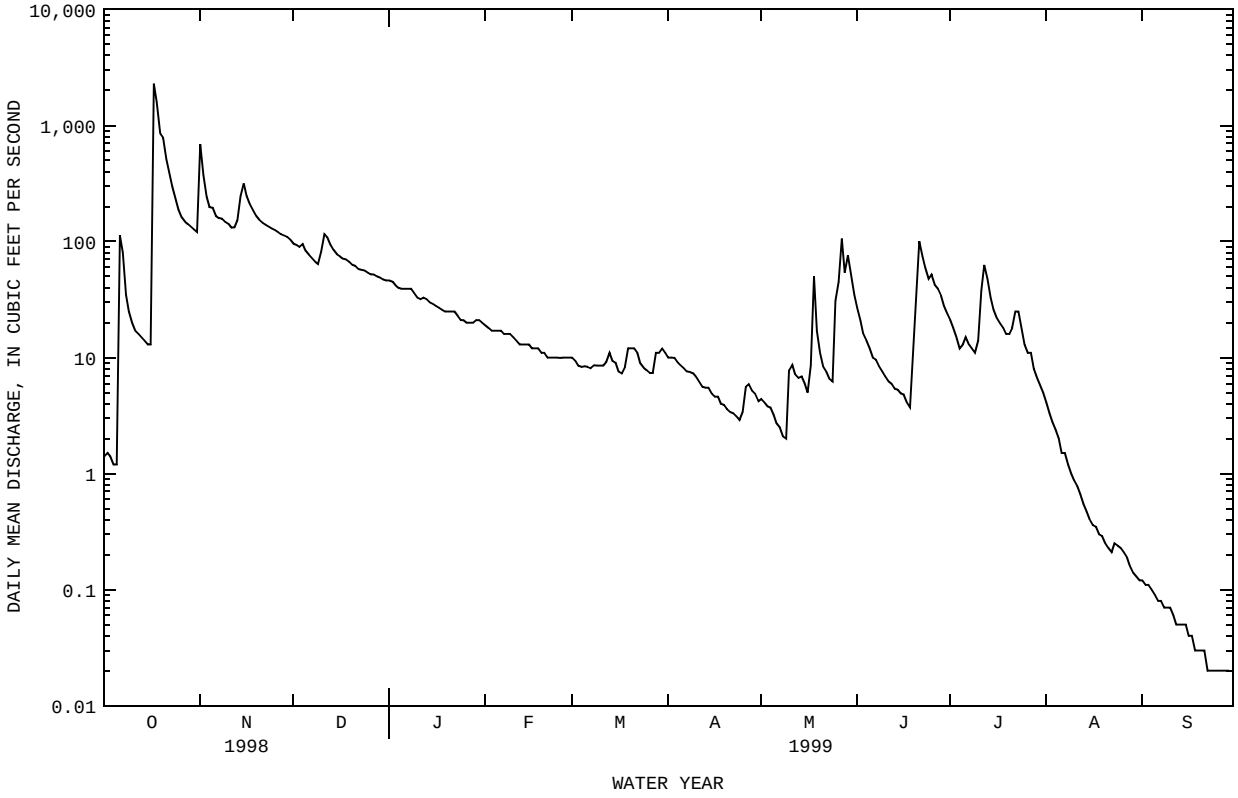
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	688	96	46	19	10	10	4.4	27	21	4.1	.12
2	1.5	373	93	45	18	9.4	10	4.1	21	18	3.3	.11
3	1.4	243	90	42	17	8.5	9.9	3.8	16	15	2.8	.11
4	1.2	197	95	40	17	8.3	9.1	3.7	14	12	2.4	.10
5	1.2	195	83	39	17	8.4	8.6	3.2	12	13	2.0	.09
6	113	167	77	39	17	8.3	8.1	2.7	10	15	1.5	.08
7	81	159	72	39	16	8.1	7.6	2.5	9.6	13	1.5	.08
8	35	157	67	39	16	8.6	7.5	2.1	8.4	12	1.2	.07
9	25	148	64	36	16	8.5	7.3	2.0	7.6	11	1.0	.07
10	20	142	82	33	15	8.5	6.8	7.8	6.9	14	.87	.07
11	17	131	116	32	14	8.5	6.2	8.7	6.3	38	.78	.06
12	16	132	109	33	13	9.2	5.6	7.2	6.0	63	.67	.05
13	15	152	93	32	13	11	5.5	6.7	5.4	48	.55	.05
14	14	247	85	30	13	9.4	5.5	6.9	5.3	33	.47	.05
15	13	318	78	29	13	9.0	4.9	6.0	4.9	26	.40	.05
16	13	246	75	28	12	7.6	4.6	5.0	4.8	22	.36	.04
17	2300	209	71	27	12	7.3	4.6	8.6	4.1	20	.35	.04
18	1590	185	70	26	12	8.3	4.0	50	3.7	18	.30	.03
19	854	165	67	25	11	12	3.9	17	13	16	.29	.03
20	783	154	63	25	11	12	3.6	11	32	16	.25	.03
21	515	146	62	25	10	12	3.4	8.3	101	18	.23	.03
22	392	140	58	25	10	11	3.3	7.5	75	25	.21	.02
23	296	135	57	23	10	8.9	3.1	6.6	59	25	.25	.02
24	233	130	56	21	10	8.2	2.9	6.2	48	18	.24	.02
25	188	126	54	21	9.9	7.8	3.4	31	52	13	.23	.02
26	161	121	52	20	10	7.4	5.6	45	42	11	.21	.02
27	148	116	52	20	10	7.4	5.9	106	39	11	.19	.02
28	141	113	50	20	10	11	5.2	54	34	8.0	.16	.02
29	134	110	49	21	---	11	4.9	76	28	6.7	.14	.02
30	127	104	47	21	---	12	4.2	51	24	5.8	.13	.02
31	121	---	46	20	---	11	---	35	---	5.0	.12	---
TOTAL	8351.7	5649	2229	922	371.9	288.6	175.2	590.0	720.0	590.5	27.20	1.54
MEAN	269	188	71.9	29.7	13.3	9.31	5.84	19.0	24.0	19.0	.88	.051
MAX	2300	688	116	46	19	12	10	106	101	63	4.1	.12
MIN	1.2	104	46	20	9.9	7.3	2.9	2.0	3.7	5.0	.12	.02
MED	113	153	70	28	13	8.6	5.5	7.2	14	16	.36	.05
AC-FT	16570	11200	4420	1830	738	572	348	1170	1430	1170	54	3.1
CFSM	2.52	1.76	.67	.28	.12	.09	.05	.18	.22	.18	.01	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	34.0	25.3	84.0	68.9	101	79.6	62.8	97.3	119	14.0	3.80	3.26
MAX	269	188	627	307	581	381	247	264	701	67.8	23.2	25.6
(WY)	1999	1999	1992	1992	1992	1992	1997	1992	1997	1997	1991	1991
MIN	.10	.23	.22	.40	.96	.81	.84	.42	.93	.17	.005	.051
(WY)	1994	1990	1990	1990	1996	1996	1996	1996	1998	1996	1998	1999

08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	35365.33		19916.64			
ANNUAL MEAN	96.9		54.6		59.7	
HIGHEST ANNUAL MEAN					212	1992
LOWEST ANNUAL MEAN					1.14	1996
HIGHEST DAILY MEAN	2300	Oct 17	2300	Oct 17	7000	Dec 21 1991
LOWEST DAILY MEAN	.00	Jul 27	.02	Sep 22	.00	Aug 24 1993
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 27	.02	Sep 22	.00	Aug 24 1993
INSTANTANEOUS PEAK FLOW			7210	Oct 17	16400	Dec 21 1991
INSTANTANEOUS PEAK STAGE			9.55	Oct 17	12.90	Dec 21 1991
ANNUAL RUNOFF (AC-FT)	70150		39500		43230	
ANNUAL RUNOFF (CFSM)	.91		.51		.56	
10 PERCENT EXCEEDS	197		130		127	
50 PERCENT EXCEEDS	46		12		6.5	
90 PERCENT EXCEEDS	.00		.21		.22	



08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Dec 1988 to current year.
BIOCHEMICAL DATA: Dec 1988 to current year.
PESTICIDE DATA: Jan 1993 to May 1995.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
06...	0400	--	38	626	8.1	23.0	20	2.3	--	--
06...	0545	--	75	406	8.0	--	30	7.4	--	--
06...	0810	--	108	481	8.1	21.5	40	23	--	--
06...	1135	--	157	441	8.1	21.0	25	60	--	--
07...	1145	--	75	429	7.8	20.0	20	4.1	7.6	84
MAR										
02...	1050	--	9.5	519	7.8	19.0	5	1.2	7.9	88
MAY										
17...	1030	--	4.4	568	7.4	25.5	<1	1.5	6.2	78
MAY										
26-28	2340	83	--	459	8.3	--	10	3.2	--	--
JUN										
20-22	2145	89	--	448	7.9	--	10	2.4	--	--
29...	0930	--	29	523	7.9	28.0	5	1.4	6.3	82
AUG										
16...	1130	--	.40	663	7.8	30.0	12	.22	6.0	81

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT										
06...	<10	2.6	2200	10000	170	8	6	2	--	<.010
06...	<10	3.0	20000	110000	110	11	11	.00	.674	.011
06...	<10	2.7	K6000	79000	130	45	7	38	--	<.010
06...	<10	2.7	4000	28000	140	94	20	74	--	<.010
07...	<10	1.9	2300	1800	150	9	5	4	--	<.010
MAR										
02...	<10	.7	K10	64	160	1	<1	--	--	<.010
MAY										
17...	10	.7	84	840	190	<1	2	--	--	<.010
MAY										
26-28	<10	1.8	3200	2500	160	8	8	.00	--	<.010
JUN										
20-22	12	1.5	K900	4200	160	8	4	4	--	<.010
29...	<10	.5	200	230	170	3	1	2	--	<.010
AUG										
16...	<10	.8	21	170	210	<1	2	--	--	<.010

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT										
06...	.189	.042	--	--	--	.055	<.050	.020	.06	4.2
06...	.685	.057	--	--	--	.212	.129	.129	.40	7.6
06...	.505	.027	--	--	--	.106	E.035	.036	.11	7.0
06...	.443	.026	1.0	.58	.61	.094	<.050	.016	.05	7.1
07...	.265	.022	--	--	--	<.050	<.050	<.010	--	3.9
MAR										
02...	.062	.024	.16	.08	.10	<.050	<.050	<.010	--	2.8
MAY										
17...	<.050	.029	--	.20	.23	<.050	<.050	.013	.04	1.8
MAY										
26-28	.068	.023	.34	.25	.27	E.030	<.050	.016	.05	37
JUN										
20-22	.102	<.020	.30	--	.20	<.050	<.050	.010	.03	2.7
29...	.131	.028	.38	.22	.25	<.050	<.050	<.010	--	2.1
AUG										
16...	<.050	<.020	--	--	.29	<.050	<.050	<.010	--	2.9

08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT									
06...	--	--	--	--	--	<1	1	1	10
06...	--	--	--	--	--	<1	2	4	10
06...	--	--	--	--	--	<1	2	2	10
06...	--	--	--	--	--	<1	2	2	10
07...	--	--	--	--	--	<1	<1	<1	<10
MAR									
02...	E.150	<.100	--	--	--	<1	<1	<1	<10
MAY									
17...	.260	<.100	--	--	--	<1	<1	<1	<40
MAY									
26-28	--	--	7	1.6	100	<1	<1	<1	<40
JUN									
20-22	--	--	17	4.1	85	<1	<1	<1	<40
29...	2.10	.400	--	--	--	<1	<1	<1	<40
AUG									
16...	.620	<.100	--	--	--	<1	<1	<1	<40

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX

LOCATION.--Lat 30°14'40", long 97°48'07", Travis County, Hydrologic Unit 12090205, on Loop 360, 0.9 mi west of the intersection of Ben White and Lamar Boulevards, and 4.3 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--116 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jun 1975 to Jan 1977 (operated as a flood-hydrograph partial-record station only), Feb 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 510.32 ft above sea level (Texas Department of Transportation bench mark). Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversions. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date (discharge 39,400 ft^3/s), based on a slope-area measurement of peak flow at a site about 2 mi upstream.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1315	9,960	12.74	Oct 18	1400	2,090	7.54
Oct 17	1930	7,660	11.39	Nov 1	1600	1,650	7.06

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	632	91	18	.01	.00	.00	.00	.18	.03	.00	.00
2	.00	370	86	17	.00	.00	.00	.00	.00	.03	.00	.00
3	.00	253	83	15	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	231	84	13	.00	.00	.00	.00	.00	.03	.00	.00
5	.00	219	74	13	.00	.00	.00	.00	.00	.03	.00	.00
6	68	199	62	13	.00	.00	.00	.00	.00	.23	.00	.00
7	57	188	54	12	.00	.00	.00	.00	.00	.03	.00	.00
8	4.3	185	49	11	.00	.00	.00	.00	.00	.00	.00	.00
9	.01	169	44	10	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	155	67	8.8	.00	.00	.00	.00	.00	3.3	.00	.00
11	.00	135	107	8.1	.00	.00	.00	.00	.00	6.3	.00	.00
12	.00	137	101	7.7	.00	.00	.00	.00	.00	18	.00	.00
13	.00	175	85	6.6	.00	.00	.00	.00	.00	8.9	.00	.00
14	.00	252	75	5.2	.00	.00	.00	.00	.00	1.1	.00	.00
15	.00	331	63	4.4	.00	.00	.00	.00	.00	.41	.00	.00
16	.00	280	53	4.1	.00	.00	.00	.00	.00	.01	.00	.00
17	3050	252	48	3.5	.00	.00	.00	1.8	.00	.00	.00	.00
18	1600	227	46	2.5	.00	.37	.00	9.4	.00	.00	.00	.00
19	815	211	44	2.0	.00	.15	.00	.09	4.1	.00	.00	.00
20	739	194	40	2.0	.00	.00	.00	.00	.79	.00	.00	.00
21	467	175	36	1.7	.00	.00	.00	.00	57	.00	.00	.00
22	362	162	33	1.4	.00	.00	.00	.00	53	.00	.00	.00
23	288	152	32	.90	.00	.00	.00	.00	63	.00	.00	.00
24	242	142	32	.60	.00	.00	.00	.00	38	.00	.00	.00
25	206	133	30	.42	.00	.00	.00	.00	39	.00	.00	.00
26	179	123	29	.37	.00	.00	.00	9.7	21	.00	.00	.00
27	159	115	27	.29	.00	.00	.00	61	e9.9	.00	.00	.00
28	145	110	25	.24	.00	.00	.00	18	e1.6	.00	.00	.00
29	130	104	22	.52	---	.00	.00	25	.22	.00	.00	.00
30	117	97	20	.21	---	.00	.00	12	.03	.00	.00	.00
31	107	---	19	.02	---	.00	---	1.1	---	.00	.00	---
TOTAL	8735.31	6108	1661	183.57	0.01	0.52	0.00	138.09	287.82	38.40	0.00	0.00
MEAN	282	204	53.6	5.92	.000	.017	.000	4.45	9.59	1.24	.000	.000
MAX	3050	632	107	18	.01	.37	.00	61	63	18	.00	.00
MIN	.00	97	19	.02	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	17330	12120	3290	364	.02	1.0	.00	274	571	76	.00	.00
CFSM	2.43	1.76	.46	.05	.00	.00	.00	.04	.08	.01	.00	.00
IN.	2.80	1.96	.53	.06	.00	.00	.00	.04	.09	.01	.00	.00

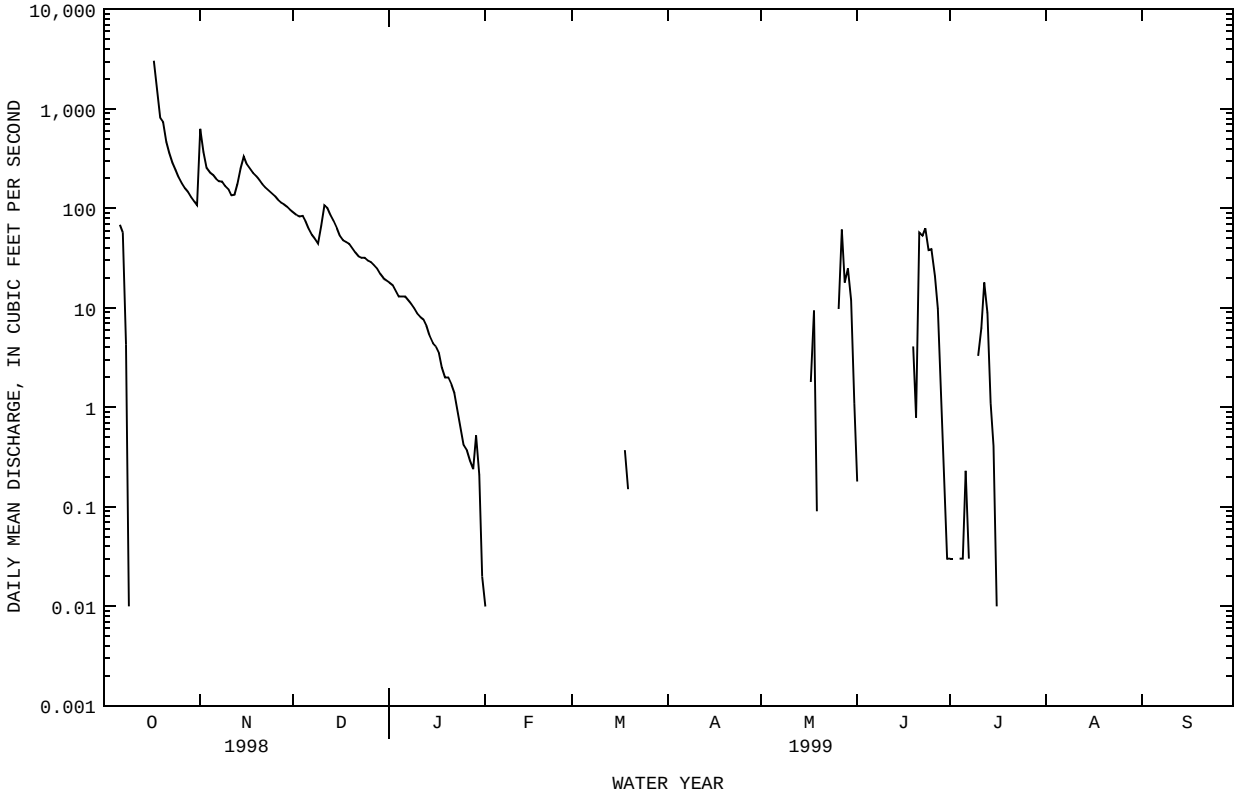
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

MEAN	28.7	17.1	73.2	41.0	64.3	54.8	49.2	80.1	156	8.29	.75	.51
MAX	282	204	865	281	609	342	319	321	1142	73.1	13.9	7.57
(WY)	1999	1999	1992	1992	1992	1992	1977	1992	1987	1981	1991	1983
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1978	1978	1978	1978	1978	1978	1978	1978	1978	1977	1977	1977

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999	
ANNUAL TOTAL	31764.92		17152.72			
ANNUAL MEAN	87.0		47.0		47.3	
HIGHEST ANNUAL MEAN					229	1992
LOWEST ANNUAL MEAN					.000	1978
HIGHEST DAILY MEAN	3050	Oct 17	3050	Oct 17	10800	Dec 21 1991
LOWEST DAILY MEAN	.00	May 9	.00	Oct 1	.00	Apr 11 1977
ANNUAL SEVEN-DAY MINIMUM	.00	May 9	.00	Oct 10	.00	Jun 10 1977
INSTANTANEOUS PEAK FLOW			12500	Oct 17	18100	May 25 1981
INSTANTANEOUS PEAK STAGE			12.74	Oct 17	15.03	May 25 1981
ANNUAL RUNOFF (AC-FT)	63010		34020		34290	
ANNUAL RUNOFF (CFSM)	.75		.41		.41	
ANNUAL RUNOFF (INCHES)	10.19		5.50		5.54	
10 PERCENT EXCEEDS	208		134		98	
50 PERCENT EXCEEDS	20		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated



08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jan 1979 to current year.
BIOCHEMICAL DATA: Jan 1979 to current year.
RADIOCHEMICAL DATA: Apr 1980.
PESTICIDE DATA: Jan 1979 to Sep 1986.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
06...	0635	--	12	90	7.4	18.5	60	2.7	--	--
06...	1200	--	157	115	7.9	--	65	36	--	--
07...	0755	--	71	395	7.6	19.5	25	27	8.0	88
MAY										
26-28	2030	49	--	443	8.3	--	5	10	--	--
JUN										
20-22	2132	--	45	438	7.8	--	20	3.0	--	--
28...	1135	--	1.6	477	8.3	29.5	5	1.2	7.8	105

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT										
06...	11	3.7	11000	27000	43	7	8	.00	.294	.034
06...	13	3.6	29000	21000	56	58	16	42	.497	.020
07...	<10	2.4	1100	7400	130	30	6	24	--	<.010
MAY										
26-28	<10	1.5	K1600	5700	150	3	6	.00	--	<.010
JUN										
20-22	13	1.1	K6800	19000	150	11	6	5	--	<.010
28...	<10	.1	160	580	150	4	1	3	--	<.010

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT										
06...	.328	.030	--	--	--	.136	.090	.088	.27	8.0
06...	.517	.024	--	--	--	.143	.074	.071	.22	9.1
07...	.335	.022	.69	.33	.35	E.037	<.050	<.010	--	5.2
MAY										
26-28	.059	<.020	.29	--	.23	<.050	<.050	.010	.03	34
JUN										
20-22	.157	.044	.84	.64	.69	<.050	<.050	.014	.04	3.4
28...	.058	.020	.26	.19	.21	<.050	<.050	<.010	--	4.2

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT									
06...	--	--	--	--	--	<1	2	<1	10
06...	--	--	--	--	--	<1	3	2	20
07...	--	--	--	--	--	<1	1	<1	10
MAY									
26-28	--	--	3	.39	100	<1	1	<1	<40
JUN									
20-22	--	--	8	.97	91	<1	<1	<1	<40
28...	1.20	E.110	--	--	--	<1	<1	<1	<40

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08155400 BARTON CREEK ABOVE BARTON SPRINGS AT AUSTIN, TX

LOCATION.--Lat 30°15'48", long 97°46'19", Travis County, Hydrologic Unit 12090205, on left bank of Barton Creek approximately 200 ft above Barton Springs pool.

DRAINAGE AREA.--125 mi^2

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1998 to Aug 1999.
BIOCHEMICAL DATA: Oct 1998 to Aug 1999.
TRACE METAL DATA: Oct 1998 to Aug 1999.
PESTICIDE DATA: Oct 1998 to Aug 1999.
Water-discharge records.--Sep 1981 to Oct 1984 (low-flow partial-record station).

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
OCT											
06...	0710	--	104	148	7.8	18.5	60	75	--	--	<10
06...	0900	--	42	163	7.8	19.0	60	66	--	--	<10
06...	0955	--	19	182	7.8	19.0	55	55	--	--	<10
06...	1219	--	21	236	7.9	19.5	40	40	--	--	<10
07...	1217	--	50	437	7.8	20.0	30	16	7.9	87	<10
17...	1207	--	2390	90	7.7	--	150	200	--	--	10
17...	1230	--	4670	105	7.7	--	130	240	--	--	19
17...	1345	--	7300	146	7.9	22.0	250	370	--	--	14
17...	1615	--	3310	193	7.9	--	180	260	--	--	16
19...	1414	--	1300	456	8.2	20.5	25	7.5	--	--	<10
MAR											
02...	1145	--	1.7	602	7.3	21.0	5	1.8	8.0	92	<10
APR											
26...	2100	--	--	--	--	--	--	--	--	--	--
MAY											
17...	1258	--	1.8	634	7.2	23.0	<1	9.0	8.4	100	<10
MAY											
17-18	2215	33	--	202	7.6	--	120	200	--	--	37
MAY											
26-27	1830	17	--	305	8.2	--	25	85	--	--	15
JUN											
21-22	1610	27	--	377	7.9	--	20	4.0	--	--	21
29...	1245	--	1.4	570	7.6	25.5	<1	1.4	7.8	97	<10
JUL											
10-11	2120	39	--	222	7.6	--	100	150	--	--	24
AUG											
16...	1230	--	.14	640	7.5	27.0	6	.50	8.2	104	<10

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT											
06...	2.7	35000	K72000	46	114	16	98	.944	.022	.966	.063
06...	3.1	39000	44000	56	92	16	76	.937	.019	.956	.059
06...	3.1	33000	60000	59	78	14	64	.914	.018	.932	.057
06...	2.7	K25000	25000	89	48	14	34	.992	.019	1.01	.040
07...	2.2	1100	5600	130	16	2	14	--	<.010	.483	.024
17...	.8	27000	64000	30	760	56	704	--	<.010	.527	<.020
17...	1.1	64000	86000	33	516	32	484	.531	.012	.543	<.020
17...	1.7	19000	60000	56	1070	60	1010	.532	.012	.544	.029
17...	.9	8800	26000	72	492	40	452	--	<.010	.505	<.020
19...	.5	2100	4400	180	16	3	13	--	<.010	.455	<.020
MAR											
02...	1.1	K5	560	230	2	4	.00	1.50	.010	1.51	<.020
APR											
26...	--	--	--	--	--	--	--	--	--	--	--
MAY											
17...	.4	160	330	250	<1	3	--	--	<.010	1.88	.027
MAY											
17-18	3.8	530000	110000	76	250	36	214	.728	.015	.743	.140
MAY											
26-27	4.5	59000	22000	150	121	26	95	.718	.012	.730	.064
JUN											
21-22	3.6	K1100	K1100	140	8	3	5	.331	.012	.343	<.020
29...	.1	160	140	220	1	1	.00	--	<.010	.922	.054
JUL											
10-11	3.5	600000	58000	80	130	27	103	--	<.010	.316	<.020
AUG											
16...	.7	440	600	230	1	1	.00	--	<.010	1.61	<.020

08155400 BARTON CREEK ABOVE BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT											
06...	--	--	--	.252	.109	.096	.29	10	--	--	--
06...	--	--	--	.221	.100	.094	.29	8.5	--	--	--
06...	1.5	.53	.59	.162	.082	.082	.25	8.2	--	--	--
06...	1.6	.52	.56	.146	.060	.062	.19	7.1	--	--	--
07...	.88	.37	.40	E.037	<.050	<.010	--	5.4	--	--	--
17...	1.5	--	.98	.283	.078	.064	.20	26	--	--	--
17...	3.2	--	2.7	.561	.077	.040	.12	22	--	--	--
17...	1.7	1.1	1.1	.296	E.045	.040	.12	28	--	--	--
17...	1.7	--	1.2	.199	E.034	<.010	--	27	--	--	--
19...	.77	--	.31	<.050	<.050	<.010	--	6.7	--	--	--
MAR											
02...	--	--	E.10	<.050	<.050	<.010	--	.90	.340	<.100	--
APR											
26...	--	--	--	--	--	--	--	--	--	--	--
MAY											
17...	--	--	<.10	<.050	<.050	<.010	--	1.3	.350	<.100	--
MAY											
17-18	2.1	1.2	1.4	.333	.053	.055	.17	13	--	--	264
MAY											
26-27	1.6	.81	.87	.173	E.035	.025	.08	41	--	--	120
JUN											
21-22	.86	--	.52	.069	E.031	.017	.05	5.7	--	--	25
29...	1.1	.10	.16	<.050	<.050	<.010	--	2.3	.530	E.100	--
JUL											
10-11	1.1	--	.76	.167	<.050	.023	.07	11	--	--	103
AUG											
16...	1.7	--	.14	E.031	<.050	<.010	--	1.6	.590	<.100	--

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT											
06...	--	--	--	--	--	--	<1	--	--	--	3
06...	--	--	--	--	--	--	<1	--	--	--	3
06...	--	--	--	--	--	--	<1	--	--	--	2
06...	--	--	--	--	--	--	<1	--	--	--	3
07...	--	--	--	--	--	--	<1	--	--	--	1
17...	--	--	--	--	--	--	<1	--	--	--	8
17...	--	--	--	--	--	--	<1	--	--	--	3
17...	--	--	--	--	--	--	<1	--	--	--	12
17...	--	--	--	--	--	--	<1	--	--	--	5
19...	--	--	--	--	--	--	<1	--	--	--	<1
MAR											
02...	--	--	--	--	--	--	<1	--	--	--	<1
APR											
26...	--	--	40	<1.0	37	<1.0	--	<1.0	1.0	<1.0	--
MAY											
17...	--	--	--	--	--	--	<1	--	--	--	<1
MAY											
17-18	23	98	--	--	--	--	<1	--	--	--	5
MAY											
26-27	5.4	96	--	--	--	--	<1	--	--	--	3
JUN											
21-22	1.8	79	--	--	--	--	<1	--	--	--	1
29...	--	--	--	--	--	--	<1	--	--	--	<1
JUL											
10-11	11	93	--	--	--	--	<1	--	--	--	4
AUG											
16...	--	--	--	--	--	--	<1	--	--	--	<1

08155400 BARTON CREEK ABOVE BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
OCT										
06...	--	3	--	--	--	--	--	20	--	--
06...	--	2	--	--	--	--	--	10	--	--
06...	--	2	--	--	--	--	--	10	--	--
06...	--	1	--	--	--	--	--	10	--	--
07...	--	<1	--	--	--	--	--	<10	--	--
17...	--	25	--	--	--	--	--	60	--	--
17...	--	6	--	--	--	--	--	20	--	--
17...	--	18	--	--	--	--	--	50	--	--
17...	--	7	--	--	--	--	--	20	--	--
19...	--	<1	--	--	--	--	--	<10	--	--
MAR										
02...	--	<1	--	--	--	--	--	<10	--	--
APR										
26...	1.2	--	<1.0	4.1	15	13	<1.0	--	3.8	<1.0
MAY										
17...	--	<1	--	--	--	--	--	<40	--	--
MAY										
17-18	--	16	--	--	--	--	--	E30	--	--
MAY										
26-27	--	7	--	--	--	--	--	E20	--	--
JUN										
21-22	--	<1	--	--	--	--	--	<40	--	--
29...	--	<1	--	--	--	--	--	<40	--	--
JUL										
10-11	--	8	--	--	--	--	--	E30	--	--
AUG										
16...	--	<1	--	--	--	--	--	<40	--	--

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08155500 BARTON SPRINGS AT AUSTIN, TX

LOCATION.--Lat 30°15'48", long 97°46'16", Travis County, Hydrologic Unit 12090205, at ground-water well (YD 58-42-903), on right bank 0.4 mi upstream from Barton Springs Road bridge over Barton Creek, 0.7 mi upstream from mouth, and 1.8 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--Not applicable. Only springflow is published for this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Nov 1894 to Apr 1917, and Oct 1918 to Feb 1978 (discharge measurements only), May 1917 to Sep 1918 (published as "Barton Creek at Austin, Texas"), Mar 1978 to 1994 (daily mean discharge), Oct 1994 to current year (discharge at 1200 hours).

GAGE.--Water-stage recorder. Datum of gage, at ground-water well (YD 58-42-903), is 462.34 ft above sea level. May 1917 to Sep 1918, nonrecording gage at site 1,000 ft downstream at different datum. Satellite telemeter at station.

REMARKS.--Records poor. Only springflow from the Edwards and associated limestones in the Balcones Fault Zone is published for this station. Operation of Barton Springs pool significantly affects level recorded in well. Pool is drained at closing and allowed to fill after cleaning operations. Under normal conditions gage height is in direct relation with discharge. Determination of flow from spring is considered best when pool/well level has stabilized at 1200 hrs. Beginning 1995, daily flow has been determined using the recorded level at 1200 hrs.

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft^3/s May 10, 1941; minimum measured, 9.6 ft^3/s Mar 29, 1956.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	e99	106	103	98	92	e88	81	75	67	62	48
2	59	e107	107	103	98	91	88	81	73	67	61	48
3	59	e105	107	103	98	91	88	e80	e72	66	60	49
4	58	103	107	103	97	91	88	e80	71	65	60	49
5	58	e103	107	103	97	91	87	e79	70	65	59	47
6	76	102	107	102	97	90	87	e79	70	64	59	46
7	77	102	107	e102	97	91	87	e78	69	65	59	46
8	75	102	107	102	97	90	87	e78	68	64	58	45
9	74	102	107	102	96	90	86	e78	68	64	58	45
10	73	102	108	102	96	90	86	e77	67	63	57	44
11	72	101	108	102	96	e90	86	e77	66	66	57	43
12	71	101	108	102	95	90	85	e76	65	68	57	43
13	70	103	108	102	95	91	85	e76	65	69	56	43
14	70	103	107	102	95	91	85	e76	66	69	56	42
15	e69	105	104	102	95	90	85	e75	65	69	56	42
16	69	106	104	102	95	90	85	e75	68	68	55	41
17	e68	105	e104	102	95	90	84	e74	68	67	54	41
18	e99	105	104	102	e95	90	84	e74	67	68	54	41
19	e115	e105	104	102	95	92	84	74	65	67	53	40
20	e116	105	104	102	95	92	84	74	65	67	53	40
21	e113	105	104	102	95	92	84	73	68	67	53	39
22	e106	105	104	102	95	91	83	72	70	68	52	39
23	e100	106	e104	101	94	90	83	71	71	67	52	39
24	101	106	e104	101	94	90	83	71	71	67	51	39
25	100	106	104	101	94	90	82	74	70	66	51	38
26	99	106	104	100	93	89	83	74	71	65	50	38
27	99	106	104	100	93	89	83	76	71	64	50	37
28	99	106	104	e99	92	89	82	76	70	64	50	37
29	99	106	104	99	---	89	82	78	69	63	49	38
30	99	106	104	99	---	88	82	77	68	63	49	37
31	98	---	103	99	---	88	---	76	---	62	49	---
TOTAL	2600	3124	3268	3148	2672	2798	2546	2360	2062	2044	1700	1264
MEAN	83.9	104	105	102	95.4	90.3	84.9	76.1	68.7	65.9	54.8	42.1
MAX	116	107	108	103	98	92	88	81	75	69	62	49
MIN	58	99	103	99	92	88	82	71	65	62	49	37
AC-FT	5160	6200	6480	6240	5300	5550	5050	4680	4090	4050	3370	2510

e Estimated

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1903, Jun 1941 to Feb 1959, Dec 1978 to current year.
BIOCHEMICAL DATA: Dec 1978 to current year.
RADIOCHEMICAL DATA: Jan to Sep 1980.
ORGANIC DATA: Dec 1978 to Nov 1994.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
MAR												
02...	1250	--	91	598	6.9	20.5	5	1.5	7.0	80	<10	.0
MAY												
17...	1315	--	74	641	7.1	21.0	<1	8.0	6.0	69	<10	.2
27...	0820	76	--	--	--	--	--	--	--	--	--	--
27...	1150	--	76	576	7.9	--	<1	2.1	--	--	<10	.1
JUN												
22...	0930	--	69	614	7.3	--	<1	1.4	--	--	<10	.4
29...	1300	--	69	624	7.0	21.5	<1	1.2	5.8	67	<10	.1

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
MAR												
02...	K8	K4	--	--	--	--	--	--	1.2	230	25	21
MAY												
17...	K8	K8	300	52	84	21	16	.4	1.2	250	28	25
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	220	440	--	--	--	--	--	--	--	250	--	--
JUN												
22...	80	170	--	--	--	--	--	--	--	250	--	--
29...	20	K12	--	--	--	--	--	--	--	240	--	--

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR												
02...	.20	--	--	1	6	.00	<.010	1.22	<.020	--	--	<.10
MAY												
17...	.17	11	341	<1	4	--	<.010	1.36	<.020	1.8	--	.43
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	2	10	.00	<.010	1.30	<.020	1.4	--	.12
JUN												
22...	--	--	--	2	1	1	<.010	1.37	<.020	--	--	E.08
29...	--	--	--	2	<1	--	<.010	1.15	.021	1.3	.11	.13

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)
MAR												
02...	<.050	<.050	<.010	--	3.9	<.100	<.100	--	--	--	--	--
MAY												
17...	E.036	<.050	.012	.04	1.6	<.100	<.100	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	1.7	<1.0
27...	<.050	<.050	.023	.07	.60	--	--	6	1.2	84	--	--
JUN												
22...	E.030	<.050	.018	.06	.50	--	--	--	--	--	--	--
29...	E.030	<.050	<.010	--	8.4	<.100	<.100	--	--	--	--	--

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
MAR												
02...	<1	--	--	<1	--	--	--	<1	--	--	<1	--
MAY												
17...	<1	55	<1.6	<1	<8.0	<14	<7.0	<1	<10	<10	<1	<100
27...	--	55	<1.0	--	<1.0	<1.0	<1.0	--	<1.0	--	--	<1.0
27...	--	--	--	<1	--	--	--	<1	--	--	<1	--
JUN												
22...	--	--	--	<1	--	--	--	<1	--	--	<1	--
29...	--	--	--	<1	--	--	--	<1	--	--	<1	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
MAR												
02...	--	--	<.1	--	--	<1	--	--	--	<10	--	--
MAY												
17...	10	<3.0	<.1	<50	<40	<1	<4.0	977	<10	<40	<20	--
27...	--	<1.0	--	3.8	4.8	--	<1.0	--	--	--	1.4	<1.0
27...	--	--	--	--	--	--	--	--	--	<40	--	--
JUN												
22...	--	--	--	--	--	--	--	--	--	<40	--	--
29...	--	--	--	--	--	--	--	--	--	<40	--	--

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX

LOCATION.--Lat 30°16'35", long 97°45'00", Travis County, Hydrologic Unit 12090205, on left bank at downstream side of bridge at 12th Street, and 0.6 mi west of the State Capitol Building in Austin.

DRAINAGE AREA.--12.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Nov 1974 to Mar 1975 (periodic discharge measurement, and associated peak discharges along with annual maximum), Apr 1975 to Sep 1984 (flood-hydrograph partial-record), Oct 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 455.33 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 6	0230	3,160	12.03	Nov 1	0700	2,690	10.91
Oct 17	1315	5,350	15.61	Mar 18	2130	1,180	6.63
Oct 18	0330	1,170	6.60	May 17	2335	4,080	13.80

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

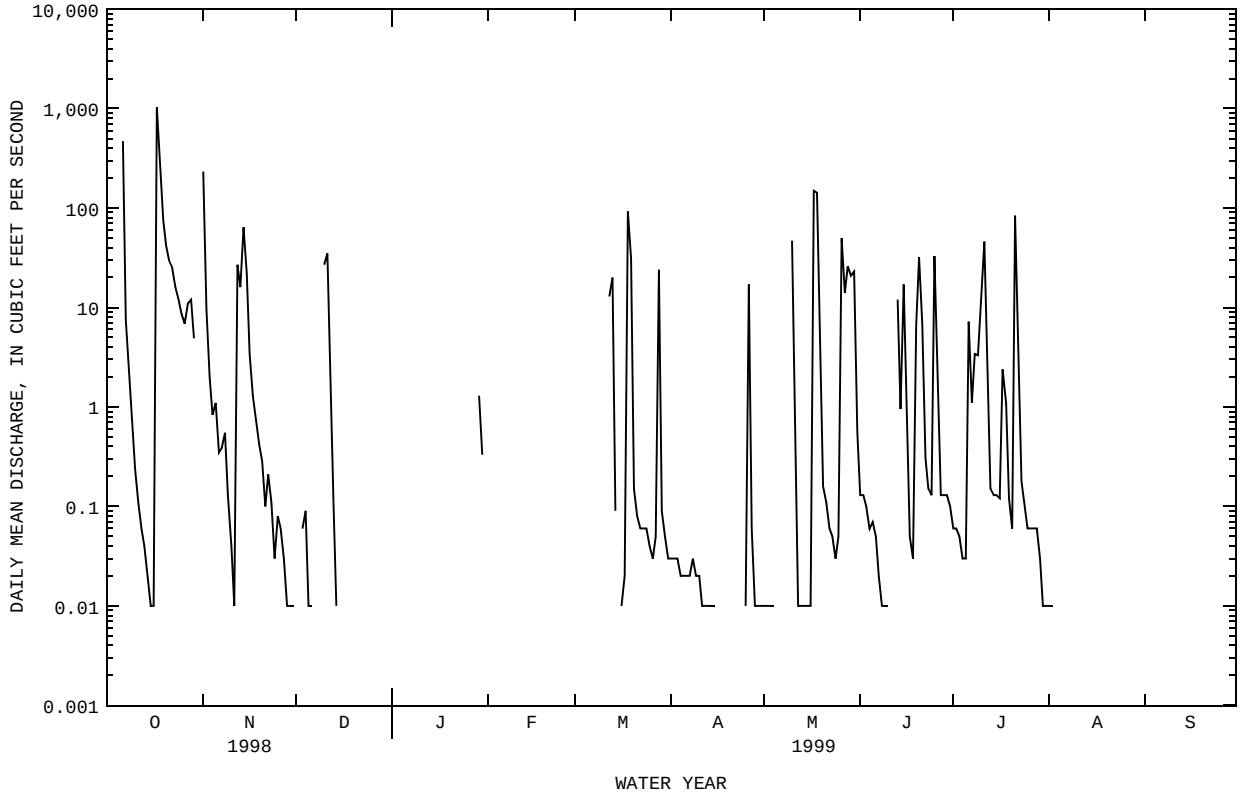
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	234	.00	.00	.00	.00	.03	.01	.13	.06	.01	.00
2	.00	9.6	.00	.00	.00	.00	.03	.01	.13	.06	.01	.00
3	.00	2.0	.06	.00	.00	.00	.03	.01	.10	.05	.00	.00
4	.00	.83	.09	.00	.00	.00	.02	.01	.06	.03	.00	.00
5	.00	1.1	.01	.00	.00	.00	.02	.00	.07	.03	.00	.00
6	470	.35	.01	.00	.00	.00	.02	.00	.05	7.2	.00	.00
7	7.5	.39	.00	.00	.00	.00	.02	.00	.02	1.1	.00	.00
8	2.7	.55	.00	.00	.00	.01	.03	.00	.01	3.4	.00	.00
9	.86	.13	.00	.00	.00	.00	.02	.00	.01	3.3	.00	.00
10	.24	.04	27	.00	.00	.00	.02	47	.01	11	.00	.00
11	.11	.01	35	.00	.00	.00	.01	.46	.00	46	.00	.00
12	.06	27	.97	.00	.00	13	.01	.01	.00	2.2	.00	.00
13	.04	16	.11	.00	.00	20	.01	.01	12	.15	.00	.00
14	.02	64	.01	.00	.00	.09	.01	.01	.95	.13	.00	.00
15	.01	22	.00	.00	.00	.00	.01	.01	17	.13	.00	.00
16	.01	3.4	.00	.00	.00	.01	.00	.01	.74	.12	.00	.00
17	1030	1.3	.00	.00	.00	.02	.00	149	.05	2.4	.00	.00
18	342	.74	.00	.00	.00	92	.00	143	.03	1.1	.00	.00
19	76	.42	.00	.00	.00	31	.00	2.6	6.7	.12	.00	.00
20	42	.29	.00	.00	.00	.15	.00	.16	32	.06	.00	.00
21	29	.10	.00	.00	.00	.08	.00	.11	6.8	84	.00	.00
22	25	.21	.00	.00	.00	.06	.00	.06	.31	9.9	.00	.00
23	16	.11	.00	.00	.00	.06	.00	.05	.15	.18	.00	.00
24	12	.03	.00	.00	.00	.06	.00	.03	.13	.11	.00	.00
25	8.7	.08	.00	.00	.00	.04	.01	.05	33	.06	.00	.00
26	6.9	.06	.00	.00	.00	.03	17	50	1.4	.06	.00	.00
27	11	.03	.00	.00	.00	.05	.06	14	.13	.06	.00	.00
28	12	.01	.00	.00	.00	24	.01	26	.13	.06	.00	.00
29	4.9	.01	.00	1.3	---	.09	.01	21	.13	.03	.00	.00
30	.00	.01	.00	.33	---	.05	.01	23	.10	.01	.00	.00
31	.00	---	.00	.00	---	.03	---	.56	---	.01	.00	---
TOTAL	2097.05	384.80	63.26	1.63	0.00	180.83	17.39	477.17	112.34	173.12	0.02	0.00
MEAN	67.6	12.8	2.04	.053	.000	5.83	.58	15.4	3.74	5.58	.001	.000
MAX	1030	234	35	1.3	.00	92	17	149	33	84	.01	.00
MIN	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
AC-FT	4160	763	125	3.2	.00	359	34	946	223	343	.04	.00
CFSM	5.50	1.04	.17	.00	.00	.47	.05	1.25	.30	.45	.00	.00
IN.	6.34	1.16	.19	.00	.00	.55	.05	1.44	.34	.52	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1999, BY WATER YEAR (WY)

MEAN	14.4	6.13	10.4	5.06	5.89	5.29	5.43	16.6	11.2	2.49	6.09	5.33
MAX	67.6	14.9	70.8	22.6	29.2	15.5	18.2	38.7	46.1	11.9	38.9	12.5
(WY)	1999	1986	1992	1991	1992	1995	1997	1995	1987	1987	1996	1986
MIN	.22	.000	.065	.000	.000	.012	.41	.11	.82	.000	.000	.000
(WY)	1997	1989	1996	1996	1999	1996	1998	1998	1998	1989	1993	1999

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1985 - 1999	
ANNUAL TOTAL	3615.68		3507.61			
ANNUAL MEAN	9.91		9.61		7.88	
HIGHEST ANNUAL MEAN					15.7	1992
LOWEST ANNUAL MEAN					3.26	1988
HIGHEST DAILY MEAN	1030	Oct 17	1030	Oct 17	1030	Oct 17 1998
LOWEST DAILY MEAN	.00	Mar 22	.00	Oct 1	.00	Oct 1 1984
ANNUAL SEVEN-DAY MINIMUM	.00	May 3	.00	Dec 15	.00	May 6 1985
INSTANTANEOUS PEAK FLOW			5350	Oct 17	16000	May 24 1981
INSTANTANEOUS PEAK STAGE			15.61	Oct 17	23.11	May 24 1981
ANNUAL RUNOFF (AC-FT)	7170		6960		5710	
ANNUAL RUNOFF (CFSM)	.81		.78		.64	
ANNUAL RUNOFF (INCHES)	10.94		10.61		8.71	
10 PERCENT EXCEEDS	11		12		13	
50 PERCENT EXCEEDS	.06		.01		.02	
90 PERCENT EXCEEDS	.00		.00		.00	



08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Feb 1943, Nov 1974 to current year.
BIOCHEMICAL DATA: Feb 1943, Nov 1974 to current year.
RADIOCHEMICAL DATA: Apr 1980.
PESTICIDE DATA: Jan 1975 to Sep 1985, Jan 1993 to May 1996.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
MAR											
12...	1200	6.1	--	--	--	--	--	--	--	--	--
MAR											
18-19	2120	178	--	199	7.8	--	80	450	--	--	110
MAR											
28-28	0048	69	--	340	7.3	--	--	420	--	--	61
28...	0100	69	--	--	--	--	--	--	--	--	--
APR											
26-26	0910	37	--	378	7.2	22.0	80	240	--	--	60
JUN											
28...	0915	--	.13	619	7.6	26.0	5	1.5	4.5	57	<10

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
MAR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAR											
18-19	8.0	60000	150000	53	1330	152	1180	.387	.019	.406	.117
MAR											
28-28	7.8	12000	24000	89	792	104	688	.821	.030	.851	.398
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
26-26	4.7	K740000	410000	94	203	21	182	.652	.038	.690	.055
JUN											
28...	.1	3100	3100	170	6	2	4	.374	.012	.386	.075

DATE	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
MAR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAR											
18-19	4.8	4.3	4.4	1.23	E.047	.013	.04	30	--	--	1450
MAR											
28-28	3.6	2.3	2.7	.745	.118	.091	.28	24	--	--	984
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
26-26	2.8	2.1	2.1	.508	E.036	.036	.11	16	--	--	390
JUN											
28...	.66	.20	.28	E.044	<.050	.014	.04	5.2	1.40	.270	--

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ANTIMONY, DISSOLVED (UG/L AS SB) (01095)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
MAR 12...	--	--	20	<1.0	22	<1.0	--	1.1	<1.0	<1.0	--
MAR 18-19	697	100	--	--	--	--	<1	--	--	--	25
MAR 28-28	184	100	--	--	--	--	<1	--	--	--	13
28...	--	--	9.8	<1.0	29	<1.0	--	<1.0	1.5	<1.0	--
APR 26-26	39	100	--	--	--	--	<1	--	--	--	10
JUN 28...	--	--	--	--	--	--	<1	--	--	--	2

DATE	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)
MAR 12...	6.6	--	5.9	23	1.1	2.7	<1.0	--	23	<1.0
MAR 18-19	--	53	--	--	--	--	--	150	--	--
MAR 28-28	--	19	--	--	--	--	--	70	--	--
28...	3.2	--	<1.0	43	2.0	3.5	<1.0	--	9.7	<1.0
APR 26-26	--	15	--	--	--	--	--	50	--	--
JUN 28...	--	<1	--	--	--	--	--	<40	--	--

08157600 EAST BOULDIN CREEK AT SOUTH 1ST STREET, AUSTIN, TX

LOCATION.--Lat 30°15'07", long 97°45'14", Travis County, Hydrologic Unit 12060204, at bridge on South 1st street, and 1.75 mi south of State Capitol Building in Austin.

DRAINAGE AREA.--2.4 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1997 to current year.

REVISED RECORDS.--none

GAGE.--Water-stage recorder. Satellite telemeter at station.

REMARKS.--Records fair. No flow at times. No known regulation or diversion.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 6	0130	650	5.43	May 26	1840	525	4.81
Oct 17	1200	811	6.28	Jul 10	2125	636	5.36
Oct 17	1305	943	7.01	Sep 21	0900	527	4.82
May 17	2245	570	5.03				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	10	.43	.58	.38	.37	.20	.17	.18	.60	.68	.04
2	.13	.91	.43	.56	.35	.37	.21	.22	.17	.70	.71	.03
3	.13	.72	1.2	.67	.36	.37	.21	.18	.14	.65	.76	.03
4	.11	.66	.94	.57	.31	.38	.21	.18	.13	.82	.83	.01
5	.11	e.90	.41	.66	.36	.38	.24	.19	.13	.71	.55	.00
6	37	e.57	.38	.59	.35	.36	.22	.18	.12	.78	.56	.03
7	.71	e1.0	.37	.60	.33	.35	.24	.20	.14	.69	.55	.02
8	.52	e.58	.37	.59	.29	1.4	.26	.20	.13	.65	.56	.02
9	.45	e.57	.36	.61	.28	1.1	.27	.20	.11	.62	.64	.02
10	.40	e.57	4.6	.63	.28	1.1	.28	3.3	.12	20	.68	.03
11	.37	e.56	2.8	.64	.27	1.1	.27	.14	.11	1.5	.79	.02
12	.35	e2.0	.61	.58	.28	7.5	.27	.15	.30	.62	.83	.00
13	.31	e2.5	.59	.31	.30	2.4	.27	.14	2.1	.56	.41	1.9
14	.31	e6.0	.59	.61	.32	.54	.28	.14	.12	.82	.33	.14
15	.35	e2.0	.56	.55	.31	.58	.31	.13	19	.86	.25	.11
16	.40	e1.0	.55	.54	.31	.55	.29	.14	1.4	.86	.33	.07
17	110	e.80	.54	.48	.30	.56	.29	20	.73	4.9	.59	.23
18	18	e.70	.56	.46	.29	17	.29	.92	.59	.64	.51	.13
19	7.9	.68	.53	.47	.29	.51	.30	.11	17	.64	.33	.03
20	3.5	.71	.52	.47	.31	.19	.29	.10	15	.49	.27	.00
21	1.9	.69	.59	.49	.29	.17	.29	.11	2.1	11	.18	2.1
22	1.0	.65	.54	.45	.33	.19	.29	.17	1.2	.92	.14	.20
23	.86	.62	.56	.43	.34	.21	.28	.09	1.6	.63	.54	.16
24	.74	.57	.55	.42	.30	21	.35	.31	.94	.54	.36	.06
25	.67	.57	.54	.43	.31	.22	.56	.20	3.6	.54	.21	.01
26	.61	.54	.54	.42	.31	.24	1.3	14	.68	.59	.10	.00
27	2.1	.54	.59	.41	.29	2.1	.14	.16	.60	.74	.04	.00
28	.62	.54	.59	.40	.28	1.2	.16	8.4	.60	.65	.03	.01
29	.55	.52	.56	.81	---	.14	.14	.17	.61	.69	.03	.57
30	.53	.47	.59	.39	---	.15	.15	.14	.64	.70	.02	.24
31	.54	---	.58	.37	---	.17	---	.13	---	.70	.02	---
TOTAL	191.28	39.14	23.57	16.19	8.72	62.90	8.86	50.87	70.29	55.81	12.83	6.21
MEAN	6.17	1.30	.76	.52	.31	2.03	.30	1.64	2.34	1.80	.41	.21
MAX	110	10	4.6	.81	.38	21	1.3	20	19	20	.83	2.1
MIN	.11	.47	.36	.31	.27	.14	.14	.09	.11	.49	.02	.00
AC-FT	379	78	47	32	17	125	18	101	139	111	25	12

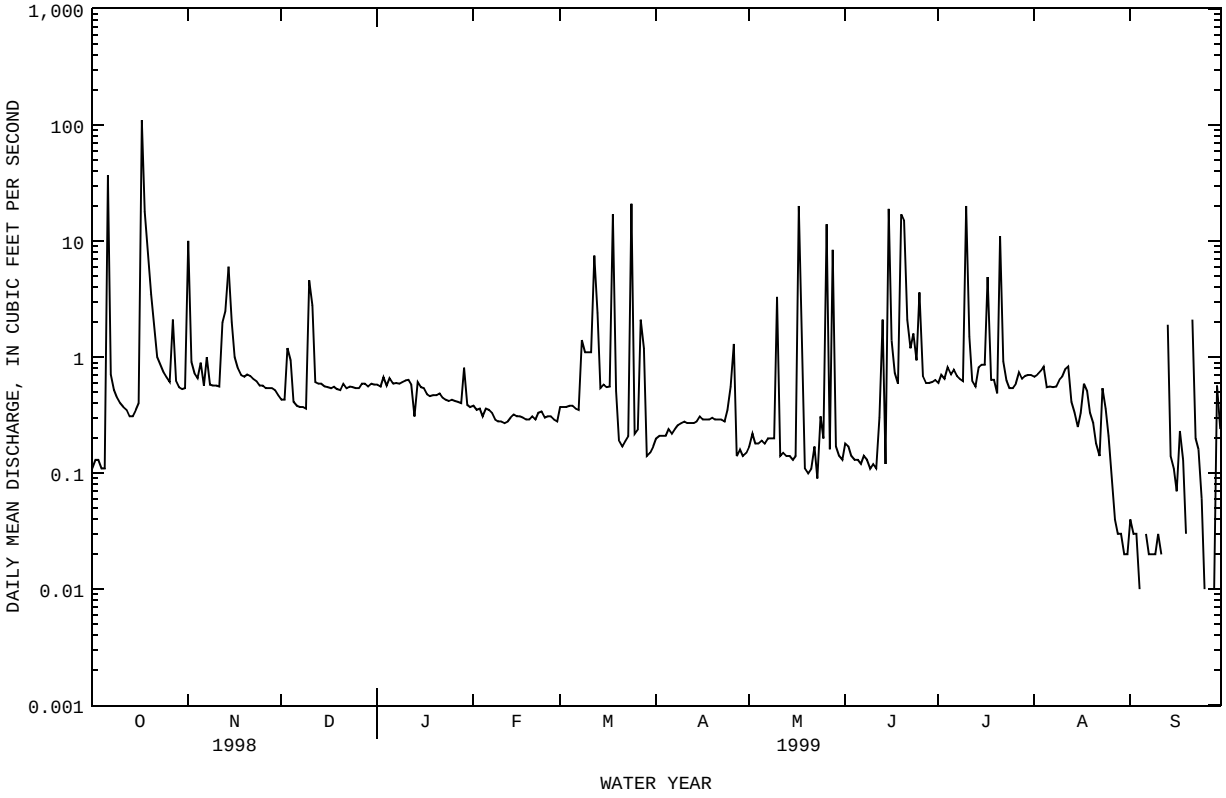
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

MEAN	3.85	1.14	.90	.61	.69	1.77	1.15	1.98	2.90	.81	.65	.66
MAX	6.17	1.30	1.04	.70	1.07	2.03	2.58	4.07	6.12	1.80	.81	1.52
(WY)	1999	1999	1998	1998	1998	1999	1997	1997	1997	1999	1997	1998
MIN	1.54	.97	.76	.52	.31	1.50	.30	.21	.24	.11	.41	.21
(WY)	1998	1998	1999	1999	1999	1998	1999	1998	1998	1998	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1997 - 1999	
ANNUAL TOTAL	455.50		546.67			
ANNUAL MEAN	1.25		1.50		1.17	
HIGHEST ANNUAL MEAN					1.50	1999
LOWEST ANNUAL MEAN					.85	1998
HIGHEST DAILY MEAN	110	Oct 17	110	Oct 17	110	Oct 17 1998
LOWEST DAILY MEAN	.00	Sep 1	.00	Sep 5	.00	Sep 14 1997
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 1	.02	Sep 3	.00	Sep 14 1997
INSTANTANEOUS PEAK FLOW			943	Oct 17	943	Oct 17 1998
INSTANTANEOUS PEAK STAGE			7.01	Oct 17	7.01	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	903		1080		851	
10 PERCENT EXCEEDS	1.8		1.4		2.0	
50 PERCENT EXCEEDS	.23		.45		.30	
90 PERCENT EXCEEDS	.02		.12		.03	

e Estimated

08157600 EAST BOULDIN CREEK AT SOUTH 1ST STREET, AUSTIN, TX--Continued



08157600 EAST BOULDIN CREEK AT SOUTH 1ST STREET, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jun 1997 to current year.
BIOCHEMICAL DATA: Jun 1997 to current year.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
MAR												
01...	1305	--	.35	761	8.3	19.0	10	2.2	13.9	--	<10	.7
MAR												
18-19	2030	52	--	118	7.9	--	40	200	--	--	78	8.4
JUN												
30...	0905	--	.58	787	8.0	25.0	5	1.4	7.1	88	<10	.1

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR												
01...	240	460	190	1	4	.00	--	<.010	.235	<.020	.39	--
MAR												
18-19	46000	130000	51	504	76	428	.326	.020	.346	.091	3.9	3.4
JUN												
30...	2200	K2700	200	4	<1	--	--	<.010	1.23	.027	1.6	.31

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR												
01...	.16	<.050	<.050	.012	.04	2.4	E.220	<.100	<1	2	<1	<10
MAR												
18-19	3.5	.837	.099	.062	.19	22	--	--	<1	26	53	120
JUN												
30...	.34	.080	.061	.046	.14	3.0	E.160	<.100	<1	2	<1	<40

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08157700 BLUNN CREEK NEAR LITTLE STACY PARK, AUSTIN, TX

LOCATION.--Lat 30°14'50", long 97°44'37", Travis County, Hydrologic Unit 12060204, on right bank near intersection of Sunset Lane and Eastside drive.

DRAINAGE AREA.--1.2 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1997 to current year.

REVISED RECORDS.--none

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 490 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair. No flow at times. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1145	662	6.12	Jun 19	1835	203	3.95
Oct 17	1315	827	6.65	Jun 19	1925	243	4.20

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	17	.84	.25	.22	.72	.35	.00	.90	.77	.25	.03
2	.04	1.0	.74	.25	.23	.68	.21	.00	.79	.82	.20	.02
3	.04	.57	1.7	.29	.21	1.6	.24	.00	.70	.73	.23	.02
4	.03	.78	1.8	.30	.18	3.9	.27	.00	.61	1.0	.62	.02
5	.00	1.3	.21	.32	.17	4.6	.33	.00	.61	.90	.33	.03
6	26	.36	.17	.31	.17	4.6	.19	.00	.65	.86	.27	.00
7	.13	1.6	.19	.32	.16	7.9	.09	.00	.47	.78	.23	.02
8	.00	.35	.24	.31	.14	12	.09	.00	.52	.80	.22	.02
9	.00	.32	.14	.27	.17	7.3	.12	.00	.47	.77	.15	.02
10	.00	.33	8.1	.33	.30	8.0	.06	5.0	.44	12	.19	.02
11	.00	.32	5.6	.33	.21	8.9	.05	.03	.43	5.0	.14	.03
12	.00	4.6	.29	.36	.34	14	.09	.00	.41	1.5	.12	.03
13	.00	4.6	.20	.33	.41	e5.2	.11	.00	3.3	1.3	.11	1.2
14	.00	10	.15	.33	.39	e3.6	.18	.00	.74	1.2	.08	.13
15	.00	2.2	e.38	.36	.38	.16	.16	.00	15	1.2	.09	.06
16	.00	.79	e.47	.37	.36	.29	.26	.00	3.3	1.2	.00	.03
17	96	.62	.47	.37	.38	.24	.07	8.3	.81	5.1	.05	.03
18	28	.55	.29	.33	.33	13	.02	4.1	.37	1.5	.03	.03
19	17	.59	.21	.35	.36	6.9	.01	.10	11	.77	.04	.04
20	10	.58	.20	.29	.40	.94	.01	.08	16	.66	.03	.00
21	5.0	.52	.14	.19	.44	.58	.00	e.08	5.0	12	.07	.02
22	2.4	.48	.23	.31	.62	.49	.00	e.08	3.1	1.3	.05	.03
23	1.6	.45	.25	.32	.59	.42	.00	e.70	1.6	.55	.00	.03
24	1.2	.53	.22	.34	.56	.19	.48	.05	1.4	.43	.03	.02
25	1.0	.58	.20	.35	.55	.20	.75	.27	3.3	.40	.03	.02
26	1.1	.52	.11	.36	.52	.24	4.0	9.3	1.5	.32	.03	.03
27	3.4	.71	.14	.27	.54	2.3	.03	2.8	1.0	.34	.03	.00
28	.89	.74	.19	.20	.57	5.0	.00	11	.92	.31	.03	.00
29	.64	.76	.17	.51	---	.49	.00	2.5	.89	.30	.03	.00
30	.65	.70	.18	.27	---	.39	.00	1.2	.83	.29	.00	.00
31	.78	---	.19	.23	---	.31	---	.93	---	.27	.02	---
TOTAL	195.94	54.45	24.41	9.72	9.90	115.14	8.17	46.52	77.06	55.37	3.70	1.93
MEAN	6.32	1.82	.79	.31	.35	3.71	.27	1.50	2.57	1.79	.12	.064
MAX	96	17	8.1	.51	.62	14	4.0	11	16	12	.62	1.2
MIN	.00	.32	.11	.19	.14	.16	.00	.00	.37	.27	.00	.00
AC-FT	389	108	48	19	20	228	16	92	153	110	7.3	3.8

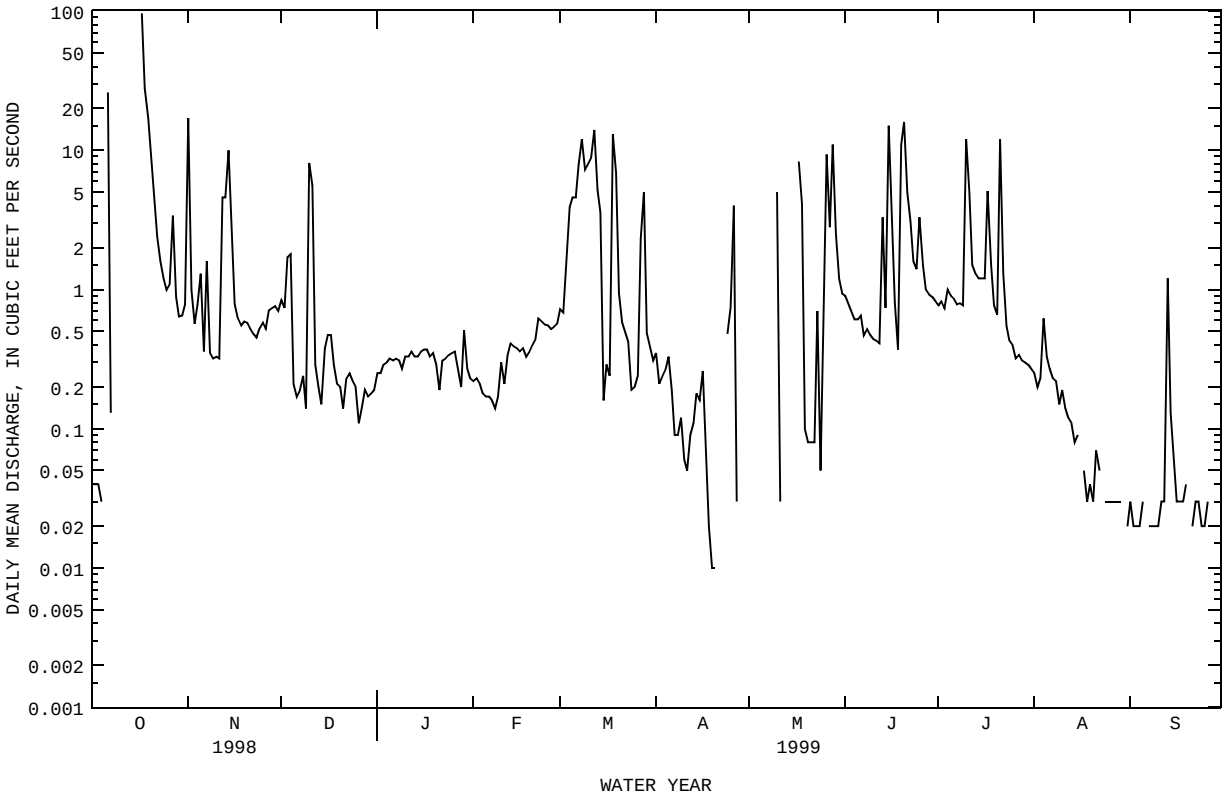
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

MEAN	3.42	1.83	.89	.29	.36	2.37	.30	.75	1.22	.69	.26	.55
MAX	6.32	1.84	1.00	.31	.38	3.71	.32	1.50	2.57	1.79	.51	1.51
(WY)	1999	1998	1998	1999	1998	1999	1998	1999	1999	1999	1998	1998
MIN	.52	1.81	.79	.27	.35	1.02	.27	.097	.086	.094	.12	.064
(WY)	1998	1999	1999	1998	1999	1998	1999	1998	1998	1998	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1997 - 1999	
ANNUAL TOTAL	404.56		602.31			
ANNUAL MEAN	1.11		1.65		1.14	
HIGHEST ANNUAL MEAN					1.65	1999
LOWEST ANNUAL MEAN					.64	1998
HIGHEST DAILY MEAN	96	Oct 17	96	Oct 17	96	Oct 17 1998
LOWEST DAILY MEAN	.00	Apr 19	.00	Oct 5	.00	Apr 19 1998
ANNUAL SEVEN-DAY MINIMUM	.00	May 3	.00	Oct 8	.00	May 3 1998
INSTANTANEOUS PEAK FLOW			827	Oct 17	827	Oct 17 1998
INSTANTANEOUS PEAK STAGE			6.65	Oct 17	6.65	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	802		1190		828	
10 PERCENT EXCEEDS	1.5		4.3		2.0	
50 PERCENT EXCEEDS	.13		.32		.21	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated

08157700 BLUNN CREEK NEAR LITTLE STACY PARK, AUSTIN, TX--Continued



08157700 BLUNN CREEK NEAR LITTLE STACY PARK, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Mar 1999 to Jun 1999.
BIOCHEMICAL DATA: Mar 1999 to Jun 1999.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
MAR										
01...	1340	--	1.1	1210	7.4	17.5	10	1.1	8.2	--
MAR										
18-19	2015	35	--	207	8.0	--	50	190	--	--
MAR										
27-28	2213	69	--	424	8.0	--	50	44	--	--
JUN										
30...	0930	--	.96	823	7.6	24.5	5	1.5	5.3	65

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
MAR										
01...	<10	1.1	600	860	240	3	1	2	--	<.010
MAR										
18-19	81	7.6	K12000	26000	60	490	70	420	.395	.017
MAR										
27-28	88	5.5	52000	66000	100	105	31	74	.810	.029
JUN										
30...	<10	.1	780	1500	240	2	1	1	--	<.010

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
MAR										
01...	.397	<.020	.62	--	.23	<.050	<.050	.013	.04	2.1
MAR										
18-19	.412	.070	3.3	2.8	2.9	.871	.095	.074	.23	28
MAR										
27-28	.839	.436	3.3	2.0	2.4	.422	.164	.140	.43	27
JUN										
30...	.635	.024	.88	.22	.25	.050	E.042	.034	.10	2.3

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR									
01...	E.140	<.100	--	--	--	<1	1	<1	<10
MAR									
18-19	--	--	593	56	97	<1	23	53	110
MAR									
27-28	--	--	100	19	97	<1	14	16	60
JUN									
30...	E.270	<.100	--	--	--	<1	2	<1	<40

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08157900 TOWN LAKE AT AUSTIN, TX

LOCATION.--Lat 30°14'56", long 97°43'03", Travis County, Hydrologic Unit 12090205, at Longhorn Dam on the Colorado River at Austin, 1.5 mi downstream from Interstate Highway 35, and 2.3 mi southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--39,003 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--
CHEMICAL DATA: Feb 1975 to Aug 1990, Oct 1990 to current year.
BIOCHEMICAL DATA: Feb 1975 to Aug 1990, Oct 1990 to current year.
TRACE METAL DATA: Feb 1991 to current year.
PESTICIDE DATA: Feb 1975 to Aug 1990, Feb 1991 to current year.

REMARKS.--Trace metal and pesticide analyses of bottom sediments at selected sites Feb 1991 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301559097424801 - TOWN LAKE AR

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1032	1.00	495	7.6	17.0	8.0	83
19...	1034	10.0	497	7.6	17.5	8.0	84
19...	1036	20.0	512	7.6	17.5	7.9	83
19...	1038	27.0	521	7.3	17.0	7.3	76
JUL							
22...	0900	1.00	465	7.6	26.0	6.7	83
22...	0902	10.0	480	7.5	25.5	6.2	76
22...	0904	20.0	503	7.4	25.0	4.2	51
22...	0906	27.0	502	7.0	23.5	.2	2

301500097424801 - TOWN LAKE AC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
MAR											
19...	1046	1.00	478	7.6	17.5	.43	18	7.6	79	<10	.9
19...	1048	10.0	471	7.6	17.0	--	--	7.6	79	--	--
19...	1050	20.0	467	7.6	17.0	--	--	7.0	72	--	--
19...	1052	27.0	527	7.5	17.0	--	5.8	6.8	70	--	1.4
JUL											
22...	0918	1.00	464	7.6	26.0	.91	10	6.4	79	13	.9
22...	0920	10.0	480	7.5	25.5	--	--	6.2	76	--	--
22...	0922	20.0	502	7.4	25.0	--	--	4.4	54	--	--
22...	0924	25.0	502	7.2	24.0	--	4.5	1.3	16	--	.8

301500097424801 - TOWN LAKE AC

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR											
19...	K1500	4700	160	272	18	.281	.011	.292	.068	.67	.31
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	180	303	1	.319	.012	.331	.098	.73	.30
JUL											
22...	3700	4900	140	250	1	--	<.010	.137	<.020	.43	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	150	274	5	--	<.010	.107	.087	.44	.24

08157900 TOWN LAKE AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301500097424801 - TOWN LAKE AC

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
MAR										
19...	.38	E.045	<.050	.013	.04	3.3	.920	<.100	1.8	<1.0
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	.40	<.050	<.050	<.010	--	2.9	--	--	2.0	<1.0
JUL										
22...	.29	<.050	<.050	<.010	--	3.4	1.80	.150	4.2	<1.0
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	.33	<.050	<.050	<.010	--	3.1	--	--	3.9	<1.0

301503097424701 - TOWN LAKE AL

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1110	1.00	445	7.7	17.0	7.7	80
19...	1112	10.0	446	7.7	17.0	7.8	81
19...	1114	18.0	445	7.7	17.0	7.7	80
JUL							
22...	0938	1.00	459	7.5	26.5	5.6	70
22...	0940	10.0	452	7.5	25.0	5.8	70
22...	0942	17.0	446	7.5	25.0	5.7	69

301500097440801 - TOWN LAKE BR

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1124	1.00	491	7.7	17.0	7.7	80
19...	1126	10.0	489	7.7	17.0	7.6	79
19...	1128	20.0	485	7.7	17.0	7.6	79
19...	1130	27.0	482	7.7	17.0	7.5	78
JUL							
22...	0956	1.00	448	7.6	25.5	6.1	75
22...	0958	10.0	439	7.5	25.0	5.9	72
22...	1000	20.0	472	7.5	24.5	5.5	66
22...	1002	26.0	472	7.5	24.5	5.5	66

301504097440901 - TOWN LAKE BC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1130	1.00	483	7.8	17.0	7.8	81
19...	1132	10.0	485	7.8	17.0	7.8	81
19...	1134	20.0	487	7.8	17.0	7.8	81
19...	1136	30.0	486	7.8	17.0	7.7	80
JUL							
22...	1006	1.00	451	7.6	25.5	6.6	81
22...	1008	10.0	446	7.6	25.5	6.4	78
22...	1010	20.0	470	7.5	24.5	5.8	70
22...	1012	29.0	476	7.5	24.5	5.5	66

08157900 TOWN LAKE AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301544097445201 - TOWN LAKE CR

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1144	1.00	496	7.8	17.0	7.8	81
19...	1146	10.0	497	7.8	17.0	7.7	80
19...	1148	18.0	497	7.8	17.0	7.6	79
JUL							
22...	1024	1.00	468	7.6	24.5	6.2	75
22...	1026	10.0	488	7.5	23.5	5.8	68
22...	1028	18.0	489	7.5	23.5	5.6	66

301546097445101 - TOWN LAKE CC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
MAR											
19...	1152	1.00	485	7.9	17.0	1.25	4.5	8.0	83	13	M.6
19...	1154	10.0	491	7.9	17.0	--	--	8.0	83	--	--
19...	1156	17.0	492	7.9	17.0	--	7.0	7.8	81	--	1.6
JUL											
22...	1040	1.00	466	7.6	25.5	.40	14	5.9	72	11	.7
22...	1042	10.0	481	7.6	23.5	--	--	5.8	68	--	--
22...	1044	16.0	489	7.5	23.5	--	4.2	5.4	64	--	.4

301546097445101 - TOWN LAKE CC

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR										
19...	290	450	150	280	7	<.010	.152	.035	.45	.26
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	150	284	8	<.010	.143	.029	.60	.43
JUL										
22...	4400	4300	140	253	13	<.010	.156	.040	.40	.20
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	140	265	2	<.010	.120	.047	.43	.26

301546097445101 - TOWN LAKE CC

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
MAR										
19...	.30	<.050	<.050	<.010	--	3.1	.990	.110	1.6	<1.0
19...	--	--	--	--	--	--	--	--	--	--
19...	.46	<.050	<.050	<.010	--	4.9	--	--	1.4	<1.0
JUL										
22...	.24	<.050	<.050	.010	.03	3.2	.600	<.100	2.8	<1.0
22...	--	--	--	--	--	--	--	--	--	--
22...	.31	<.050	<.050	<.010	--	3.0	--	--	2.9	<1.0

08157900 TOWN LAKE AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301556097452301 - TOWN LAKE DR

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1214	1.00	508	7.6	17.5	7.9	82
19...	1216	13.0	503	7.7	17.0	7.7	80
JUL							
22...	1104	1.00	471	7.5	24.0	5.9	70
22...	1106	12.0	539	7.1	23.0	5.1	60

301558097452201 - TOWN LAKE DC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
MAR											
19...	1222	1.00	491	7.9	17.0	1.28	4.6	8.1	84	13	.8
19...	1224	10.0	491	7.9	17.0	--	--	8.1	84	--	--
19...	1226	20.0	491	7.9	17.0	--	4.9	7.9	82	--	1.2
JUL											
22...	1112	1.00	440	7.6	25.5	.52	17	6.0	74	16	.4
22...	1114	10.0	515	7.2	23.0	--	--	5.2	61	--	--
22...	1116	20.0	545	7.1	23.0	--	3.0	5.3	62	--	.4

301558097452201 - TOWN LAKE DC

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR										
19...	K140	260	150	288	4	<.010	.135	.021	.43	.27
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	150	285	5	<.010	.138	.025	.47	.31
JUL										
22...	2300	4100	120	232	16	<.010	.174	.026	.49	.29
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	190	303	1	<.010	.555	.041	.72	.12

301558097452201 - TOWN LAKE DC

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
MAR										
19...	.29	<.050	<.050	<.010	--	3.2	1.70	.170	1.4	<1.0
19...	--	--	--	--	--	--	--	--	--	--
19...	.33	<.050	<.050	<.010	--	3.4	--	--	1.6	<1.0
JUL										
22...	.32	.055	<.050	.011	.03	3.6	.540	<.100	2.6	<1.0
22...	--	--	--	--	--	--	--	--	--	--
22...	.16	<.050	<.050	<.010	--	2.2	--	--	3.3	<1.0

08157900 TOWN LAKE AT AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

301712097470701 - TOWN LAKE EC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)
MAR											
19...	1256	1.00	489	8.0	17.0	.91	3.4	8.6	89	<10	M.7
19...	1258	10.0	491	8.0	17.0	--	--	8.6	89	--	--
19...	1300	17.0	490	8.0	17.0	--	3.3	8.5	88	--	1.4
JUL											
22...	1146	1.00	495	7.6	24.0	1.89	2.5	5.8	69	13	.6
22...	1148	10.0	504	7.4	23.0	--	--	5.8	68	--	--
22...	1150	17.0	621	6.9	22.5	--	1.6	5.7	66	--	.1

301712097470701 - TOWN LAKE EC

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, TOTAL (MG/L AS N) (00600)
MAR										
19...	80	170	150	284	1	.128	.010	.138	.022	.44
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	150	283	3	--	<.010	.143	<.020	.45
JUL										
22...	92	58	150	271	<1	--	<.010	.117	<.020	.33
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	240	353	<1	--	<.010	.891	<.020	--

301712097470701 - TOWN LAKE EC

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, DISSOLVED (UG/L AS PB) (01049)
MAR										
19...	.28	.30	<.050	<.050	<.010	3.0	2.70	.350	1.3	<1.0
19...	--	--	--	--	--	--	--	--	--	--
19...	--	.31	<.050	<.050	<.010	3.2	--	--	1.6	<1.0
JUL										
22...	--	.21	<.050	<.050	<.010	2.9	.600	<.100	2.6	<1.0
22...	--	--	--	--	--	--	--	--	--	--
22...	--	E.06	<.050	<.050	<.010	1.1	--	--	4.2	<1.0

301601097454001 - TOWN LAKE FC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
19...	1242	4.00	618	7.0	20.0	7.3	80
JUL							
22...	1134	3.00	610	7.0	23.0	6.5	76

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08158000 COLORADO RIVER AT AUSTIN, TX

LOCATION.--Lat 30°14'40", long 97°41'39", Travis County, Hydrologic Unit 12090205, on right bank 1,000 ft upstream from upstream bridge on U.S. Highway 183 in Austin, 1.4 mi downstream from Longhorn Dam, and at mile 290.3.

DRAINAGE AREA.-39,009 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Feb 1898 to current year. Records of daily discharge for Dec 13-26, 1914, and Feb 9-17, 1915, published in WSP 408, have been found unreliable and should not be used.
Water-quality records.--Chemical data: Oct 1947 to Sep 1993. Specific conductance: Oct 1947 to Sep 1991. Water temperature: Oct 1947 to Sep 1991.

REVISED RECORDS.--WSP 508: 1915(m). WSP 528: 1900(M), 1918(m). WSP 548: 1901-16. WSP 1342: Drainage area. WSP 1562: 1908, 1929(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 402.27 ft above sea level. Prior to Jun 19, 1939, all records collected at or near Congress Avenue bridge 3.9 mi upstream at datum 19.6 ft higher; prior to Jun 18, 1915, nonrecording gages, recording gages thereafter; Jun 20, 1939, to Oct 16, 1963, at site 1,000 ft downstream from present site at datum 5.0 ft higher. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in 1898, at least 10% of contributing drainage area has been regulated by Town Lake, Lake Austin, Lake Travis, and other reservoirs. The city of Austin diverts water for municipal use upstream from station and returns wastewater effluent downstream. There are many other diversions above Lake Buchanan for irrigation, municipal supplies, and oil field operations.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft Jul 7, 1869, present site and datum (adjusted to present site on basis of record for flood of Jun 15, 1935), determined from information concerning stage at former site furnished by Dean T.U. Taylor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	2120	238	1140	150	358	562	1380	1480	1410	931	636
2	1130	661	226	985	152	320	627	1650	1320	1590	936	625
3	1070	432	255	153	154	363	706	1730	1860	1650	912	646
4	1140	598	270	177	155	356	722	1220	1600	1650	936	915
5	1040	459	205	190	153	345	698	1560	1670	1640	929	921
6	3050	369	240	e220	125	428	595	1420	1770	1550	924	1170
7	768	322	223	e260	115	402	556	1450	1800	1590	1080	1320
8	876	363	207	e190	150	395	767	1540	1770	1450	1100	1030
9	721	319	228	219	155	434	964	1520	1870	1370	1080	1220
10	744	309	1790	146	270	488	953	2030	1860	1470	1080	1040
11	740	287	3040	143	298	483	1010	1430	1790	1890	1070	986
12	738	509	e1710	315	227	609	775	1190	1810	1320	1120	989
13	644	468	e1200	454	291	599	1210	1070	1920	1350	1040	753
14	470	639	e2750	543	189	490	1210	1410	1860	1190	1080	679
15	477	742	1650	e721	134	487	1360	1380	1810	1270	1060	623
16	516	702	e2150	e380	213	473	1160	1140	1590	1140	1070	594
17	11500	544	e2700	173	187	474	1180	1390	1300	1160	1040	836
18	5410	797	e2700	e143	301	1300	1250	3210	1370	1240	932	1250
19	1890	1020	2690	e1230	190	3740	1250	1780	1730	1180	922	856
20	1400	508	2680	e1100	228	2730	1130	1600	1750	1120	1520	961
21	1110	307	e2800	1170	197	2800	1190	1710	1580	1420	1500	913
22	783	288	e1200	1160	180	2790	1630	1710	1600	1160	983	903
23	491	286	e2200	148	196	2510	1290	1690	1420	957	895	873
24	609	305	1030	152	217	3170	1350	1660	1380	779	876	880
25	389	244	475	333	345	2800	1420	1800	1690	797	913	887
26	320	271	591	1180	350	2810	1480	1950	1390	496	941	869
27	362	292	180	1160	274	2840	1370	1840	1510	1130	930	905
28	312	213	1620	1030	321	2970	1230	2000	1480	983	918	824
29	278	242	1380	184	---	839	1370	1600	1390	1080	925	624
30	286	270	1200	151	---	555	1380	1600	1390	769	941	407
31	374	---	1210	158	---	309	---	1690	---	871	979	---
TOTAL	40738	14886	41038	15708	5917	39667	32395	50350	48760	38672	31563	26135
MEAN	1314	496	1324	507	211	1280	1080	1624	1625	1247	1018	871
MAX	11500	2120	3040	1230	350	3740	1630	3210	1920	1890	1520	1320
MIN	278	213	180	143	115	309	556	1070	1300	496	876	407
AC-FT	80800	29530	81400	31160	11740	78680	64260	99870	96720	76710	62610	51840

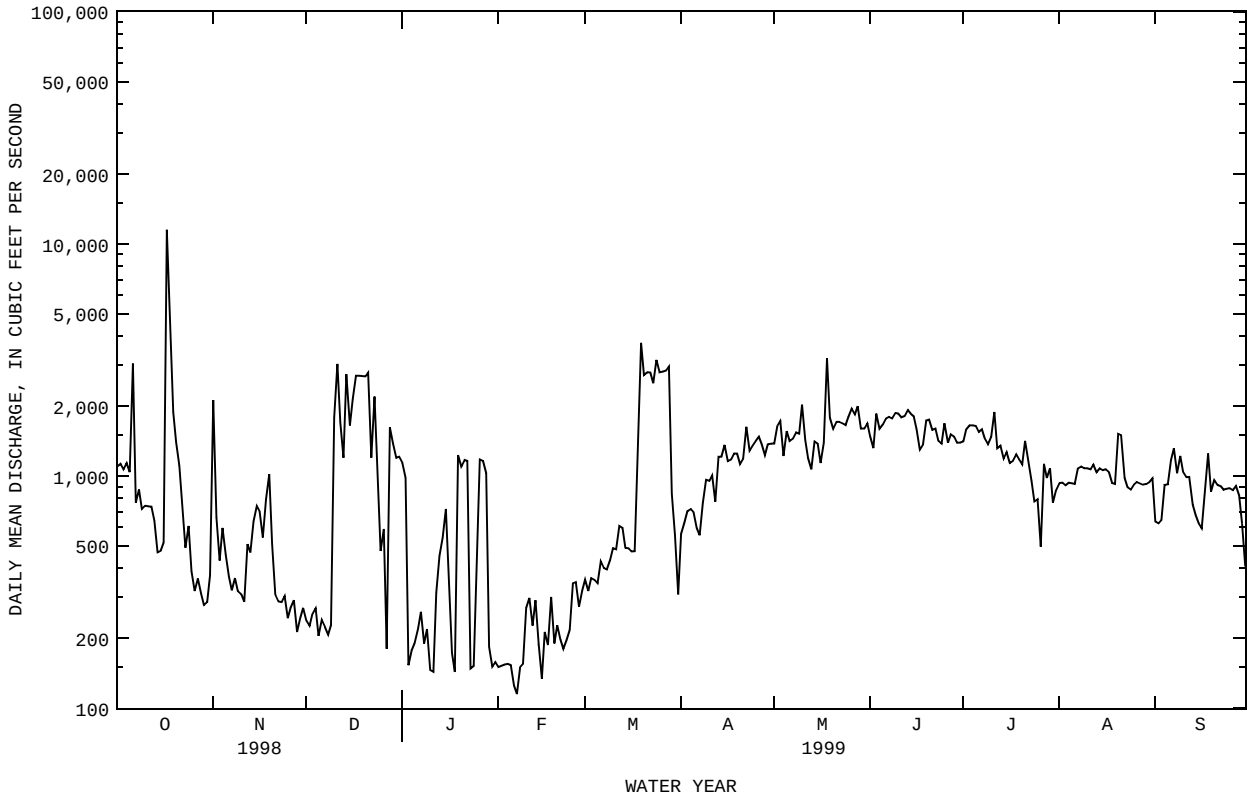
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1999, BY WATER YEAR (WY)

MEAN	1997	1479	1450	1226	1477	1541	2686	4174	3837	2746	1792	2572
MAX	20080	11050	23800	15080	25890	13640	21800	30710	31940	36110	12310	42630
(WY)	1931	1919	1914	1992	1992	1992	1900	1922	1935	1938	1906	1936
MIN	57.5	38.7	43.9	46.2	49.7	55.0	145	964	238	256	70.3	156
(WY)	1935	1990	1964	1967	1964	1964	1907	1921	1910	1933	1917	1907

08158000 COLORADO RIVER AT AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1898 - 1999	
ANNUAL TOTAL	722500		385829			
ANNUAL MEAN	1979		1057		2254	
HIGHEST ANNUAL MEAN					7535	1914
LOWEST ANNUAL MEAN					590	1917
HIGHEST DAILY MEAN	12300	Mar 18	11500	Oct 17	323000	Jun 15 1935
LOWEST DAILY MEAN	177	Jan 3	115	Feb 7	.00	Sep 29 1914
ANNUAL SEVEN-DAY MINIMUM	232	Dec 2	143	Feb 1	18	Oct 25 1990
INSTANTANEOUS PEAK FLOW			39400	Oct 17	481000	Jun 15 1935
INSTANTANEOUS PEAK STAGE			24.40	Oct 17	a50.00	Jun 15 1935
ANNUAL RUNOFF (AC-FT)	1433000		765300		1633000	
10 PERCENT EXCEEDS	3430		1810		3900	
50 PERCENT EXCEEDS	1770		957		1140	
90 PERCENT EXCEEDS	322		220		176	

e Estimated
a From floodmark.



08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX

LOCATION.--Lat 30°15'47", long 97°40'20", Travis County, Hydrologic Unit 12090205, on U.S. Highway 183, 1.6 mi south of the intersection of Webberville Road and U.S. Highway 183, and 4.1 mi east of the State Capitol Building in Austin.

DRAINAGE AREA.--13.1 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jan to Jul 1975 (periodic discharge measurements only), Aug 1975 to Jun 1977 (operated as a flood-hydrograph partial-record station only), Jun 1977 to Sep 1986, (daily mean discharge), Oct 1986 to May 1994 (annual maximum discharge), May 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 411.29 ft sea level (levels from city of Austin benchmark). Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 4,370 ft^3/s May 17, 1989, gage height, 14.79 ft, from floodmark.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 6	0300	2,700	9.94	May 10	0430	796	5.93
Oct 6	0730	854	6.06	May 18	0015	4,830	14.65
Oct 17	1300	5,930	17.24	Jun 15	1930	796	5.93
Oct 18	0515	1,060	6.49	Jun 19	2010	945	6.25
Nov 1	0715	2,600	9.71	Jul 11	1550	2,000	8.43
Mar 12	2130	791	5.92	Jul 21	1825	1,380	7.18
Mar 18	2300	1,900	8.23				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	178	.48	.99	3.4	.19	.44	.00	.10	.35	.37	.00
2	.00	2.1	.58	.89	2.8	.10	.44	.00	.03	.34	.37	.00
3	.00	.95	.62	.80	2.4	.01	.37	.00	.00	.30	.24	.00
4	.00	.61	2.7	.86	1.9	.00	.35	.00	.00	.27	.23	.00
5	.00	1.2	.54	.96	1.5	.00	.50	.00	.00	.29	.08	.00
6	303	.40	.50	1.0	1.6	.00	.50	.00	.00	8.3	.18	.00
7	.81	.70	.42	1.4	1.4	.01	.36	.00	.00	.68	.09	.00
8	.29	.41	.39	1.6	1.4	4.4	.28	.00	.02	12	.12	.00
9	.20	.38	.39	1.0	1.4	.69	.24	.00	.06	1.2	.11	.00
10	.14	.32	42	1.1	1.1	.18	.17	82	.05	31	.03	.00
11	.06	.25	42	2.3	.95	.11	.12	1.4	.00	136	.00	.00
12	.00	31	1.5	2.0	.51	66	.10	.30	.00	2.5	.12	.00
13	.00	27	.93	2.2	.36	22	.12	.19	24	.53	.06	.00
14	.00	60	.72	2.2	.79	.35	.20	.10	1.8	.41	.00	.00
15	.00	11	.72	2.6	.98	.25	.12	.05	56	.30	.00	.00
16	.00	1.2	.73	3.2	1.2	.19	.09	.00	4.5	.32	.00	.00
17	1190	.78	.63	3.8	1.0	.16	.09	150	.60	9.6	.00	.00
18	269	.64	.67	3.2	.95	143	.01	168	.59	29	.00	.00
19	64	.55	.74	3.8	.76	30	.00	.70	61	3.6	.00	.00
20	36	.50	.72	3.3	.76	.75	.00	.33	34	1.0	.00	.00
21	4.7	.45	.71	5.6	.71	.43	.00	.22	3.9	110	.00	.00
22	1.1	.45	.54	3.1	.44	.42	.00	.18	14	5.2	.00	.00
23	.70	.45	.59	1.4	.67	.36	.00	.13	2.2	.74	.00	.00
24	.57	.46	.57	1.6	.69	.39	.00	.07	.67	.62	.00	.00
25	.48	.48	.65	2.1	.77	.36	1.0	.05	38	.60	.00	.00
26	.44	.47	.74	2.3	.82	.28	19	50	1.9	.56	.00	.00
27	.51	.46	.77	2.9	.73	1.4	1.5	4.0	.45	.46	.00	.00
28	.49	.47	1.2	2.7	.48	31	.35	4.0	.35	.43	.00	.00
29	.39	.45	.79	11	---	.70	.21	.67	.35	.37	.00	.00
30	.37	.48	.81	6.5	---	.47	.05	.34	.34	.40	.00	.00
31	.32	---	1.1	2.6	---	.44	---	.18	---	.37	.00	---
TOTAL	1873.57	322.61	106.45	81.00	32.47	304.64	26.61	462.91	244.91	357.74	2.00	0.00
MEAN	60.4	10.8	3.43	2.61	1.16	9.83	.89	14.9	8.16	11.5	.065	.000
MAX	1190	178	42	11	3.4	143	19	168	61	136	.37	.00
MIN	.00	.25	.39	.80	.36	.00	.00	.00	.00	.27	.00	.00
AC-FT	3720	640	211	161	64	604	53	918	486	710	4.0	.00
CFSM	4.61	.82	.26	.20	.09	.75	.07	1.14	.62	.88	.00	.00
IN.	5.32	.92	.30	.23	.09	.87	.08	1.31	.70	1.02	.01	.00

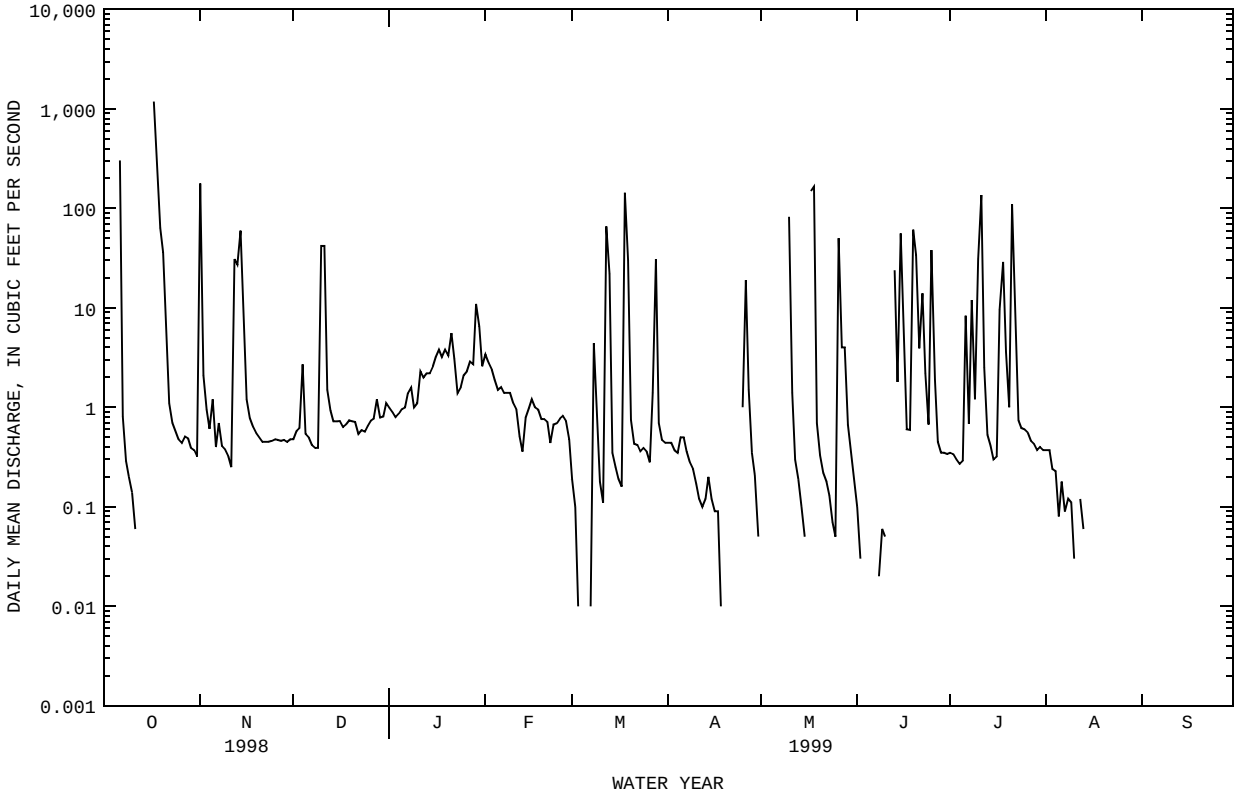
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999h, BY WATER YEAR (WY)

MEAN	12.1	6.23	4.94	2.45	110	6.28	4.48	16.1	11.7	5.55	6.21	6.67
MAX	60.4	16.8	14.9	7.48	1580	18.5	18.5	48.7	55.2	54.5	51.0	20.2
(WY)	1999	1986	1997	1998	1977	1983	1997	1979	1981	1979	1996	1998
MIN	.44	.10	.027	.055	.28	.31	.063	.39	.025	.025	.002	.000
(WY)	1979	1980	1978	1996	1996	1986	1984	1984	1994	1986	1984	1999

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999h	
ANNUAL TOTAL	4033.77		3814.91			
ANNUAL MEAN	11.1		10.5		7.42	
HIGHEST ANNUAL MEAN					15.1	1979
LOWEST ANNUAL MEAN					1.29	1984
HIGHEST DAILY MEAN	1190	Oct 17	1190	Oct 17	1660	Feb 11 1977
LOWEST DAILY MEAN	.00	May 6	.00	Oct 1	.00	Jul 13 1978
ANNUAL SEVEN-DAY MINIMUM	.00	May 19	.00	May 1	.00	Jul 13 1978
INSTANTANEOUS PEAK FLOW			5930	Oct 17	6100	May 23 1975
INSTANTANEOUS PEAK STAGE			17.24	Oct 17	17.24	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	8000		7570		5370	
ANNUAL RUNOFF (CFSM)	.84		.80		.57	
ANNUAL RUNOFF (INCHES)	11.45		10.83		7.69	
10 PERCENT EXCEEDS	12		7.2		9.1	
50 PERCENT EXCEEDS	.62		.44		.29	
90 PERCENT EXCEEDS	.00		.00		.00	

h See PERIOD OF RECORD paragraph.



08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jan 1975 to Sep 1986, Apr 1994 to current year.
BIOCHEMICAL DATA: Jan 1975 to Sep 1986, Apr 1994 to current year.
RADIOCHEMICAL DATA: Jan 1980.
PESTICIDE DATA: Jan 1975 to Dec 1984.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
MAR											
15...	1000	--	.27	504	7.5	13.0	10	1.4	9.5	90	13
MAR											
18-19	2130	218	--	171	7.9	--	60	460	--	--	76
18...	2200	218	--	--	--	--	--	--	--	--	--
MAY											
10-10	0420	160	--	214	7.8	--	200	250	--	--	76
JUN											
28...	1315	--	.40	527	8.0	31.0	20	1.5	8.4	115	21

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
MAR											
15...	.8	K380	400	160	2	25650	.00	--	<.010	.208	.029
MAR											
18-19	7.9	45000	140000	51	1120	144	980	.332	.020	.352	.078
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10-10	8.1	86000	220000	71	576	96	480	.717	.032	.749	.324
JUN											
28...	1.3	100	K28	150	2	1	1	--	<.010	<.050	<.020

DATE	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
MAR											
15...	.49	.25	.28	E.041	<.050	.011	.03	7.3	.450	<.100	--
MAR											
18-19	3.8	3.4	3.5	1.15	.057	.045	.14	30	--	--	384
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10-10	4.0	3.0	3.3	.811	.117	.104	.32	16	--	--	917
JUN											
28...	--	--	.46	.066	<.050	<.010	--	8.4	6.30	1.60	--

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
MAR											
15...	--	--	--	--	--	--	<1	--	--	--	2
MAR											
18-19	226	100	--	--	--	--	<1	--	--	--	23
18...	--	--	11	<1.0	25	<1.0	--	2.3	<1.0	<1.0	--
MAY											
10-10	396	92	--	--	--	--	<1	--	--	--	19
JUN											
28...	--	--	--	--	--	--	<1	--	--	--	2

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
MAR										
15...	--	<1	--	--	--	--	--	E20	--	--
MAR										
18-19	--	59	--	--	--	--	--	150	--	--
18...	1.7	--	<1.0	1.8	1.0	1.5	<1.0	--	46	<1.0
MAY										
10-10	--	31	--	--	--	--	--	100	--	--
JUN										
28...	--	<1	--	--	--	--	--	<40	--	--

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'59", long 97°39'17", Travis County, Hydrologic Unit 12090205, on left bank 190 ft downstream from bridge on Farm Road 969, 0.8 mi downstream from Little Walnut Creek, 2.8 mi upstream from Colorado River, 5.2 mi east of the State Capitol Building in Austin, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--51.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair except those above 150 ft^3/s, which are poor. No known regulation or diversions. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jun 15, 1935, reached a stage of 24 ft, backwater from Colorado River. A flood in 1919 reached a stage of 22 ft, from information by local residents. Maximum stage since at least 1891, that of May 25, 1981.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 6	0630	2,800	14.97	Nov 1	0730	2,940	15.30
Oct 17	1430	9,460	25.22	Mar 18	2330	1,850	12.38
Oct 18	0700	4,450	18.41	May 18	0030	9,640	25.40

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

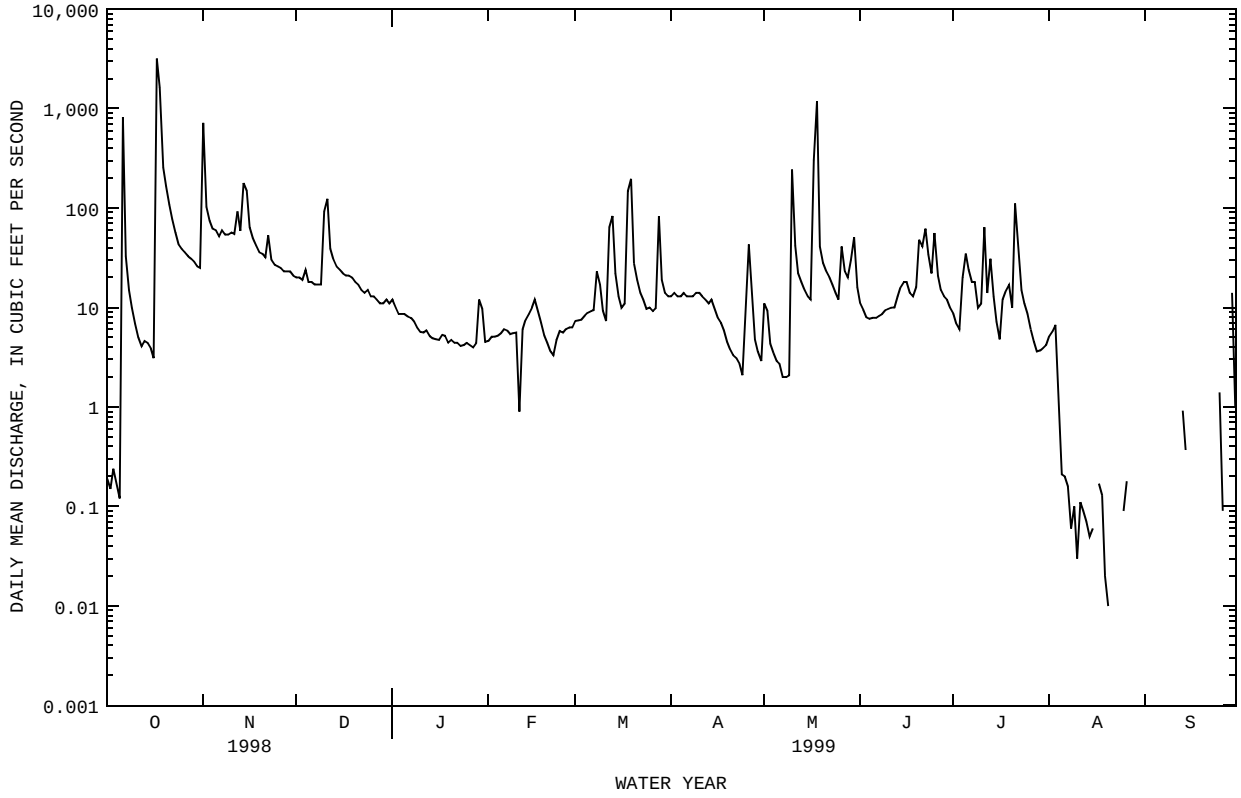
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	715	20	12	4.6	7.3	13	11	11	8.7	5.2	.00
2	.15	103	20	10	5.1	7.4	14	9.3	9.4	6.9	5.8	.00
3	.24	74	19	8.6	5.1	7.5	13	4.3	8.0	6.0	6.7	.00
4	.17	62	24	8.6	5.2	8.3	13	3.5	7.7	20	.87	.00
5	.12	60	18	8.6	5.5	8.9	14	2.9	7.9	35	.21	.00
6	819	52	18	8.1	6.1	9.2	13	2.7	7.9	24	.20	.00
7	33	60	17	7.9	5.9	9.4	13	2.0	8.2	18	.16	.00
8	15	54	17	7.2	5.4	23	13	2.0	8.6	18	.06	.00
9	10	54	17	6.3	5.5	17	14	2.1	9.4	10	.10	.00
10	6.9	57	93	5.7	5.6	9.3	14	243	9.7	11	.03	.00
11	5.0	55	124	5.6	.90	7.3	13	42	10	64	.11	.00
12	4.1	93	39	5.9	6.0	64	12	22	10	14	.09	.00
13	4.6	59	30	5.2	7.5	83	11	18	13	31	.07	.92
14	4.4	179	26	4.9	8.6	22	12	15	16	13	.05	.37
15	3.9	150	24	4.8	10	13	9.7	13	18	7.2	.06	.00
16	3.1	64	22	4.7	12	10	7.9	12	18	4.8	.00	.00
17	3190	50	21	5.3	9.2	11	7.0	305	14	12	.17	.00
18	1630	42	21	5.2	7.0	148	5.9	1190	13	15	.13	.00
19	256	36	20	4.4	5.2	196	4.5	41	16	17	.02	.00
20	166	35	18	4.7	4.4	28	3.8	28	48	10	.01	.00
21	108	32	17	4.4	3.6	19	3.3	23	41	111	.00	.00
22	78	53	15	4.4	3.3	14	3.1	20	62	44	.00	.00
23	57	30	14	4.1	4.7	12	2.7	17	34	15	.00	.00
24	43	27	15	4.2	5.8	9.7	2.1	14	22	11	.00	.00
25	39	26	13	4.4	5.6	10	7.8	12	56	8.6	.09	1.4
26	36	25	13	4.2	6.1	9.2	43	41	21	6.0	.18	.09
27	33	23	12	4.0	6.3	9.8	16	23	15	4.5	.00	.00
28	31	23	11	4.4	6.3	83	4.8	20	13	3.6	.00	.00
29	29	23	11	12	---	19	3.6	30	12	3.7	.00	14
30	26	21	12	9.7	---	14	2.9	51	9.9	3.9	.00	1.0
31	25	---	11	4.5	---	13	---	16	---	4.2	.00	---
TOTAL	6656.87	2337	752	194.0	166.50	902.3	310.1	2235.8	549.7	561.1	20.31	17.78
MEAN	215	77.9	24.3	6.26	5.95	29.1	10.3	72.1	18.3	18.1	.66	.59
MAX	3190	715	124	12	12	196	43	1190	62	111	6.7	14
MIN	.12	21	11	4.0	.90	7.3	2.1	2.0	7.7	3.6	.00	.00
AC-FT	13200	4640	1490	385	330	1790	615	4430	1090	1110	40	35
CFSM	4.19	1.52	.47	.12	.12	.57	.20	1.41	.36	.35	.01	.01
IN.	4.83	1.69	.55	.14	.12	.65	.22	1.62	.40	.41	.01	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

MEAN	33.9	22.4	34.3	29.3	31.7	27.2	24.7	59.0	43.0	11.6	11.3	13.2
MAX	215	161	367	237	203	121	90.0	170	435	55.7	77.6	51.7
(WY)	1999	1975	1992	1968	1992	1992	1977	1981	1981	1987	1996	1973
MIN	1.37	1.03	1.22	1.07	1.88	1.06	1.79	.58	.23	.052	.32	.59
(WY)	1979	1967	1967	1967	1967	1967	1971	1971	1967	1971	1977	1999

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1966 - 1999	
ANNUAL TOTAL	15310.01		14703.46			
ANNUAL MEAN	41.9		40.3		28.6	
HIGHEST ANNUAL MEAN					94.6	1992
LOWEST ANNUAL MEAN					1.91	1967
HIGHEST DAILY MEAN	3190	Oct 17	3190	Oct 17	4330	Dec 21 1991
LOWEST DAILY MEAN	.03	Sep 30	.00	Aug 16	.00	Jun 17 1967
ANNUAL SEVEN-DAY MINIMUM	.13	Jul 30	.00	Aug 27	.00	Jun 17 1967
INSTANTANEOUS PEAK FLOW			9640	May 18	14300	May 25 1981
INSTANTANEOUS PEAK STAGE			25.40	May 18	27.24	May 25 1981
ANNUAL RUNOFF (AC-FT)	30370		29160		20730	
ANNUAL RUNOFF (CFSM)	.82		.79		.56	
ANNUAL RUNOFF (INCHES)	11.10		10.66		7.58	
10 PERCENT EXCEEDS	55		54		43	
50 PERCENT EXCEEDS	15		10		7.5	
90 PERCENT EXCEEDS	.57		.03		1.0	



08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Apr 1976 to current year.
BIOCHEMICAL DATA: Apr 1976 to current year.
RADIOCHEMICAL DATA: Jan 1980.
PESTICIDE DATA: Nov 1976 to Sep 1986.
SEDIMENT DATA: Dec 1977 to Jul 1982.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
MAR										
01...	1115	--	7.1	642	7.9	15.0	10	1.2	11.6	117
MAY										
18-18	0010	2490	--	137	6.9	--	240	2000	--	--
AUG										
17...	1130	--	.19	617	7.8	28.5	13	.63	5.6	73

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
MAR										
01...	11	1.0	140	50	150	1	2	.00	--	<.010
MAY										
18-18	120	8.4	62000	86000	40	3310	344	2970	.454	.011
AUG										
17...	<10	1.2	27	1200	140	1	2	.00	--	<.010

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
MAR										
01...	.425	<.020	.58	--	.15	<.050	<.050	<.010	--	2.7
MAY										
18-18	.465	.199	4.0	3.4	3.6	.306	E.039	.046	.14	46
AUG										
17...	<.050	<.020	--	--	.25	E.030	<.050	<.010	--	3.6

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR									
01...	.330	<.100	--	--	--	<1	1	<1	<10
MAY									
18-18	--	--	3250	21900	99	<1	25	44	140
AUG									
17...	.280	<.100	--	--	--	<1	<1	<1	<40

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08158700 ONION CREEK NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°04'58", long 98°00'27", Hays County, Hydrologic Unit 12090205, on left bank, 160 ft left of the upstream side of bridge at low-water crossing on Farm Road 150, 3.2 mi southeast of Driftwood, and 10 mi west of Buda.

DRAINAGE AREA.--124 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Apr 1958, Nov 1961 to Jun 1979 (periodic discharge measurements only), Jul 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 878.13 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1400	15,800	25.10	Nov 1	1130	2,780	8.27
Oct 18	0945	2,820	8.34	Nov 14	2045	562	5.40
Oct 19	1615	1,210	6.08				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

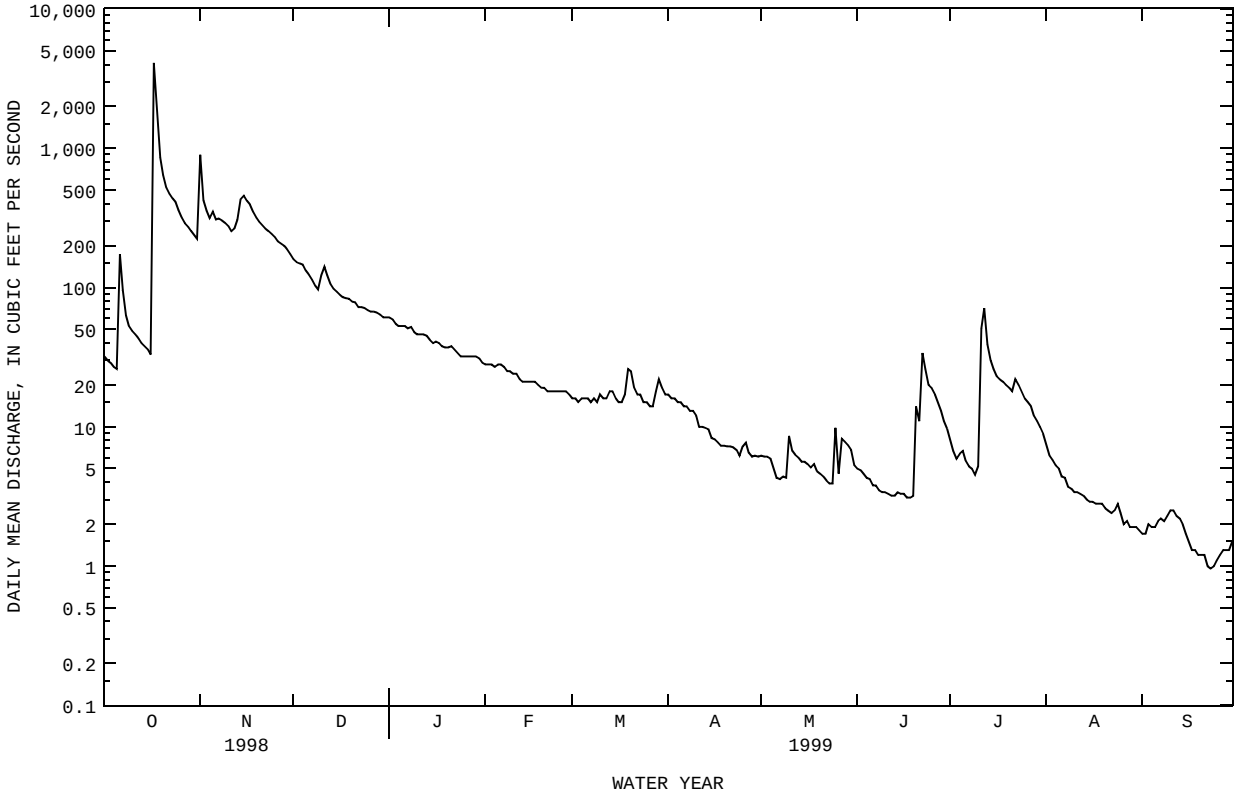
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	899	160	61	28	16	17	6.2	5.0	8.0	7.4	1.7
2	30	424	152	59	28	16	16	6.1	4.9	6.7	6.2	1.7
3	29	355	149	55	28	15	16	6.1	4.6	5.9	5.8	2.0
4	27	316	146	53	27	16	15	5.9	4.3	6.4	5.3	1.9
5	26	352	133	53	28	16	15	5.0	4.2	6.7	5.0	1.9
6	174	308	124	53	28	16	14	4.3	3.8	5.7	4.4	2.1
7	96	313	114	51	27	15	14	4.2	3.8	5.2	4.3	2.2
8	63	304	103	52	25	16	13	4.4	3.5	5.0	3.7	2.1
9	53	293	97	48	25	15	13	4.3	3.4	4.5	3.6	2.3
10	49	276	122	46	24	17	12	8.6	3.4	5.2	3.4	2.5
11	46	253	141	46	24	16	10	6.7	3.3	51	3.4	2.5
12	43	266	122	46	22	16	10	6.3	3.2	71	3.3	2.3
13	40	307	106	45	21	18	9.8	6.0	3.2	39	3.2	2.2
14	38	429	98	42	21	18	9.6	5.6	3.4	30	3.0	2.0
15	36	457	93	40	21	16	8.3	5.6	3.3	26	2.9	1.7
16	33	422	89	41	21	15	8.1	5.4	3.3	23	2.9	1.5
17	4100	395	85	40	21	15	7.7	5.1	3.1	22	2.8	1.3
18	1900	350	84	38	20	17	7.3	5.4	3.1	21	2.8	1.3
19	858	319	83	37	19	26	7.3	4.8	3.2	20	2.8	1.2
20	644	297	79	37	19	25	7.2	4.6	14	19	2.6	1.2
21	521	280	78	38	18	19	7.2	4.4	11	18	2.5	1.2
22	472	266	72	36	18	17	7.1	4.1	34	22	2.4	1.0
23	436	255	72	34	18	17	6.8	3.9	26	20	2.5	.96
24	410	243	71	32	18	15	6.2	3.9	20	18	2.8	1.0
25	359	230	69	32	18	15	7.2	9.8	19	16	2.4	1.1
26	319	215	67	32	18	14	7.7	4.6	17	15	2.0	1.2
27	289	207	67	32	18	14	6.5	8.2	15	14	2.1	1.3
28	273	199	66	32	17	18	6.1	7.8	13	12	1.9	1.3
29	255	189	64	32	---	22	6.2	7.4	11	11	1.9	1.3
30	237	174	61	31	---	19	6.1	6.8	9.7	10	1.9	1.5
31	223	---	61	29	---	17	---	5.3	---	8.9	1.8	---
TOTAL	12111	9593	3028	1303	620	527	297.4	176.8	259.7	546.2	103.0	49.46
MEAN	391	320	97.7	42.0	22.1	17.0	9.91	5.70	8.66	17.6	3.32	1.65
MAX	4100	899	160	61	28	26	17	9.8	34	71	7.4	2.5
MIN	26	174	61	29	17	14	6.1	3.9	3.1	4.5	1.8	.96
AC-FT	24020	19030	6010	2580	1230	1050	590	351	515	1080	204	98
CFSM	3.15	2.58	.79	.34	.18	.14	.08	.05	.07	.14	.03	.01
IN.	3.63	2.88	.91	.39	.19	.16	.09	.05	.08	.16	.03	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1999, BY WATER YEAR (WY)

MEAN	37.1	32.0	70.9	56.2	71.9	73.3	52.8	73.3	152	26.7	5.69	7.56
MAX	391	320	548	316	506	356	231	202	792	109	22.0	49.8
(WY)	1999	1999	1992	1992	1992	1992	1997	1992	1987	1997	1987	1998
MIN	.22	.10	.10	.43	.87	2.29	1.16	.27	.089	.13	.055	.006
(WY)	1990	1989	1989	1990	1990	1989	1996	1996	1996	1996	1996	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1979 - 1999	
ANNUAL TOTAL	45957.9		28614.56			
ANNUAL MEAN	126		78.4		54.8	
HIGHEST ANNUAL MEAN					196	1992
LOWEST ANNUAL MEAN					2.06	1996
HIGHEST DAILY MEAN	4100	Oct 17	4100	Oct 17	5060	Dec 21 1991
LOWEST DAILY MEAN	1.1	Aug 14	.96	Sep 23	.00	Aug 21 1984
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 10	1.1	Sep 19	.00	Sep 14 1984
INSTANTANEOUS PEAK FLOW			15800	Oct 17	15800	Oct 17 1998
INSTANTANEOUS PEAK STAGE			25.10	Oct 17	25.10	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	91160		56760		39680	
ANNUAL RUNOFF (CFSM)	1.02		.63		.44	
ANNUAL RUNOFF (INCHES)	13.79		8.58		6.00	
10 PERCENT EXCEEDS	291		247		127	
50 PERCENT EXCEEDS	65		17		9.6	
90 PERCENT EXCEEDS	2.6		2.5		.44	

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued



08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jan 1974 to current year.
BIOCHEMICAL DATA: Jan 1974 to current year.
RADIOCHEMICAL DATA: Jan 1980.
PESTICIDE DATA: Jan 1978 to Sep 1986.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
MAR										
03...	1035	15	502	7.9	16.5	5	2.0	9.4	98	<10
AUG										
16...	0920	2.9	480	7.7	28.5	6	.21	6.0	80	<10

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR										
03...	.2	28	120	190	<1	5	<.010	<.050	<.020	.11
AUG										
16...	.7	20	K3000	170	<1	<1	<.010	<.050	<.020	.18

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR										
03...	<.050	<.050	<.010	2.0	E.170	<.100	<1	<1	<1	<10
AUG										
16...	<.050	<.050	<.010	1.9	.460	<.100	<1	<1	<1	<40

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08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°09'19", long 97°56'23", Hays County, Hydrologic Unit 12090205, 0.8 mi southeast of Farm Road 1826 and 5.9 mi northeast of Driftwood.

DRAINAGE AREA.--12.2 mi^2.

PERIOD OF RECORD.--Mar 1978 to Jul 1979 (periodic discharge measurements only), Oct 1978 to Jun 1979 (peak discharges above base only), Jul 1979 to current year.
Water-quality records.--Chemical data: Mar 1978 to Jun 1997. Biochemical data: Mar 1978 to Jun 1997. Radiochemical data: Jan 1980. Pesticide data: Jun 1978 to Sep 1986.

GAGE.--Water-stage recorder. Elevation of gage is 860 ft above sea level from topographic map. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jun 9, 1939 (corrected), reached a stage of 16.2 ft; discharge, 14,200 ft^3/s, and is the highest since at least 1924, from information by local resident. A flood in 1915 was purported to be 2 ft higher than the 1939 flood, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1030	6,440	12.01	Nov 1	0715	593	5.48

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

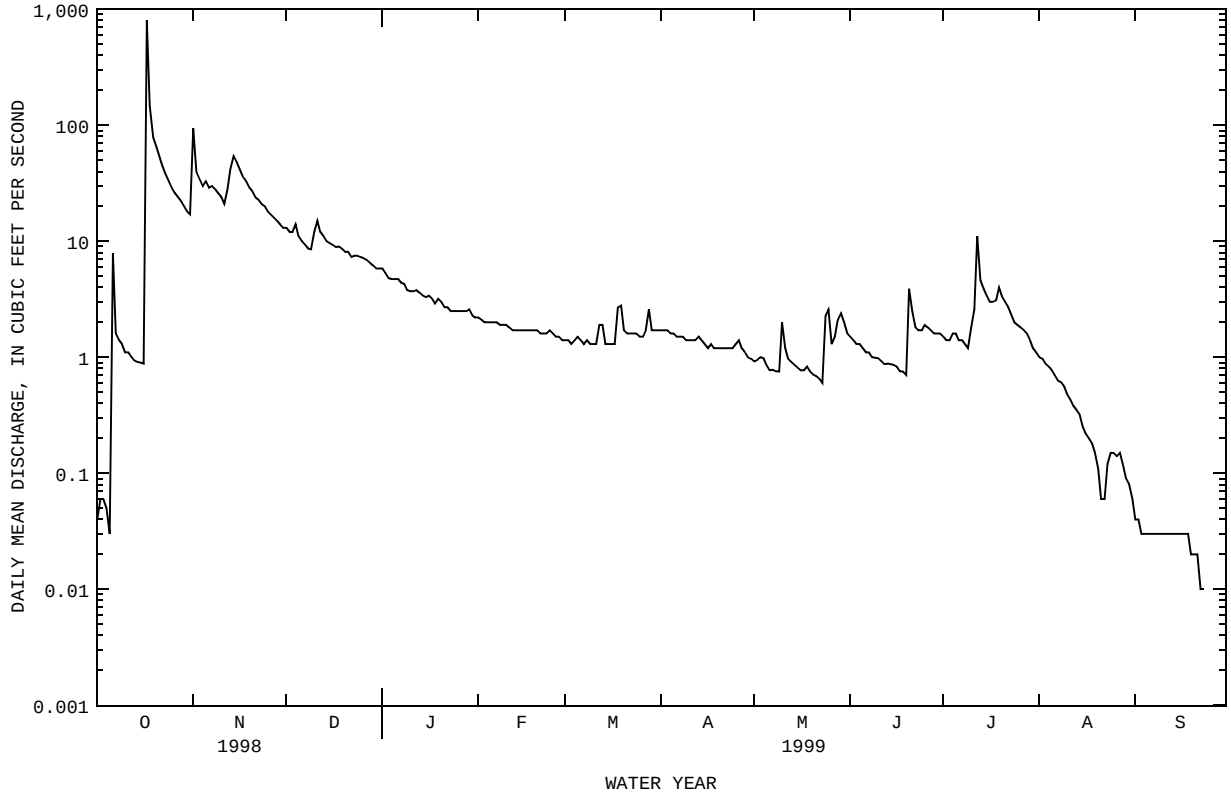
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	94	13	5.8	2.2	1.4	1.7	.92	1.5	1.5	1.0	.04
2	.06	39	12	5.3	2.1	1.4	1.7	.95	1.4	1.4	.97	.04
3	.06	34	12	4.8	2.0	1.3	1.7	1.0	1.3	1.4	.88	.03
4	.05	30	14	4.7	2.0	1.4	1.6	.98	1.3	1.6	.83	.03
5	.03	33	11	4.7	2.0	1.5	1.6	.85	1.2	1.6	.77	.03
6	7.9	29	10	4.7	2.0	1.4	1.5	.77	1.1	1.4	.70	.03
7	1.6	30	9.4	4.4	2.0	1.3	1.5	.78	1.1	1.4	.63	.03
8	1.4	28	8.6	4.3	1.9	1.4	1.5	.76	1.0	1.3	.61	.03
9	1.3	26	8.5	3.8	1.9	1.3	1.4	.75	.99	1.2	.56	.03
10	1.1	24	12	3.7	1.9	1.3	1.4	2.0	.98	1.8	.48	.03
11	1.1	21	15	3.7	1.8	1.3	1.4	1.2	.93	2.6	.43	.03
12	1.0	28	12	3.8	1.7	1.9	1.4	.97	.87	11	.38	.03
13	.94	42	11	3.6	1.7	1.9	1.5	.91	.88	4.6	.35	.03
14	.91	54	10	3.4	1.7	1.3	1.4	.86	.87	3.9	.32	.03
15	.90	48	9.6	3.3	1.7	1.3	1.3	.81	.86	3.4	.25	.03
16	.88	42	9.3	3.4	1.7	1.3	1.2	.77	.83	3.0	.22	.03
17	800	36	8.9	3.2	1.7	1.3	1.3	.77	.76	3.0	.20	.03
18	147	33	9.0	2.9	1.7	2.7	1.2	.83	.75	3.1	.18	.03
19	78	29	8.6	3.2	1.7	2.8	1.2	.76	.70	4.0	.15	.02
20	66	27	8.1	3.0	1.7	1.7	1.2	.71	3.9	3.3	.11	.02
21	54	24	8.1	2.7	1.6	1.6	1.2	.69	2.5	3.0	.06	.02
22	45	23	7.3	2.7	1.6	1.6	1.2	.65	1.8	2.7	.06	.01
23	38	21	7.5	2.5	1.6	1.6	1.2	.60	1.7	2.3	.12	.01
24	33	20	7.5	2.5	1.7	1.6	1.2	2.3	1.7	2.0	.15	.00
25	29	18	7.3	2.5	1.6	1.5	1.3	2.6	1.9	1.9	.15	.00
26	26	17	7.1	2.5	1.5	1.5	1.4	1.3	1.8	1.8	.14	.00
27	24	16	6.9	2.5	1.5	1.7	1.2	1.5	1.7	1.7	.15	.00
28	22	15	6.5	2.5	1.4	2.6	1.1	2.1	1.6	1.6	.12	.00
29	20	14	6.2	2.6	---	1.7	1.0	2.4	1.6	1.4	.09	.00
30	18	13	5.8	2.3	---	1.7	.97	2.0	1.6	1.2	.08	.00
31	17	---	5.8	2.2	---	1.7	---	1.6	---	1.1	.06	---
TOTAL	1436.27	908	288.0	107.2	49.6	50.0	40.47	36.09	41.12	77.2	11.20	0.64
MEAN	46.3	30.3	9.29	3.46	1.77	1.61	1.35	1.16	1.37	2.49	.36	.021
MAX	800	94	15	5.8	2.2	2.8	1.7	2.6	3.9	11	1.0	.04
MIN	.03	13	5.8	2.2	1.4	1.3	.97	.60	.70	1.1	.06	.00
AC-FT	2850	1800	571	213	98	99	80	72	82	153	22	1.3
CFSM	3.80	2.48	.76	.28	.15	.13	.11	.10	.11	.20	.03	.00
IN.	4.38	2.77	.88	.33	.15	.15	.12	.11	.13	.24	.03	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1999, BY WATER YEAR (WY)

MEAN	4.66	3.34	9.39	6.44	8.50	7.80	6.13	8.40	18.7	2.33	.71	.55
MAX	46.3	30.3	91.8	33.3	49.4	32.3	26.2	23.7	144	8.22	3.59	2.71
(WY)	1999	1999	1992	1992	1992	1992	1991	1992	1981	1997	1979	1991
MIN	.000	.000	.000	.000	.017	.053	.048	.013	.001	.000	.000	.000
(WY)	1989	1989	1989	1989	1990	1996	1996	1996	1984	1984	1984	1984

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1979 - 1999	
ANNUAL TOTAL	4954.01		3045.79			
ANNUAL MEAN	13.6		8.34		6.37	
HIGHEST ANNUAL MEAN					22.3	1992
LOWEST ANNUAL MEAN					.10	1996
HIGHEST DAILY MEAN	800	Oct 17	800	Oct 17	1000	Dec 20 1991
LOWEST DAILY MEAN	.00	Jun 25	.00	Sep 24	.00	Aug 28 1980
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 25	.00	Sep 24	.00	Aug 28 1980
INSTANTANEOUS PEAK FLOW			6640	Oct 17	10200	Dec 20 1991
INSTANTANEOUS PEAK STAGE			12.01	Oct 17	14.23	Dec 20 1991
ANNUAL RUNOFF (AC-FT)	9830		6040		4620	
ANNUAL RUNOFF (CFSM)	1.11		.68		.52	
ANNUAL RUNOFF (INCHES)	15.11		9.29		7.10	
10 PERCENT EXCEEDS	29		20		14	
50 PERCENT EXCEEDS	4.6		1.6		1.2	
90 PERCENT EXCEEDS	.00		.06		.00	



08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX

LOCATION.--Lat 30°12'32", long 97°54'11", Travis County, Hydrologic Unit 12090205, 1.7 mi south of the intersection on U.S. Highway 290 and Farm Road 1826, and 11.9 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--8.24 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversions. Several observations of water temperature were made during year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1045	4,100	9.87	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

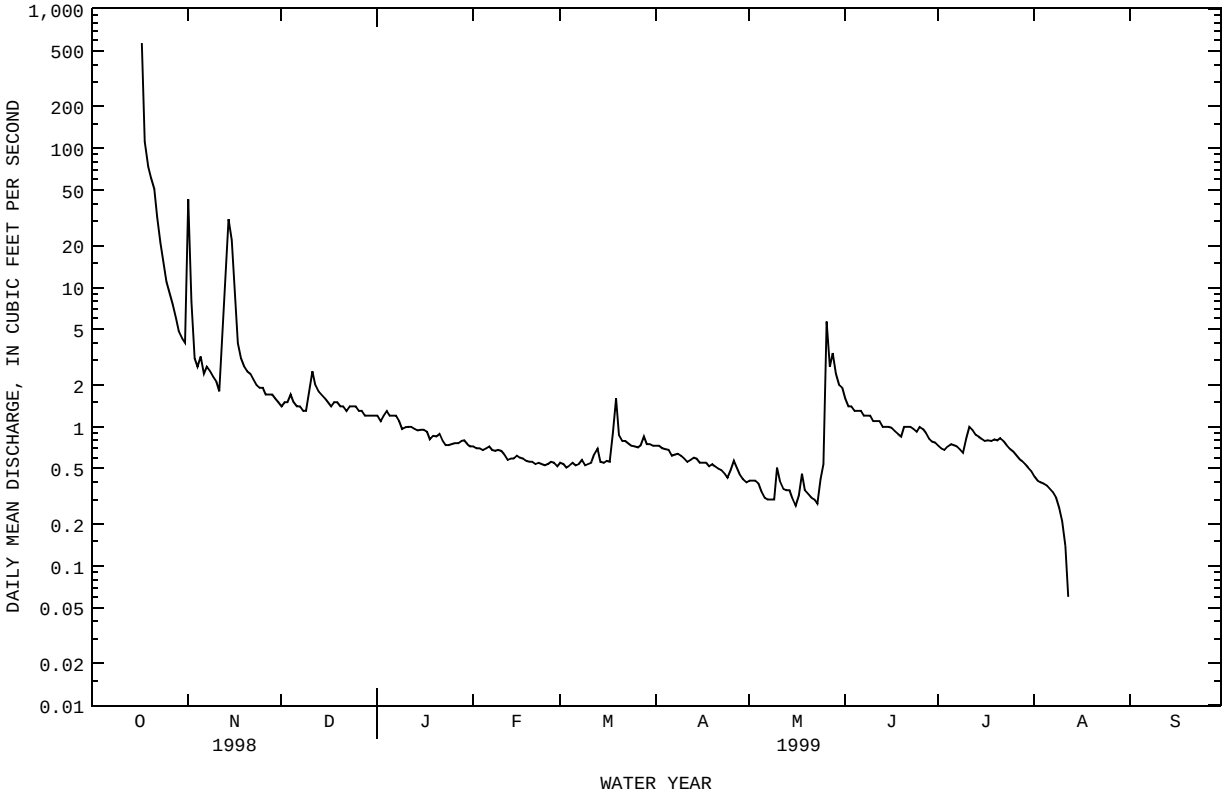
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	43	1.4	1.2	.72	.55	.73	.41	1.6	.73	.44	.00
2	.00	7.9	1.5	1.1	.70	.54	.73	.41	1.4	.70	.41	.00
3	.00	3.1	1.5	1.2	.70	.51	.70	.41	1.4	.68	.40	.00
4	.00	2.7	1.7	1.3	.68	.53	.69	.39	1.3	.72	.39	.00
5	.00	3.2	1.5	1.2	.70	.55	.68	.34	1.3	.75	.38	.00
6	.50	2.4	1.4	1.2	.72	.53	.62	.31	1.3	.74	.36	.00
7	.00	2.7	1.4	1.2	.68	.54	.63	.30	1.2	.72	.34	.00
8	.00	2.5	1.3	1.1	.67	.58	.64	.30	1.2	.69	.31	.00
9	.00	2.3	1.3	.97	.68	.53	.62	.30	1.2	.65	.26	.00
10	.00	2.1	1.8	.99	.67	.54	.59	.51	1.1	.82	.21	.00
11	.00	1.8	2.5	1.0	.63	.55	.56	.40	1.1	1.0	.14	.00
12	.00	4.4	2.0	1.0	.58	.64	.58	.36	1.1	.95	.06	.00
13	.00	11	1.8	.97	.59	.70	.60	.35	1.0	.88	.00	.00
14	.00	31	1.7	.94	.59	.56	.59	.35	1.0	.85	.00	.00
15	.00	22	1.6	.95	.62	.55	.55	.30	1.0	.82	.00	.00
16	.00	8.8	1.5	.95	.60	.57	.55	.27	.98	.79	.00	.00
17	570	4.0	1.4	.92	.59	.56	.55	.32	.93	.80	.00	.00
18	112	3.1	1.5	.81	.57	.90	.52	.46	.89	.79	.00	.00
19	74	2.7	1.5	.86	.56	1.6	.54	.35	.85	.81	.00	.00
20	61	2.5	1.4	.85	.56	.87	.52	.33	1.0	.80	.00	.00
21	51	2.4	1.4	.89	.54	.79	.50	.31	1.0	.83	.00	.00
22	32	2.2	1.3	.80	.55	.79	.49	.30	1.0	.79	.00	.00
23	21	2.0	1.4	.74	.54	.76	.46	.28	.97	.74	.00	.00
24	15	1.9	1.4	.74	.53	.73	.43	.42	.92	.70	.00	.00
25	11	1.9	1.4	.75	.54	.72	.49	.54	1.0	.67	.00	.00
26	9.0	1.7	1.3	.76	.56	.71	.57	5.7	.96	.63	.00	.00
27	7.5	1.7	1.3	.76	.55	.74	.51	2.7	.90	.59	.00	.00
28	6.0	1.7	1.2	.79	.52	.85	.45	3.4	.82	.57	.00	.00
29	4.8	1.6	1.2	.80	---	.75	.42	2.4	.78	.54	.00	.00
30	4.3	1.5	1.2	.75	---	.75	.40	2.0	.77	.51	.00	.00
31	4.0	---	1.2	.72	---	.73	---	1.9	---	.48	.00	---
TOTAL	983.10	181.8	46.0	29.21	17.14	21.22	16.91	27.12	31.97	22.74	3.70	0.00
MEAN	31.7	6.06	1.48	.94	.61	.68	.56	.87	1.07	.73	.12	.000
MAX	570	43	2.5	1.3	.72	1.6	.73	5.7	1.6	1.0	.44	.00
MIN	.00	1.5	1.2	.72	.52	.51	.40	.27	.77	.48	.00	.00
AC-FT	1950	361	91	58	34	42	34	54	63	45	7.3	.00
CFSM	3.85	.74	.18	.11	.07	.08	.07	.11	.13	.09	.01	.00
IN.	4.44	.82	.21	.13	.08	.10	.08	.12	.14	.10	.02	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	4.51	2.50	8.46	5.12	6.41	5.86	4.63	10.3	15.8	1.16	.37	.42
MAX	35.5	18.5	75.0	24.4	40.6	22.2	27.1	33.0	101	5.31	2.28	4.33
(WY)	1987	1986	1992	1992	1992	1998	1979	1995	1981	1979	1983	1991
MIN	.000	.000	.000	.000	.000	.000	.000	.021	.002	.000	.000	.000
(WY)	1983	1989	1989	1990	1996	1989	1996	1984	1996	1984	1980	1984

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	3172.72		1380.91			
ANNUAL MEAN	8.69		3.78		5.62	
HIGHEST ANNUAL MEAN					17.9	1992
LOWEST ANNUAL MEAN					.003	1996
HIGHEST DAILY MEAN	570	Oct 17	570	Oct 17	901	Jun 11 1981
LOWEST DAILY MEAN	.00	Jun 22	.00	Oct 1	.00	Jan 26 1978
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 22	.00	Oct 7	.00	Jan 26 1978
INSTANTANEOUS PEAK FLOW			4100	Oct 17	6330	Dec 20 1991
INSTANTANEOUS PEAK STAGE			9.87	Oct 17	10.79	Jun 11 1981
ANNUAL RUNOFF (AC-FT)	6290		2740		4070	
ANNUAL RUNOFF (CFSM)	1.05		.46		.68	
ANNUAL RUNOFF (INCHES)	14.32		6.23		9.27	
10 PERCENT EXCEEDS	21		2.4		11	
50 PERCENT EXCEEDS	1.7		.70		.39	
90 PERCENT EXCEEDS	.00		.00		.00	

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued



08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jun 1983 to current year.
BIOCHEMICAL DATA: Jun 1983 to current year.
PESTICIDE DATA: Jun 1983 to Sep 1986.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
MAR											
03...	1005	7.1	733	7.7	17.5	15	3.0	10.3	110	<10	.6
JUN											
28...	1005	13	731	7.9	28.5	<1	1.5	8.2	110	<10	.4

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR											
03...	K7	37	220	3	3	.00	<.010	<.050	<.020	--	.11
JUN											
28...	43	280	240	4	<1	--	<.010	<.050	.032	.16	.20

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAR											
03...	<.050	<.050	<.010	--	2.3	1.30	<.100	<1	<1	<1	<10
JUN											
28...	<.050	<.050	.010	.03	2.8	.380	<.100	<1	<1	<1	<40

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08158922 WILLIAMSON CREEK AT BRUSH COUNTRY BOULEVARD, OAK HILL, TX

LOCATION.--Lat 30°13'34", long 97°52'28", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on Brush Country Boulevard near Oak Hill, and 7.7 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.79 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Mar 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 740.25 ft above sea level, (levels from city of Austin benchmark). Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1100	2,700	7.10	Oct 17	1300	2,560	6.98

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

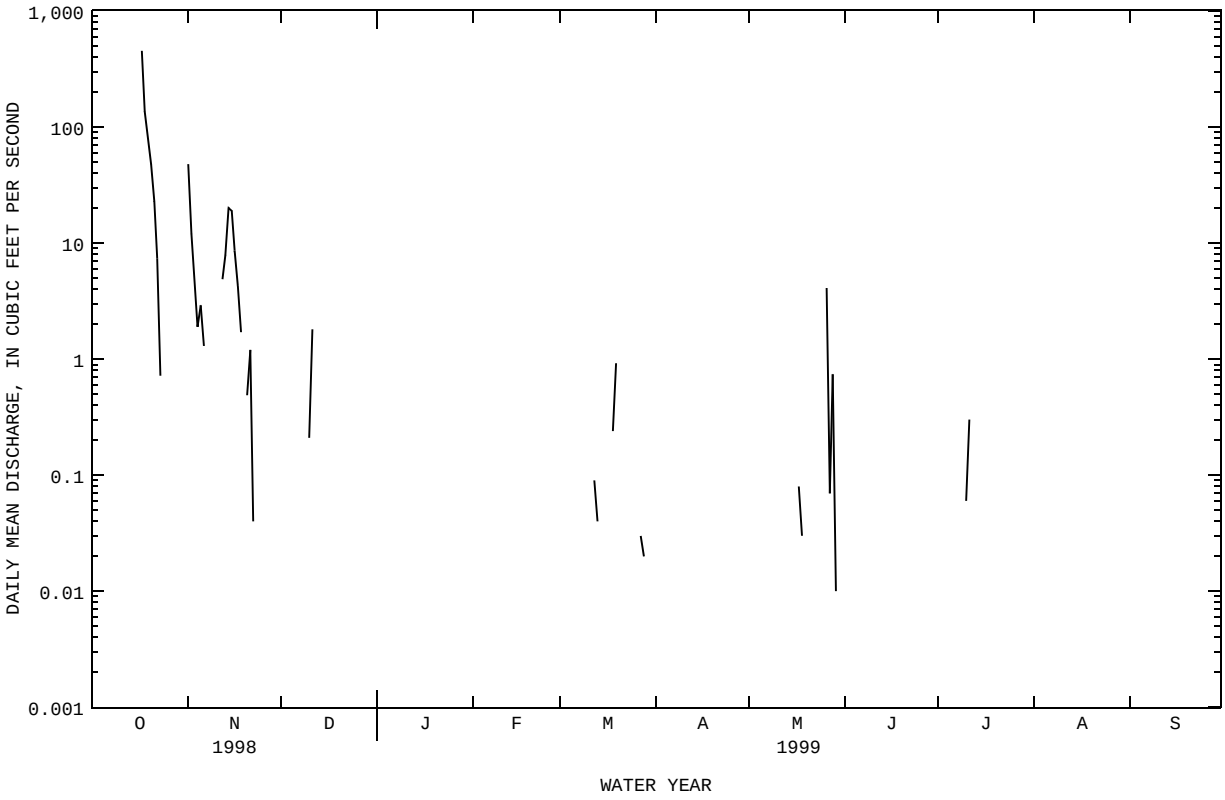
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	48	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	5.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	1.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	2.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	25	1.3	.00	.00	.00	.01	.00	.00	.00	.01	.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	.21	.00	.00	.00	.00	.03	.00	.06	.00	.00
11	.00	.00	1.8	.00	.00	.00	.00	.00	.00	.30	.00	.00
12	.00	4.9	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00
13	.00	7.9	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00
14	.00	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	19	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
16	.00	8.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	455	4.3	.00	.00	.00	.00	.00	.08	.00	.03	.00	.00
18	136	1.7	.00	.00	.00	.24	.00	.03	.00	.00	.00	.00
19	74	.00	.00	.00	.00	.92	.00	.00	.00	.00	.00	.00
20	48	.49	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
21	23	1.2	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00
22	7.4	.04	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
23	.72	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	4.1	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.03	.00	.07	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.02	.00	.74	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.01	.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	769.12	139.33	2.01	0.00	0.00	1.35	0.00	5.07	0.17	0.44	0.00	0.00
MEAN	24.8	4.64	.065	.000	.000	.044	.000	.16	.006	.014	.000	.000
MAX	455	48	1.8	.00	.00	.92	.00	4.1	.11	.30	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1530	276	4.0	.00	.00	2.7	.00	10	.3	.9	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

MEAN	4.97	.81	.61	.31	2.67	.88	.55	2.82	2.57	.004	.087	.032
MAX	24.8	4.64	2.38	1.76	15.9	4.88	3.48	10.3	13.1	.014	.55	.14
(WY)	1999	1999	1995	1998	1998	1998	1997	1997	1997	1999	1994	1994
MIN	.000	.001	.000	.000	.000	.000	.000	.004	.001	.000	.000	.000
(WY)	1997	1994	1996	1994	1999	1996	1999	1998	1994	1993	1999	1993

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1993 - 1999	
ANNUAL TOTAL	1564.01		917.49			
ANNUAL MEAN	4.28		2.51		1.44	
HIGHEST ANNUAL MEAN					2.51	1999
LOWEST ANNUAL MEAN					.039	1996
HIGHEST DAILY MEAN	455	Oct 17	455	Oct 17	455	Oct 17 1998
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Mar 11 1993
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 10	.00	Oct 7	.00	Mar 11 1993
INSTANTANEOUS PEAK FLOW			2700	Oct 17	2700	Oct 17 1998
INSTANTANEOUS PEAK STAGE			7.10	Oct 17	7.10	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	3100		1820		1040	
10 PERCENT EXCEEDS	4.0		.04		.03	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

08158922 WILLIAMSON CREEK AT BRUSH COUNTRY BOULEVARD, OAK HILL, TX--Continued



08158922 WILLIAMSON CREEK AT BRUSH COUNTRY BOULEVARD, OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1993 to current year.
BIOCHEMICAL DATA: Oct 1993 to current year.

INSTRUMENTATION.--Stage-activated automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)
MAY 26-27	1825	9.6	149	7.7	50	40	29	6.9	K7200	K4400	50

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAY 26-27	97	24	73	.451	.015	.466	.108	1.9	1.4	1.5	.187

DATE	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
MAY 26-27	.067	.060	.18	27	85	2.2	100	<1	5	7	E20

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08159000 ONION CREEK AT U.S. HIGHWAY 183, AUSTIN, TX

LOCATION.--Lat 30°10'40", long 97°41'18", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of downstream bridge on U.S. Highway 183, 2.4 mi downstream from Williamson Creek, 3.2 mi southwest of Del Valle, and 7.5 mi southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--321 mi^2.

PERIOD OF RECORD.--May 1924 to Mar 1930 station was published as "near Del Valle", Mar 1976 to current year.
Water-quality records.--Chemical data: Oct 1976 to Sep 1988. Biochemical data: Oct 1976 to Sep 1988. Radiochemical data: Jan 1980. Pesticide data: Oct 1976 to Sep 1986. Sediment data: Oct 1976 to Sep 1982.

GAGE.--Water-stage recorder. Datum of gage is 442.85 ft above sea level (Texas Department of Transportation datum). May 15, 1924 to Mar 15, 1930, nonrecording gage at highway bridge 1,700 ft upstream at 6.42 ft higher datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. Flow is slightly affected by several small ponds on main channel and tributaries above station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about Jul 3, 1869, stage about 38 ft, from newspaper accounts, and Sep 9, 1921, stage 38.0 ft, from floodmark, present site and datum.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	1830	53,900	32.36	Nov 1	2045	3,250	12.31

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1530	147	76	19	24	32	5.1	10	2.2	.00	.00
2	1.6	792	139	86	18	23	30	5.1	6.9	1.7	.00	.00
3	1.5	425	128	56	18	21	27	5.2	5.0	1.8	.04	.00
4	1.7	353	140	49	19	22	24	5.2	3.4	1.9	6.7	.00
5	1.4	366	120	44	19	23	22	4.9	3.0	2.9	.71	.00
6	449	352	110	43	22	26	21	4.4	3.2	3.0	.00	.00
7	38	348	101	40	24	25	17	4.0	2.6	2.3	.00	.00
8	18	353	87	35	27	27	16	3.9	2.8	2.0	.00	.00
9	12	311	82	15	28	35	14	3.6	2.8	1.9	.00	.00
10	5.7	288	126	11	27	30	13	44	2.8	49	.00	.00
11	4.2	241	173	9.1	28	30	11	32	2.5	130	.00	.00
12	3.4	252	110	7.9	24	56	9.1	13	2.6	21	.00	.00
13	3.2	440	81	8.6	23	173	9.1	8.6	2.6	6.3	.00	.00
14	3.1	567	71	9.2	24	35	9.9	7.1	12	3.3	.00	.00
15	3.1	746	78	9.0	21	19	9.0	6.3	93	2.5	.00	.00
16	3.1	517	92	7.3	24	14	7.5	5.2	142	2.3	.00	.00
17	18600	447	99	7.2	24	13	7.1	6.3	27	3.7	.00	.00
18	12700	401	96	8.8	24	42	7.1	163	8.6	29	.00	.00
19	2190	393	95	9.5	26	651	7.2	24	4.1	5.0	.00	.00
20	1860	393	95	11	26	114	7.1	10	41	3.7	.00	.00
21	1170	343	90	13	26	66	6.4	6.3	48	90	.00	.00
22	900	310	85	16	23	52	6.2	4.3	22	66	.00	.00
23	777	282	78	15	21	45	6.2	5.7	14	16	.00	.00
24	638	265	77	17	22	40	5.9	6.4	6.7	6.2	.00	.00
25	517	246	79	17	23	37	7.6	75	8.6	4.5	.00	.00
26	432	228	76	17	23	35	23	94	20	3.8	.00	.00
27	355	209	73	16	25	33	22	79	8.7	1.3	.00	.00
28	309	204	68	16	24	101	9.6	118	5.4	.00	.00	.00
29	273	202	63	19	---	55	6.8	69	3.9	.00	.00	.00
30	235	196	64	26	---	39	5.8	28	3.4	.00	.00	.00
31	210	---	58	23	---	34	---	17	---	.00	.00	---
TOTAL	41716.6	12000	2981	737.6	652	1940	399.6	863.6	518.6	463.30	7.45	0.00
MEAN	1346	400	96.2	23.8	23.3	62.6	13.3	27.9	17.3	14.9	.24	.000
MAX	18600	1530	173	86	28	651	32	163	142	130	6.7	.00
MIN	1.4	196	58	7.2	18	13	5.8	3.6	2.5	.00	.00	.00
AC-FT	82740	23800	5910	1460	1290	3850	793	1710	1030	919	15	.00
CFSM	4.19	1.25	.30	.07	.07	.19	.04	.09	.05	.05	.00	.00
IN.	4.83	1.39	.35	.09	.08	.22	.05	.10	.06	.05	.00	.00

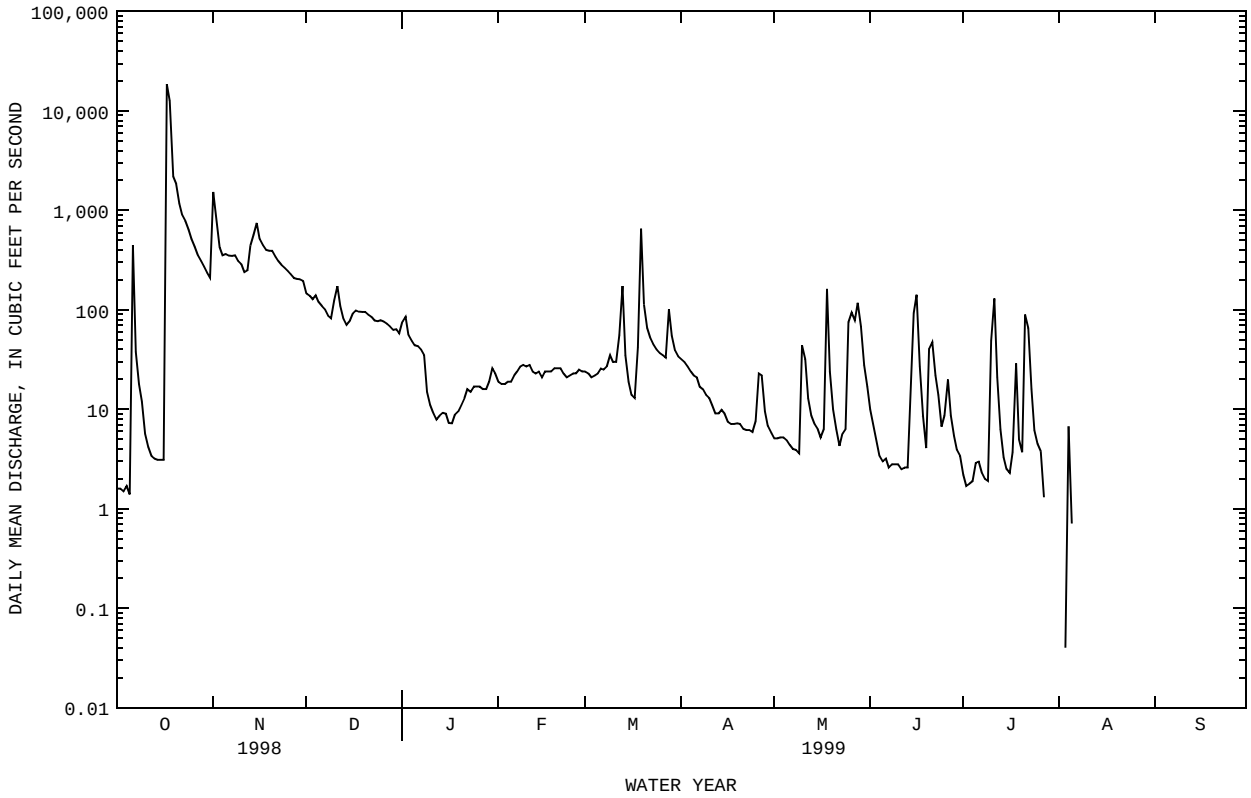
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1999h, BY WATER YEAR (WY)

MEAN	84.6	38.1	95.9	52.9	81.4	84.5	106	181	243	33.2	7.21	8.75
MAX	1346	400	1526	487	908	576	847	1767	2305	133	47.6	48.0
(WY)	1999	1999	1992	1992	1992	1992	1926	1929	1981	1981	1983	1986
MIN	.000	.27	.000	.002	1.65	1.80	1.39	1.40	.010	.000	.000	.000
(WY)	1929	1994	1990	1990	1925	1996	1994	1984	1925	1925	1925	1988

08159000 ONION CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1924 - 1999h	
ANNUAL TOTAL	71754.31		62279.75			
ANNUAL MEAN	197		171		83.7	
HIGHEST ANNUAL MEAN					379	1992
LOWEST ANNUAL MEAN					1.49	1925
HIGHEST DAILY MEAN	18600	Oct 17	18600	Oct 17	30500	May 28 1929
LOWEST DAILY MEAN	.00	Jun 3	.00	Jul 28	.00	Jun 3 1925
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 3	.00	Aug 6	.00	Jun 3 1925
INSTANTANEOUS PEAK FLOW			53900	Oct 17	76000	May 28 1929
INSTANTANEOUS PEAK STAGE			32.36	Oct 17	32.36	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	142300		123500		60640	
ANNUAL RUNOFF (CFSM)	.61		.53		.26	
ANNUAL RUNOFF (INCHES)	8.32		7.22		3.54	
10 PERCENT EXCEEDS	337		268		132	
50 PERCENT EXCEEDS	12		17		6.3	
90 PERCENT EXCEEDS	.00		.00		.00	

h See PERIOD OF RECORD paragraph.



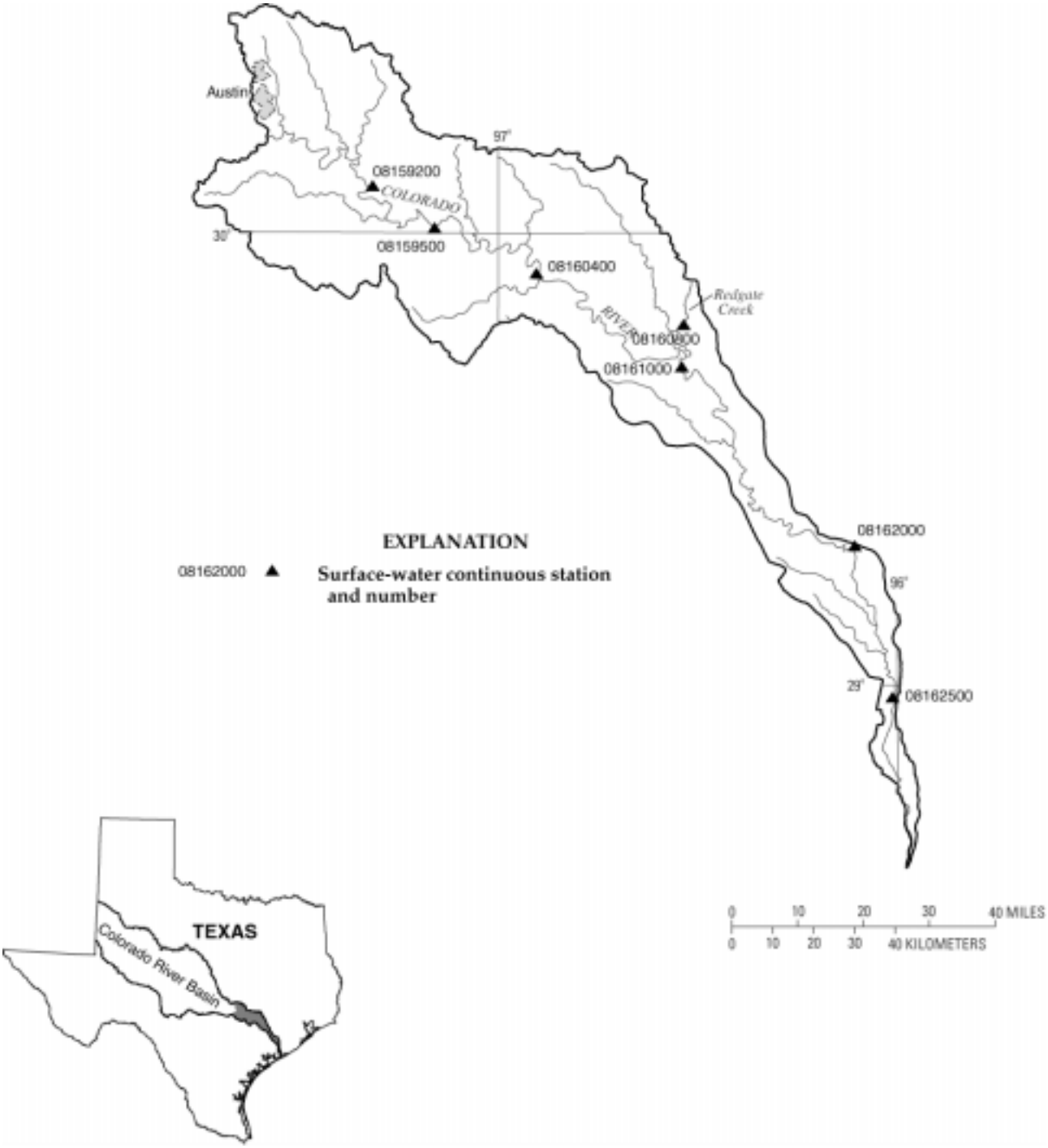


Figure 8.--Map showing location of gaging stations in the fifth section of the Colorado River Basin

08159200 COLORADO RIVER AT BASTROP, TX

LOCATION.--Lat 30°06'16", long 97°19'09", Bastrop County, Hydrologic Unit 12090301, at the downstream side of bridge on State Highway 71 bridge, at Bastrop, 0.3 mi upstream from Gills Branch, 1.2 mi downstream from Piney Creek, and at mile 236.6.

DRAINAGE AREA.--39,979 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Oct 1973 to Sep 1975, daily discharges estimated by hydrographic comparison with Colorado River at Austin (station 08158000) and Colorado River near Smithville (station 08159500), Mar 1960 to current year.
Water-quality records.--Chemical data: Mar 1944, Feb 1968 to Sep 1994. Biochemical data: Feb 1968 to Sep 1994. Specific conductance: Nov 1986 to Sep 1994. pH: Nov 1986 to Sep 1994. Water temperature: Nov 1986 to Sep 1994. Dissolved oxygen: Nov 1986 to Sep 1994.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.38 ft above sea level. Prior to May 10, 1960, nonrecording gage at a site 400 ft upstream from present site and at same datum. May 10, 1960 to Sep 30, 1973, Oct 1, 1975 to Oct 28, 1986, at a site 400 ft upstream from present site and at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in 1960, at least 10% of contributing drainage area has been regulated by Town Lake, Lake Austin, Lake Travis, and other reservoirs. There are many diversions above station for irrigation and for municipal supply. The city of Austin diverts water into Decker Lake (by pumpage) upstream from this station. The Lower Colorado River Authority also diverts water from the Colorado into Lake Bastrop (by pumpage) upstream from this station.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. USGS maintains stage discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft Jul 7 or 8, 1869. Flood of Jun 16, 1935, reached a stage of 57.0 ft, and flood of Dec 4, 1913, reached a stage of 53.3 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

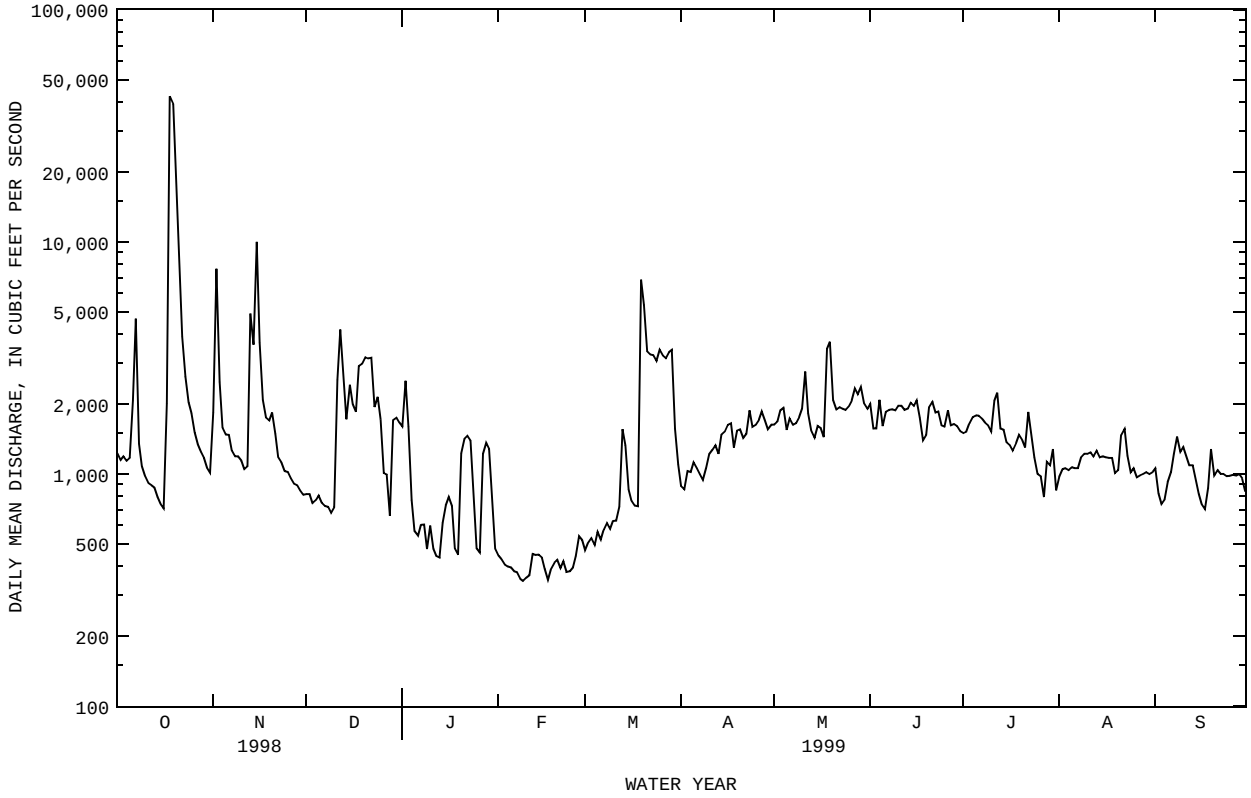
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	1840	820	1600	445	470	886	1630	2010	1500	975	1060
2	1150	7650	818	2520	429	508	858	1680	1570	1520	1050	823
3	1190	2490	750	1600	407	530	1030	1880	1570	1660	1060	745
4	1140	1580	770	773	400	495	1020	1930	2090	1760	1040	778
5	1170	1480	808	566	395	562	1120	1550	1610	1790	1070	926
6	2070	1470	752	541	380	521	1060	1730	1860	1780	1060	1020
7	4660	1260	729	604	377	576	1000	1630	1890	1730	1060	1220
8	1350	1190	722	606	354	615	941	1660	1900	1670	1180	1450
9	1080	1190	680	475	346	579	1060	1760	1880	1620	1220	1250
10	979	1140	720	600	358	627	1220	1910	1970	1520	1220	1310
11	915	1050	2540	476	366	629	1270	2760	1970	2070	1240	1190
12	894	1080	4190	443	452	724	1330	1830	1890	2240	1190	1090
13	875	4920	2610	436	448	1560	1220	1530	1910	1570	1260	1090
14	797	3600	1720	617	450	1330	1480	1430	2030	1550	1180	951
15	739	9990	2430	735	436	858	1520	1610	1970	1370	1190	820
16	710	3670	2000	795	390	765	1630	1580	2080	1330	1180	739
17	2010	2090	1850	727	350	730	1660	1440	1750	1260	1170	705
18	42400	1750	2930	477	391	725	1300	3460	1400	1360	1170	873
19	39200	1700	2990	449	415	6880	1540	3710	1480	1470	1010	1280
20	14300	1840	3190	1230	426	5350	1560	2080	1950	1400	1040	986
21	6660	1490	3150	1420	393	3370	1430	1900	2050	1300	1470	1040
22	3910	1180	3170	1460	420	3270	1490	1940	1840	1850	1570	1000
23	2630	1120	1940	1390	378	3250	1880	1910	1860	1450	1200	999
24	2040	1030	2150	760	381	3070	1600	1890	1620	1180	1020	977
25	1830	1020	1720	477	396	3430	1630	1950	1600	1000	1060	982
26	1510	960	1010	458	444	3240	1710	2070	1880	979	968	989
27	1340	909	998	1220	539	3160	1860	2340	1620	795	986	984
28	1240	894	660	1360	518	3350	1700	2210	1640	1130	1000	1000
29	1170	852	1710	1280	---	3430	1560	2370	1610	1090	1020	961
30	1060	813	1750	778	---	1570	1630	2010	1530	1280	1000	839
31	1010	---	1670	476	---	1100	---	1910	---	851	1020	---
TOTAL	143259	63248	53947	27349	11484	57274	41195	61290	54030	45075	34879	30077
MEAN	4621	2108	1740	882	410	1848	1373	1977	1801	1454	1125	1003
MAX	42400	9990	4190	2520	539	6880	1880	3710	2090	2240	1570	1450
MIN	710	813	660	436	346	470	858	1430	1400	795	968	705
AC-FT	284200	125500	107000	54250	22780	113600	81710	121600	107200	89410	69180	59660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	1453	1258	1492	1703	2170	2354	2539	3465	4531	2606	1893	1724
MAX	6380	11330	14770	17490	29140	16910	11080	10420	23620	12750	3705	4930
(WY)	1974	1975	1992	1992	1992	1992	1977	1975	1987	1997	1961	1974
MIN	291	94.6	111	109	138	131	565	1471	1489	1302	1125	1003
(WY)	1965	1964	1964	1964	1964	1964	1962	1962	1993	1967	1999	1999

08159200 COLORADO RIVER AT BASTROP, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	979916		623107			
ANNUAL MEAN	2685		1707		2265	
HIGHEST ANNUAL MEAN					9073	1992
LOWEST ANNUAL MEAN					828	1964
HIGHEST DAILY MEAN	42400	Oct 18	42400	Oct 18	65800	Dec 22 1991
LOWEST DAILY MEAN	547	Jan 5	346	Feb 9	75	Apr 1 1964
ANNUAL SEVEN-DAY MINIMUM	740	Dec 4	368	Feb 5	84	Oct 19 1964
INSTANTANEOUS PEAK FLOW			56500	Oct 18	79600	Oct 29 1960
INSTANTANEOUS PEAK STAGE			32.27	Oct 18	37.48	Dec 22 1991
ANNUAL RUNOFF (AC-FT)	1944000		1236000		1641000	
10 PERCENT EXCEEDS	4130		2450		4230	
50 PERCENT EXCEEDS	2050		1240		1570	
90 PERCENT EXCEEDS	870		488		254	



08159500 COLORADO RIVER AT SMITHVILLE, TX

LOCATION.--Lat 30°00'45", long 97°09'42", Bastrop County, Hydrologic Unit 12090301, on right bank 28 ft downstream from bridge on Business State Highway 71 in Smithville, 500 ft below mouth of Gazley Creek, 3.9 mi below mouth of Alum Creek, and at mile 212.1.

DRAINAGE AREA.--40,371 mi^2 approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jul 1930 to Sep 1975, Oct 1997 to current year. Gage-height records collected in this vicinity since 1920 are contained in reports of the National Weather Service.
Water-quality records.--Chemical data: Oct 1973 to Sep 1975. Biological data: Oct 1973 to Sep 1975.

REVISED RECORDS.--WSP 1342: Drainage are. WSP 1562: 1934. WSP 1712: 1953, 1954(M), 1957-58.

GAGE.--Water-stage recorder. Datum of gage is 270.14 ft above sea level. Prior to Apr 9, 1931, nonrecording gage at same site and datum. Apr 9, 1931 to Sep 2, 1971, water-stage recorder at site 360 ft downstream at same datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in 1930, at least 10% of contributing drainage area has been regulated by Town Lake (station 08157900), Lake Austin (station 08154900), Lake Travis (station 08154500), and many other reservoirs (combined normal storage of greater than 4,000,000 acre-ft). At times, low-flow releases from Lake Travis are made for generation of electric power and to fulfill downstream watercontracts. There are many diversions above station for irrigation and municipal supply.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, occurred Jul 8, 1869, and was several feet higher than flood of Dec 4, 1913, which reached a stage of 47.4 ft and was the highest since 1869, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96,700 ft^3/s, Oct 18 (gage height, 34.75 ft); minimum discharge, 441 ft^3/s, Feb 18 (gage height, 1.76 ft).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	e3000	1130	2060	585	592	1330	1910	2650	1850	1100	1170
2	1250	e8000	1130	2600	551	574	1050	1910	1950	1840	1220	1210
3	1250	e4000	1060	2390	526	622	1280	2080	1820	1910	1280	876
4	1220	2370	1010	1620	513	601	1280	2220	2770	2020	1250	812
5	1230	1960	1050	987	506	631	1350	2040	1720	2080	1270	840
6	1500	2040	1060	e780	494	677	1360	1920	2090	2090	1280	1100
7	5490	1770	e1010	e670	489	629	1340	1970	2250	2000	1270	1150
8	2140	1640	e940	e740	478	759	1190	1950	2250	2030	1270	1460
9	1330	1610	e899	733	455	776	1190	1990	2240	1900	1390	1490
10	1190	1590	e940	718	452	773	1340	2150	2300	1880	1410	1390
11	1060	1470	2060	732	464	801	1460	2850	2310	1960	1420	1390
12	1010	1630	5670	589	491	886	1570	2380	2270	2650	1400	1290
13	986	6570	e3900	563	553	1300	1580	2010	2270	2050	1420	1230
14	947	8150	e2850	682	519	2040	1540	1770	2320	1820	1420	1240
15	879	13600	2530	984	552	1350	1760	1780	2370	1750	1370	1020
16	788	8680	2610	1100	502	1110	1990	1940	2270	1660	1390	882
17	2000	3180	2390	1160	470	1030	1970	1790	2570	1580	1370	775
18	60000	2640	2830	834	460	987	1520	2350	1720	1550	1380	735
19	80900	2320	3320	621	479	3500	1770	5320	1850	1680	1330	1160
20	43900	2330	3470	998	528	7470	1830	2660	2010	1700	1250	1270
21	16500	2210	3460	1830	497	3920	1630	2290	2390	1690	1330	1130
22	6480	1780	3470	1850	497	3550	1750	2330	2310	1700	1710	1150
23	4070	1590	2980	1850	506	3500	2020	2310	2190	2060	1650	1120
24	3150	1500	2080	1540	471	3190	1890	2310	2070	1550	1310	1110
25	2620	1430	2640	865	490	3810	1880	2510	1970	1420	1200	1090
26	2330	1390	1670	634	495	3490	1950	2370	2180	1240	1150	1090
27	2010	1310	1450	1040	586	3470	2040	2580	2030	1210	1170	1080
28	1840	1280	1300	1710	661	3460	2080	2650	1990	1100	1190	1090
29	1750	1260	1530	1780	---	3830	1900	3170	1960	1260	1170	1100
30	1600	1160	2110	1440	---	2670	1840	2580	1900	1450	1170	1080
31	1490	---	2090	836	---	1560	---	2400	---	1310	1170	---
TOTAL	254220	93460	66639	36936	14270	63558	48680	72490	64990	53990	40710	33530
MEAN	8201	3115	2150	1191	510	2050	1623	2338	2166	1742	1313	1118
MAX	80900	13600	5670	2600	661	7470	2080	5320	2770	2650	1710	1490
MIN	788	1160	899	563	452	574	1050	1770	1720	1100	1100	735
AC-FT	504200	185400	132200	73260	28300	126100	96560	143800	128900	107100	80750	66510

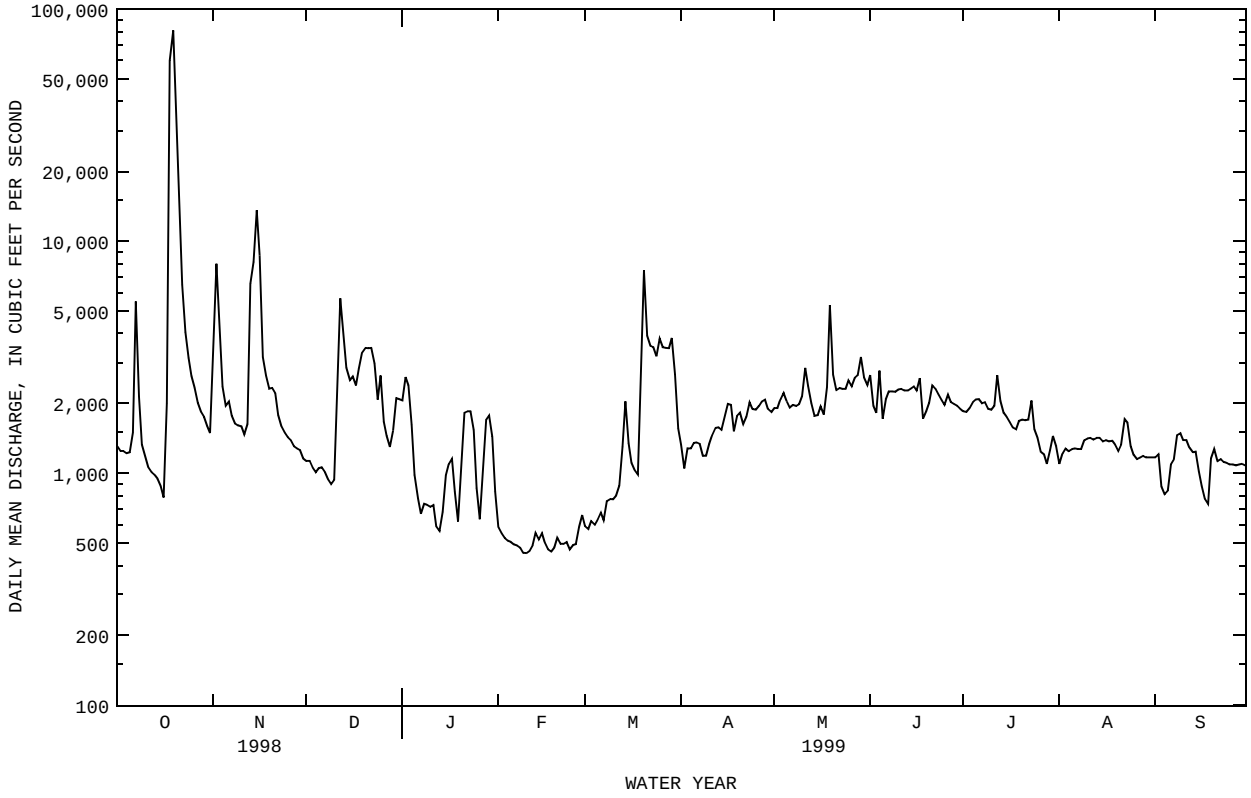
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1999, BY WATER YEAR (WY)

MEAN	2924	1940	1707	1900	2194	2041	2548	4519	4235	3500	1935	3016
MAX	20380	13480	5738	7823	8516	7292	11300	27980	31510	31310	7303	38090
(WY)	1931	1975	1941	1968	1958	1958	1941	1957	1935	1938	1938	1936
MIN	117	133	129	133	145	176	471	1088	391	852	240	337
(WY)	1935	1964	1964	1964	1964	1964	1952	1942	1934	1933	1930	1934

08159500 COLORADO RIVER AT SMITHVILLE, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1930 - 1999	
ANNUAL TOTAL	1121394		843473			
ANNUAL MEAN	3072		2311		2713	
HIGHEST ANNUAL MEAN					6780	1935
LOWEST ANNUAL MEAN					794	1952
HIGHEST DAILY MEAN	80900	Oct 19	80900	Oct 19	219000	Jun 16 1935
LOWEST DAILY MEAN	774	Jan 5	452	Feb 10	79	Nov 1 1934
ANNUAL SEVEN-DAY MINIMUM	980	Oct 10	475	Feb 6	84	Oct 27 1934
INSTANTANEOUS PEAK FLOW			96700	Oct 18	305000	Jun 16 1935
INSTANTANEOUS PEAK STAGE			34.75	Oct 18	42.50	Jun 16 1935
ANNUAL RUNOFF (AC-FT)	2224000		1673000		1966000	
10 PERCENT EXCEEDS	4530		2900		4850	
50 PERCENT EXCEEDS	2020		1550		1640	
90 PERCENT EXCEEDS	1130		633		340	

e Estimated



08160400 COLORADO RIVER ABOVE LAGRANGE, TX

LOCATION.--Lat 29°54'44", long 96°54'13", Fayette County, Hydrologic Unit 12090301, at right downstream end of bridge on new State Highway 71, 1.4 mi upstream from Buckners Creek, and at mile 177.

DRAINAGE AREA.--40,874 mi^2, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--1979-82 (discharge measurements only), Apr 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 210.04 ft above sea level. Dec 12, 1979 to Sep 30, 1982, discharge measurements only were made at old State Highway 71 bridge, 1.0 mi downstream and at different datum. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Ne estimated daily discharge. Records good. Since installation of gage, at least 10% of contributing drainage area has been regulated by Town Lake (station 08157900), Lake Austin (station 08154900), Lake Travis (station 08154500), and many other reservoirs (combined normal storage of greater than 4,000,000 acre-ft). At times, low-flow releases from Lake Travis are made for generation of electric power and to fulfill downstream water contracts. There are many diversions above station for irrigation and municipal supply. One observation of water temperature was made during the year.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage discharge relation at low stages. U.S. Geological Survey maintains stage discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, about 56.7 ft on Jul 9, 1869 (from marble high-water marker in LaGrange). Stages of other floods are as follows: Dec 5, 1913, 56.4 ft, from floodmark; Jun 17, 1935, 50.84 ft, from floodmarks (discharge 255,000 ft^3/s from rating curve extended above 200,000 ft^3/s); Jul 27, 1938, 42.95 ft (discharge, 200,000 ft^3/s). This data was collected at a site 2.6 mi downstream at streamflow station and published as Colorado River at LaGrange at datum different than at present site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

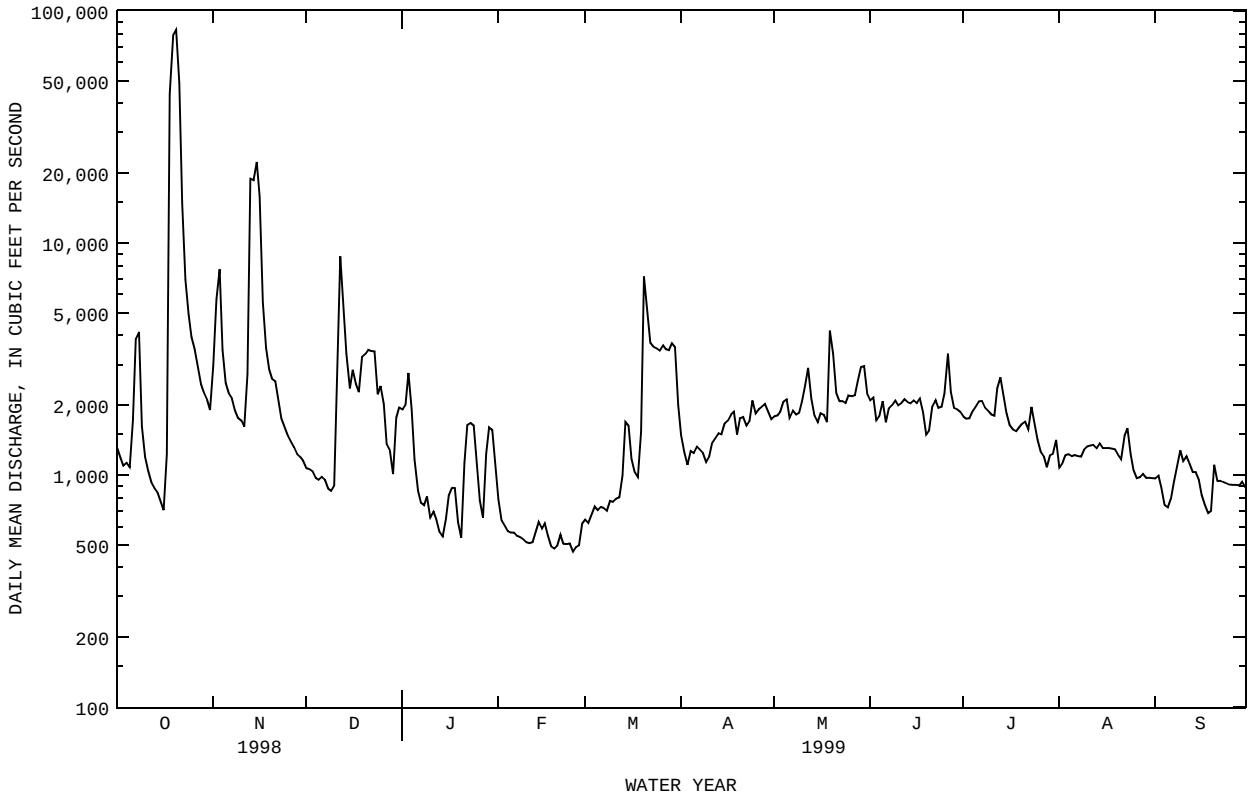
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	2950	1070	1920	790	645	1490	1790	2100	1790	1080	967
2	1190	5740	1060	2020	637	623	1260	1810	2160	1750	1130	995
3	1100	7720	1040	2760	604	670	1110	1880	1730	1760	1220	883
4	1130	3480	974	1930	575	731	1270	2080	1810	1890	1230	742
5	1080	2490	954	1170	566	706	1250	2130	2090	1980	1210	727
6	1720	2240	983	857	565	728	1330	1770	1690	2080	1220	794
7	3880	2150	955	762	547	721	1290	1900	1940	2090	1210	935
8	4150	1900	878	743	541	702	1250	1830	2000	1960	1200	1090
9	1630	1770	856	809	531	774	1140	1860	2100	1900	1290	1280
10	1200	1720	905	659	515	769	1210	2090	2000	1830	1330	1150
11	1040	1620	3620	699	509	792	1380	2450	2050	1800	1340	1210
12	929	2730	8780	646	514	801	1450	2900	2130	2370	1350	1130
13	879	19000	5400	570	564	1000	1520	2140	2070	2640	1310	1030
14	841	18700	3350	545	629	1690	1500	1800	2040	2210	1370	1030
15	769	22400	2370	646	590	1630	1670	1690	2100	1850	1310	954
16	707	15900	2850	817	622	1180	1720	1850	2050	1640	1310	819
17	1230	5560	2470	883	547	1030	1830	1820	2150	1580	1310	743
18	43900	3540	2280	879	494	979	1880	1690	1870	1550	1300	686
19	79100	2850	3240	628	483	1540	1500	4200	1500	1610	1290	702
20	83300	2600	3330	538	497	7170	1760	3350	1560	1670	1220	1110
21	48900	2540	3470	1130	554	5040	1780	2260	1980	1700	1170	942
22	14800	2130	3430	1650	506	3710	1640	2080	2110	1580	1480	947
23	6970	1750	3410	1680	505	3580	1720	2090	1950	1970	1590	933
24	4950	1610	2230	1640	507	3520	2100	2050	1970	1680	1230	923
25	3930	1480	2420	1160	469	3450	1850	2200	2250	1420	1050	910
26	3490	1400	2030	780	490	3630	1930	2190	3340	1260	972	908
27	2930	1320	1360	657	500	3490	1970	2210	2290	1200	978	906
28	2460	1230	1280	1240	620	3460	2030	2540	1950	1080	1010	903
29	2260	1200	1010	1610	---	3700	1890	2920	1930	1220	974	938
30	2110	1150	1770	1570	---	3560	1740	2950	1880	1240	974	887
31	1910	---	1960	1170	---	2010	---	2230	---	1420	972	---
TOTAL	325795	142870	71735	34768	15471	64031	47460	68750	60790	53720	37630	28174
MEAN	10510	4762	2314	1122	553	2066	1582	2218	2026	1733	1214	939
MAX	83300	22400	8780	2760	790	7170	2100	4200	3340	2640	1590	1280
MIN	707	1150	856	538	469	623	1110	1690	1500	1080	972	686
AC-FT	646200	283400	142300	68960	30690	127000	94140	136400	120600	106600	74640	55880

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

MEAN	2099	872	2429	2899	4093	4186	3016	3510	4735	2934	1706	1568
MAX	10510	4762	16350	18640	31160	18080	7333	8290	15180	12900	2096	1902
(WY)	1999	1999	1992	1992	1992	1992	1997	1992	1997	1997	1992	1992
MIN	476	244	248	247	356	403	987	1915	1989	1543	1214	939
(WY)	1997	1989	1990	1990	1990	1990	1990	1988	1993	1996	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	1307416		951194			
ANNUAL MEAN	3582		2606		2867	
HIGHEST ANNUAL MEAN					9913	1992
LOWEST ANNUAL MEAN					1157	1990
HIGHEST DAILY MEAN	83300	Oct 20	83300	Oct 20	84000	Dec 23 1991
LOWEST DAILY MEAN	489	Jan 5	469	Feb 25	167	Dec 21 1989
ANNUAL SEVEN-DAY MINIMUM	640	Jan 26	503	Feb 19	170	Dec 16 1989
INSTANTANEOUS PEAK FLOW			89800	Oct 20	89800	Oct 20 1998
INSTANTANEOUS PEAK STAGE			45.47	Oct 20	45.47	Oct 20 1998
ANNUAL RUNOFF (AC-FT)	2593000		1887000		2077000	
10 PERCENT EXCEEDS	6050		3440		4940	
50 PERCENT EXCEEDS	2250		1550		1520	
90 PERCENT EXCEEDS	999		658		389	

08160400 COLORADO RIVER ABOVE LAGRANGE, TX--Continued



08160800 REDGATE CREEK NEAR COLUMBUS, TX

LOCATION.--Lat 29°47'56", long 96°31'55", Colorado County, Hydrologic Unit 12090301, on left bank at downstream side of bridge on Farm Road 109, 1.9 mi upstream from Cummins Creek, and 7.0 mi north of Columbus.

DRAINAGE AREA.--17.3 mi^2.

PERIOD OF RECORD.--Apr 1962 to current year.

REVISED RECORDS.--WSP 2122: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 210.82 ft above sea level. Prior to Oct 1, 1975, datum 10.00 ft higher. Satellite telemeter at station.

REMARKS.--Records poor. No known regulation or diversions.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, about 33.4 ft in late Jun or early Jul 1940, from information by Texas Department of Transportation and local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	0600	3,490	22.97	Nov 12	2330	2,420	20.31
Oct 19	0830	1,150	16.92	Nov 14	0800	1,590	18.18
Oct 19	1330	1,140	16.89	Nov 14	2330	1,030	16.56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	44	e7.2	e2.0	e1.8	1.8	1.6	.77	.68	.71	1.4	.82
2	1.8	24	e6.8	36	e1.8	1.6	1.6	.80	.62	.67	1.4	.93
3	2.2	13	e6.4	5.3	e1.8	1.4	2.3	.83	.54	.65	1.6	.95
4	2.6	10	e6.2	3.5	e1.7	1.4	2.6	.86	.50	.77	1.8	.94
5	3.8	e8.2	e6.1	2.7	e1.8	1.5	1.9	.80	.47	1.0	1.5	1.0
6	16	e7.0	e7.0	2.2	e1.8	1.5	1.5	.69	.44	.77	1.4	.91
7	4.8	e5.8	9.9	1.8	e1.8	1.5	1.4	.64	.44	.73	1.3	.90
8	2.7	e5.0	12	1.6	e1.9	1.5	1.3	.66	.45	.66	1.3	.91
9	1.8	e4.5	8.6	1.7	e1.9	1.5	1.3	.69	.69	.59	1.3	.81
10	1.6	e4.0	23	1.6	e2.0	1.4	1.3	1.5	.84	.59	1.2	.70
11	1.7	e3.6	80	1.5	e2.1	1.5	1.2	1.4	.66	3.7	1.2	.68
12	1.7	566	42	1.4	e2.0	1.6	1.2	.87	.78	2.2	1.2	.69
13	1.7	778	18	1.4	e2.0	7.8	1.0	.74	1.1	53	1.1	.63
14	1.7	631	13	1.8	e1.9	1.8	1.0	.69	.98	8.6	1.1	.59
15	1.7	325	10	1.8	e1.9	1.5	.93	.68	24	2.7	1.1	.51
16	1.7	145	8.5	1.4	e1.8	1.4	.95	.70	4.6	2.4	.99	.48
17	185	e100	e7.5	1.3	e1.8	1.4	.97	.64	1.1	2.2	1.0	.50
18	1150	e70	e6.8	1.5	1.7	1.3	.98	.73	.84	2.1	1.1	.58
19	614	e48	e6.2	1.5	1.7	2.5	.98	.66	.79	2.2	.97	.58
20	63	e32	e5.6	1.5	1.8	4.1	.98	.64	.77	2.3	.91	.53
21	24	e22	e4.8	1.8	1.8	1.7	.99	.64	.99	4.1	.87	.50
22	14	e18	e4.4	2.0	1.8	1.4	.92	.60	2.7	2.4	.92	.52
23	9.0	e16	e4.0	2.2	1.7	1.4	.85	.57	7.5	2.0	1.1	.50
24	6.6	e14	e3.8	2.0	1.7	1.4	.80	.56	2.0	1.8	1.1	.53
25	5.4	e13	e3.4	1.9	1.8	1.3	.82	.55	128	1.8	1.1	.57
26	4.7	e11	e3.4	2.3	1.9	1.3	.87	.52	7.9	1.7	.99	.57
27	4.4	e9.8	e4.0	2.3	2.3	1.3	.89	.65	1.9	1.6	.96	.53
28	4.5	e9.0	e4.6	2.2	2.2	5.2	.80	.77	1.3	1.6	.88	.70
29	4.4	e8.0	e3.8	e2.0	---	2.1	.81	.77	.94	1.6	.88	1.1
30	4.1	e7.8	e3.0	e1.9	---	1.8	.82	.76	.78	1.5	.87	.56
31	4.2	---	e2.4	e1.8	---	1.6	---	.90	---	1.5	.81	---
TOTAL	2146.8	2952.7	332.4	95.9	52.2	60.5	35.56	23.28	195.30	110.14	35.35	20.72
MEAN	69.3	98.4	10.7	3.09	1.86	1.95	1.19	.75	6.51	3.55	1.14	.69
MAX	1150	778	80	36	2.3	7.8	2.6	1.5	128	53	1.8	1.1
MIN	1.6	3.6	2.4	1.3	1.7	1.3	.80	.52	.44	.59	.81	.48
AC-FT	4260	5860	659	190	104	120	71	46	387	218	70	41
CFSM	4.00	5.69	.62	.18	.11	.11	.07	.04	.38	.21	.07	.04
IN.	4.62	6.35	.71	.21	.11	.13	.08	.05	.42	.24	.08	.04

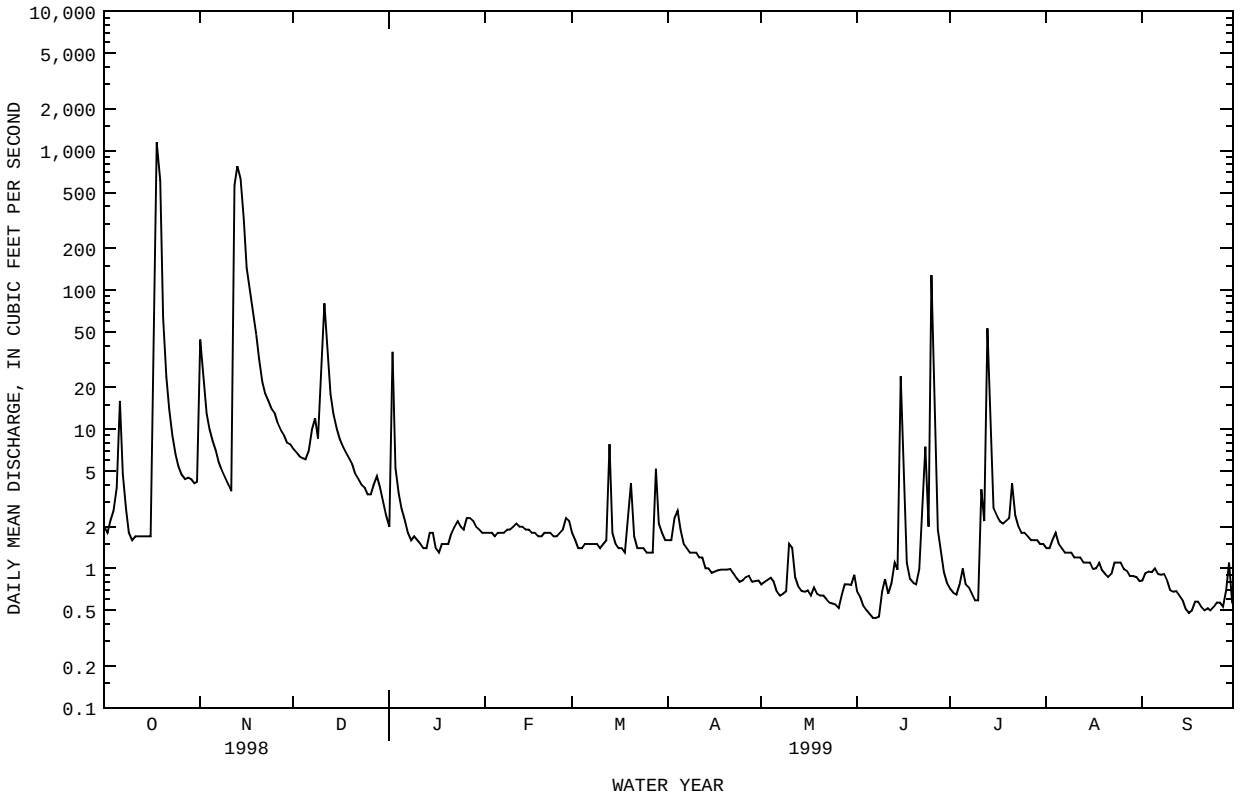
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, BY WATER YEAR (WY)

MEAN	6.71	5.04	4.90	6.77	8.03	6.37	7.44	12.0	9.64	1.08	1.24	3.36
MAX	69.3	98.4	25.4	31.9	67.5	38.1	39.9	55.5	83.4	4.44	17.4	38.5
(WY)	1999	1999	1992	1974	1992	1973	1991	1979	1993	1993	1974	1974
MIN	.000	.070	.25	.24	.21	.19	.24	.33	.065	.007	.000	.040
(WY)	1964	1967	1967	1967	1967	1967	1971	1971	1990	1971	1970	1963

08160800 REDGATE CREEK NEAR COLUMBUS, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1962 - 1999	
ANNUAL TOTAL	6458.54		6060.85			
ANNUAL MEAN	17.7		16.6		6.08	
HIGHEST ANNUAL MEAN					20.7	1992
LOWEST ANNUAL MEAN					.82	1964
HIGHEST DAILY MEAN	1150	Oct 18	1150	Oct 18	1180	Jun 13 1973
LOWEST DAILY MEAN	.02	Jul 27	.44	Jun 6	.00	Aug 7 1962
ANNUAL SEVEN-DAY MINIMUM	.02	Jul 27	.49	Jun 2	.00	Aug 7 1962
INSTANTANEOUS PEAK FLOW			3490	Oct 18	5360	May 22 1979
INSTANTANEOUS PEAK STAGE			22.97	Oct 18	27.19	May 22 1979
ANNUAL RUNOFF (AC-FT)	12810		12020		4400	
ANNUAL RUNOFF (CFSM)	1.02		.96		.35	
ANNUAL RUNOFF (INCHES)	13.89		13.03		4.77	
10 PERCENT EXCEEDS	11		10		5.3	
50 PERCENT EXCEEDS	1.7		1.6		.88	
90 PERCENT EXCEEDS	.13		.66		.10	

e Estimated



08161000 COLORADO RIVER AT COLUMBUS, TX

LOCATION.--Lat 29°42'22", long 96°32'12", Colorado County, Hydrologic Unit 12090302, near right bank at downstream side of pier of bridge on U.S. Highway 90 at eastern edge of Columbus, 340 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.6 mi downstream from Cummins Creek, and at mile 135.1.

DRAINAGE AREA.--41,640 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jan 1903 to Dec 1911 (gage heights only), May 1916 to current year. Discharge records for 1902-11, published in WSP 84, 99, 132, 174, 210, 288, and 308, have been found to be unreliable and should not be used. Records collected at site 23 mi downstream Oct 1930 to May 1939, published as "near Eagle Lake". Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.
Water-quality records.--Chemical data: Oct 1967 to Sep 1981. Biochemical data: Feb 1968 to Sep 1981. Sediment data: Mar 1957 to Sep 1973.

REVISED RECORDS.-- WSP 1562: 1920-21(M), 1922. WDR TX-81-3: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 145.52 ft above sea level. Prior to May 1, 1919, various nonrecording gages at sites in the immediate vicinity at datum 7.00 ft higher. May 1, 1919 to Nov 23, 1930, water-stage recorder at site about 300 ft downstream at datum 7.00 ft higher. Sep 17, 1930 to Jun 12, 1939 (Oct 1, 1930, to May 31, 1939, used herein), water-stage recorder at site 23 mi downstream at different datum. May 17 to Nov 14, 1939, nonrecording gage at present site and datum 10.00 ft higher; Nov 15, 1939 to Dec 31, 1988, water-stage recorder at present site and at datum 10.00 ft higher. Gage-height telemeter at station. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in May 1916, at least 10% of contributing drainage area has been regulated by Lake Austin (station 08154900, capacity 73,100 acre-ft). Flow is also affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft. These structures control runoff from 73.1 mi^2 in the Cummins Creek watershed. There are many other diversions above this station for irrigation and for municipal supply. Low-flow releases from Lake Travis, 251 mi upstream, are made for the generation of electric power to fulfill downstream water contracts.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage-discharge relation at low stages. U.S. Geological Survey maintains stage-discharge relation at medium to high stages, computes, and publishes streamflow record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 51.6 ft, present datum, in Jul 1869 and Dec 6, 1913, from information by local resident. River divided each time and left Columbus on an island.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1480	2900	1500	1950	1080	704	1430	1250	1840	1590	1160	911
2	1360	6040	1390	2830	945	718	1060	1310	1800	1480	964	910
3	1290	8500	1350	2740	898	691	912	1330	1530	1420	987	926
4	1220	6470	1330	2700	882	683	852	1400	1290	1420	1030	848
5	1230	3720	1260	1850	e859	705	908	1570	1650	1540	1030	772
6	1520	2900	1220	1220	e852	699	888	1580	1380	1630	1020	764
7	2420	2700	1340	1070	e837	711	921	1260	1290	1810	1020	810
8	4540	2520	1420	1020	e815	721	904	1380	1480	1750	1010	886
9	3050	2310	1240	996	e808	719	870	1310	1580	1620	1010	987
10	1690	2160	1300	1000	806	749	829	1430	1620	1520	1070	1080
11	1350	2090	2570	949	786	745	861	1780	1540	1560	1090	1010
12	1200	6520	11600	960	768	754	938	2200	1670	1550	1100	1040
13	1110	34400	9200	935	756	819	983	2250	1770	2260	1090	995
14	1060	37300	5300	912	761	880	1020	1610	1700	4240	1080	944
15	1020	36600	3770	898	777	1370	1010	1290	1660	2080	1110	941
16	965	28200	2970	937	760	1160	1110	1200	1830	1670	1060	882
17	1010	13900	3150	996	770	933	1200	1320	1610	1430	1060	805
18	31600	6580	2730	1010	744	873	1250	1240	1760	1370	1060	789
19	60700	5170	2700	992	724	1240	1220	1240	1340	1370	1050	764
20	64200	4370	3490	902	718	3070	1050	4160	1140	1430	1070	791
21	66300	4010	3610	866	724	7070	1170	2470	1190	1680	1040	996
22	54200	3740	3630	1160	741	4160	1190	1800	1610	1660	993	909
23	17500	3160	3600	1330	726	3370	1150	1670	1730	1380	1160	906
24	6790	2720	3350	1370	679	3220	1230	1640	1600	1730	1240	903
25	5200	2500	2180	1300	665	3010	1470	1660	5540	1380	1070	894
26	4310	2260	2600	1030	647	3270	1310	1770	8330	1220	964	885
27	3770	2090	1930	908	658	3200	1400	1710	3380	1110	922	879
28	3520	1900	1420	878	665	3280	1440	2660	2270	1050	919	878
29	3440	1750	1330	1190	---	3180	1540	2520	1820	968	932	902
30	3080	1630	1170	1410	---	3470	1370	2620	1680	1060	918	892
31	2810	---	1820	1290	---	2810	---	2610	---	1060	913	---
TOTAL	354935	241110	87470	39599	21851	58984	33486	55240	60630	49038	32142	26899
MEAN	11450	8037	2822	1277	780	1903	1116	1782	2021	1582	1037	897
MAX	66300	37300	11600	2830	1080	7070	1540	4160	8330	4240	1240	1080
MIN	965	1630	1170	866	647	683	829	1200	1140	968	913	764
AC-FT	704000	478200	173500	78540	43340	117000	66420	109600	120300	97270	63750	53350

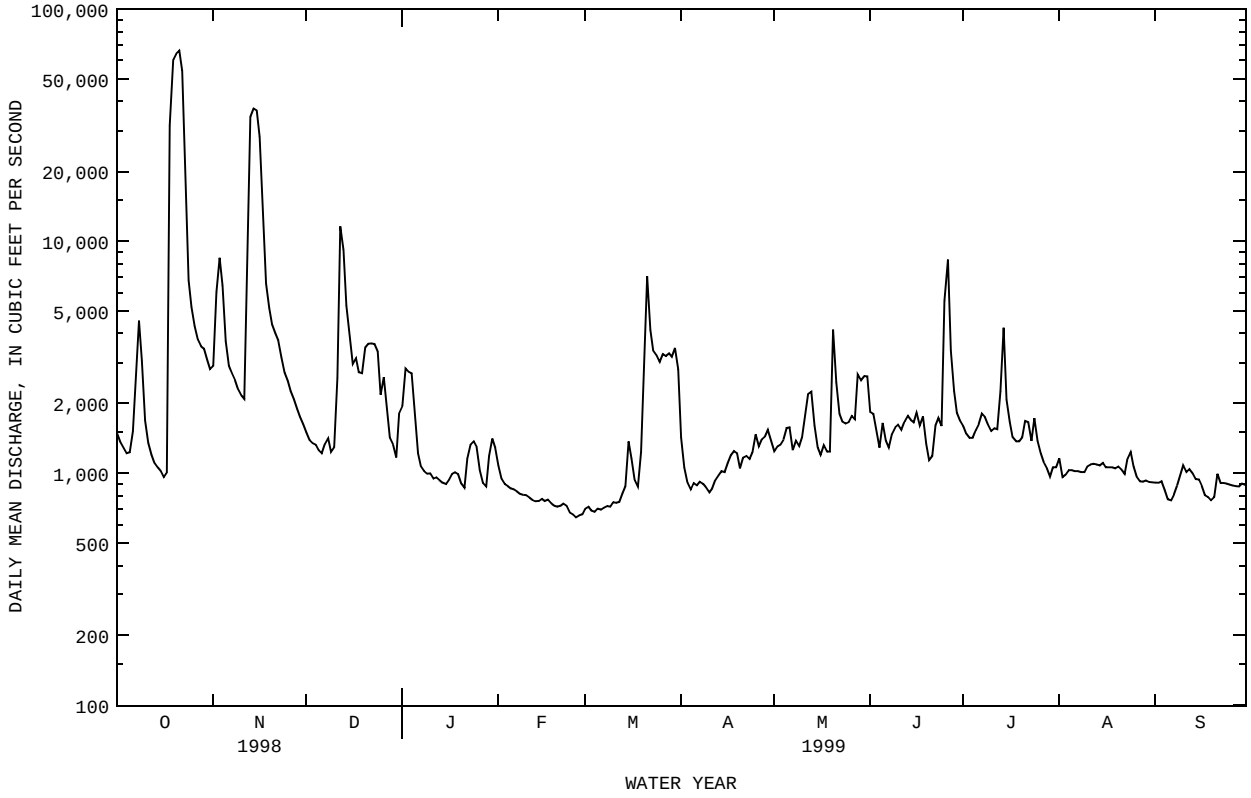
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 1999, BY WATER YEAR (WY)

MEAN	3040	2328	2131	2375	2688	2557	3538	5468	5327	3295	1939	2895
MAX	25310	13360	16450	19800	33800	20220	17350	40630	30060	25710	10030	32690
(WY)	1937	1975	1992	1992	1992	1992	1922	1922	1935	1938	1938	1936
MIN	204	197	162	182	203	275	308	1257	574	569	128	347
(WY)	1935	1918	1964	1964	1967	1952	1925	1937	1934	1933	1917	1934

08161000 COLORADO RIVER AT COLUMBUS, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1916 - 1999	
ANNUAL TOTAL	1482404		1061384			
ANNUAL MEAN	4061		2908		3141	
HIGHEST ANNUAL MEAN					10810	1992
LOWEST ANNUAL MEAN					653	1917
HIGHEST DAILY MEAN	66300	Oct 21	66300	Oct 21	164000	Jun 19 1935
LOWEST DAILY MEAN	664	Jan 6	647	Feb 26	93	Sep 1 1918
ANNUAL SEVEN-DAY MINIMUM	794	Jan 27	677	Feb 24	106	Aug 22 1917
INSTANTANEOUS PEAK FLOW			67800	Oct 21	190000	Jun 18 1935
INSTANTANEOUS PEAK STAGE			43.56	Oct 21	48.50	Jun 18 1935
ANNUAL RUNOFF (AC-FT)	2940000		2105000		2276000	
10 PERCENT EXCEEDS	7020		3670		5970	
50 PERCENT EXCEEDS	2230		1300		1630	
90 PERCENT EXCEEDS	1240		806		400	

e Estimated



08162000 COLORADO RIVER AT WHARTON, TX

LOCATION.--Lat 29°18'32", long 96°06'13", Wharton County, Hydrologic Unit 12090302, near left bank at downstream side of downstream bridge on U.S. Highway 59 in Wharton, 1,100 ft downstream from Texas and New Orleans Railroad Co. bridge, 12 mi upstream from Jones Creek, and at mile 66.6.

DRAINAGE AREA.--42,003 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jul 1916 to Aug 1918 (intermittent periods), Mar 1919 to Sep 1925, Jul and Aug 1938 (flood discharge measurements only), Oct 1938 to current year. Jun to Nov 1901, May to Sep 1902, daily records published in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1935 are contained in reports of the National Weather Service.
Water-quality records.--Chemical data: Apr 1944 to Sep 1995. Biochemical data: Jan 1968 to Sep 1995. Radiochemical data: Dec 1973 to Sep 1995. Pesticide data: Oct 1967 to Jun 1982. Sediment data: Oct 1974 to Sep 1995.

REVISED RECORDS.--WSP 878: 1938(M). WDR TX-81-3: Drainage area. WDR TX-88-3: 1985.

GAGE.--Water-stage recorder. Datum of gage is 52.42 ft above sea level. Prior to Oct 1, 1938, various types of recording and nonrecording gages 800 ft upstream at different datum. Oct 1, 1938 to Jun 1, 1956, nonrecording gage 100 ft upstream at datum 13.00 ft higher. Jun 1, 1966 to Sep 30, 1975, water-stage recorder at present site at datum 13.00 ft higher. Oct 1, 1975 to Mar 1, 1983, water-stage recorder at present site at datum 10.00 ft higher. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since installation of gage in Oct 1938, at least 10% of contributing drainage area has been regulated by Lake Austin (station 08154900, capacity 73,100 acre-ft). Flow is also affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft. There are many diversions above station for irrigation, municipal supply, cooling water for thermal-electric power plant, and for oil field operations.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, 51.9 ft Dec 8, 1913, present datum, from information by local residents; below Wharton floodwater combined with that of the Brazos River. Flood of about Jul 12, 1869, reached about same height. Flood of Jun 20, 1935, reached a stage of 51.2 ft, present datum, furnished by National Weather Service (discharge, 159,000 ft^3/s), from rating curve defined by current-meter measurements below 145,000 ft^3/s. Flood of Jul 30, 1938, reached a stage of 50.4 ft, present datum, observed by U.S. Geological Survey personnel (discharge, 145,000 ft^3/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	820	4520	2490	2430	1870	896	3870	1290	3860	1360	653	504
2	1060	4490	2370	3280	1610	917	2720	1210	3110	1150	773	390
3	1120	7000	2310	4080	1330	981	2190	1280	2830	1090	742	e350
4	1050	9250	2220	3790	1160	1020	1930	1430	2440	1060	618	380
5	1050	7260	2160	3530	1100	993	1710	1600	1740	1050	629	559
6	1310	4950	2110	2810	1070	1030	1720	1750	2020	1070	666	455
7	1600	4140	2060	2220	1040	1050	1720	1760	2510	1180	719	422
8	2610	3860	2630	1870	1020	1000	1730	1470	2070	1300	698	418
9	4650	3660	3300	1720	999	993	1550	1180	e1950	1480	653	566
10	3940	3420	2560	1600	971	979	1460	1130	e2100	1350	655	610
11	2280	3210	2520	1590	961	978	1320	1620	e2170	1350	645	579
12	1750	3200	4430	1510	952	993	1280	2160	e2180	1330	748	590
13	1470	15600	12100	1700	921	1040	1390	2660	e2150	1340	813	592
14	1290	37800	9670	1630	935	1080	1500	2920	e2220	1760	830	615
15	1240	43300	6180	1390	935	1130	1590	2300	e2170	3790	826	552
16	1190	42900	4710	1330	1000	1520	1620	1990	2020	2250	837	504
17	1320	34900	3910	1340	1050	1730	1720	1740	2110	1710	829	493
18	17200	17300	3940	1440	1030	1480	1790	1680	1900	1480	747	467
19	40200	9140	3560	1490	1010	2160	1900	1560	1800	1250	697	594
20	51300	7300	3440	1500	981	2500	1380	1220	1540	1150	670	575
21	60700	6230	4050	1370	959	4210	1140	3420	1140	1220	723	553
22	69900	5640	4180	1250	949	7080	1180	2790	1200	1550	729	679
23	73100	5190	4210	1430	952	4920	1230	2000	1840	1710	695	793
24	53100	4570	4170	1890	939	4130	1160	1810	2330	1450	717	758
25	15900	4110	3950	1950	857	3980	1230	1740	2290	1520	969	664
26	10200	3800	3070	1940	870	3790	1520	1770	6270	1340	958	452
27	7900	3450	3210	1660	883	3960	1460	1920	8410	1090	808	438
28	6730	3180	2830	1370	900	4610	1440	2010	4390	964	668	440
29	5900	2930	2340	1240	---	4440	1450	2920	2560	705	559	454
30	5540	2690	2180	1460	---	4290	1470	3360	1760	621	588	511
31	4880	---	1990	1900	---	4380	---	3730	---	613	587	---
TOTAL	452300	308990	114850	59710	29254	74260	49370	61420	77080	42283	22449	15957
MEAN	14590	10300	3705	1926	1045	2395	1646	1981	2569	1364	724	532
MAX	73100	43300	12100	4080	1870	7080	3870	3730	8410	3790	969	793
MIN	820	2690	1990	1240	857	896	1140	1130	1140	613	559	350
AC-FT	897100	612900	227800	118400	58030	147300	97930	121800	152900	83870	44530	31650

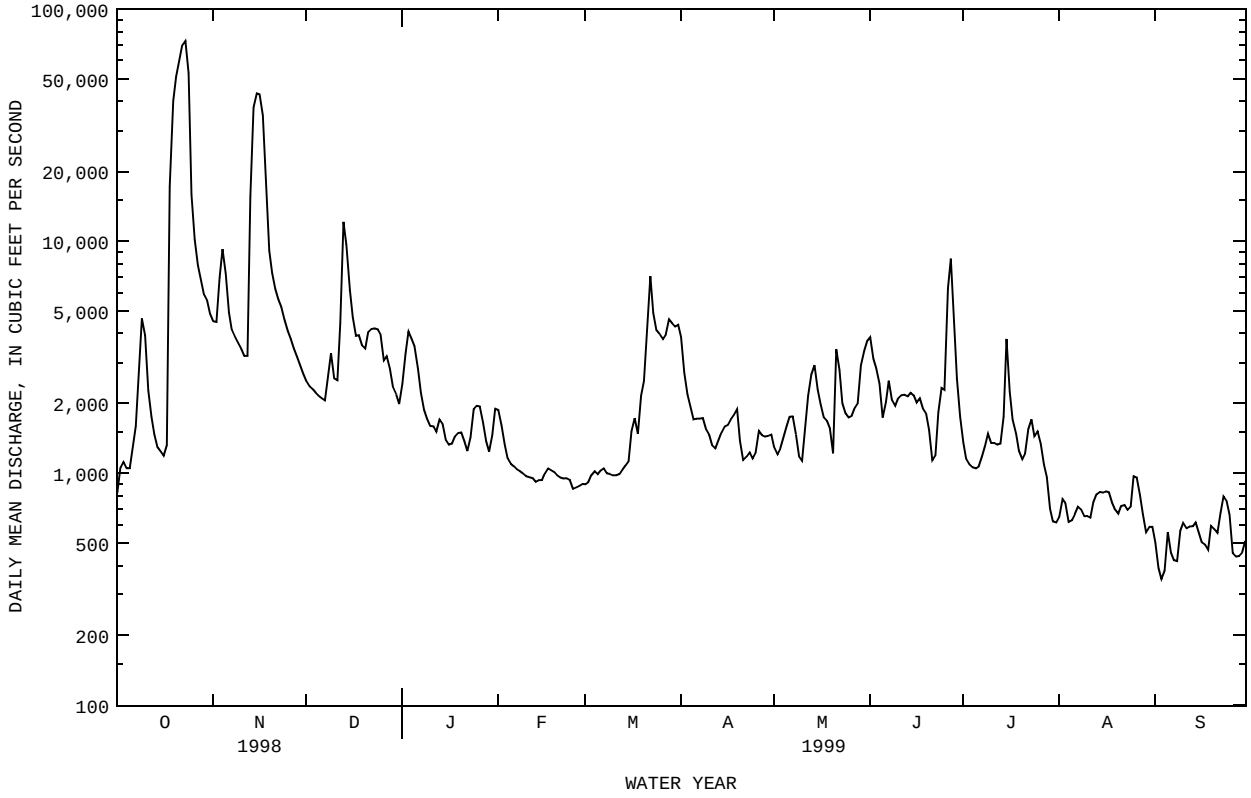
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

MEAN	2333	2417	2275	2515	3001	2801	3122	4176	4772	2532	1371	1883
MAX	14590	13870	15060	21810	35520	21550	13730	27300	30910	15010	3916	9394
(WY)	1999	1975	1992	1992	1992	1992	1977	1957	1987	1997	1945	1961
MIN	296	220	253	224	268	328	566	825	838	706	406	436
(WY)	1957	1957	1990	1964	1967	1952	1951	1962	1948	1967	1964	1954

08162000 COLORADO RIVER AT WHARTON, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939 - 1999	
ANNUAL TOTAL	1635356		1307923			
ANNUAL MEAN	4480		3583		2762	
HIGHEST ANNUAL MEAN					11120	1992
LOWEST ANNUAL MEAN					615	1964
HIGHEST DAILY MEAN	73100	Oct 23	73100	Oct 23	90600	Jul 3 1940
LOWEST DAILY MEAN	429	Sep 6	350	Sep 3	42	Aug 22 1964
ANNUAL SEVEN-DAY MINIMUM	511	Sep 2	425	Sep 2	110	Dec 11 1956
INSTANTANEOUS PEAK FLOW			74800	Oct 23	100000	Jul 3 1940
INSTANTANEOUS PEAK STAGE			48.72	Oct 23	48.99	Jul 3 1940
ANNUAL RUNOFF (AC-FT)	3244000		2594000		2001000	
10 PERCENT EXCEEDS	7990		4780		5490	
50 PERCENT EXCEEDS	1850		1560		1330	
90 PERCENT EXCEEDS	1120		654		475	

e Estimated



08162500 COLORADO RIVER NEAR BAY CITY, TX

LOCATION.--Lat 28°58'26", long 96°00'44", Matagorda County, Hydrologic Unit 12090302, on left bank, 6,300 ft downstream from bridge on State Highway 35, 7,100 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.8 mi west of Bay City, and at mile 32.5.

DRAINAGE AREA.--42,240 mi^2, approximately, of which 11,403 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jul 1940 (WSP 1046), Apr 1948 to current year. Records of elevation collected in this vicinity since 1946 are contained in reports of the National Weather Service.
Water-quality records.--Chemical data: Oct 1974 to Sep 1975. Biochemical data: Oct 1974 to Sep 1975.

REVISED RECORDS.--WDR TX-81-3: Drainage area. WDR TX-88-3: 1985.

GAGE.--Water-stage recorder. Datum of gage is sea level. Jul 2-6, 1940, nonrecording gage at highway bridge, 6,300 ft upstream at datum 30.60 ft lower. On Feb 19, 1992, gage was temporarily moved 6,200 ft upstream at same datum. Gage re-established on left bank 6,300 ft downstream on May 12, 1993. Radio telemeter at station. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in Apr 1948, at least 10% of contributing drainage area has been regulated by Lake Austin (station 08154900, capacity 73,100 acre-ft). Flow is also affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft. These structures control runoff from a 73.1 mi^2 area in the Cummins Creek watershed. There are many other diversions above this station for irrigation and for municipal supply. No flow at times in 1951-53 and 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since 1869, 56.1 ft Dec 10, 1913. Flood in Jul 1869 probably reached about same elevation. Elevation of other floods are as follows: May 8, 1922, 55.4 ft; Jun 1929, 55.0 ft; Jun 22, 1935, 54.6 ft; Oct 5, 1936, 52.2 ft; Aug 2, 1938, 53.4 ft; Nov 27, 1940, 47.6 ft. All above flood data from information by Texas and New Orleans Railroad Co. and adjusted to present site. 48.2 ft, present datum, Jul 4, 1940, at site 6,300 ft upstream at bridge on State Highway 35, observed by U.S. Army Corps of Engineers (elevation, 46.6 ft), adjusted to present site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	5980	3660	3120	2080	1050	4240	992	2760	1100	387	261
2	266	5880	3390	4350	2020	974	3150	804	2090	754	448	133
3	444	6940	3300	4960	1760	920	2430	729	1580	611	576	118
4	415	9450	3180	4970	1470	953	2010	849	1480	601	411	152
5	486	9910	3110	4590	1410	935	1860	921	748	561	376	288
6	1240	6980	3030	3500	1370	901	1570	1050	488	563	352	421
7	2600	5680	3180	3060	1340	948	1540	1000	797	721	388	326
8	2040	5100	3180	2800	1270	992	1480	865	708	881	388	350
9	3300	4870	4200	2640	1270	746	1390	533	724	1240	304	388
10	4420	4600	3770	2230	e1260	768	1140	767	569	1280	288	484
11	2260	3880	3660	1720	e1260	743	968	1050	849	1240	253	407
12	1400	4300	5360	2040	1250	819	814	1660	1250	1190	311	429
13	1010	15200	13000	1960	1120	1030	818	1940	1740	1260	462	373
14	809	44300	12500	3620	1090	1150	1010	2300	2230	1310	483	461
15	770	54500	8530	2420	993	1050	1050	1900	1930	2730	517	423
16	772	52000	6360	1940	1030	1110	1140	1430	2080	2710	523	335
17	806	44000	5210	1810	1020	1630	1190	1100	1990	1760	574	303
18	7620	25800	4980	1830	1040	1580	1280	783	1830	1520	521	278
19	40600	12400	4630	1920	1060	2860	1370	701	1560	1380	427	352
20	54000	9190	4290	1910	1060	7100	1320	478	1470	1270	378	456
21	63600	7810	4800	2110	1040	3880	964	1080	1030	1350	419	469
22	73300	6990	5380	2260	984	6630	690	2300	975	1710	496	483
23	79300	6560	5650	1650	943	5570	774	1240	1270	1890	528	743
24	77600	6030	5240	1990	1000	4070	776	809	2050	1630	403	734
25	29600	4540	5170	2260	1020	3740	754	711	2170	1380	508	774
26	12800	5020	4470	2300	959	3620	1050	685	3230	1530	738	486
27	9690	4660	3830	1700	1050	3450	1390	700	9210	1110	585	411
28	8200	4340	3940	1810	1030	5690	1300	1370	5430	903	487	494
29	7230	4100	3290	1630	---	6070	1200	1960	2810	608	302	705
30	6340	3870	2910	1490	---	5130	1070	2750	1670	438	257	740
31	6220	---	2290	1920	---	4580	---	2490	---	340	260	---
TOTAL	499377	384880	149490	78510	34199	80689	41738	37947	58718	37571	13350	12777
MEAN	16110	12830	4822	2533	1221	2603	1391	1224	1957	1212	431	426
MAX	79300	54500	13000	4970	2080	7100	4240	2750	9210	2730	738	774
MIN	239	3870	2290	1490	943	743	690	478	488	340	253	118
AC-FT	990500	763400	296500	155700	67830	160000	82790	75270	116500	74520	26480	25340

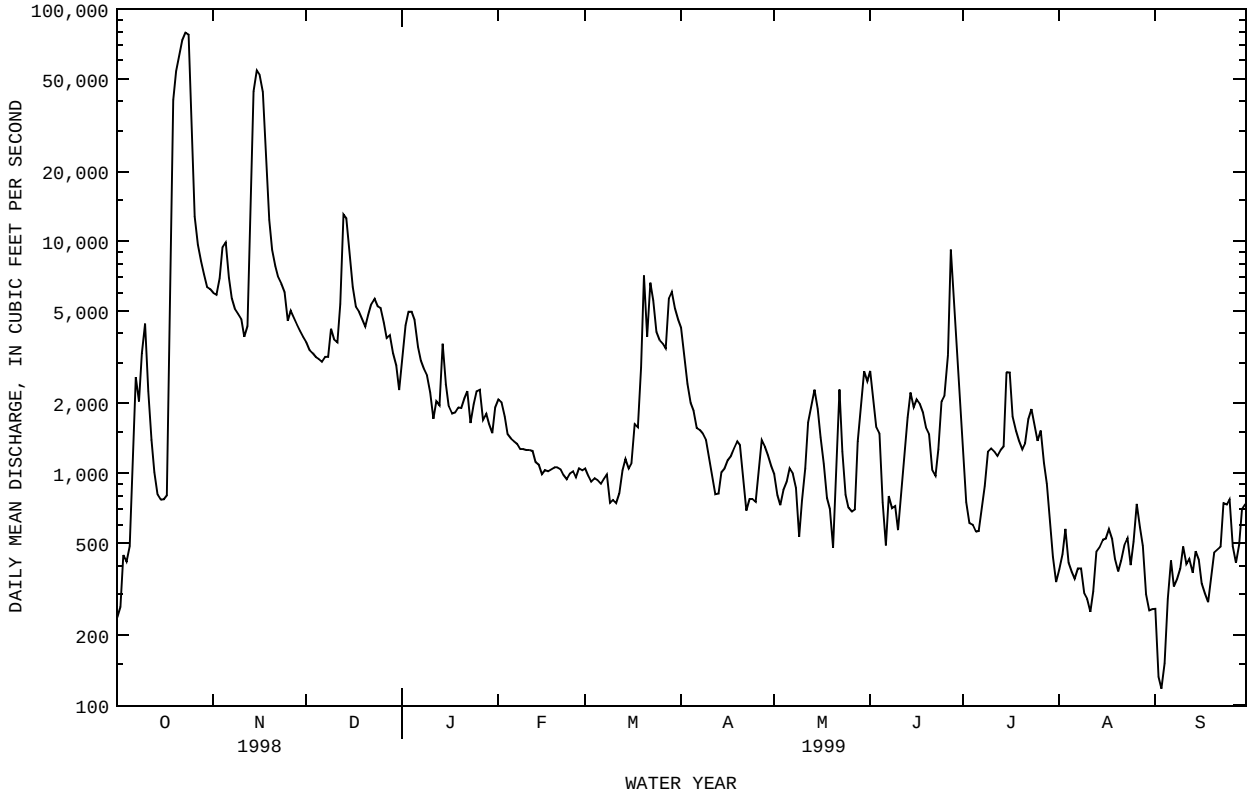
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1999, BY WATER YEAR (WY)

MEAN	2547	2378	2297	2607	3292	2847	2871	3960	4546	1707	835	1758
MAX	16110	13470	16200	25780	42200	25780	13410	27750	30360	14240	2876	11160
(WY)	1999	1975	1992	1992	1992	1992	1977	1957	1987	1997	1961	1961
MIN	254	226	292	249	246	257	125	227	155	1.00	114	93.9
(WY)	1990	1957	1990	1957	1967	1967	1964	1964	1971	1967	1964	1966

08162500 COLORADO RIVER NEAR BAY CITY, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1948 - 1999	
ANNUAL TOTAL	1755754		1429246			
ANNUAL MEAN	4810		3916		2645	
HIGHEST ANNUAL MEAN					14270	1992
LOWEST ANNUAL MEAN					375	1964
HIGHEST DAILY MEAN	79300	Oct 23	79300	Oct 23	79300	Oct 23 1998
LOWEST DAILY MEAN	15	Sep 6	118	Sep 3	.00	Jun 1 1951
ANNUAL SEVEN-DAY MINIMUM	68	Sep 2	210	Aug 30	.44	Oct 4 1969
INSTANTANEOUS PEAK FLOW			81800	Oct 24	84100	Jun 26 1960
INSTANTANEOUS PEAK STAGE			40.95	Oct 24	46.40	Jun 26 1960
ANNUAL RUNOFF (AC-FT)	3483000		2835000		1916000	
10 PERCENT EXCEEDS	9780		6130		5800	
50 PERCENT EXCEEDS	1750		1370		909	
90 PERCENT EXCEEDS	292		422		246	

e Estimated



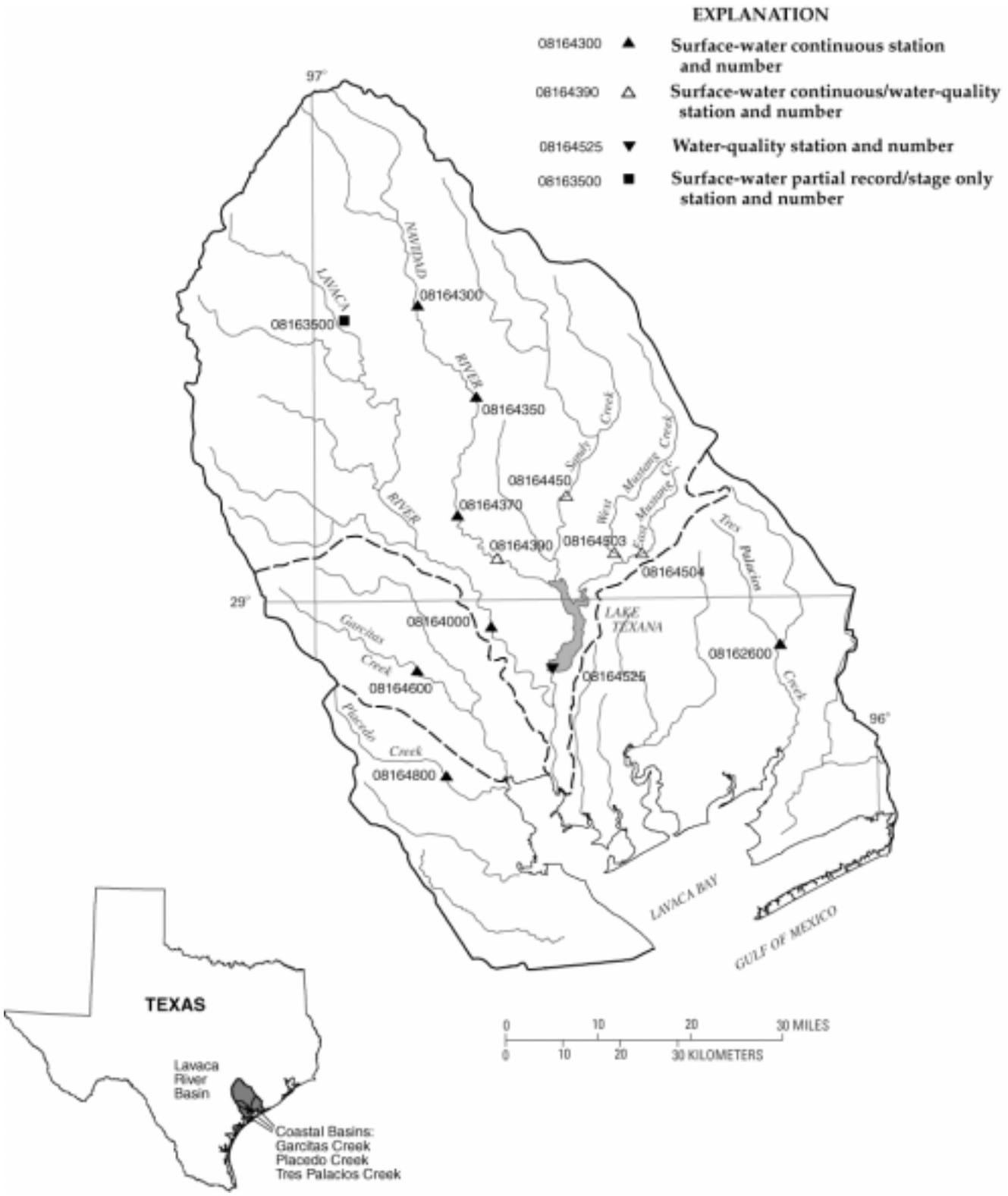


Figure 9.--Map showing location of gaging stations in the Lavaca and Coastal River Basins

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX

LOCATION.--Lat 28°55'40", long 96°10'15", Matagorda County, Hydrologic Unit 12100401, at left downstream end of bridge on Farm Road 456, 1.0 mi downstream from Juanita Creek, and 2.4 mi southeast of Midfield.

DRAINAGE AREA.--145 mi^2.

PERIOD OF RECORD.--Jun 1970 to current year. Prior to Oct 1973, published as "Tres Palacios Creek near Midfield".
Water-quality records.--Chemical data: Oct 1968 to Sep 1981. Biochemical data: Oct 1968 to Sep 1981. Pesticide data: Oct 1968 to Sep 1981.

GAGE.--Water-stage recorder. Datum of gage is 5.38 ft above sea level. Jun 17, 1970, to Apr 28, 1988, at same site and datum. Apr 29, 1988, to Sep 4, 1991, at right downstream end of bridge at same datum. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. There are ten known diversions above station, but amounts are unknown. An undetermined amount of water from irrigated rice fields enters the river at various points upstream from station. Extensive channel cleaning upstream and downstream from the gage was begun during the 1983 water year and completed during the 1984 water year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft in Jun 1960, and 35 ft in Aug 1945, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	0815	3,350	24.94	Mar 20	0100	1,840	19.77
Nov 14	1500	4,890	28.08	Mar 28	1815	1,630	18.75

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	14	66	11	47	140	15	13	9.8	25	7.2	11
2	44	12	37	10	593	79	16	13	8.3	20	7.5	10
3	31	11	118	9.8	770	55	15	17	7.0	17	5.6	11
4	32	28	168	10	234	40	14	17	8.0	17	7.7	8.9
5	27	233	90	15	101	31	13	18	8.8	17	9.1	7.3
6	80	276	46	16	75	28	15	25	8.7	16	9.5	6.6
7	266	58	26	31	54	28	15	22	10	14	15	7.0
8	1100	25	38	180	39	23	17	16	11	12	79	9.2
9	2990	16	70	76	33	21	26	12	10	11	79	13
10	4260	94	56	38	31	20	16	17	8.4	9.6	52	717
11	4850	119	32	20	36	18	16	20	8.9	6.1	31	7580
12	4020	765	19	14	45	18	13	20	8.6	5.5	21	7530
13	3960	844	13	11	143	17	13	15	11	6.3	20	5040
14	4000	461	11	11	73	21	20	12	9.4	7.5	33	2790
15	1730	202	10	11	51	24	21	12	7.3	7.3	108	790
16	654	113	9.3	8.4	323	267	23	14	8.3	9.7	94	1850
17	332	70	9.0	7.7	481	389	24	12	9.4	9.0	54	2210
18	186	44	8.4	7.4	205	176	18	17	9.2	8.4	33	823
19	117	80	8.0	6.9	597	84	27	15	7.4	7.4	27	361
20	77	86	9.4	6.7	621	44	38	11	11	8.0	25	193
21	55	59	502	16	249	29	31	12	9.2	8.9	17	118
22	41	39	370	1230	1590	23	24	13	9.4	9.3	1280	81
23	35	27	140	534	665	20	18	11	10	7.4	1340	61
24	35	19	149	168	241	18	16	11	9.8	9.5	640	46
25	35	15	172	81	120	18	18	12	11	13	592	37
26	28	13	88	52	943	17	30	9.4	10	15	356	32
27	21	11	51	42	867	17	20	11	8.5	15	97	28
28	17	12	33	33	300	17	22	15	12	11	45	25
29	15	15	22	30	---	17	22	10	21	8.1	27	22
30	16	97	16	26	---	17	18	12	31	6.3	18	22
31	14	---	13	25	---	16	---	11	---	6.0	13	---
TOTAL	29133	3858	2400.1	2737.9	9527	1732	594	445.4	312.4	343.3	5142.6	30440.0
MEAN	940	129	77.4	88.3	340	55.9	19.8	14.4	10.4	11.1	166	1015
MAX	4850	844	502	1230	1590	389	38	25	31	25	1340	7580
MIN	14	11	8.0	6.7	31	16	13	9.4	7.0	5.5	5.6	6.6
AC-FT	57790	7650	4760	5430	18900	3440	1180	883	620	681	10200	60380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

MEAN	263	130	136	147	163	124	154	239	185	111	57.5	260
MAX	1375	582	568	542	978	1058	689	1080	699	623	166	1308
(WY)	1985	1993	1992	1991	1992	1997	1997	1982	1996	1981	1998	1979
MIN	10.2	9.53	5.87	4.83	6.66	7.79	10.4	14.4	10.4	11.1	14.8	14.5
(WY)	1992	1991	1991	1971	1976	1996	1989	1998	1990	1998	1997	1990

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1970 - 1998	
ANNUAL TOTAL	144970.3		86665.7			
ANNUAL MEAN	397		237		164	
HIGHEST ANNUAL MEAN					325	1992
LOWEST ANNUAL MEAN					42.2	1986
HIGHEST DAILY MEAN	6650	Sep 23	7580	Sep 11	12500	Oct 19 1994
LOWEST DAILY MEAN	5.3	May 8	5.5	Jul 12	1.0	Nov 3 1978
ANNUAL SEVEN-DAY MINIMUM	8.3	May 2	6.9	Jul 29	1.1	Oct 30 1978
INSTANTANEOUS PEAK FLOW			8270	Sep 11	17000	Oct 17 1984
INSTANTANEOUS PEAK STAGE			30.75	Sep 11	32.43	Oct 17 1984
ANNUAL RUNOFF (AC-FT)	287500		171900		119100	
10 PERCENT EXCEEDS	1000		469		263	
50 PERCENT EXCEEDS	32		21		24	
90 PERCENT EXCEEDS	11		8.8		8.5	

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	52	24	12	12	9.5	88	20	77	32	16	9.8
2	18	219	23	98	11	12	51	14	49	24	17	13
3	17	104	21	164	11	9.8	34	115	33	22	18	14
4	17	53	21	70	10	9.8	25	77	25	23	20	13
5	19	34	21	32	10	10	20	32	e19	28	17	11
6	192	27	20	21	10	11	16	20	e15	30	14	11
7	330	29	20	17	10	10	14	17	17	29	17	14
8	159	98	22	15	10	7.6	14	12	23	37	17	16
9	80	75	20	13	9.9	8.4	13	11	26	48	13	8.8
10	50	48	23	12	9.6	11	13	55	47	57	16	6.2
11	39	38	e210	11	9.5	13	14	137	38	77	16	6.1
12	30	177	e450	11	8.8	13	14	70	34	73	17	6.2
13	24	3270	e220	12	8.1	12	12	50	42	78	21	6.8
14	20	4630	98	801	8.8	9.8	16	32	111	62	18	5.8
15	18	3580	52	310	9.3	17	17	21	126	56	17	5.1
16	17	1220	34	99	10	14	16	21	192	52	19	4.0
17	17	486	25	50	14	15	11	17	168	61	13	3.5
18	523	250	21	33	11	14	11	16	121	139	16	3.2
19	2960	143	21	24	14	485	14	15	128	189	17	3.0
20	1340	97	19	19	11	1300	19	11	189	201	15	3.5
21	497	71	18	17	10	361	18	12	192	251	10	3.6
22	231	52	16	15	10	112	14	11	396	424	11	3.4
23	122	42	16	13	11	58	13	11	279	303	15	3.4
24	73	36	16	12	9.0	35	15	13	178	143	14	4.4
25	47	66	14	11	8.9	22	22	11	221	82	16	6.3
26	36	56	13	11	9.1	18	25	13	677	52	13	6.4
27	28	33	13	19	9.8	14	24	19	328	36	11	5.7
28	22	28	13	18	9.1	913	23	98	147	30	16	7.1
29	21	26	13	15	---	888	22	425	76	24	15	83
30	20	24	12	13	---	393	23	354	49	19	12	63
31	18	---	12	13	---	184	---	141	---	19	7.1	---
TOTAL	7006	15064	1521	1981	284.9	4989.9	631	1871	4023	2701	474.1	350.3
MEAN	226	502	49.1	63.9	10.2	161	21.0	60.4	134	87.1	15.3	11.7
MAX	2960	4630	450	801	14	1300	88	425	677	424	21	83
MIN	17	24	12	11	8.1	7.6	11	11	15	19	7.1	3.0
AC-FT	13900	29880	3020	3930	565	9900	1250	3710	7980	5360	940	695

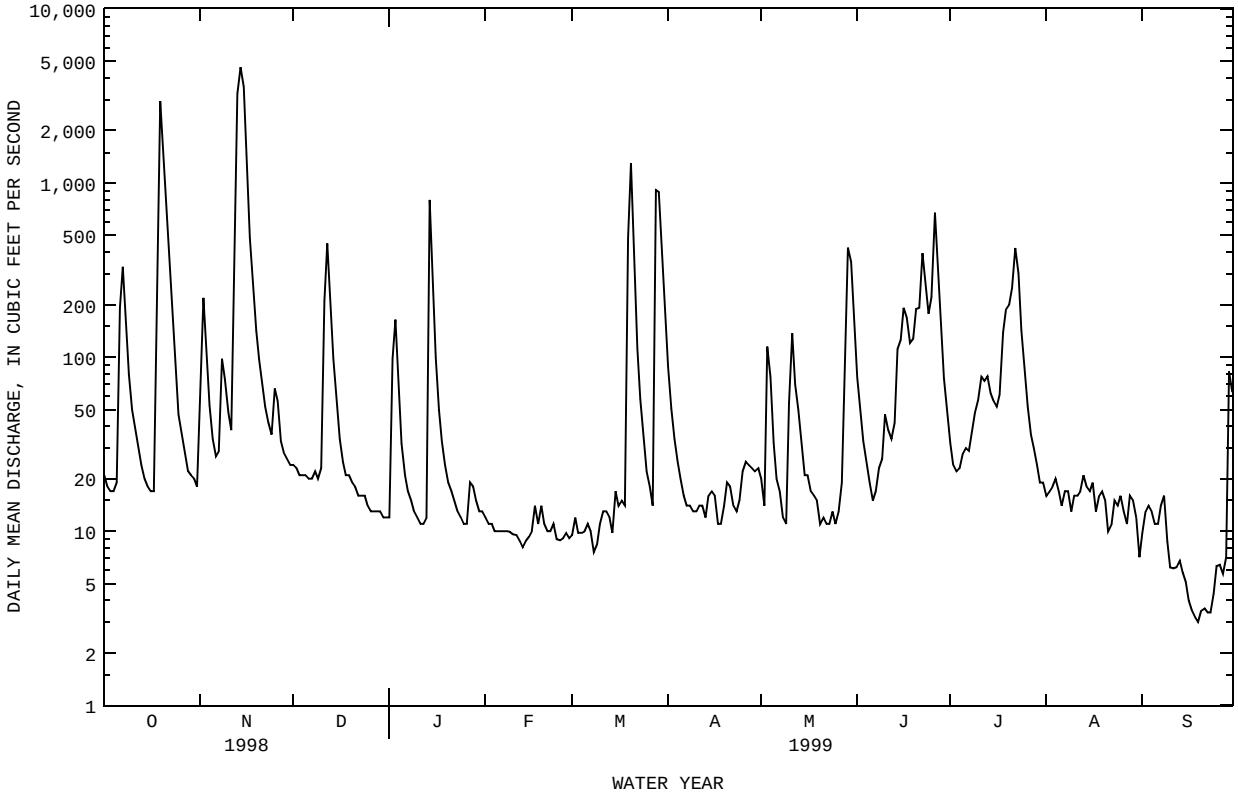
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)

MEAN	262	143	133	144	158	125	149	233	184	110	56.1	251
MAX	1375	582	568	542	978	1058	689	1080	699	623	166	1308
(WY)	1985	1993	1992	1991	1992	1997	1997	1982	1996	1981	1998	1979
MIN	10.2	9.53	5.87	4.83	6.66	7.79	10.4	14.4	10.4	11.1	14.8	11.7
(WY)	1992	1991	1991	1971	1976	1996	1989	1998	1990	1998	1997	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1970 - 1999	
ANNUAL TOTAL	74865.6		40897.2			
ANNUAL MEAN	205		112		163	
HIGHEST ANNUAL MEAN					325	1992
LOWEST ANNUAL MEAN					42.2	1986
HIGHEST DAILY MEAN	7580	Sep 11	4630	Nov 14	12500	Oct 19 1994
LOWEST DAILY MEAN	5.5	Jul 12	3.0	Sep 19	1.0	Nov 3 1978
ANNUAL SEVEN-DAY MINIMUM	6.9	Jul 29	3.4	Sep 17	1.1	Oct 30 1978
INSTANTANEOUS PEAK FLOW			4890	Nov 14	17000	Oct 17 1984
INSTANTANEOUS PEAK STAGE			28.08	Nov 14	32.43	Oct 17 1984
ANNUAL RUNOFF (AC-FT)	148500		81120		117800	
10 PERCENT EXCEEDS	358		192		257	
50 PERCENT EXCEEDS	21		19		23	
90 PERCENT EXCEEDS	8.9		9.8		8.6	

e Estimated

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX--Continued



08163500 LAVACA RIVER AT HALLETTSVILLE, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°26'35", long 96°56'41", Lavaca County, Hydrologic Unit 12100101, at downstream side of bridge on U.S. Highway 77 in Hallettsville and 0.7 mi downstream from Campbell Branch.

DRAINAGE AREA.--108 mi^2.

PERIOD OF RECORD.--Jul 1939 to Apr 1993 (daily mean discharge), May 1993 to current year (peak discharges greater than base discharge).

REVISED RECORDS.--WSP 1312: 1942(M), 1944(M). WSP 1732: 1952(M). WSP 2123: Drainage area.

GAGE.--Crest-stage gage. Datum of gage is 186.72 ft above sea level. Prior to Apr 19, 1960, water-stage recorder for high stages and movable nonrecording gage for stages below about 6.2 ft, Apr 20, 1960, to Jun 2, 1961, movable nonrecording gage at same site. Jun 3, 1961 to Apr 7, 1993, water-stage recorder at site 75 ft downstream. All gages at same datum.

REMARKS.--Records good. No known regulation or diversions. The Lavaca County Flood Control District No. 3 began channel rectification 1.6 mi downstream from gage in Aug 1983. This rectification project reached the gage on Jan 26, 1984, and was completed in Jun 1984. The channel was previously rectified in 1959-60.

AVERAGE DISCHARGE.--53 years (water years 1940-92), 50.8 ft^3/s (6.39 in/yr), 36,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft^3/s Aug 31, 1981 (gage height, 41.1 ft, from floodmark), from rating curve extended above 23,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1953, 1956, and 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage from about 1870 to 1940, 32.8 ft Jul 16, 1936, from information by local resident. Maximum stage since at least 1840, that of Aug 31, 1981.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	Unknown	c22,300	a28.53	Nov 13	Unknown	10,100	a21.87
Nov 2	Unknown	3,010	a15.17	Jun 27	Unknown	8,560	a20.73

c From rating curve extended above 20,000 ft^3/s.
a From floodmark.

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08164000 LAVACA RIVER NEAR EDNA, TX

LOCATION.--Lat 28°57'35", long 96°41'10", Jackson County, Hydrologic Unit 12100101, at downstream side near center of upstream bridge of two bridges on U.S. Highway 59, 660 ft upstream from Texas and New Orleans Railroad Co. bridge, and 2.8 mi southwest of Edna.

DRAINAGE AREA.--817 mi^2.

PERIOD OF RECORD.--Aug 1938 to current year.
Water-quality records.--Chemical data: Aug 1945 to Aug 1993. Biochemical data: Feb 1971 to Aug 1993. Pesticide data: Jan 1968 to Aug 1981. Sediment data: Nov 1977 to Aug 1993. Specific conductance: Nov 1977 to Sep 1981. Water temperature: Nov 1977 to Sep 1981.

REVISED RECORDS.--WSP 1923: 1955. WRD TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.10 ft above sea level. Prior to Jun 6, 1939, nonrecording gage (property of U.S. Army Corps of Engineers); Jun 6, 1939 to Apr 3, 1957, nonrecording gage at site 110 ft downstream; Apr 4, 1957, to Mar 21, 1961, nonrecording gage; all at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Small diversions above station for irrigation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 33.8 ft May 25, 1936 (discharge, 83,400 ft^3/s), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,100 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 7	1900	6,540	20.80	Nov 15	0715	32,100	28.40
Oct 19	2030	80,000	32.38	Jun 28	0845	5,130	19.40
Nov 4	0130	6,580	20.84				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	563	303	207	150	116	201	70	217	182	47	28
2	110	2880	291	255	145	116	166	68	169	152	45	28
3	108	5340	282	1440	143	113	147	82	122	134	44	28
4	102	3560	276	1300	141	109	136	80	99	126	44	30
5	99	678	277	342	140	109	127	77	86	120	43	40
6	1290	537	263	266	139	109	118	71	78	110	42	32
7	5500	458	257	238	139	109	111	66	72	106	40	31
8	3190	517	1550	226	139	109	105	63	71	106	40	35
9	517	548	1820	217	138	109	102	62	66	104	39	33
10	279	449	475	205	136	108	99	66	65	93	38	30
11	200	383	568	195	144	108	96	100	64	87	41	29
12	159	1690	1680	190	180	110	93	127	71	103	41	27
13	137	12100	3030	188	139	114	89	111	148	115	37	25
14	121	24800	1000	185	129	115	88	89	141	289	36	24
15	111	29800	487	181	125	141	85	78	99	161	35	24
16	105	17000	367	179	124	120	82	70	110	100	34	23
17	101	7570	314	178	131	110	80	66	160	90	34	23
18	6420	1460	288	175	142	107	80	66	129	85	34	23
19	57900	951	274	173	149	111	80	66	95	84	33	23
20	55000	757	264	171	136	312	79	84	114	84	32	22
21	24100	628	257	169	126	282	79	91	108	83	32	21
22	11500	536	250	168	120	212	78	74	156	86	32	21
23	2300	472	242	164	117	154	77	65	551	101	32	20
24	916	431	236	159	116	132	76	61	376	81	33	20
25	689	406	230	155	116	121	76	78	218	67	32	21
26	571	384	225	152	116	114	76	99	978	61	32	21
27	497	364	221	151	117	108	77	83	3040	57	31	21
28	680	345	218	154	118	443	77	122	3740	54	31	21
29	827	331	215	158	---	1500	75	1200	385	52	31	28
30	553	317	211	163	---	616	72	1440	236	50	30	26
31	427	---	207	158	---	276	---	333	---	48	29	---
TOTAL	174623	116255	16578	8262	3755	6413	2927	5208	11964	3171	1124	778
MEAN	5633	3875	535	267	134	207	97.6	168	399	102	36.3	25.9
MAX	57900	29800	3030	1440	180	1500	201	1440	3740	289	47	40
MIN	99	317	207	151	116	107	72	61	64	48	29	20
AC-FT	346400	230600	32880	16390	7450	12720	5810	10330	23730	6290	2230	1540

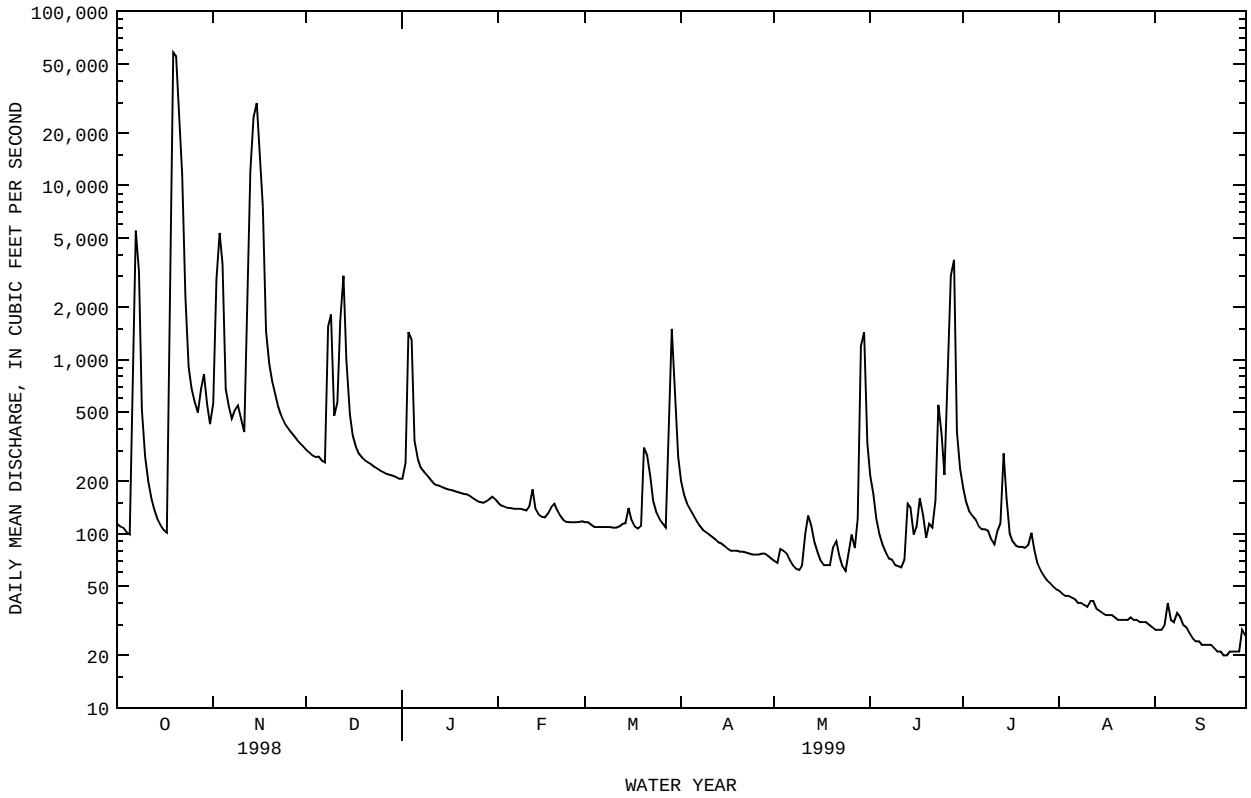
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1999, BY WATER YEAR (WY)

MEAN	493	337	250	289	398	277	501	672	650	210	88.2	355
MAX	7118	3875	2400	1564	5214	2696	5014	3239	5005	3999	713	2842
(WY)	1995	1999	1977	1979	1992	1997	1997	1982	1973	1940	1946	1978
MIN	.58	.003	.19	.055	13.5	6.58	4.43	8.16	.72	2.14	.16	.13
(WY)	1991	1957	1991	1957	1954	1956	1956	1956	1990	1954	1990	1989

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1938 - 1999	
ANNUAL TOTAL	473193		351058			
ANNUAL MEAN	1296		962		376	
HIGHEST ANNUAL MEAN					1385	1992
LOWEST ANNUAL MEAN					6.12	1956
HIGHEST DAILY MEAN	57900	Oct 19	57900	Oct 19	122000	Oct 19 1994
LOWEST DAILY MEAN	11	Jul 30	20	Sep 23	.00	Nov 10 1954
ANNUAL SEVEN-DAY MINIMUM	11	Jul 30	21	Sep 21	.00	Jul 2 1956
INSTANTANEOUS PEAK FLOW			80000	Oct 19	c150000	Oct 19 1994
INSTANTANEOUS PEAK STAGE			32.38	Oct 19	a35.49	Oct 19 1994
ANNUAL RUNOFF (AC-FT)	938600		696300		272400	
10 PERCENT EXCEEDS	1890		716		423	
50 PERCENT EXCEEDS	127		118		54	
90 PERCENT EXCEEDS	22		32		9.4	

a From floodmark.
c From rating curve extended above current meter measurement of 71,500 ft^3/s.



08164300 NAVIDAD RIVER NEAR HALLETTSVILLE, TX

LOCATION.--Lat 29°28'00", long 96°48'45", Lavaca County, Hydrologic Unit 12100102, on right bank 28 ft downstream from bridge on U.S. Highway 90-A, 0.8 mi downstream from Mixons Creek, 1.2 mi southwest of Sublime, and 8 mi northeast of Hallettsville.

DRAINAGE AREA.--332 mi^2.

PERIOD OF RECORD.--Oct 1961 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 159.28 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversion.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft in Jun 1940; flood in Jul 1936 reached a stage of 39 ft, from information by local residents and Southern Pacific Railroad Company.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	1115	28,700	32.22	Jun 26	1700	11,300	27.24
Nov 13	1745	20,200	30.25				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	321	70	58	44	32	54	20	97	72	17	3.6
2	7.4	1160	66	530	43	32	52	20	39	62	17	3.5
3	8.2	194	65	185	42	30	51	21	27	50	15	12
4	7.7	108	66	97	42	30	49	21	22	45	17	4.9
5	7.5	83	64	73	41	31	48	20	19	44	13	4.0
6	704	71	61	63	41	31	44	18	17	45	11	8.2
7	175	66	174	61	41	30	42	17	16	75	10	6.1
8	38	72	383	59	40	30	40	16	15	41	9.8	4.9
9	23	66	72	55	39	31	39	16	34	34	9.4	4.2
10	19	61	167	53	39	30	38	29	58	32	8.9	3.5
11	17	54	311	52	38	30	37	42	28	39	8.3	3.1
12	16	304	1890	53	36	31	35	28	253	43	7.9	2.9
13	15	15000	391	53	36	62	34	23	91	30	7.7	2.6
14	15	13700	156	58	36	52	35	20	43	29	7.2	3.2
15	14	6330	111	69	37	36	33	18	34	27	6.8	2.5
16	14	1090	92	59	37	33	31	16	39	25	6.5	2.0
17	373	293	81	55	42	32	31	16	25	25	6.1	1.9
18	22700	212	76	51	38	31	31	e16	18	26	6.0	1.8
19	17700	168	74	49	36	157	30	16	36	26	5.8	1.8
20	8420	142	70	49	36	122	30	15	183	25	5.4	1.7
21	1600	122	69	48	35	100	29	14	29	31	5.2	1.6
22	250	108	65	48	34	53	29	13	25	59	4.8	1.5
23	163	100	63	50	34	43	28	12	51	27	5.8	1.6
24	125	93	65	46	33	38	26	12	42	23	6.1	1.6
25	104	88	62	44	34	35	26	11	948	21	6.7	1.7
26	91	83	61	44	33	33	26	12	8520	22	6.1	1.7
27	82	78	61	44	34	32	26	13	3780	20	5.2	1.9
28	77	76	60	46	33	242	25	e600	251	19	4.5	3.3
29	72	73	58	51	---	112	23	132	143	18	4.2	7.1
30	66	74	56	50	---	73	22	57	92	18	3.9	6.8
31	61	---	55	46	---	60	---	e500	---	17	3.7	---
TOTAL	52971.9	40390	5115	2299	1054	1714	1044	1784	14975	1070	252.0	107.2
MEAN	1709	1346	165	74.2	37.6	55.3	34.8	57.5	499	34.5	8.13	3.57
MAX	22700	15000	1890	530	44	242	54	600	8520	75	17	12
MIN	7.1	54	55	44	33	30	22	11	15	17	3.7	1.5
AC-FT	105100	80110	10150	4560	2090	3400	2070	3540	29700	2120	500	213
CFSM	5.15	4.06	.50	.22	.11	.17	.10	.17	1.50	.10	.02	.01
IN.	5.94	4.53	.57	.26	.12	.19	.12	.20	1.68	.12	.03	.01

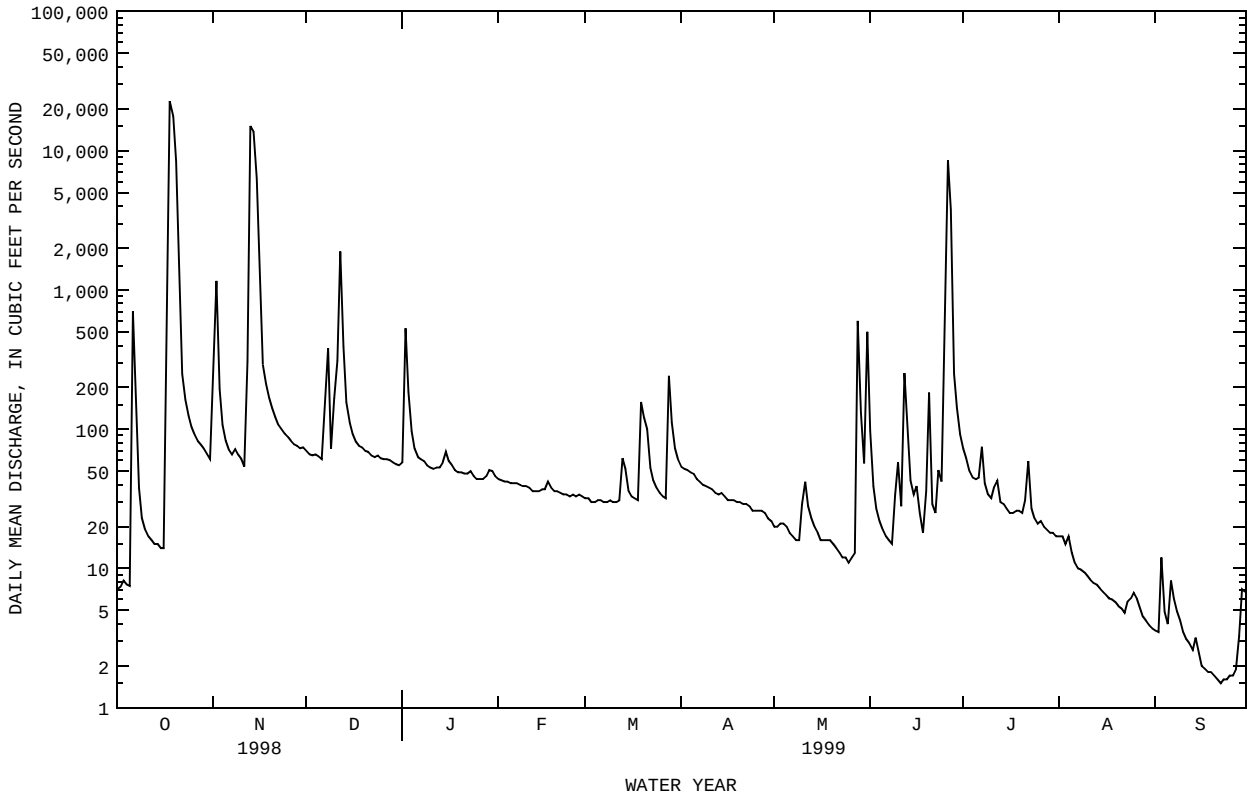
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, BY WATER YEAR (WY)

MEAN	161	138	122	136	170	119	204	323	265	24.6	26.7	155
MAX	1709	1346	943	691	1251	611	1158	1502	1792	91.6	332	1975
(WY)	1999	1999	1977	1968	1992	1992	1973	1972	1973	1973	1971	1974
MIN	.000	.035	.97	6.38	8.46	9.87	7.17	2.39	.68	.16	.014	.014
(WY)	1991	1991	1991	1990	1996	1991	1996	1996	1990	1990	1990	1990

08164300 NAVIDAD RIVER NEAR HALLETTSVILLE, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1962 - 1999	
ANNUAL TOTAL	121457.57		122776.1			
ANNUAL MEAN	333		336		153	
HIGHEST ANNUAL MEAN					508	1992
LOWEST ANNUAL MEAN					11.5	1990
HIGHEST DAILY MEAN	22700	Oct 18	22700	Oct 18	30500	Sep 14 1974
LOWEST DAILY MEAN	.99	Aug 2	1.5	Sep 22	.00	Aug 5 1964
ANNUAL SEVEN-DAY MINIMUM	1.0	Jul 30	1.6	Sep 20	.00	Sep 2 1964
INSTANTANEOUS PEAK FLOW			28700	Oct 18	53500	Sep 13 1974
INSTANTANEOUS PEAK STAGE			32.22	Oct 18	36.05	Sep 13 1974
ANNUAL RUNOFF (AC-FT)	240900		243500		111000	
ANNUAL RUNOFF (CFSM)	1.00		1.01		.46	
ANNUAL RUNOFF (INCHES)	13.61		13.76		6.27	
10 PERCENT EXCEEDS	208		165		132	
50 PERCENT EXCEEDS	43		36		22	
90 PERCENT EXCEEDS	2.2		6.1		2.3	

e Estimated



08164350 NAVIDAD RIVER NEAR SPEAKS, TX

LOCATION.--Lat 29°19'18", long 96°42'32", Lavaca County, Hydrologic Unit 12100102, at right downstream end of bridge on Farm Road 530, 100 ft downstream from Ragsdale Creek, and 4.6 mi north of Speaks.

DRAINAGE AREA.--437 mi^2.

PERIOD OF RECORD.--Oct 1981 to Sep 1989, Oct 1994 to Sep 1996 (discharge measurements only), Oct 1996 to current year.
Water-quality records.--Pesticide data: Apr 1996 to Aug 1997.

GAGE.--Water-stage recorder. Datum of gage is 120.00 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair except those above 10,000 ft^3/s, which are poor. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	unknown	25,500	a30.24	Dec 13	0545	2,810	a16.78
Nov 14	unknown	18,700	e29.00	May 28	1230	3,920	19.10
Dec 8	1215	4,100	a19.42	Jun 27	1400	8,260	24.33

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	326	128	102	70	e47	88	21	288	161	22	e7.0
2	23	1600	107	975	69	e46	82	23	136	135	21	e7.0
3	26	818	102	612	65	e45	78	27	91	118	20	7.0
4	26	192	104	186	61	e44	77	30	72	106	19	e8.0
5	25	132	107	133	63	e44	73	31	60	104	24	e9.0
6	1000	99	98	121	65	e45	68	29	51	94	20	e10
7	1280	95	183	116	64	e46	62	26	46	128	18	e12
8	119	103	3020	111	61	e47	59	23	42	101	16	e12
9	66	100	361	102	60	e47	57	21	48	73	15	8.7
10	54	91	246	96	58	e48	56	50	79	73	14	7.7
11	49	80	536	90	55	e48	54	84	80	73	13	6.8
12	46	392	1840	93	52	e47	49	73	122	134	13	6.6
13	45	e10000	2010	89	51	44	47	52	317	73	12	6.5
14	44	e17000	324	92	48	91	46	41	126	62	12	6.3
15	43	11700	218	102	48	47	43	34	92	56	11	6.3
16	42	6230	183	109	49	e40	41	28	129	49	11	5.8
17	407	1080	166	97	e110	e37	37	29	104	44	e10	5.4
18	e19000	407	153	91	66	e33	35	26	70	47	e10	5.6
19	e20000	320	141	83	e53	413	e34	22	57	58	e10	5.6
20	13200	263	135	74	e52	402	e35	21	212	45	e9.5	5.4
21	7810	224	127	73	e50	174	33	19	112	53	e9.0	5.5
22	1600	197	129	74	e48	112	32	20	110	77	e9.0	5.6
23	315	178	124	73	e47	72	e33	20	180	73	e10	5.6
24	216	167	123	73	e47	56	e30	19	190	47	e10	5.6
25	169	156	118	66	e47	46	e30	27	942	40	e10	5.6
26	142	148	110	70	e48	e45	e30	19	4410	36	e9.0	5.5
27	125	138	111	69	e49	45	e30	14	7540	35	e8.0	5.2
28	118	132	111	68	e50	533	e28	2390	3180	32	e8.0	5.2
29	106	122	109	85	---	329	e26	943	e290	29	e8.0	10
30	97	119	108	98	---	146	e25	194	205	27	e7.5	16
31	90	---	104	80	---	105	---	1400	---	25	e7.5	---
TOTAL	66306	52609	11436	4303	1606	3324	1418	5756	19381	2208	396.5	218.5
MEAN	2139	1754	369	139	57.4	107	47.3	186	646	71.2	12.8	7.28
MAX	20000	17000	3020	975	110	533	88	2390	7540	161	24	16
MIN	23	80	98	66	47	33	25	14	42	25	7.5	5.2
AC-FT	131500	104300	22680	8540	3190	6590	2810	11420	38440	4380	786	433

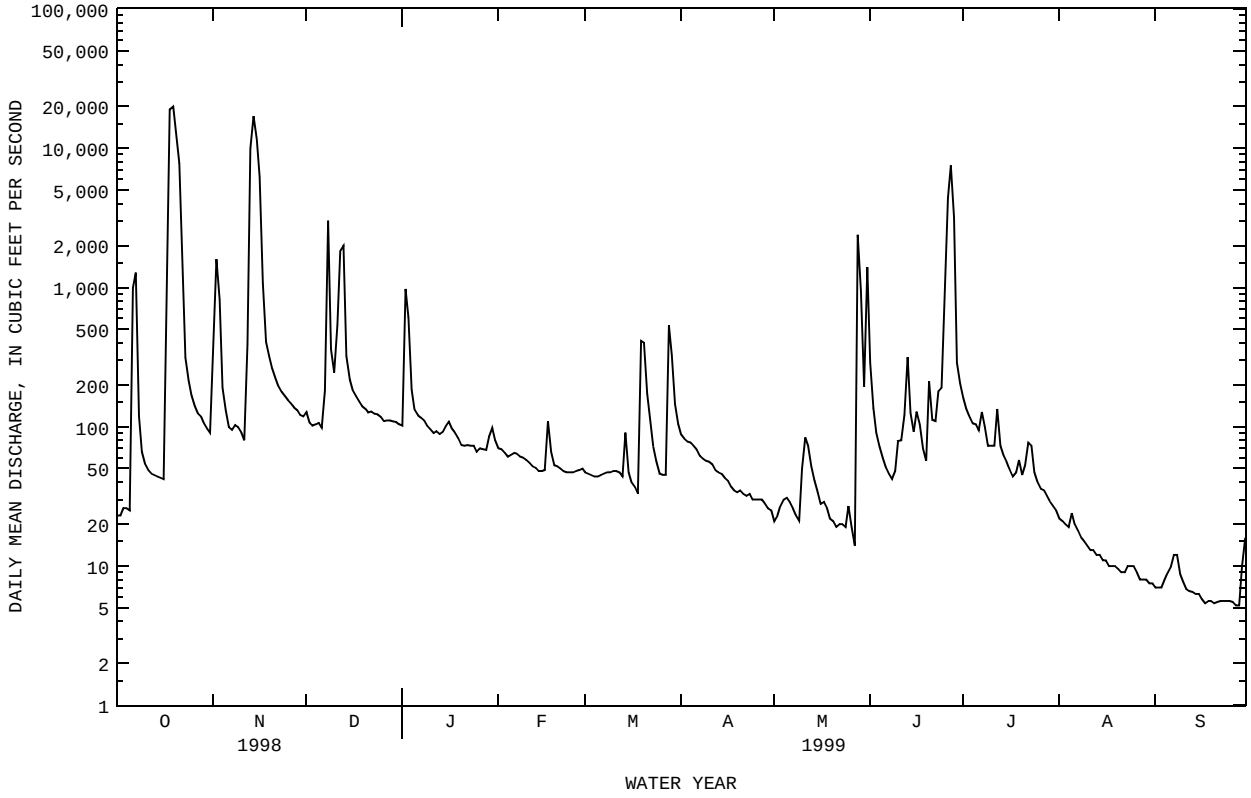
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

MEAN	355	384	180	152	246	195	176	275	333	32.7	9.71	64.2
MAX	2139	1754	744	518	827	670	1295	833	1445	146	38.1	324
(WY)	1999	1999	1987	1997	1998	1997	1997	1982	1987	1983	1983	1996
MIN	1.01	1.62	3.63	35.4	22.8	34.9	12.1	24.3	18.5	4.07	.56	.70
(WY)	1989	1989	1989	1988	1988	1986	1989	1984	1985	1998	1989	1989

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	176774.98		168962.0			
ANNUAL MEAN	484		463		197	
HIGHEST ANNUAL MEAN					463	1999
LOWEST ANNUAL MEAN					38.6	1988
HIGHEST DAILY MEAN	20000	Oct 19	20000	Oct 19	20000	Oct 19 1998
LOWEST DAILY MEAN	.78	Jul 24	5.2	Sep 27	.00	Sep 1 1989
ANNUAL SEVEN-DAY MINIMUM	.94	Sep 3	5.5	Sep 22	.00	Sep 1 1989
INSTANTANEOUS PEAK FLOW			c25500	Oct 18	c25500	Oct 18 1998
INSTANTANEOUS PEAK STAGE			a30.24	Oct 18	a30.24	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	350600		335100		143100	
10 PERCENT EXCEEDS	599		325		197	
50 PERCENT EXCEEDS	60		61		30	
90 PERCENT EXCEEDS	3.6		10		2.8	

e Estimated
c From rating curve extended above current meter discharge measurement of 7,480 ft^3/s.
a From floodmark.

08164350 NAVIDAD RIVER NEAR SPEAKS, TX--Continued



08164370 NAVIDAD RIVER AT MORALES, TX

LOCATION.--Lat 29°08'07", long 96°44'39", Jackson County, Hydrologic Unit 12100102, on County Road 283, 1.2 mi northeast of Morales.

DRAINAGE AREA.--549 mi^2.

PERIOD OF RECORD.--Oct 1994 to Sep 1995 (discharge measurements only), Oct 1996 to current.

GAGE.--Water-stage recorder. Datum of gage is 65.44 ft above sea level. Satellite telemeter at station.

REMARKS.--Records poor. No known regulation. Much of low flow during the irrigation season (Apr to Sep) comes from drainage from rice fields irrigated by diversions originating from the Colorado River.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	0500	25,000	e33.50	Jun 28	1615	6,180	28.68
Nov 15	unknown	unknown	unknown				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	251	e150	e105	e85	59	101	e31	727	210	24	9.6
2	22	1250	e140	588	e75	58	84	e29	181	160	23	9.2
3	24	1270	e130	1100	e75	56	76	33	83	131	22	10
4	22	e250	e130	305	e74	54	72	31	e58	116	21	9.6
5	20	e190	e130	e190	e74	53	69	33	e42	106	20	13
6	644	e170	e130	143	e74	56	64	29	e35	99	21	12
7	1850	e170	e130	e125	e74	57	59	27	e33	92	17	15
8	384	e170	1960	e115	e74	57	55	25	e32	138	16	14
9	141	e150	1620	e110	e74	56	55	24	e32	91	16	15
10	82	e140	328	e100	75	58	54	34	e30	77	17	9.2
11	51	e140	589	e95	e76	58	51	84	64	73	15	8.4
12	36	524	1350	e95	e110	58	49	80	51	175	15	9.5
13	28	7060	2220	e95	e75	64	45	56	259	120	15	8.8
14	21	e15000	742	e95	e65	103	44	38	220	71	14	8.5
15	19	e16000	348	e95	e65	104	43	30	e120	57	13	7.9
16	17	e10000	e240	e100	e65	69	40	26	e160	50	13	7.3
17	51	5740	e190	e100	e70	60	37	24	e130	46	12	7.3
18	12100	817	e170	e95	e100	57	37	24	76	49	12	7.2
19	21500	515	e155	e90	80	172	38	23	e75	58	11	7.0
20	13400	408	e150	e85	71	707	38	23	e210	57	11	6.8
21	10200	342	e140	e85	e65	308	39	23	169	57	11	6.6
22	7320	296	e140	e85	e60	181	38	24	86	75	13	6.2
23	1120	271	e135	e85	e60	103	e36	24	299	84	13	5.8
24	356	e240	e125	e80	e60	74	e36	22	e230	62	13	5.9
25	e280	e220	e125	e80	e60	61	e35	22	e380	45	12	6.1
26	e250	e200	e120	e78	e58	51	e34	29	e2400	36	13	5.6
27	e230	e190	e115	78	e60	45	e33	24	e5000	34	12	5.6
28	e220	e180	e115	e78	e62	574	e33	856	e4300	32	12	5.8
29	e190	e170	e115	e85	---	775	e33	2210	1810	29	12	11
30	e180	e160	e110	e100	---	247	33	408	302	27	11	11
31	e170	---	e110	e95	---	144	---	962	---	27	9.9	---
TOTAL	70948	62484	12352	4755	2016	4579	1461	5308	17594	2484	459.9	264.9
MEAN	2289	2083	398	153	72.0	148	48.7	171	586	80.1	14.8	8.83
MAX	21500	16000	2220	1100	110	775	101	2210	5000	210	24	15
MIN	17	140	110	78	58	45	33	22	30	27	9.9	5.6
AC-FT	140700	123900	24500	9430	4000	9080	2900	10530	34900	4930	912	525

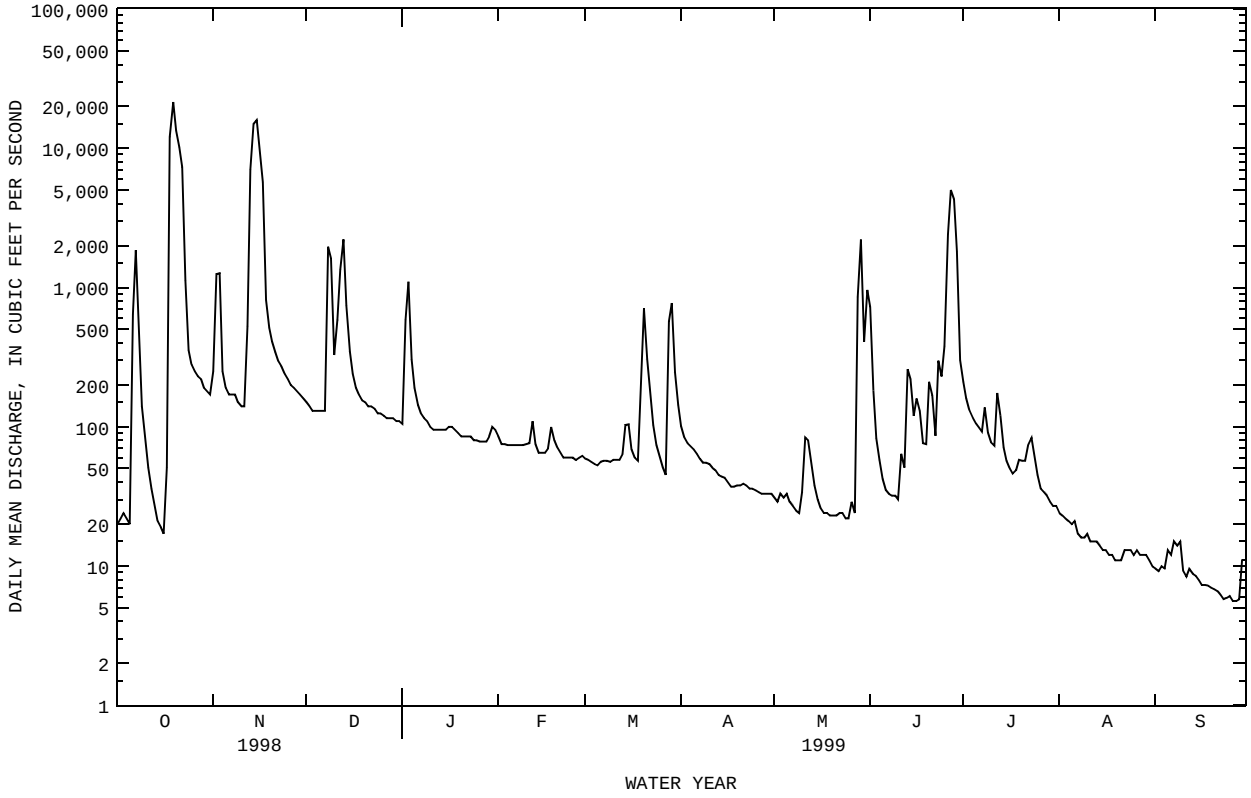
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

MEAN	1156	789	263	336	423	571	595	390	679	36.8	36.3	257
MAX	2289	2083	398	631	870	1314	1682	973	1392	80.1	57.8	677
(WY)	1999	1999	1999	1997	1998	1997	1997	1997	1997	1999	1998	1998
MIN	9.95	53.5	56.4	153	72.0	148	48.7	26.4	58.1	7.30	14.8	8.83
(WY)	1997	1997	1997	1999	1999	1999	1999	1998	1998	1996	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	211385.2		184705.8			
ANNUAL MEAN	579		506		458	
HIGHEST ANNUAL MEAN					543	1997
LOWEST ANNUAL MEAN					326	1998
HIGHEST DAILY MEAN	21500	Oct 19	21500	Oct 19	21500	Oct 19 1998
LOWEST DAILY MEAN	3.4	Aug 6	5.6	Sep 26	.00	Aug 1 1996
ANNUAL SEVEN-DAY MINIMUM	5.3	Aug 1	5.9	Sep 22	.00	Aug 1 1996
INSTANTANEOUS PEAK FLOW			c25000	Oct 19	c25000	Oct 19 0000
INSTANTANEOUS PEAK STAGE			e33.50	Oct 19	e33.50	Oct 19 1998
INSTANTANEOUS LOW FLOW					1.9	Aug 5 1998
ANNUAL RUNOFF (AC-FT)	419300		366400		332100	
10 PERCENT EXCEEDS	937		519		766	
50 PERCENT EXCEEDS	69		73		58	
90 PERCENT EXCEEDS	7.5		12		7.1	

e Estimated
c From rating curve extended above current meter discharge measurement of 7,480 ft^3/s.

08164370 NAVIDAD RIVER AT MORALES, TX--Continued



08164390 NAVIDAD RIVER AT STRANE PARK NEAR EDNA, TX

LOCATION.--Lat 29°03'55", long 96°40'26", Jackson County, Hydrologic Unit 12100102, on County Road 401, 6.3 mi north of Edna.

DRAINAGE AREA.--579 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--Jun 1996 to current. Discharge measurements only prior to Oct 1996.

GAGE.--Water-stage recorder. Datum of gage is 42.53 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good, except those above 10,000 ft^3/s which are poor. No known regulation or diversions. Much of low flow during the irrigation season (Apr to Sep) comes from drainage from rice fields irrigated by diversions originating from the Colorado River.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	0515	25,000	a30.08	Jun 29	0230	5,840	24.84
Nov 15	0500	18,000	28.92				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	250	151	108	85	59	121	32	999	234	26	9.6
2	22	1390	147	272	78	57	93	30	252	168	25	9.4
3	22	1670	129	1230	75	55	79	36	112	136	25	9.4
4	22	470	124	388	74	54	74	32	67	117	24	12
5	19	276	129	206	74	53	72	34	46	106	23	12
6	334	209	124	148	74	54	68	31	39	98	23	14
7	1930	169	123	128	74	56	64	30	35	87	21	14
8	687	165	1520	120	75	57	60	28	33	118	19	14
9	200	165	2070	115	75	57	58	27	33	94	18	15
10	116	149	355	106	74	57	56	30	31	76	17	12
11	75	133	563	97	76	57	54	57	49	75	16	10
12	54	881	1210	96	110	56	49	78	59	133	15	9.9
13	41	7670	2080	97	78	58	46	60	175	141	15	10
14	34	12400	1080	95	69	72	44	43	262	79	14	9.5
15	30	16500	346	94	66	110	42	35	129	62	14	9.0
16	30	12500	247	106	66	71	40	30	109	54	14	9.0
17	26	9070	200	107	71	59	39	26	164	51	13	8.8
18	8850	2330	173	98	99	55	39	25	114	49	13	8.7
19	23300	708	159	92	81	61	40	24	112	51	12	8.5
20	16900	498	152	88	70	639	39	24	78	57	11	8.3
21	13000	394	143	86	65	399	40	24	213	55	11	8.1
22	9910	326	141	86	63	219	39	24	145	64	12	7.8
23	3490	283	136	85	61	133	37	24	349	76	12	7.3
24	623	256	129	83	60	93	37	24	345	68	13	7.4
25	426	237	127	82	60	78	36	22	377	54	12	6.9
26	338	215	122	78	58	69	35	24	1880	41	12	7.8
27	290	195	117	77	60	62	34	22	3230	35	11	7.6
28	284	177	117	79	62	403	34	366	5050	33	11	8.3
29	248	166	116	86	---	931	34	2400	3440	30	12	10
30	211	154	111	101	---	324	34	634	374	28	11	12
31	179	---	109	95	---	183	---	697	---	27	9.9	---
TOTAL	81713	70006	12450	4729	2033	4691	1537	4973	18301	2497	484.9	296.3
MEAN	2636	2334	402	153	72.6	151	51.2	160	610	80.5	15.6	9.88
MAX	23300	16500	2080	1230	110	931	121	2400	5050	234	26	15
MIN	19	133	109	77	58	53	34	22	31	27	9.9	6.9
AC-FT	162100	138900	24690	9380	4030	9300	3050	9860	36300	4950	962	588

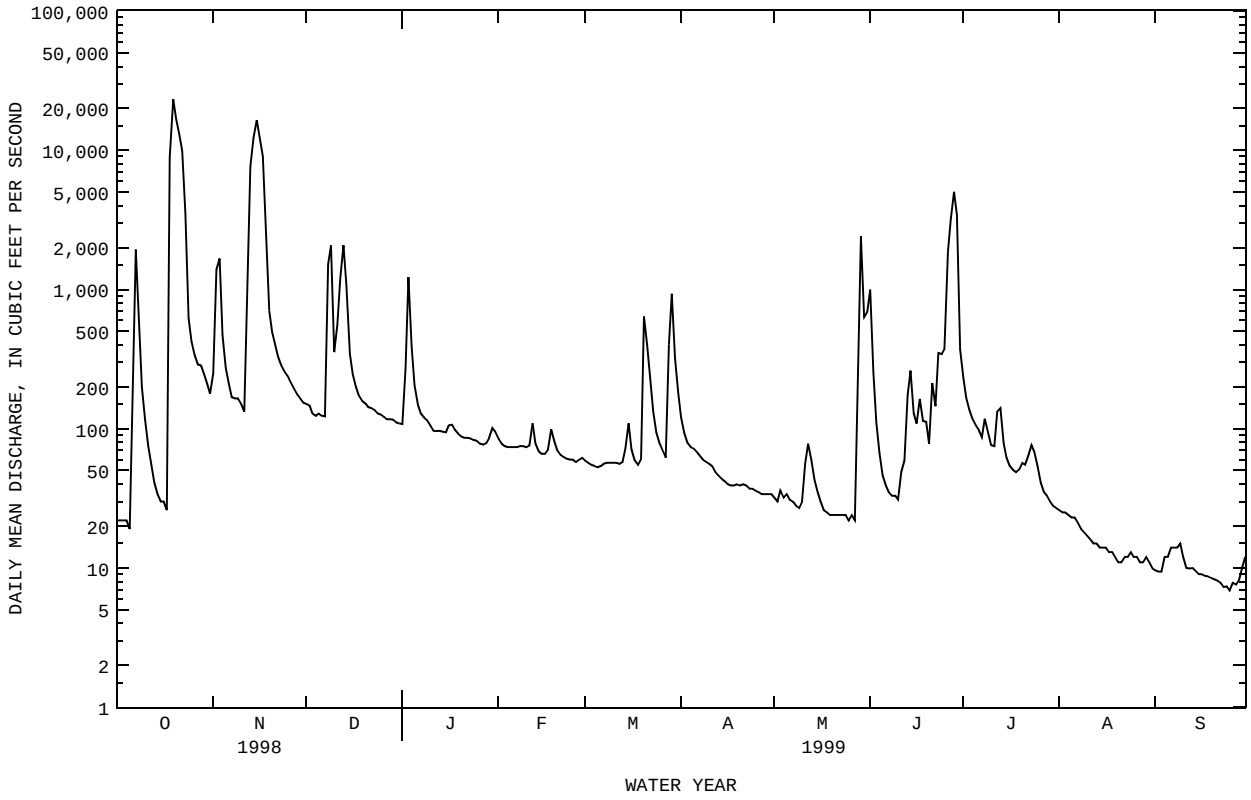
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

MEAN	1319	873	274	357	439	655	713	409	768	44.9	43.4	328
MAX	2636	2334	402	690	904	1540	2030	1038	1632	80.5	72.1	848
(WY)	1999	1999	1999	1997	1998	1997	1997	1997	1997	1999	1998	1998
MIN	13.7	59.6	70.9	153	72.6	151	51.2	27.7	62.9	8.11	15.6	9.88
(WY)	1997	1997	1997	1999	1999	1999	1999	1998	1998	1996	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	237646.1		203711.2			
ANNUAL MEAN	651		558		515	
HIGHEST ANNUAL MEAN					627	1997
LOWEST ANNUAL MEAN					361	1998
HIGHEST DAILY MEAN	23300	Oct 19	23300	Oct 19	23300	Oct 19 1998
LOWEST DAILY MEAN	4.1	Aug 5	6.9	Sep 25	1.2	Jul 24 1996
ANNUAL SEVEN-DAY MINIMUM	5.5	Sep 3	7.6	Sep 21	1.3	Jul 29 1996
INSTANTANEOUS PEAK FLOW			c25000	Oct 19	c25000	Oct 19 1998
INSTANTANEOUS PEAK STAGE			a30.08	Oct 19	a30.08	Oct 19 1998
ANNUAL RUNOFF (AC-FT)	471400		404100		373300	
10 PERCENT EXCEEDS	1140		524		833	
50 PERCENT EXCEEDS	71		74		66	
90 PERCENT EXCEEDS	9.6		12		8.5	

c From rating curve extended above current meter discharge measurement of 9,150 ft^3/s.
a From floodmark.

08164390 NAVIDAD RIVER AT STRANE PARK NEAR EDNA, TX--Continued



08164390 NAVIDAD RIVER AT STRANE PARK NEAR EDNA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jun 1998 to current year.
PESTICIDE DATA: Jun 1998 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)
MAY												
25...	1255	22	736	7.9	28.0	9.9	126	<.010	<.010	<.010	<.010	<.010
AUG												
24...	1300	13	713	7.9	29.0	7.3	95	<.010	<.010	<.010	<.010	<.010

DATE	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAY												
25...	.020	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
AUG												
24...	.026	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010

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08164450 SANDY CREEK NEAR GANADO, TX

LOCATION.--Lat 29°09'36", long 96°32'46", Jackson County, Hydrologic Unit 12100102, on left bank at downstream end of bridge on Farm Road 710, 0.9 mi upstream from Goldenrod Creek, and 10.1 mi northwest of Ganado.

DRAINAGE AREA.--289 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct 1977 to current year. Prior to Oct 1997, published as "near Louise."

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Much of the low flow during the irrigation season (Apr to Sep) is drainage from rice fields irrigated by water originally diverted from the Colorado River. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 7	0615	2,380	13.23	Dec 12	1530	1,800	11.91
Oct 19	0045	35,200	29.85	Jan 2	2130	1,880	12.10
Oct 21	1245	7,290	19.02	May 28	2400	1,540	11.27
Nov 14	1415	13,700	22.90	Jun 26	1945	3,410	15.00
Dec 8	1815	2,860	14.13				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	125	60	26	25	9.7	124	1.1	428	111	68	6.6
2	108	468	57	682	18	8.6	82	9.7	132	50	37	12
3	109	372	56	1090	15	7.3	62	19	54	24	33	5.3
4	132	270	56	766	16	5.4	48	26	30	25	29	1.1
5	118	191	52	270	14	4.5	39	19	6.3	42	24	23
6	321	153	47	133	12	5.6	34	4.6	1.0	85	29	26
7	1640	137	46	96	11	5.4	26	.81	.88	156	25	18
8	727	160	1800	78	11	4.6	20	.69	1.4	211	17	26
9	474	163	1200	61	9.9	4.0	16	.84	2.0	161	13	16
10	274	149	486	46	8.7	4.7	14	11	18	141	9.6	18
11	224	132	688	38	10	5.0	12	100	9.8	157	6.9	11
12	144	328	1480	30	11	4.3	9.1	139	81	156	3.5	6.7
13	109	e5760	909	27	11	7.9	3.5	86	175	175	.89	6.0
14	125	e12600	395	27	10	14	6.6	35	291	156	.12	2.1
15	111	e10100	234	23	8.8	19	3.4	9.6	232	152	.04	1.5
16	84	e5550	160	33	7.9	9.8	2.7	2.0	313	156	.02	.64
17	69	3060	125	26	11	6.9	3.0	.49	227	158	.02	.29
18	10800	1940	104	22	21	5.7	12	.30	134	204	.01	.14
19	e41100	1170	86	25	20	112	9.1	.13	180	213	.00	.04
20	e16800	675	77	26	15	981	3.2	.10	729	193	.00	.01
21	e7400	401	70	28	19	501	.38	.11	1030	239	.00	.00
22	e3620	357	60	22	11	169	.05	.07	984	336	.01	.00
23	2190	252	51	17	8.7	84	.07	.06	968	277	.04	.00
24	1310	200	47	14	7.2	56	.09	.04	603	187	.04	.00
25	724	173	43	12	6.3	40	.17	.03	746	147	.18	4.0
26	427	146	38	10	5.5	28	1.1	.02	2600	111	.12	3.4
27	382	120	32	9.4	5.7	21	6.4	.02	1730	110	.40	1.3
28	275	97	31	12	13	432	7.5	342	1340	109	.38	.68
29	212	83	28	20	---	1110	7.1	967	892	106	.23	68
30	173	72	26	29	---	492	3.3	551	279	106	2.3	149
31	130	---	24	34	---	189	---	532	---	94	.73	---
TOTAL	90414	45404	8568	3732.4	342.7	4347.4	555.76	2857.71	14217.38	4548	300.53	406.80
MEAN	2917	1513	276	120	12.2	140	18.5	92.2	474	147	9.69	13.6
MAX	41100	12600	1800	1090	25	1110	124	967	2600	336	68	149
MIN	69	72	24	9.4	5.5	4.0	.05	.02	.88	24	.00	.00
AC-FT	179300	90060	16990	7400	680	8620	1100	5670	28200	9020	596	807

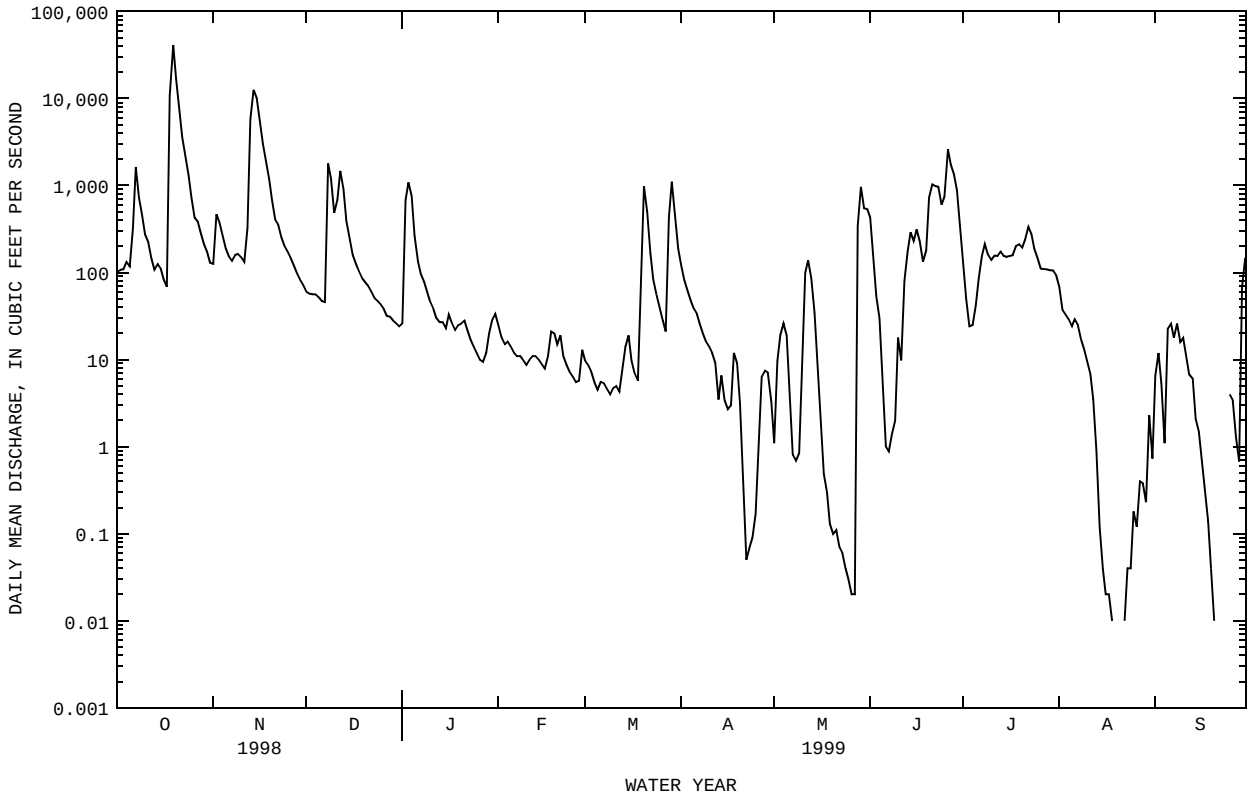
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	380	200	143	276	282	179	220	310	372	127	35.5	249
MAX	2917	1513	746	956	2331	1406	1316	1150	1866	475	147	1364
(WY)	1999	1999	1992	1992	1992	1997	1997	1993	1993	1983	1996	1978
MIN	19.4	3.93	.008	1.36	.28	.080	3.14	1.82	.030	7.25	3.21	11.8
(WY)	1980	1992	1991	1982	1988	1996	1980	1996	1990	1997	1991	1988

08164450 SANDY CREEK NEAR GANADO, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	198226.56		175694.68			
ANNUAL MEAN	543		481		230	
HIGHEST ANNUAL MEAN					606	1992
LOWEST ANNUAL MEAN					51.2	1990
HIGHEST DAILY MEAN	41100	Oct 19	41100	Oct 19	41100	Oct 19 1998
LOWEST DAILY MEAN	.00	May 15	.00	Aug 19	.00	Apr 5 1978
ANNUAL SEVEN-DAY MINIMUM	.00	May 15	.01	Aug 16	.00	Mar 10 1980
INSTANTANEOUS PEAK FLOW			c63400	Oct 19	c63400	Oct 19 1998
INSTANTANEOUS PEAK STAGE			a32.72	Oct 19	a32.72	Oct 19 1998
ANNUAL RUNOFF (AC-FT)	393200		348500		166900	
10 PERCENT EXCEEDS	1010		684		469	
50 PERCENT EXCEEDS	50		30		21	
90 PERCENT EXCEEDS	.04		.35		.07	

e Estimated
c From rating curve extended above 29.0 ft, 29,200 ft^3/s.
a From floodmark.



08164450 SANDY CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1977 to current year.
BIOCHEMICAL DATA: Oct 1977 to current year.
PESTICIDE DATA: Nov 1977 to Jul 1981, Apr 1996 to current year.
SEDIMENT DATA: Sep 1978 to Apr 1979.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)
MAY												
25...	1145	.02	392	7.0	30.5	4.6	61	<.010	<.010	<.010	<.010	<.010
AUG												
24...	1130	.07	387	6.5	--	2.4	--	<.010	2.60	<.010	<.010	<.010

DATE	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAY												
25...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
AUG												
24...	<.010	<.020	<.020	<.020	<.020	<.020	<.020	<.020	<.020	<.020	<.020	<.020

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08164503 WEST MUSTANG CREEK NEAR GANADO, TX

LOCATION.--Lat 29°04'17", long 96°28'01", Jackson County, Hydrologic Unit 12100102, on right bank at downstream end of downstream bridge on U.S. Highway 59, 2.1 mi upstream from Middle Mustang Creek, and 3.6 mi east of Ganado.

DRAINAGE AREA.--178 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 40.12 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. Much of low flow during the irrigation season (Apr to Sep) comes from drainage from rice fields irrigated by diversions originating from the Colorado River.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	2345	7,110	19.72	Mar 29	0615	1,550	13.52
Nov 14	1230	6,900	19.53				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	149	18	3.5	2.7	11	61	14	188	40	44	8.7
2	46	572	16	38	2.4	7.5	35	10	80	30	46	14
3	49	161	14	305	4.0	3.3	23	35	42	24	47	11
4	51	77	12	225	4.9	2.2	18	48	27	15	34	13
5	51	46	9.8	73	2.9	2.2	13	33	18	26	29	16
6	305	30	11	30	2.0	1.7	11	33	11	56	31	17
7	584	22	14	19	1.8	1.4	7.0	22	9.6	108	34	12
8	321	25	107	15	1.8	1.2	4.5	13	13	128	32	15
9	196	26	418	12	1.9	1.0	2.9	10	37	121	28	13
10	117	23	163	9.1	1.8	.86	2.1	33	57	131	27	15
11	85	20	159	7.7	1.6	.84	1.4	238	64	128	31	13
12	67	134	775	6.7	1.8	.86	4.0	191	64	232	32	10
13	48	3110	459	5.4	1.5	5.3	8.0	89	80	196	31	11
14	45	6410	148	3.7	1.3	31	8.7	47	109	157	25	12
15	36	5970	77	3.7	.94	18	10	27	123	129	24	14
16	39	3430	47	2.6	.76	5.7	11	15	529	100	20	13
17	33	1950	31	3.0	.90	3.1	8.2	6.6	602	98	18	12
18	854	1030	24	1.9	1.4	2.2	9.9	4.3	185	100	19	11
19	5240	387	20	5.5	5.3	23	13	6.3	443	118	16	8.9
20	6650	224	16	21	2.9	536	21	11	588	104	18	5.4
21	4830	140	14	21	1.6	226	19	8.6	751	120	23	3.8
22	3280	106	10	18	e2.5	67	26	6.8	604	199	20	3.7
23	2150	85	8.7	18	e3.8	31	23	10	590	130	15	2.9
24	1240	70	7.9	11	5.6	17	23	10	308	95	18	2.9
25	353	58	6.4	5.8	6.9	9.5	25	8.5	197	75	23	1.8
26	206	43	5.4	4.0	1.6	5.6	30	13	377	58	26	6.3
27	141	31	4.7	3.4	1.2	2.7	35	7.2	273	49	25	7.3
28	114	26	4.4	3.7	2.2	630	47	251	154	38	25	8.3
29	97	24	3.9	5.1	---	1400	30	1230	98	32	17	22
30	76	22	3.6	6.2	---	451	20	945	65	29	11	63
31	60	---	3.4	4.3	---	109	---	411	---	32	8.4	---
TOTAL	27409	24401	2611.2	891.3	70.00	3607.16	550.7	3787.3	6686.6	2898	797.4	367.0
MEAN	884	813	84.2	28.8	2.50	116	18.4	122	223	93.5	25.7	12.2
MAX	6650	6410	775	305	6.9	1400	61	1230	751	232	47	63
MIN	33	20	3.4	1.9	.76	.84	1.4	4.3	9.6	15	8.4	1.8
AC-FT	54370	48400	5180	1770	139	7150	1090	7510	13260	5750	1580	728
CFSM	4.97	4.57	.47	.16	.01	.65	.10	.69	1.25	.53	.14	.07
IN.	5.73	5.10	.55	.19	.01	.75	.12	.79	1.40	.61	.17	.08

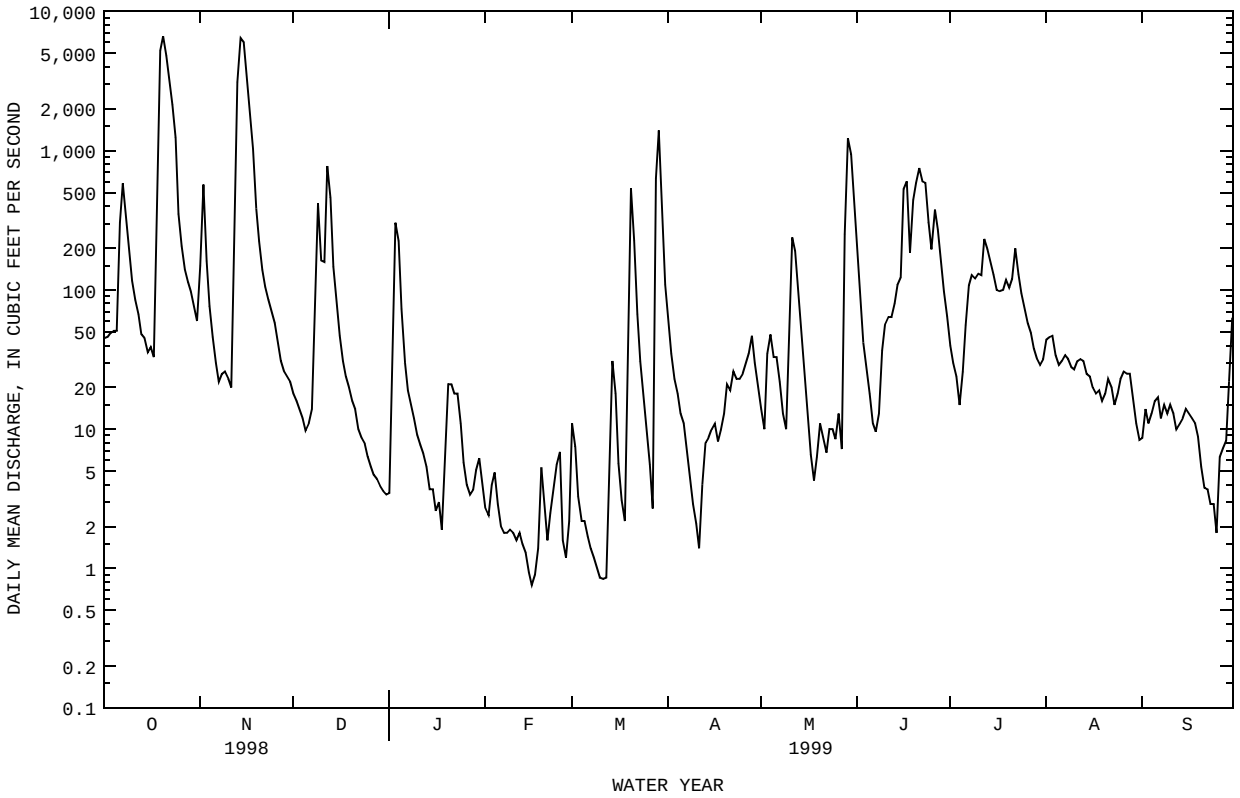
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	271	148	115	188	162	118	167	209	209	106	54.0	219
MAX	1746	813	587	881	1243	988	1107	702	958	412	161	1063
(WY)	1995	1999	1992	1980	1992	1997	1997	1993	1993	1983	1998	1979
MIN	14.2	7.29	.17	.72	.87	.81	12.3	11.2	5.56	38.1	24.2	5.33
(WY)	1988	1981	1991	1982	1986	1986	1983	1978	1990	1986	1982	1988

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	103372.21		74076.66			
ANNUAL MEAN	283		203		164	
HIGHEST ANNUAL MEAN					325	1997
LOWEST ANNUAL MEAN					45.2	1990
HIGHEST DAILY MEAN	6650	Oct 20	6650	Oct 20	18700	Oct 19 1994
LOWEST DAILY MEAN	.30	Mar 28	.76	Feb 16	.00	Dec 19 1990
ANNUAL SEVEN-DAY MINIMUM	1.2	Mar 25	1.1	Mar 6	.01	Dec 19 1990
INSTANTANEOUS PEAK FLOW			7110	Oct 19	20000	Oct 19 1994
INSTANTANEOUS PEAK STAGE			19.72	Oct 19	28.39	Oct 19 1994
ANNUAL RUNOFF (AC-FT)	205000		146900		118600	
ANNUAL RUNOFF (CFSM)	1.59		1.14		.92	
ANNUAL RUNOFF (INCHES)	21.60		15.48		12.50	
10 PERCENT EXCEEDS	554		313		306	
50 PERCENT EXCEEDS	27		23		23	
90 PERCENT EXCEEDS	3.8		2.8		1.6	

e Estimated



08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Oct 1977 to current year.
BIOCHEMICAL DATA: Oct 1977 to current year.
PESTICIDE DATA: Nov 1977 to Jul 1981, Apr 1996 to current year.
SEDIMENT DATA: Sep 1978 to Apr 1979.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)
MAY												
25...	1040	10	822	7.4	25.0	7.2	87	<.010	.018	<.010	<.010	<.010
AUG												
24...	1030	15	822	7.2	--	3.7	--	<.010	.017	<.010	--	<.010

DATE	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAY												
25...	.017	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
AUG												
24...	--	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010

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08164504 EAST MUSTANG CREEK AT FM 647 NEAR GANADO, TX

LOCATION.--Lat 29°04'14", long 96°25'01", Wharton County, Hydrologic Unit 12100102, on right bank, 50 ft downstream from right end of bridge on Farm Road 647, 2.7 mi south of Ganado.

DRAINAGE AREA.--90.8 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jun 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 43.02 ft above sea level. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Much of the low flow during the irrigation season (Apr to Sep) is drainage from rice fields irrigated by water originally diverted from the Colorado River and ground-water wells. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	2400	2,230	19.90	Nov 14	1500	2,430	20.31

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	40	1.8	1.0	.33	1.3	18	1.8	e8.0	3.1	2.3	.18
2	1.3	69	1.8	63	.29	.69	11	2.0	e6.0	2.5	2.1	.15
3	1.2	e37	1.4	15	.26	.49	7.2	3.9	4.8	2.4	2.3	.24
4	1.2	e21	2.3	4.1	.24	.45	5.0	2.9	3.5	2.3	2.7	.48
5	1.1	e13	2.2	2.5	.29	.42	3.4	1.5	2.7	3.2	2.4	.37
6	45	e8.0	1.5	1.9	.33	.39	2.5	1.1	2.5	2.8	2.1	.41
7	77	e5.1	1.4	1.7	.38	.36	e1.8	1.1	5.0	3.3	2.1	.42
8	24	e3.6	1.3	1.6	.42	.35	e1.4	1.1	6.9	6.1	3.6	.45
9	12	e2.5	1.2	1.4	.45	.45	.95	1.3	7.0	5.7	7.5	.46
10	7.7	1.9	1.3	1.3	.45	.38	.87	17	4.2	6.8	6.9	.54
11	5.5	1.7	114	1.3	.43	.39	.75	19	4.2	8.5	6.2	.56
12	4.4	113	279	1.3	.41	.39	1.1	8.8	3.8	10	4.1	.55
13	4.0	2060	58	1.4	.40	.60	.98	5.1	4.0	8.5	3.2	.55
14	3.6	2270	15	3.2	.39	.53	.72	3.2	4.9	6.1	2.3	.66
15	3.9	1690	4.9	3.2	.39	.40	.59	2.4	5.7	5.5	1.5	.88
16	3.7	466	2.4	2.2	.39	.36	.70	1.7	8.2	9.0	1.3	.61
17	3.2	128	1.5	1.7	.44	.36	.99	e1.2	18	7.6	.91	.43
18	993	52	1.1	1.7	.41	.34	2.3	.92	20	11	.68	.35
19	1890	22	.82	1.8	.41	131	1.2	.71	24	15	.48	.30
20	996	17	.68	1.5	.39	299	1.1	e.90	24	14	.40	.29
21	361	8.8	.56	1.4	.38	57	2.0	e.60	28	15	.50	.27
22	126	5.4	.43	1.4	.37	14	4.1	e.79	30	14	.38	.26
23	38	3.9	.38	1.1	.67	5.5	3.2	.79	32	14	.32	.26
24	13	3.2	.39	1.0	.90	3.3	2.4	.75	27	13	.28	.26
25	7.9	2.8	.39	.76	.68	2.5	2.0	1.0	16	9.6	.25	.26
26	5.5	2.5	.40	.63	.90	2.0	2.3	e.85	14	6.5	.21	.36
27	4.4	2.2	.41	.56	1.0	1.6	1.9	e27	13	4.5	.19	.35
28	3.6	2.1	.44	.61	2.6	773	3.6	e500	11	3.3	.17	.32
29	3.1	1.9	.44	.64	---	285	3.6	e130	7.6	2.6	.18	.34
30	2.9	1.9	.53	.52	---	61	4.1	e32	4.4	2.1	.19	.45
31	2.9	---	.86	.40	---	33	---	e13	---	2.2	.19	---
TOTAL	4647.7	7055.5	498.83	121.82	15.00	1676.55	91.75	784.41	350.4	220.2	57.93	12.01
MEAN	150	235	16.1	3.93	.54	54.1	3.06	25.3	11.7	7.10	1.87	.40
MAX	1890	2270	279	63	2.6	773	18	500	32	15	7.5	.88
MIN	1.1	1.7	.38	.40	.24	.34	.59	.60	2.5	2.1	.17	.15
AC-FT	9220	13990	989	242	30	3330	182	1560	695	437	115	24

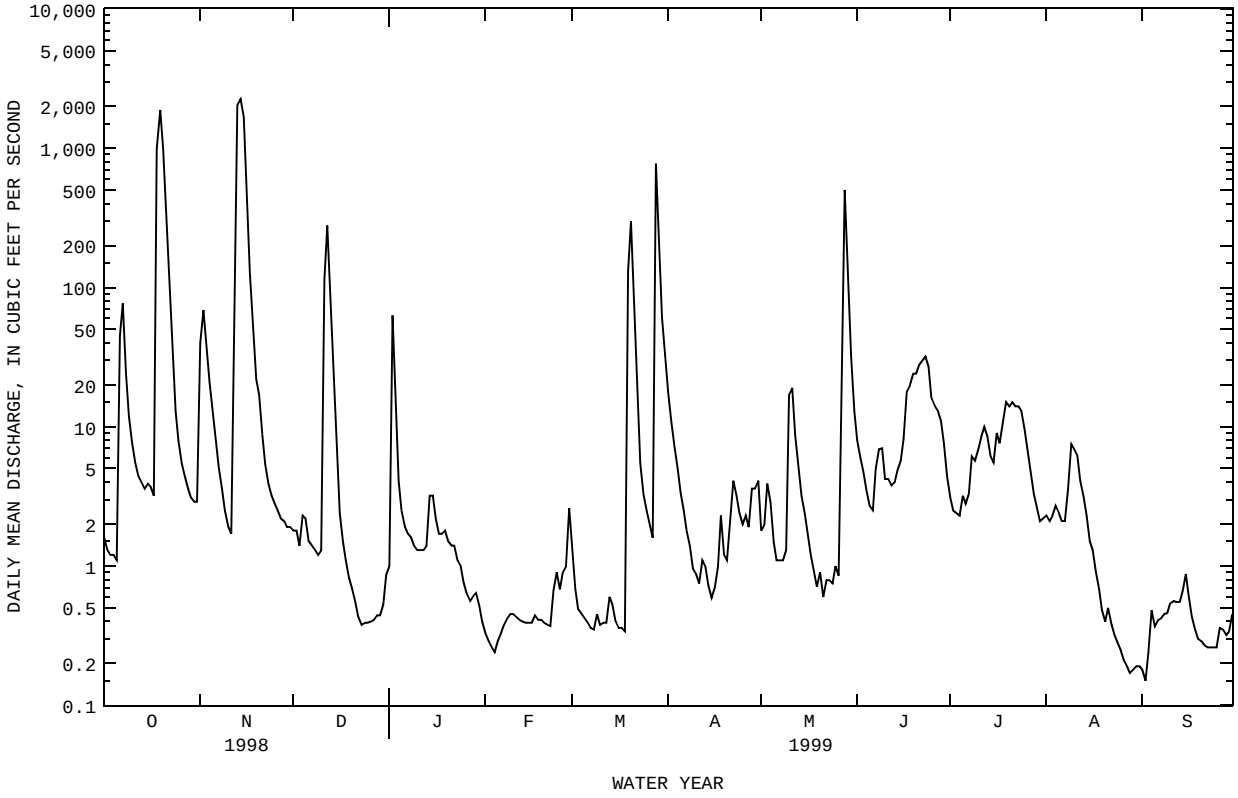
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

MEAN	174	98.9	30.9	64.7	41.4	132	126	53.0	10.5	5.75	42.9	155
MAX	371	235	61.6	161	63.3	310	374	131	18.7	7.82	83.5	368
(WY)	1998	1999	1997	1997	1997	1997	1997	1997	1997	1996	1998	1998
MIN	1.73	29.7	15.1	3.93	.54	30.8	2.05	2.32	1.23	3.09	1.87	.40
(WY)	1997	1997	1998	1999	1999	1998	1998	1998	1998	1998	1999	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	29679.11		15532.10			
ANNUAL MEAN	81.3		42.6		76.8	
HIGHEST ANNUAL MEAN					104	1997
LOWEST ANNUAL MEAN					42.6	1999
HIGHEST DAILY MEAN	3640	Sep 11	2270	Nov 14	3640	Sep 11 1998
LOWEST DAILY MEAN	.34	Mar 13	.15	Sep 2	.15	Sep 2 1999
ANNUAL SEVEN-DAY MINIMUM	.41	Dec 22	.18	Aug 27	.18	Aug 27 1999
INSTANTANEOUS PEAK FLOW			2430	Nov 14	4100	Sep 11 1998
INSTANTANEOUS PEAK STAGE			20.31	Nov 14	22.16	Sep 11 1998
ANNUAL RUNOFF (AC-FT)	58870		30810		55610	
10 PERCENT EXCEEDS	83		27		119	
50 PERCENT EXCEEDS	2.3		2.0		3.6	
90 PERCENT EXCEEDS	.67		.37		.50	

e Estimated

08164504 EAST MUSTANG CREEK AT FM 647 NEAR GANADO, TX--Continued



08164504 EAST MUSTANG CREEK AT FM 647 NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Apr 1996 to current year
PESTICIDE DATA: Apr 1996 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)
MAY												
25...	1110	1.1	605	7.5	27.5	6.4	81	<.010	.089	<.010	<.010	<.010
AUG												
24...	1215	.26	656	7.6	--	7.6	--	<.010	<.010	<.010	<.010	<.010

DATE	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAY												
25...	.086	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
AUG												
24...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010

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08164525 LAKE TEXANA NEAR EDNA, TX

LOCATION.--Lat 28°53'30", long 96°34'00", Jackson County, Hydrologic Unit 12100101, at upstream side of dam at old river channel on the Navidad River, 4.9 mi upstream from confluence with Lavaca River, 4.0 mi north of Lolita, and 7.2 mi southeast of Edna.

DRAINAGE AREA.--1,370 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Jan 1988 to current year.
BIOCHEMICAL DATA: Jan 1988 to current year.
PESTICIDE DATA: May 1994 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

285331096343501 - LAKE TEXANA SITE AC

DATE	TIME	RESER-VOIR STORAGE (AC-FT) (00054)	SAM-PLING DEPTH (FEET) (00003)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (M) (00078)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
MAR												
09...	1030	161000	1.00	168	7.9	19.0	2.62	8.2	88	61	--	21
09...	1032	--	10.0	167	7.9	19.0	--	8.2	88	--	--	--
09...	1034	--	20.0	167	7.9	19.0	--	8.2	88	--	--	--
09...	1036	--	30.0	168	7.8	19.0	--	8.1	86	--	--	--
09...	1038	--	40.0	169	7.8	18.5	--	8.1	86	--	--	--
09...	1040	--	50.0	168	7.7	18.5	--	8.0	85	--	--	--
09...	1042	--	60.0	168	7.8	18.5	--	7.8	82	63	--	22
MAY												
05...	0840	161000	1.00	218	8.1	24.0	2.62	7.1	85	80	0	28
05...	0842	--	10.0	218	8.1	24.0	--	7.3	88	--	--	--
05...	0844	--	20.0	218	8.1	24.0	--	7.3	88	--	--	--
05...	0846	--	30.0	218	8.1	24.0	--	7.2	86	--	--	--
05...	0848	--	40.0	218	8.1	24.0	--	7.2	86	--	--	--
05...	0850	--	50.0	217	7.9	23.5	--	6.5	77	--	--	--
05...	0852	--	60.0	219	7.3	22.0	--	3.0	35	79	--	27
SEP												
09...	0825	142000	1.00	235	7.6	29.0	3.61	4.9	64	80	6	27
09...	0827	--	10.0	235	7.6	29.0	--	4.8	62	--	--	--
09...	0829	--	20.0	235	7.5	29.0	--	4.6	60	--	--	--
09...	0831	--	30.0	235	7.5	29.0	--	4.5	58	--	--	--
09...	0833	--	40.0	235	7.4	28.5	--	4.1	53	--	--	--
09...	0835	--	50.0	234	7.4	28.5	--	4.0	51	--	--	--
09...	0837	--	60.0	277	7.0	25.0	--	.0	0	--	--	--
09...	0839	--	65.0	286	7.0	24.0	--	.0	0	100	--	34

285331096343501 - LAKE TEXANA SITE AC

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM PERCENT (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L) (00556)
MAR												
09...	2.0	7.5	.4	20	3.0	67	4.0	9.1	<.10	8.7	96	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	2.1	7.6	.4	20	3.0	67	4.0	9.5	<.10	8.9	97	--
MAY												
05...	2.7	10	.5	21	3.0	80	5.2	13	.12	9.2	120	<1
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	<1
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	2.7	9.6	.5	20	3.1	81	5.7	12	.11	10	120	--
SEP												
09...	3.2	13	.6	25	3.3	74	5.7	17	.16	13	127	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	3.5	11	.5	18	3.1	110	.82	14	.12	20	158	--

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

285331096343501 - LAKE TEXANA SITE AC

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
MAR											
09...	1.0	<1.0	1	82	<1.0	<1.0	2.6	<1.0	1.8	E8.9	<1.0
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	1.1	<1.0	1	82	<1.0	<1.0	2.9	<1.0	2.0	15	<1.0
MAY											
05...	1.6	<1.0	1	94	<1.0	<1.0	<1.0	<1.0	2.2	E6.7	<1.0
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	1.1	<1.0	<1	94	<1.0	<1.0	<1.0	<1.0	2.1	E6.0	<1.0
SEP											
09...	<1.0	<1.0	4	89	<1.0	<1.0	<1.0	<1.0	2.3	<10	<1.0
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<1.0	<1.0	29	152	<1.0	<1.0	<1.0	3.6	<1.0	2700	<1.0

285331096343501 - LAKE TEXANA SITE AC

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
MAR											
09...	<6	2.0	<.1	<1.0	1.4	<1	<1.0	65	<10	1.9	<1.0
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<6	1.6	<.1	<1.0	1.3	<1	<1.0	66	<10	1.2	<1.0
MAY											
05...	<6	1.3	<.1	<1.0	<1.0	<1	<1.0	85	<10	1.7	<1.0
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	<6	164	<.1	<1.0	1.1	<1	<1.0	83	<10	4.6	<1.0
SEP											
09...	<4	2.1	<.1	<1.0	1.5	<1	<1.0	90	<10	1.3	<1.0
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<4	4670	<.1	<1.0	1.6	<1	<1.0	108	<10	1.8	<1.0

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

285326096342101 - LAKE TEXANA SITE AL

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
09...	1105	1.00	168	7.9	19.0	8.3	89
09...	1107	10.0	168	7.9	19.0	8.2	88
09...	1109	20.0	168	7.9	19.0	8.2	88
09...	1111	30.0	168	7.9	19.0	8.1	86
MAY							
05...	0925	1.00	217	8.1	24.0	7.2	86
05...	0927	10.0	217	8.1	24.0	7.4	89
05...	0929	20.0	217	8.1	24.0	7.4	89
05...	0931	30.0	217	8.1	24.0	7.4	89
SEP							
09...	0905	1.00	235	7.6	29.0	5.1	66
09...	0907	10.0	234	7.6	29.0	5.1	66
09...	0909	20.0	235	7.6	29.0	5.1	66
09...	0911	32.0	234	7.6	29.0	5.0	65

285534096322301 - LAKE TEXANA SITE BC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
MAR							
09...	1120	1.00	185	7.9	19.0	8.3	89
09...	1122	10.0	185	7.9	18.5	8.3	88
09...	1124	20.0	184	7.9	18.5	8.3	88
09...	1126	30.0	183	7.9	18.5	8.3	88
09...	1128	38.0	182	7.9	18.5	8.3	88
MAY							
05...	1005	1.00	229	8.0	24.0	7.4	89
05...	1007	10.0	228	8.0	24.0	7.2	86
05...	1009	20.0	228	8.0	24.0	7.2	86
05...	1011	30.0	228	8.0	24.0	7.1	85
05...	1013	38.0	228	8.0	24.0	7.1	85
SEP							
09...	0935	1.00	241	7.8	29.5	5.7	75
09...	0937	10.0	241	7.7	29.5	5.5	72
09...	0939	20.0	250	7.5	29.5	4.5	59
09...	0941	30.0	253	7.4	29.0	4.2	54
09...	0943	41.0	246	7.4	29.0	3.7	48

285816096320201 - LAKE TEXANA SITE CC

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)
MAR											
09...	0850	1.00	213	7.8	19.0	2.62	7.9	84	--	--	--
09...	0852	10.0	212	7.8	18.5	--	7.8	82	--	--	--
09...	0854	20.0	219	7.7	18.5	--	7.7	81	--	--	--
09...	0855	15.0	222	7.7	18.5	--	7.7	81	<.010	.014	<.010
09...	0856	30.0	224	7.7	18.5	--	7.7	81	--	--	--
09...	0858	37.0	227	7.6	19.0	--	8.0	85	<.010	.014	<.010
MAY											
05...	1045	1.00	241	8.0	25.0	1.64	7.1	87	--	--	--
05...	1047	10.0	241	8.0	24.5	--	7.1	86	--	--	--
05...	1049	17.0	240	8.0	24.5	--	7.0	85	<.010	<.010	<.010
05...	1051	30.0	241	8.0	24.5	--	7.0	85	--	--	--
05...	1053	34.0	241	8.0	24.5	--	7.0	85	<.010	<.010	<.010
05...	1055	--	--	--	--	--	--	--	--	--	--
SEP											
09...	1025	1.00	263	7.7	30.0	5.58	5.6	74	--	--	--
09...	1027	10.0	270	7.6	29.5	--	5.1	67	--	--	--
09...	1029	17.0	281	7.4	29.0	--	3.9	51	<.010	.061	<.010
09...	1031	30.0	285	7.4	29.0	--	3.7	48	--	--	--
09...	1033	35.0	286	7.3	29.0	--	3.7	48	<.010	.056	<.010

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

285816096320201 - LAKE TEXANA SITE CC

DATE	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)
MAR										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	<.010	--	<.010	<.010	--	<.030	<.010
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	<.010	--	<.010	<.010	--	<.020	<.010
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	<.010	<.010	.031	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--
05...	<.010	<.010	.024	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	<.200	--	--	<.200	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	.059	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	.051	--	--	--	--	--	--	--

285816096320201 - LAKE TEXANA SITE CC

DATE	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAR										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.040	--	<.010	--	<.010	--	<.010	<.010
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.020	--	<.010	--	<.010	--	<.010	<.010
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	<.200	--	--	<.200	--	<.200	--	<.200	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--

290042096331401 - LAKE TEXANA SITE DC

DATE	TIME	SAM-PLING DEPTH (FEET) (00003)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (M) (00078)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L) (00556)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)
MAR											
09...	0940	1.00	405	8.1	19.5	--	7.8	84	--	--	--
09...	0942	10.0	413	8.1	19.5	--	7.8	84	--	--	--
09...	0943	12.0	429	8.0	19.5	--	7.7	83	--	<.010	.010
09...	0944	20.0	445	8.0	19.5	--	7.7	83	--	--	--
09...	0946	25.0	463	7.9	19.5	--	7.3	79	--	<.010	<.010
MAY											
05...	1140	1.00	314	8.1	25.5	2.30	7.2	89	<1	--	--
05...	1142	10.0	318	8.1	25.0	--	7.0	86	--	--	--
05...	1144	12.0	318	8.0	25.0	--	6.9	84	--	<.010	<.010
05...	1146	20.0	310	8.0	25.0	--	6.8	83	--	--	--
05...	1148	25.0	309	8.0	25.0	--	6.8	83	--	<.010	<.010
05...	1150	--	--	--	--	--	--	--	--	--	--
SEP											
09...	1110	1.00	342	7.9	30.5	3.61	5.3	71	--	--	--
09...	1112	8.00	346	7.4	30.0	--	2.9	38	--	<.010	.053
09...	1114	16.0	350	7.5	30.0	--	2.5	33	--	<.010	.063

290042096331401 - LAKE TEXANA SITE DC

DATE	SILVEX, TOTAL (UG/L) (39760)	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	<.010	<.010	--	<.010	<.010	--	<.030	<.010
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	<.010	<.010	--	<.010	<.010	--	<.030	<.010
MAY											
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	<.010	.033	<.010	.055	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--	--
05...	<.010	.030	<.010	.053	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	--	<.200	--	--	<.200	--	--
SEP											
09...	--	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	.068	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	.067	--	--	--	--	--	--	--

290042096331401 - LAKE TEXANA SITE DC

DATE	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAR										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.040	--	<.010	--	<.010	--	<.010	<.010
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.040	--	<.010	--	<.010	--	<.010	<.010
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	<.200	--	--	<.200	--	<.200	--	<.200	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--

285940096312101 - LAKE TEXANA SITE EC

DATE	TIME	SAM-PLING DEPTH (FEET) (00003)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (M) (00078)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	2,4,5-T TOTAL (UG/L) (39740)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)
MAR											
09...	0920	1.00	227	7.7	19.0	1.64	7.8	83	--	--	--
09...	0922	10.0	228	7.7	19.0	--	7.8	83	--	--	--
09...	0924	20.0	230	7.7	19.0	--	7.5	80	--	--	--
09...	0926	27.0	237	7.7	19.0	--	7.3	78	<.010	E.007	<.010
MAY											
05...	1105	1.00	198	7.8	26.0	1.31	6.8	84	--	--	--
05...	1107	10.0	200	7.7	24.5	--	6.8	82	--	--	--
05...	1109	13.0	200	7.7	24.5	--	6.7	81	<.010	<.010	<.010
05...	1111	20.0	203	7.6	24.5	--	6.4	77	--	--	--
05...	1113	26.0	204	7.6	24.0	--	6.3	75	<.010	<.010	<.010
05...	1115	--	--	--	--	--	--	--	--	--	--
SEP											
09...	1040	1.00	280	7.8	29.0	5.58	6.2	80	--	--	--
09...	1042	13.0	340	7.1	29.0	--	2.1	27	<.010	.033	<.010
09...	1044	20.0	320	7.1	29.0	--	2.1	27	--	--	--
09...	1046	26.0	320	7.1	29.0	--	2.2	29	<.010	.034	<.010

285940096312101 - LAKE TEXANA SITE EC

DATE	DICAMBA TOTAL (UG/L) (82052)	2,4-DP TOTAL (UG/L) (82183)	PIC-LORAM UNFILT RECOVER (UG/L) (39720)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	ETHION, TOTAL (UG/L) (39398)
MAR										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	<.010	<.010	--	<.010	<.010	--	<.020	<.010
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	<.010	<.010	.033	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--
05...	<.010	<.010	.080	<.010	--	<.010	<.010	--	<.010	<.010
05...	--	--	--	--	<.200	--	--	<.200	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	.053	<.010	--	<.010	<.010	--	<.010	<.010
09...	--	--	--	--	--	--	--	--	--	--
09...	<.010	<.010	.043	<.010	--	<.010	<.010	--	<.010	<.010

285940096312101 - LAKE TEXANA SITE EC

DATE	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	PHORATE TOTAL (UG/L) (39023)	DEF TOTAL (UG/L) (39040)
MAR										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.020	--	<.010	--	<.010	--	<.010	<.010
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
05...	<.200	--	--	<.200	--	<.200	--	<.200	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010
09...	--	--	--	--	--	--	--	--	--	--
09...	--	<.010	<.010	--	<.010	--	<.010	--	<.010	<.010

08164600 GARCITAS CREEK NEAR INEZ, TX

LOCATION.--Lat 28°53'28", long 96°49'08", Victoria County, Hydrologic Unit 12100402, at right downstream end of bridge on U.S. Highway 59 access road, 0.3 mi upstream from Southern Pacific Railroad bridge, 2.0 mi southwest of Inez, and 3.6 mi upstream from Casa Blanca Creek.

DRAINAGE AREA.--91.7 mi^2.

PERIOD OF RECORD.--Jun 1970 to current year.
Water-quality records.--Chemical data: Apr 1965 to Aug 1988. Biochemical data: Apr 1965 to Aug 1988. Pesticide data: Jul 1970 to Jul 1981.

REVISED RECORDS.--WDR TX-94-3: 1992-93.

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft above sea level. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. An undetermined amount of return water from irrigation enters the stream above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1903-70, 24.5 ft Oct 26, 1960. In 1929, a flood nearly as high as the 1960 flood occurred, and a flood in Sep 1967 reached a stage of 23.4 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	0730	4,900	22.10	Nov 13	1815	7,320	24.95

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	51	11	9.3	3.8	.70	2.1	.70	1.5	5.5	.37	.07
2	1.3	188	9.8	9.1	3.6	.71	1.4	.75	1.1	3.6	.35	.07
3	3.5	90	9.7	8.0	3.6	.65	1.1	.90	.98	2.5	.32	.12
4	2.0	42	9.4	7.4	6.0	.60	.97	1.1	.90	2.5	.29	.22
5	1.1	29	8.9	7.2	4.1	.65	.86	1.0	.87	2.3	.24	.08
6	236	28	8.3	7.2	3.4	.70	.71	.79	.83	2.2	.21	.24
7	626	34	8.5	7.2	3.0	.63	.61	.65	.80	2.0	.21	1.9
8	147	122	258	7.2	2.8	.63	.63	.67	.81	1.7	.17	2.4
9	58	83	114	6.7	2.6	.61	.62	.72	.97	1.9	.12	.81
10	30	46	55	6.4	2.4	.58	.66	1.6	1.1	1.8	.11	.49
11	16	28	94	6.4	16	.59	.61	1.9	.95	1.6	.07	.42
12	8.6	317	196	6.3	45	.60	.57	3.4	1.0	1.5	.07	.32
13	4.3	5810	87	12	20	3.1	.63	2.7	1.5	1.2	.07	.48
14	2.1	5340	48	7.1	8.7	1.1	.67	1.6	2.1	2.0	.07	.75
15	1.0	2930	35	5.1	4.3	.51	.57	1.3	21	4.3	.07	.23
16	.58	477	27	5.0	2.7	.45	.51	1.2	9.2	4.4	.07	.12
17	.37	181	23	5.0	2.8	.45	.55	1.2	12	3.9	.07	.07
18	756	104	19	4.8	2.0	.45	.57	1.8	9.7	3.4	.07	.06
19	4050	70	17	4.6	1.7	.62	.65	2.6	3.9	3.8	.07	.03
20	1220	50	15	4.6	1.5	.81	.67	1.5	35	3.5	.06	.03
21	451	37	14	4.8	1.2	.60	.74	1.2	22	11	.06	.02
22	185	30	13	4.6	.94	.47	.77	1.1	16	9.9	.08	.03
23	85	25	12	4.3	.91	.45	.81	1.0	40	6.4	.17	.04
24	47	22	12	4.2	.86	.44	.77	.98	40	3.9	.13	.04
25	31	20	11	4.1	.86	.42	.86	.95	35	2.7	.08	.03
26	23	17	10	4.2	.85	.40	1.1	.96	44	2.0	.07	.04
27	26	16	10	4.3	.86	.40	1.3	.91	46	1.4	.10	.03
28	57	14	9.9	4.9	.78	20	1.1	13	31	1.0	.13	.04
29	67	13	9.5	4.8	---	23	.83	12	17	.74	.09	.19
30	41	12	9.1	4.8	---	11	.71	5.2	9.3	.54	.08	.03
31	25	---	9.4	4.0	---	4.4	---	2.2	---	.43	.07	---
TOTAL	8203.65	16226	1173.5	185.6	147.26	76.72	24.65	67.58	406.51	95.61	4.14	9.40
MEAN	265	541	37.9	5.99	5.26	2.47	.82	2.18	13.6	3.08	.13	.31
MAX	4050	5810	258	12	45	23	2.1	13	46	11	.37	2.4
MIN	.37	12	8.3	4.0	.78	.40	.51	.65	.80	.43	.06	.02
AC-FT	16270	32180	2330	368	292	152	49	134	806	190	8.2	19
CFSM	2.89	5.90	.41	.07	.06	.03	.01	.02	.15	.03	.00	.00
IN.	3.33	6.58	.48	.08	.06	.03	.01	.03	.16	.04	.00	.00

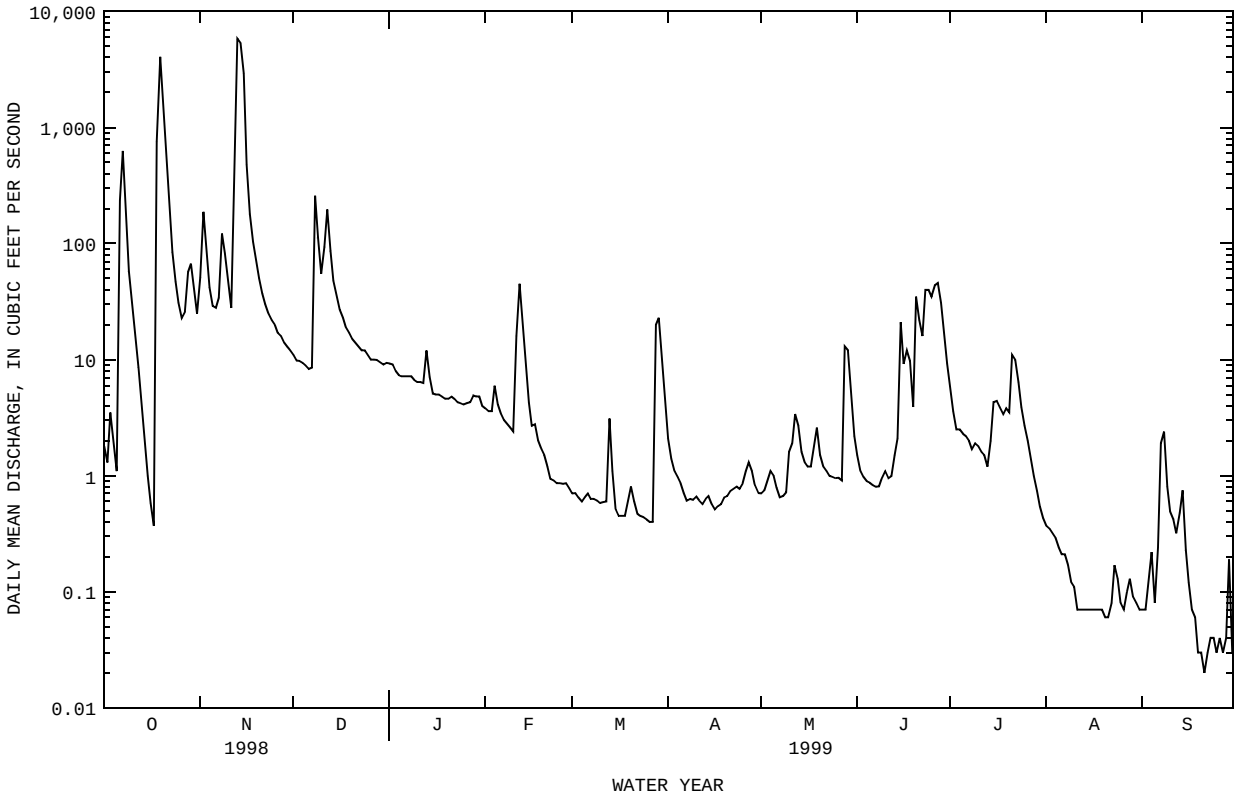
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)

MEAN	73.9	45.6	37.8	41.5	52.8	45.5	83.6	114	118	21.0	6.77	77.3
MAX	695	541	263	220	558	578	658	503	745	218	64.1	789
(WY)	1995	1999	1977	1992	1992	1997	1991	1979	1981	1983	1998	1978
MIN	.000	.000	.006	.022	.14	.48	.25	.045	.000	.006	.056	.000
(WY)	1990	1990	1990	1990	1990	1996	1996	1996	1990	1998	1988	1988

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1970 - 1999	
ANNUAL TOTAL	46177.81		26620.62			
ANNUAL MEAN	127		72.9		59.8	
HIGHEST ANNUAL MEAN					144	1992
LOWEST ANNUAL MEAN					2.65	1989
HIGHEST DAILY MEAN	5810	Nov 13	5810	Nov 13	13100	Oct 19 1994
LOWEST DAILY MEAN	.00	Jun 14	.02	Sep 21	.00	May 22 1971
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 14	.03	Sep 19	.00	May 26 1971
INSTANTANEOUS PEAK FLOW			7320	Nov 13	19700	Jun 12 1981
INSTANTANEOUS PEAK STAGE			24.95	Nov 13	a33.43	Oct 19 1994
ANNUAL RUNOFF (AC-FT)	91590		52800		43300	
ANNUAL RUNOFF (CFSM)	1.38		.80		.65	
ANNUAL RUNOFF (INCHES)	18.73		10.80		8.86	
10 PERCENT EXCEEDS	134		45		56	
50 PERCENT EXCEEDS	5.0		2.0		3.2	
90 PERCENT EXCEEDS	.00		.12		.29	

a From floodmark.



08117995 COLORADO RIVER NEAR GAIL, TX

LOCATION.--Lat 32°37'43", long 101°17'06", Borden County, Hydrologic Unit 12080002, near right downstream end of bridge on FM 1205, 5.0 mi north of junction with FM 1785, 13 mi southeast of Gail, 14 mi northwest of Vincent, and 25 mi west of Ira.

DRAINAGE AREA.--498 mi^2.

PERIOD OF RECORD.--Mar 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,240 ft above sea level, from topographic map. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 3	0215	1,060	a12.00	Jun 14	0600	1,210	12.81
Jun 8	0715	798	10.52	Jul 15	1645	773	10.51

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.0	.00	.00	.00	.00	.00	48	.00	.00	1.4	.00
2	.00	.00	.00	.00	.00	.00	.00	490	.00	.00	1.4	.00
3	.00	.00	.00	.00	.00	.00	.00	527	.00	.00	.01	.00
4	.00	.00	.00	.00	.00	.00	.00	45	.00	.00	20	.00
5	.00	.00	.00	.00	.00	.00	.00	6.3	.00	.00	21	.00
6	.00	.00	.00	.00	.00	.00	.00	.99	.00	.00	3.7	.00
7	.00	.00	.00	.00	.00	.00	.00	.08	148	.00	.01	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	694	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	209	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	126	2.6	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	264	88	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	325	18	.00	.00
13	.00	.00	.00	.00	.00	.00	25	.00	991	.88	.00	.00
14	.00	.00	.00	.00	.00	.00	54	.00	910	.89	.00	.00
15	.00	.00	.00	.00	.00	.00	15	.00	181	392	.00	27
16	.00	.00	.00	.00	.00	.00	.20	.00	23	101	.00	6.7
17	.00	.00	.00	.00	.00	.00	.00	.00	8.3	4.0	.00	2.1
18	.00	.00	.00	.00	.00	.00	.00	.00	3.2	.21	.00	.05
19	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.01	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.55	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	121	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	120	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	7.8	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	1.7	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.17	.00	.00	.00
28	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	129	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	30	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.73	---	.00	.00	---
TOTAL	0.00	2.00	0.00	0.00	0.00	0.04	94.20	1277.10	4135.30	607.59	47.52	35.85
MEAN	.000	.067	.000	.000	.000	.001	3.14	41.2	138	19.6	1.53	1.19
MAX	.00	2.0	.00	.00	.00	.04	54	527	991	392	21	27
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	4.0	.00	.00	.00	.08	187	2530	8200	1210	94	71

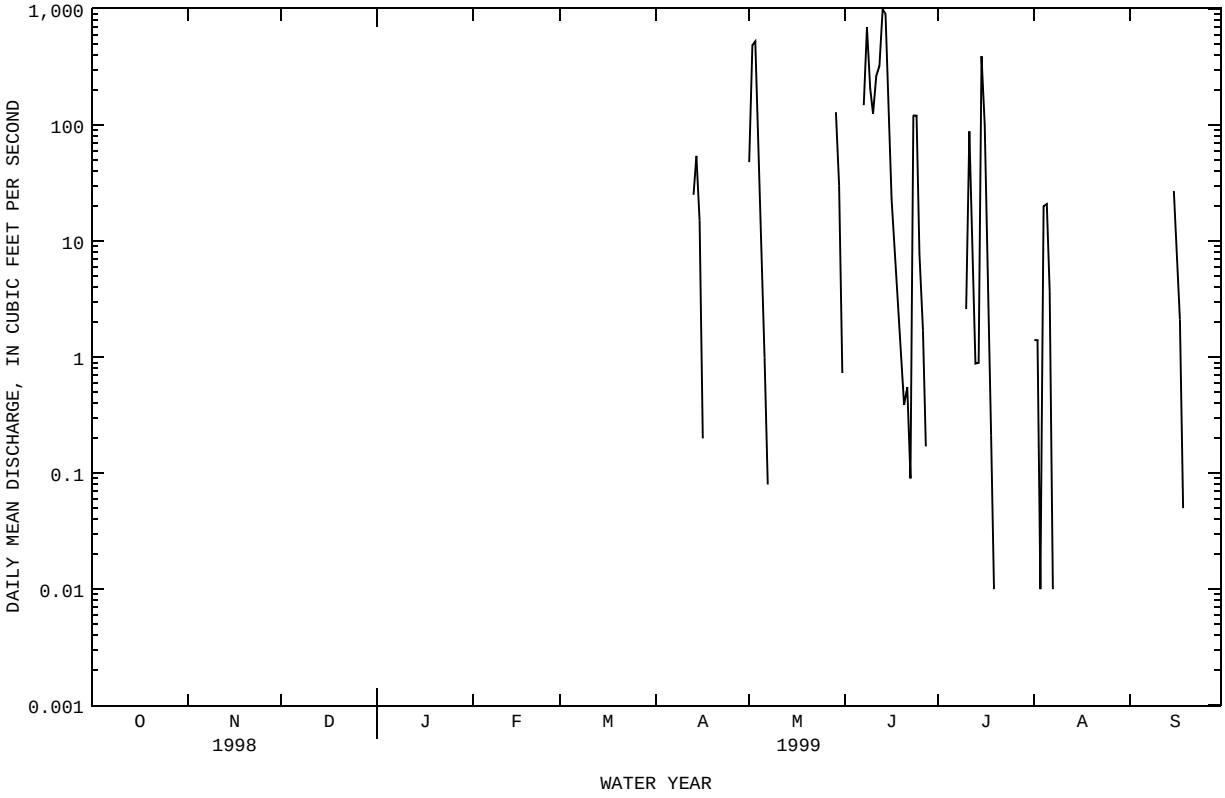
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

MEAN	1.47	1.22	1.83	1.53	3.74	2.01	5.84	36.2	44.7	12.7	5.20	16.0
MAX	10.6	4.71	15.6	8.42	23.8	10.0	51.5	263	166	107	22.6	49.1
(WY)	1992	1992	1992	1992	1992	1990	1990	1992	1992	1988	1996	1989
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1990	1990	1990	1995	1991	1991	1991	1993	1990	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	155.82		6199.60			
ANNUAL MEAN	.43		17.0		10.7	
HIGHEST ANNUAL MEAN					46.2	1992
LOWEST ANNUAL MEAN					.48	1998
HIGHEST DAILY MEAN	81	Aug 20	991	Jun 13	2060	May 25 1992
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Jun 7 1988
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Jun 7 1988
INSTANTANEOUS PEAK FLOW			1210	Jun 14	4010	Jul 3 1988
INSTANTANEOUS PEAK STAGE			12.81	Jun 14	m16.43	May 26 1992
ANNUAL RUNOFF (AC-FT)	309		12300		7760	
10 PERCENT EXCEEDS	.00		2.3		7.0	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

a From floodmark.
m Result of earthen dam.

08117995 COLORADO RIVER NEAR GAIL, TX--Continued



The U.S. Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time. 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. 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 of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two 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 (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1998

Station number	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River Basin				
08129500	Dove Creek Spring near Knickerbocker, Tex.	Lat 31°11'06", long 100°43'51", Irion County, at headquarters ranch house, 500 ft upstream from Dove Creek, 1.8 mi upstream from Stilson Dam on Dove Creek and 8.5 mi southwest of Knickerbocker.	--	1944-58✞ 1959-99	10-15-98 01-05-99 03-15-99 05-24-99 07-21-99 08-12-99 09-20-99	7.81 7.28 6.76 9.19 7.98 7.55 6.77
08143900	Springs at Fort McKavett, Tex.	Lat 30°50'03", long 100°05'37", Menard County, 0.9 mi northwest of Fort McKavett at low-water crossing on Ranch Road 864.	--	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-99	10-28-98 12-03-98 02-02-99 03-16-99 05-26-99 07-28-99 09-20-99	15.1 14.8 13.8 15.0 12.4 12.3 11.6
08146500	San Saba Springs at San Saba, Tex.	Lat 31°11'44", long 98°42'42", San Saba County, 150 ft upstream from bridge on U.S. Highway 190 at San Saba and 0.8 mi east of courthouse.	--	1939, 1952, 1957, 1959-99	10-27-98 12-02-98 02-03-99 03-15-99 05-25-99 07-27-99 09-23-99	8.66 9.71 11.7 7.80 7.13 8.31 8.62
08149400	South Llano River near Telegraph, Tex.	Lat 30°15'43", long 99°56'01", Edwards County, 3.7 mi upstream from Paint Creek, 5.7 mi south of Telegraph, and 18.7 mi southwest of Junction.	508	1939, 1952, 1956, 1959-99	10-28-98 12-03-98 02-02-99 03-16-99 05-26-99 07-28-99 09-20-99	37.5 35.5 30.7 29.2 27.8 26.5 24.3
08149500	Seven Hundred Springs near Telegraph, Tex.	Lat 30°16'12", long 99°55'22", Edwards County, about 3 mi upstream from Paint Creek, about 5 mi south of Telegraph, and about 18 mi southwest of Junction.	--	1939, 1952, 1955-56, 1959-99	10-28-98 12-03-98 02-02-99 03-16-99 05-26-99 07-28-99 09-20-99	27.2 22.3 21.6 18.9 24.4 21.4 21.7

✞ Operated as a continuous-record station.

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1999

Station number	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River Basin				
Clear Creek near Menard, Tex. 08143950	San Saba River	Lat 30º54'13", long 99º55'27", Menard County, at bridge on U.S. Highway 190, about 9 mi west of Menard.	106	1984-99	10-28-98 02-02-99 05-26-99	12.2 13.2 11.5
Tanner Springs near Telegraph, Tex. 08149405	South Llano River	Lat 30º15'45", long 99º56'03", Edwards County, about 5.6 mi south of Telegraph, Kimble County, and 18.6 mi southwest of Junction at mouth.	--	1939, 1962, 1989-99	10-28-98 12-03-98 02-02-99 03-16-99 05-26-99 07-28-99 09-20-99	14.1 14.9 13.4 14.2 13.0 12.4 12.3

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