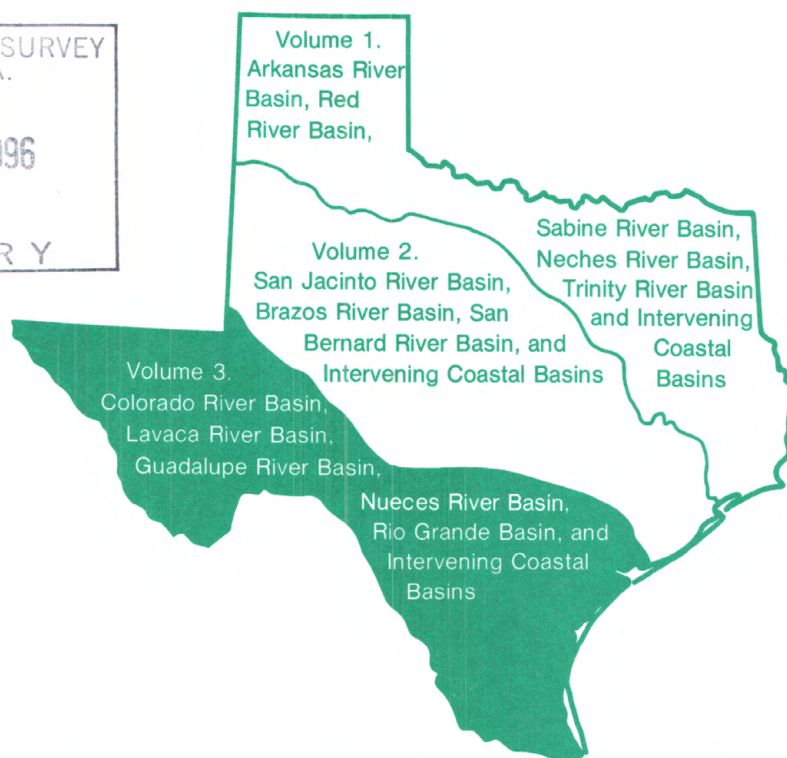
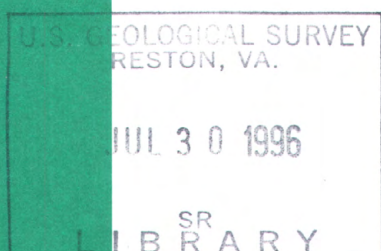


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# Water Resources Data Texas Water Year 1995

Volume 3. Colorado River Basin, Lavaca River Basin,  
Guadalupe River Basin, Nueces River Basin, Rio  
Grande Basin, and Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-95-3  
Prepared in cooperation with the State of Texas  
and with other agencies

# CALENDAR FOR WATER YEAR 1995

1994

## OCTOBER

S	M	T	W	T	F	S
						1
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
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30	31					

## NOVEMBER

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## DECEMBER

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1995

## JANUARY

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## FEBRUARY

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## JULY

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23	24	25	26	27	28	29
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## AUGUST

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## SEPTEMBER

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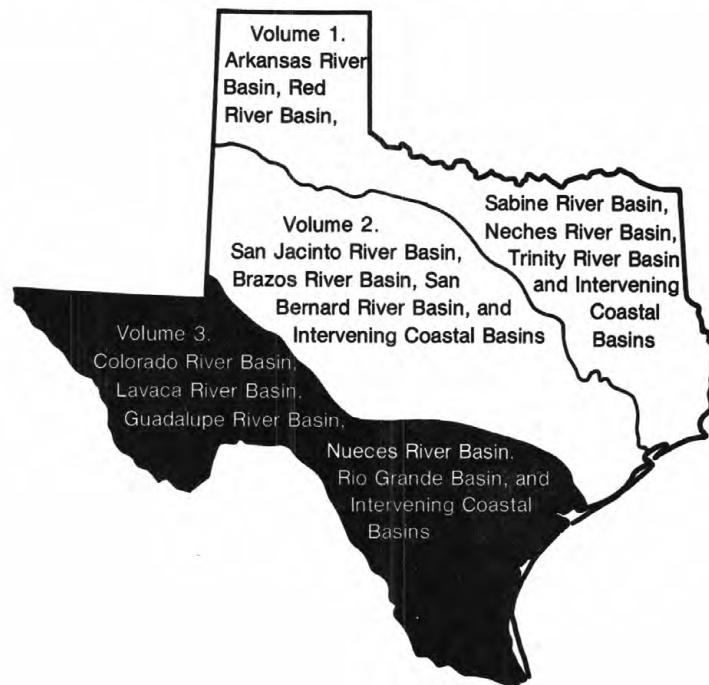




# Water Resources Data Texas Water Year 1995

## Volume 3. Colorado River Basin, Lavaca River Basin, Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Basins

by S.C. Gandara, W.J. Gibbons, F.L. Andrews, J.C. Fisher, B.A. Hinds,  
and R.E. Jones



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-95-3

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

**UNITED STATES DEPARTMENT OF THE INTERIOR**

**BRUCE BABBITT, Secretary**

**GEOLOGICAL SURVEY**

**Gordon P. Eaton, Director**

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Austin, Texas 78754-3898**



## 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 4 volumes:

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

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

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<b>RIO GRANDE BASIN</b>		
Rio Grande at El Paso (c) .....	08364000	404
Rio Grande at Foster Ranch near Langtry (c) (b) (s) .....	08377200	405
Pecos River at Red Bluff, NM (d) (c) (b) .....	08407500	407
Delaware River near Red Bluff, NM (d) .....	08408500	408
Red Bluff Reservoir near Orla (e) .....	08410000	409
Pecos River near Orla (d) (c) (f) .....	08412500	410
Pecos River near Girvin (d) .....	08446500	413
Pecos River near Langtry (c) (b) (s) .....	08447410	414
Devils River at Pafford Crossing near Comstock (c) (b) (s) .....	08449400	416
Rio Grande below Amistad Dam near Del Rio (c) .....	08450900	418
Rio Grande at Laredo (c) .....	08459000	419
Rio Grande below Falcon Dam (c) .....	08461300	420
Rio Grande at Fort Ringgold, Rio Grande City (c) .....	08464700	421
Rio Grande near Los Ebanos (c) .....	08466300	422
Rio Grande below Anzalduas Dam (c) .....	08469200	423
Arroyo Colorado at Harlingen (c) (b) (s) .....	08470400	425
Rio Grande near Brownsville (c) (b) (s) .....	08475000	427

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

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 crest-stage 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 <sup>2</sup> )	Period of record (water years)
Bull Creek near Ira (d)	08118500	26.30	1947-53, 1958-62
Bluff Creek near Ira (d)	08119000	42.60	1948-65
Colorado River near Ira (d)	08119500	3,483	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	1954-63
Morgan Creek near Colorado City (d)	08122500	313	1947-49
Champion Creek near Colorado City (d)	08123500	198	1948-59
Beals Creek above Big Spring (d)	08123650	9,319	1959-79
Beals Creek at Big Spring (d)	08123700	9,341	1957-58
Beals Creek near Coahoma (d)	08123720	9,383	1983-88
Colorado River near Silver (d)	08123900	14,997	1957-70
Colorado River at Ballinger (d)	08126500	16,420	1907-79
South Concho Irrigation Co. Canal at Christoval (d)	08127500	N/A	1940-83
Middle Concho River near Tankersley (d)	08128500	2,653	1930-61
Dove Creek Springs near Knickerbocker (d)	08129500	N/A	1944-58
Spring Creek near Tankersley (d)	08131000	699	1930-60
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	1931-53
North Concho River at San Angelo (d)	08135000	1,525	1915-31, 1947-90
Mulewater Creek at Trickham (d)	08137500	70	1952-73
Colorado River at Winchell (d)	08138000	25,179	1924-34, 1939-93
Deep Creek near Mercury (d)	08139500	43.90	1954-73
Dry Prong Deep Creek near Mercury (d)	08140500	8.31	1951-71
Pecan Bayou near Cross Cut (d)	08140700	532	1968-78
Jim Ned Creek near Coleman (d)	08140800	333	1965-80
Hords Creek near Valera	08141500	54.20	1947-90
Hords Creek near 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	1924-28, 1929-83
Noyes Canal at Menard (d)	08144000	N/A	1924-83
San Saba River at Menard (d)	08144500	1,135	1916-93
San Saba River near Brady (d)	08144600	1633	1979-93
Brady Creek near Eden (d)	08144800	101	1962-85
Brady Creek at Brady (d)	08145000	588	1939-86
San Saba River at San Saba (e) (d)	08146000	3,046	1905-07, 1916-93
Lake Buchanan near Burnet (e)	08148000	31,910	1937-89
North Llano River near Junction (d)	08148500	914	1915-77
Llano River near Junction (d)	08150000	1,854.14	1916-93
Llano River near Mason (d)	08150700	3,247.14	1968-93
Llano River near Castell (d)	08151000	3,747	1924-39
Perdarnales River near Fredericksburg (d)	08152900	369	1979-93
Pedernales River at Stonewall (d)	08153000	647	1925-34
Pedernales River near Spicewood (d)	08154000	1,294	1924-37

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Lake Travis near Austin (d)	08154500	38,755	1940-89
Colorado River below Mansfield Dam, Austin (d)	08154510	38,755	1975-90
Barton Creek near Camp Craft Road near Austin (d)	08155260	109	1983-89
Shoal Creek at Northwest Park at Austin (d)	08156700	6.52	1975-84
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 (d)	08158100	12.60	1986
Walnut Creek at Dessau Road, Austin (d)	08158200	26.20	1986
Little Walnut Creek at Georgian Drive, Austin (d)	08158380	5.22	1986
Bear Creek at Farm-Market Road 1626 near Manchaca (d)	08158820	N/A	1982-83
Little Bear Creek at Farm-Market Road 1626 near Manchaca (d)	08158825	N/A	1979-80
Boggy Creek (South) at Circle S Road, Austin (d)	08158880	3.58	1985-86
Williamson Creek at Oak Hill (d)	08158920	6.30	1978-93
Williamson Creek at Manchaca Road, Austin (d)	08158930	19	1984
Williamson Creek at Jimmy Clay Road, Austin (d)	08158970	27.60	1976-86
Wilbarger Creek near Pflugerville (d)	08159150	4.6	1964-80
Big Sandy Creek near McDade (d)	08159165	38.70	1979-85
Big Sandy Creek near Elgin (d)	08159170	63.80	1979-85
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	1984-85
Colorado River at Matagorda (e)	08162504	42,240	1977-82
Colorado River near Tiger Island Cut near Matagorda (e)	08162508	N/A	1977-82
Culver Cut near Matagorda (e)	08162512	N/A	1977-82
Matagorda Bay near Matagorda Peninsula near Matagorda (e)	08162515	N/A	1977-82
Navidad River near Speaks (d)	08164350	437	1982-89
Navidad River near Ganado (d)	08164500	826	1939-80
Lavaca River near Lolita (e)	08164530	N/A	1973-82
Lavaca River near Vanderbilt (e)	08164555	N/A	1974-82
Saluria Bayou near Port O'Connor (e)	08164985	N/A	1971-82
Johnson Creek near Ingram (d)	08166000	114	1942-60, 1962-93
Guadalupe River above Bear Creek at Kerrville (d)	08166140	N/A	1978-86
Guadalupe River near Comfort (d)	08166500	762	1918-32
Rebecca Creek near Spring Branch (d)	08167600	10.90	1960-79
Guadalupe River at New Braunfels (d)	08169500*	1,652	1915-27
San Marcos River at San Marcos (d)	08170500	93	1915-21
Plum Creek near Lockhart (d)	08172500	184	1925-30
San Marcos River at Ottine (d)	08173500	1,249	1915-43
Peach Creek below Dilworth (d)	08174600	460	1960-79
Guadalupe River below Cuero (d)	08176000	4,923	1903-06, 1917-19, 1921-35
Coletto Creek Reservoir inflow (Guadalupe diversion) near Schroeder (d)	08176990	N/A	1980-94
Coletto Creek near Schroeder (d)	08177000	369	1930-33, 1953-79
West Elm Creek at San Antonio (d)	08178640	2.45	1986
Medina River near Pipe Creek (d)	08179000	474	1923-35, 1953-82
Red Bluff Creek near Pipe Creek (d)	08179100	56.30	1956-81
Medina Lake near San Antonio (e)	08179500	634	1913-94
Medina River near Riomedina (d)	08180500	650	1924-26, 1931, 1953-73
Ranch Creek near Helotes (d)	08181410		1978



Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Leon Creek Tributary at Kelly Air Force Base (d)	08181450	1.19	1969-79
Calaveras Creek near Elmendorf (d)	08182500	77.20	1955-71
San Antonio River at Calaveras (d)	08183000	1,786	1918-25
Cibolo Creek near Bulverde (d)	08184000	198	1946-65
Cibolo Creek above Bracken (d)	08184500	250	1946-51
Cibolo Creek at Sutherland Springs (d)	08185500	665	1924-29
Ecleto Creek near Range (d)	08186500	239	1962-89
Escondido Creek at Kenedy (d)	08187500	72.40	1955-73
Guadalupe-Blanco River Authority Calhoun Canal-Flume No. 2 near Long Mott (d)	08188750	N/A	1972-86
Guadalupe River at State Highway 35 near Tivoli (e)	08188810	N/A	1975-82
Medio Creek near Beeville (d)	08189300	204	1962-77
Chiltipin Creek at Sinton (d)	08189800	128	1970-91
Nueces River near Uvalde (d)	08191500	1,930	1928-39
Nueces River near Cinonia (d)	08192500	2,150	1915-25
Nueces River at Simmons (d)	08194600	8,561	1965-77
Dry Frio River at Knippa (d)	08196500	179	1953
Frio River near Frio Town (d)	08199700	1,460	1924-27
Hondo Creek near Hondo (d)	08200500	132	1953-64
Seco Creek near Utopia (d)	08202000	53.20	1953-61
Seco Creek near D'Hannis (d)	08202500	87.40	1953-64
Leona River Spring Flow near Uvalde (d)	08204000	N/A	1939-65
Leona River near Divot (d)	08204500	565	1924-29
Frio River at Callihan (d)	08207000	5,491	1925-26, 1932-81
Atascosa River near McCoy (d)	08207500	530	1951-57
Lucas Creek near Pleasanton (d)	08207700	32.80	1967-74
Ramirena Creek near George West (d)	08210300	84.40	1968-72
Lagarto Creek near George West (d)	08210400	155	1972-89
Nueces River below Mathis (d)	08211100	16,726	1966-67
Nueces River above Calallen (d)	08211200	16,772	1966-67
San Diego Creek at Alice (d)	08211800	319	1972-90
San Fernando Creek at Alice (d)	08211900	507	1965-87
San Fernando Creek near Alice (d)	08212000	N/A	1962-63
Los Olmos Creek near Falfurrias (d)	08212400	480	1967-83
Franklin Canal at El Paso	08355550	N/A	1969-72
McKelligon Canyon at El Paso (d)	08365600	2.30	1958-77
Inlet to Fort Bliss Sump at El Paso (d)	08365700	3.50	1961
Government Ditch at El Paso (d)	08365800	6.40	1958-77
Riverside Canal near Socorro (d)	08366400	N/A	1969-72
Tornillo Drain at mouth near Tornillo (d)	08368000	N/A	1969-72
Tornillo Canal near Tornillo (d)	08368300	N/A	1969-72
Hudspeth Feeder Canal near Tornillo (d)	08368900	N/A	1969-72
Cibolo Creek near Presidio (d)	08373200	276	1972-77
Alamito Creek near Presidio (d)	08374000	1,504	1932-71
Sanderson Canyon at Sanderson (d)	08376300	195	1968-80
Salt Screwbean Draw near Orla (d)	08411500	464	1939-40, 1944-57
Pecos River near Mentone (d)	08414000	21,650	1922-26, 1969-73
Reeves County WID No. 2 Canal near Mentone (d)	08414500	N/A	1942-57, 1970-90
Ward County WID No. 3 Canal near Barstow (d)	08415000	N/A	1940-57, 1970-90
Pecos River above Barstow (d)	08416500	21,800	1916-21
Ward County Irrigation District No. 1 Canal near Barstow (d)	08418000	N/A	1922-25, 1939-57, 1970-90

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS--Continued

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Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Madera Canyon near Toyahvale (d)	08424500	53.80	1932-49
Phantom Lake Spring near Toyahvale (d)	08425500	N/A	1932-33, 1949-66
Giffin Springs at Toyahvale (d)	08427000	N/A	1932-33
San Solomon Springs at Toyahvale (d)	08427500	N/A	1931-33, 1941-65
West Sandia Spring at Balmorhea (d)	08429000	N/A	1931-33
East Sandia Spring at Balmorhea (d)	08430000	N/A	1931-33
Toyah Creek near Pecos (d)	08431000	1,024	1940, 1944-45
Salt Draw near Pecos (d)	08431500	1,882	1940, 1944-45
Dry Escondido Creek near Kenedy (d)	08188000	9.43	1954-59
Limpia Creek above Fort Davis (d)	08431700	52.40	1965-86
Limpia Creek below Fort Davis (d)	08431800	227	1961-77
Limpia Creek near Fort Davis (d)	08432000	303	1925-26, 1927-32
Barrilla Draw near Saragosa (d)	08433000	612	1925-26, 1932, 1976-83
Toyah Creek below Toyah Lake near Pecos (d)	08434000	3,709	1940-51
Grandfalls-Big Valley Canal near Barstow (d)	08435000	N/A	1939-57, 1970-76
Pecos River below Barstow (d)	08435500	25,980	1939-40
Toronto Creek near Alpine (d)	08435600	27.90	1971-76
Alpine Creek at Alpine (d)	08435620	18.10	1971-76
Moss Creek near Alpine (d)	08435660	11.30	1971-76
Sunny Glen Canyon near Alpine (d)	08435700	29.70	1968-77
Coyanosa Draw near Fort Stockton (d)	08435800	1,182	1964-77
Pecos County WID No. 2 (Upper Div.) Canal near Grandfalls (d)	08436500	N/A	1922-25, 1939-57, 1970-90
Pecos County WID No. 2 Canal near Imperial (d)	08437500	N/A	1940-90
Pecos County WID No. 3 Canal near Imperial (d)	08437600	N/A	1970-90
Ward County WID No. 2 Canal near Grandfalls (d)	08437700	N/A	1939-57, 1970-90
Pecos River near Grandfalls (d)	08438100	27,810	1916-26
Comanche Springs at Fort Stockton (d)	08444500	N/A	1941-64
Pecos River near Sheffield (d)	08447000	31,600	1922-25, 1940-49
Independence Creek near Sheffield (d)	08447020	763	1974-85
Pecos River near Langtry (d)	08447410	35,179	1976-78, 1981-85
Devils River near Juno (d)	08449000	2,730	1925-49, 1964-73
Devils River at Pafford Crossing near Comstock (d)	08449400	3,961	1978-85
Pinto Creek near Del Rio (d)	08455000	249	1929-68, 1969, 1971

## DISCONTINUED SURFACE-WATER-QUALITY STATIONS

The following stations were discontinued as continuous-record surface-water-quality stations prior to the 1994 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 <sup>2</sup> )	Type of record	Period of record (water years)
Colorado River above Bull Creek near Knapp	08118200	N/A	SC, T	1950-52
Bull Creek near Ira	08118500	26.30	SC, T	1950
Bluff Creek near Ira	08119000	42.60	SC, T	1950
Colorado River near Ira	08119500	3,483	SC, T	1950-52, 1958-70, 1974-82, 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	SC, 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	1956-68
Colorado River at Robert Lee	08124000	15,307	SC, T	1947-51, 1949-51
Oak Creek near Blackwell	08126000	N/A	SC, T	1950
Colorado River at Ballinger	08126500	16,420	SC, T	1961-79, 1978-79
Elm Creek at Ballinger	08127000	450	SC, T	1968-91
Concho River at Paint Rock	08136500	6,574	SC, T	1946-49, 1967-90
Pecan Bayou at Brownwood	08143500	1,660	SC, T	1948-49
Pecan Bayou near Mullin	08143600	2,073	SC, T	1967-91
San Saba River near San Saba	08145500	N/A	SC, T	1962-65
San Saba River at San Saba	08146000	3,046	SC, T	1962-69
Colorado River near San Saba	08147000	19,819	SC, T	1947-92
Llano River at Llano	08151500	4,197	SC, T	1979-81
Lake Austin at Austin	08154900	N/A	SC, T	1964-80
Waller Creek at 23rd Street at Austin	08157500	4.13	T	1955-60
Colorado River at Austin	08158000	39,009	SC, T	1947-91
Colorado River above Columbus	08160700	41,403	SC, T	1983-85
Colorado River at Columbus	08161000	41,460	SC	1966-73, 1957-70, 1957-73
Colorado River at Wharton	08162000	30,600	SC	1944-92, 1945-48, 1950-92
Lavaca River near Edna	08164000	817	SC, T	1977-81
Navidad River near Ganado	08164500	826	SC, T	1959-80
Guadalupe River near Spring Branch	08167500	1,315	SC	1942-45
Guadalupe River at Sattler	08167800	1,436	T	1984-87
Blanco River at Wimberley	08171000	355	T	1976-78
Plum Creek near Luling	08173000	309	SC, T	1967-86
Guadalupe River at Victoria	08176500	5,198	SC	1945-81, 1950-81
Coletto Creek Reservoir (Condenser No. 1) near Fannin	08177360	N/A	T	1980-94
Coletto Creek Reservoir (outflow) near Victoria	08177410	N/A	T	1980-94
San Antonio River at Loop 410 at San Antonio	08178565	N/A	SC, pH, T, DO	1986-88



## DISCONTINUED SURFACE-WATER-QUALITY STATIONS--Continued

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Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
Escondido Creek SWS #1 near Kenedy	08187000	3.29	S	1955-65
Guadalupe River at Tivoli	08188800	128	SC, T	1965-82
Mission River at Refugio	08189500	690	SC, T	1961-81
Nueces River at Cotulla	08194000	5,171	SC	1942
Nueces River near Tilden	08194500	8,093	SC, T, S	1949-50
Frio River at Calliham	08207000	5,491	SC, T	1967-81
Nueces River near Three Rivers	08210000	5,427	SC	1941-52,
			SC, T	1974-81,
			T	1950-52,
			S	1950-51
Los Olmos Creek near Falfurrias	08212400	480	C	1974-81,
			T	1974-79
Rio Grande at Fort Quitman	08370500	31,944	SC, T	1974-78
Rio Grande at Foster Ranch near Langtry	08377200	80,742	SC, T	1974-81
Pecos River below Red Bluff Dam near Orla	08410100	20,720	SC	1937-69,
			T	1953-69
Salt Draw near Orla	08411500	464	SC, T	1943-48
Pecos River near Mentone	08414000	21,650	SC	1939
Pecos River at Pecos	08420500	22,100	SC	1939-41
Toyah Creek near Pecos	08431000	1,024	SC	1939-40,
				1943-44
Salt Draw near Pecos	08431500	1,882	SC	1939-40,
				1943-44
Toyah Creek below Toyah Lake near Pecos	08434000	3,709	SC	1940-50,
			CI	1940
Pecos River below Grandfalls	08441500	27,820	SC	1939-42,
				1946-56
Pecos River near Girvin	08446500	29,560	SC	1939-41,
				1946-47,
				1953-82,
			T	1953-59,
				1964-82
Pecos River near Sheffield	08447000	31,600	SC	1939-41,
				1946-47
Pecos River near Langtry	08447410	35,179	SC, T	1970-76,
				1980-85
Devils River at Pafford Crossing near Comstock	08449400	3,961	SC, T	1978-85
Rio Grande at Laredo	08459000	132,578	SC	1954-86,
			T	1973-76
Rio Grande at Roma	08462500	166,464	SC	1942-43
Rio Grande at Mission Pumping Plant	08468000	N/A	SC	1945-50
Rio Grande at Cameron Co. WID #2 near San Benito	08473800	N/A	SC	1942-43
Rio Grande at Los Fresnos Pumping Plant near Brownsville	08474130	N/A	SC	1945-46
Rio Grande near Brownsville	08475000	176,333	SC	1943-44,
				1967-83,
			T, S	1966-83



# **WATER RESOURCES DATA—TEXAS, 1995**

## **VOLUME 3**

### **COLORADO RIVER BASIN, LAVACA RIVER BASIN, GUADALUPE RIVER BASIN, NUECES RIVER BASIN, RIO GRANDE 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 four 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 3 contains records for water discharge at 123 gaging stations; stage only at 5 gaging stations; stage and contents at 15 lakes and reservoirs; and water quality at 62 gaging stations. Also included are data for 35 partial-record and 6 flood-hydrograph partial-record 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. 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-95-3." 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.

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) 873-3000.

#### **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 1995 are:

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



Organizations that assisted in the collection of data in this report through joint funding agreements through the Texas Water Development Board or through direct joint funding agreements with the U.S. Geological Survey are:

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 Conservation District; 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-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 County Water Control and Improvement District No. 1; Texas Soil & Water Conservation Board; Texas State Department of Highways & Public Transportation; Texas Natural Resources Conservation Commission; Texas Water Development Board; 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 during water year 1995 generally was normal (discharges between the 25 per-

centile and 75 percentile of record), except for central and east Texas, where streamflow was above normal (discharges within the upper 25 percentile of record) most of the year.

Conservation storage in 77 selected reservoirs throughout the State, with a combined conservation capacity of 34,718,000 acre-feet, decreased from 83 percent at the end of September 1994 to 82 percent at the end of September 1995. Records from these reservoirs indicate that storage increased in 43, decreased in 28, and remained the same in 6.

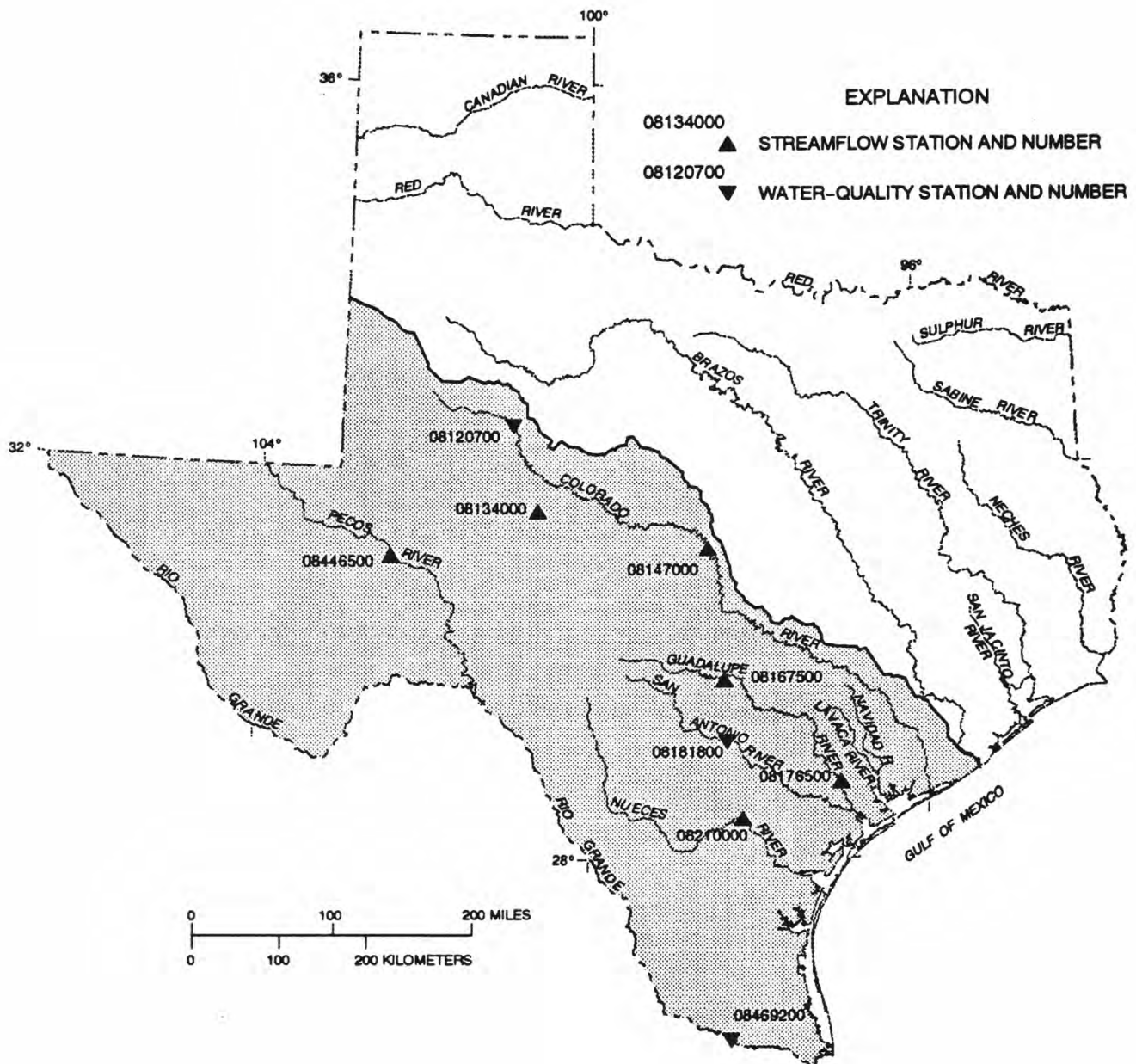
The area for which water resources data are presented in volume 3 includes the entire southwestern one-half of the State, extending from the western tip of the State to the central and lower Texas Gulf Coast. Normal annual precipitation ranges from less than 8 inches in parts of west Texas to more than 40 inches along the middle Texas Gulf Coast. Average annual runoff ranges from less than 0.1 inch in parts of west Texas to more than 10 inches in some places along the Texas Gulf Coast. The area described in volume 3 and the location of selected streamflow-gaging and water-quality stations in the area are shown in figure 1.

### Streamflow

Streamflow was normal during water year 1995 in the area covered in volume 3. Streamflow for water year 1995 and streamflow for the period of record at the six selected stations (fig. 1) for which data are included in volume 3 is presented in table 1.

At the four long-term hydrologic index stations in the State, streamflow during water year 1995 ranged from abovenormal to below normal. Monthly mean discharges for water year 1995 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 was below normal in May and normal, including 5 months of no flow, for the remaining 11 months. Streamflow for the station Guadalupe River near Spring Branch was normal for water year 1995. The station Neches River near Rockland had normal streamflow during May, June, and July, and above normal streamflow for the remaining 9 months. The station North Bosque River near Clifton had above normal streamflow for water year 1995.

Conservation storage in 20 selected reservoirs in this area of the State, with a total combined conservation capacity of 9,201,000 acre-feet, decreased from 69 percent of capacity at the end of September 1994 to 60 percent of capacity at the end of September 1995. Records from these reservoirs indicate that storage increased in 8 and decreased in 12 during the water year.



**Figure 1.** Area of Texas covered by volume 3 (shaded) and location of selected streamflow and water-quality stations in volume 3.

## WATER RESOURCES DATA—TEXAS, 1995

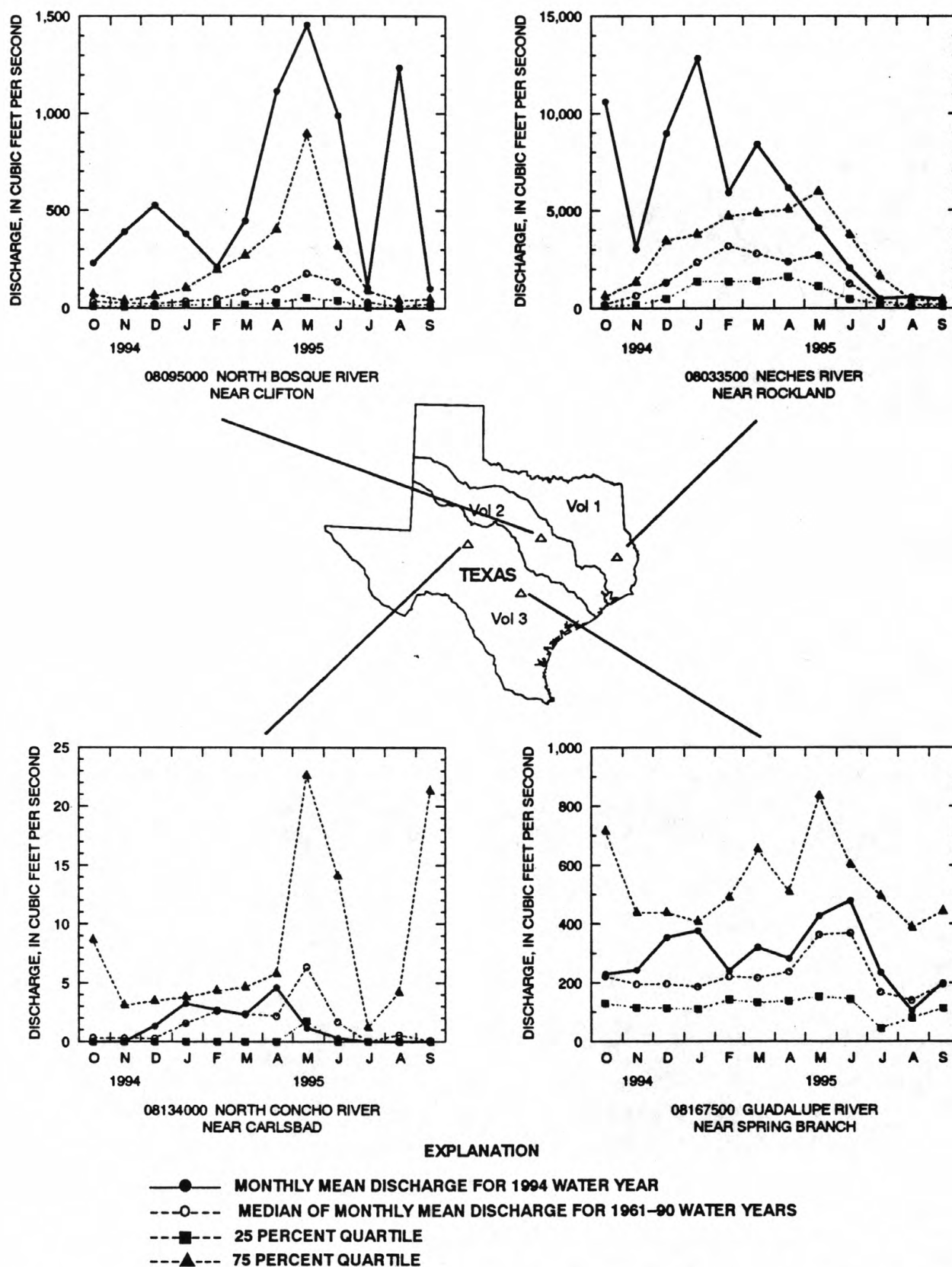


Figure 2. Monthly mean discharges at four long-term hydrologic index stations during 1995 water year and median of the monthly mean discharges for 1961–90 water years.



## Water Quality

Dissolved-solids concentrations in most streams in the State are inversely related to streamflow. 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 concentra-

tions may remain relatively constant despite substantial fluctuations in precipitation and runoff.

Records of discharge-weighted-average concentrations of dissolved solids for water year 1995 are compared with those for water years 1991–95 for selected long-term daily or continuous-record water-quality stations (fig. 1) in the Colorado River, Guadalupe River, and Rio Grande Basins. Results are shown in table 2.

Table 1. Streamflow at six selected stations

Station no. and name	Discharge during 1995 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
<u>Colorado River Basin</u>						
08134000 North Concho River near Carlsbad, Tex. 1/	25	0	1.29	94,600	0	30.2 (1925-95)
08147000 Colorado River near San Saba, Tex.	15,200	34	521	47,400	0	722 (1969-95)
<u>Guadalupe River Basin</u>						
08167500 Guadalupe River near Spring Branch, Tex. 1/	7,310	77	292	160,000	0	346 (1923-95)
08176500 Guadalupe River at Victoria, Tex.	39,600	475	1,783	105,000	42	2,067 (1963-95)
<u>Nueces River Basin</u>						
08210000 Nueces River near Three Rivers, Tex.	1,160	34	262	18,300	.55	449 (1983-95)
<u>Rio Grande Basin</u>						
08446500 Pecos River near Girvin, Tex.	255	5.8	27.5	20,000	1.9	75.8 (1939-95)

1/ Hydrologic index station.

Table 2.—Comparison of records of discharge-weighted-average concentrations  
of dissolved solids for the 1995 and 1991-95 water years

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1995	1991-95	1995	1991-95
<u>Colorado River Basin</u>				
08120700 Colorado River near Cuthbert, Tex.	11	23	1,840	1,680
<u>Guadalupe River Basin</u>				
08181800 San Antonio River near Elmendorf, Tex.	409	740	424	355
<u>Rio Grande Basin</u>				
08469200 Rio Grande below Anzalduas Dam, Tex.	1,499	1,533	820	755

## SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 53 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 the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 284 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

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 for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in about two-thirds of the study units and ultimately will be conducted in 60 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.

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 1995 water year that began October 1, 1994, and ended September 30, 1995. 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 and, in Texas, for surface-water stations where only miscellaneous measurements are made.

### 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 sta-

tion 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 indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation 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 water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily 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 with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device 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 "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report.

#### Data Collection and Computation

The data obtained at a complete record gaging station on a stream or canal consist of a continuous record of stage, individual 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 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 relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters 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, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate 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 are 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.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is 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 curves or 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 the backwater from reservoirs, trib-



utary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall 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 relationship 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 then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. 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 relationships much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated 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.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

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 desig-

nated 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 stream-flow 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<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/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.

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 (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.

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. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (alkalinity), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of alkalinity in the laboratory.

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 punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the Texas District Office. The address is given on the back of the title page of this report.

#### 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 (1995) 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 LOCA-

TION 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 mea-

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surements 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.

## 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 a 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. Full implementation of the protocols will take place in the near future.

## ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk.

## 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.

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

**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 of the original water sample.

**Algae** are mostly aquatic single-celled, colonial, or multi-celled 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.

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. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 24 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 or -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 or -0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at +35 °C or -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.

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. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ( $\text{g/m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g/m}^2$ ).

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. The organic mass is expressed in the same units as for ash mass and dry mass.

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

Bottom material: See Bed material.

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

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

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common 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<sup>3</sup>/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic-foot-per-second day [(ft<sup>3</sup>/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 2,445 cubic meters.

Cubic feet per second per square mile [(ft<sup>3</sup>/s)/mi<sup>2</sup>] 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 mm 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 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of

distribution of aquatic organisms. The formula for diversity index is:

$$\overline{d} = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Drainage area of 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, 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.

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<sub>3</sub>).

Hydrologic Benchmark Network is a network of 53 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 the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic fea-



ture 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.

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 (mg/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, mg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter 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.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 284 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are: (1) To obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for; (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs; (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics; and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United

States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

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, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The U.S. 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 or sieve
Gravel	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic 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 ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 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.

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 [ $\text{mg C}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes and [ $\text{mg C}/(\text{m}^3/\text{time})$ ] 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 [ $\text{mg O}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes and [ $\text{mg O}/(\text{m}^3/\text{time})$ ] or 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. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

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).

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<sup>3</sup>/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

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 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. 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 °C. 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 65 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 emerged 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 plexi-glass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S. Geological Survey 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 planimeted. All areas shown are those for the stage when the planimeted 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 mm 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 mm 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.

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 quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

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.

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 "water year 1990."

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."

- 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 p.
- 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 p.
- 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 p.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.
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- 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 p.
- 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 p.
- 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 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. *Stage measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
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- 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 p.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Ken-nedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 p.
- 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 p.
- 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 p.
- 3-A13. *Computations of continuous records of streamflow*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13, 1983. 53 p.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 p.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 p.
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- 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 p.
- 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 p.
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- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 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 p.
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- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.

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- 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 p.
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- 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.
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- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 p.
- 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 p.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.
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- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.
- 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 p.





COLORADO RIVER MAIN STEM

25

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, 14 mi northwest of Vincent, 25 mi west of Ira, and 13 mi southeast of Gail.

DRAINAGE AREA.--498 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,240 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known regulation or diversions above station. One observation of water temperature was made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 6	0515	1,060	12.00	May 30	0830	651	9.62

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	31	1.1	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	10	.25	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	2.8	.07	.00	.00
4	.00	.00	.00	.00	.00	.00	7.9	.00	.69	.03	.00	.00
5	.00	.00	.00	.00	.00	.00	2.4	87	.26	.01	7.2	.00
6	.00	.00	.00	.00	.00	.00	.56	577	.46	.00	1.0	.00
7	.00	.00	.00	.00	.00	.00	.13	32	1.5	.00	.08	.00
8	.00	.00	.00	.00	.00	.00	.01	6.7	.29	.83	.01	.00
9	.00	.00	.00	.00	.00	.00	.00	2.1	.12	.46	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.34	1.3	.07	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.11	263	.01	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.07	e115	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.03	11	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.01	1.5	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.01	.29	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	4.9	.00	.01	.00	.00	89
19	.00	.00	.00	.00	.00	.00	11	.00	.01	.00	.00	204
20	.00	8.1	.00	.00	.00	.00	2.4	.00	.00	.00	.00	183
21	.00	15	.00	.00	.00	.00	.54	.00	.00	.00	.00	53
22	.00	2.7	.00	.00	.00	.00	.18	.00	.00	.00	.00	15
23	.00	.63	.00	.00	.00	.00	.03	.00	.00	.00	.00	3.4
24	.00	.37	.00	.00	.00	.00	.00	.29	.00	.00	.00	.49
25	.00	.21	.00	.00	.00	.00	.00	.06	.71	.00	.00	14
26	.00	.03	.00	.00	.00	.00	.00	.75	15	.00	.00	81
27	.00	.00	.00	.00	.00	.00	.00	82	6.1	.00	.00	20
28	.00	.00	.00	.00	.00	.00	.00	24	52	.00	.00	3.8
29	.00	.00	.00	.00	---	.00	.00	166	30	.00	.00	.97
30	.00	.00	.00	.00	---	.00	.00	492	6.8	.00	.00	.13
31	.00	---	.00	.00	---	.00	---	141	---	.00	.00	---
TOTAL	0.00	27.04	0.00	0.00	0.00	0.00	30.05	1611.47	549.94	2.83	8.29	667.79
MEAN	.000	.90	.000	.000	.000	.000	1.00	52.0	18.3	.091	.27	22.3
MAX	.00	15	.00	.00	.00	.00	11	577	263	1.1	7.2	204
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	54	.00	.00	.00	.00	60	3200	1090	5.6	16	1320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1995, BY WATER YEAR (WY)

	MEAN	2.07	1.26	2.74	2.41	3.95	2.90	7.60	47.8	41.3	16.4	4.35	22.9
MAX	10.6	4.71	15.6	8.42	23.8	10.0	51.5	263	166	107	15.5	49.1	
(WY)	1992	1992	1992	1992	1992	1990	1990	1992	1992	1988	1991	1989	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.48	
(WY)	1990	1990	1990	1995	1991	1991	1991	1993	1990	1994	1994	1993	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1988 - 1995

ANNUAL TOTAL	706.31	2897.41	
ANNUAL MEAN	1.94	7.94	
HIGHEST ANNUAL MEAN			12.7
LOWEST ANNUAL MEAN			46.2
HIGHEST DAILY MEAN	185	577	1.89
LOWEST DAILY MEAN	.00	.00	2060
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1060	.00
INSTANTANEOUS PEAK STAGE		12.00	.00
ANNUAL RUNOFF (AC-FT)	1400	5750	4010
10 PERCENT EXCEEDS	.51	2.7	m16.43
50 PERCENT EXCEEDS	.01	.00	8.9
90 PERCENT EXCEEDS	.00	.00	.02
			.00

e Estimated

m Result of earthen dam.

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<sup>2</sup>, of which 2,381 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--March 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.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since July 1952, flow largely regulated by Lake J. B. Thomas (capacity, 203,600 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 State Department of Highways and Public Transportation bridge plans.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	1.1	2.1	4.6	4.2	7.4	4.0	.66	52	1.8	.62	.00
2	.03	1.1	1.9	4.5	4.2	6.5	4.0	.74	31	.66	.18	.00
3	.04	1.1	2.4	4.5	4.2	5.7	4.0	.85	21	.51	.16	.00
4	.04	1.1	2.7	4.5	4.2	5.5	4.0	.62	14	.33	.32	.00
5	.04	1.0	3.3	4.5	4.0	5.5	7.3	62	10	.27	38	.00
6	.04	.91	3.2	4.4	3.8	5.5	9.0	679	8.6	.15	47	.00
7	.04	.91	3.1	4.2	3.8	5.7	7.3	250	7.2	.11	13	.00
8	.14	.91	3.1	4.2	3.8	5.5	6.2	54	6.2	.10	5.6	.00
9	.19	.91	3.1	4.2	4.0	5.5	5.5	24	5.4	.10	2.9	.00
10	.14	.91	3.1	4.2	4.2	5.2	4.9	15	6.9	.09	1.2	.00
11	.10	.89	3.2	4.2	4.6	5.0	4.4	10	166	.06	.51	.00
12	.14	.82	3.4	4.0	7.2	5.2	3.7	7.5	142	.04	.32	.00
13	.16	.71	3.4	3.8	7.5	6.3	3.3	6.2	38	.03	.20	.00
14	.16	.83	3.4	3.7	6.0	5.7	2.8	5.2	20	.02	.15	.00
15	.17	.91	3.5	3.5	5.7	5.6	2.1	4.6	12	.01	.11	.00
16	.18	.91	3.6	3.4	5.5	5.2	1.9	4.2	9.1	.00	.06	.00
17	.16	.97	3.6	3.5	5.1	5.2	1.5	4.3	8.1	.00	.03	.00
18	.16	1.9	3.6	5.2	4.7	5.1	1.2	4.2	5.8	.15	.01	15
19	.16	1.8	3.6	12	4.7	4.7	1.1	3.6	5.4	.25	.00	24
20	.23	1.6	3.6	11	4.7	4.7	1.0	2.6	4.7	.21	.00	59
21	.29	1.5	3.6	6.5	4.7	4.7	1.2	2.1	4.6	.10	.00	17
22	.25	1.5	3.6	5.7	4.7	4.7	1.2	1.9	4.0	8.1	.00	9.8
23	.25	1.5	3.8	5.2	4.8	4.4	1.2	1.8	4.1	58	.00	6.0
24	.22	2.0	3.8	4.9	5.4	4.2	1.7	2.0	2.3	17	.00	4.5
25	.53	2.9	3.8	4.7	29	4.2	1.9	4.7	1.1	5.4	.00	e3.6
26	8.3	3.7	3.8	4.7	22	4.2	1.9	5.5	.76	1.9	.00	7.5
27	4.3	3.5	3.8	4.7	15	4.3	1.5	22	3.9	.72	.00	7.5
28	2.6	2.7	5.1	4.6	9.5	4.2	1.1	26	15	.41	.00	4.1
29	1.9	2.7	7.1	4.5	---	3.9	1.1	249	6.6	.23	.00	2.1
30	1.4	2.6	6.1	4.4	---	4.0	1.0	760	3.8	.14	.00	1.2
31	1.2	---	5.2	4.2	---	4.2	---	177	---	.34	.00	---
TOTAL	23.60	45.89	112.6	152.2	191.2	157.7	93.0	2391.27	619.56	97.23	110.37	161.30
MEAN	.76	1.53	3.63	4.91	6.83	5.09	3.10	77.1	20.7	3.14	3.56	5.38
MAX	8.3	3.7	7.1	12	29	7.4	9.0	760	166	58	47	59
MIN	.03	.71	1.9	3.4	3.8	3.9	1.0	.62	.76	.00	.00	.00
AC-FT	47	91	223	302	379	313	184	4740	1230	193	219	320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

	MEAN	31.9	8.27	8.50	7.74	10.9	11.0	30.5	81.5	78.2	18.4	61.2	54.7
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 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1965 - 1995

ANNUAL TOTAL	1675.42	4155.92	33.0	
ANNUAL MEAN	4.59	11.4	104	1980
HIGHEST ANNUAL MEAN			4.15	1970
LOWEST ANNUAL MEAN			8770	Sep 29 1980
HIGHEST DAILY MEAN	80	May 13	.00	Apr 13 1965
LOWEST DAILY MEAN	.00	Jun 29	.00	Apr 13 1965
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 29	.00	Aug 14 1972
INSTANTANEOUS PEAK FLOW			11500	Sep 29 1980
INSTANTANEOUS PEAK STAGE			27.18	
ANNUAL RUNOFF (AC-FT)	3320	8240	23930	
10 PERCENT EXCEEDS	7.6	10	27	
50 PERCENT EXCEEDS	2.6	3.6	4.4	
90 PERCENT EXCEEDS	.00	.03	.01	

e Estimated

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1965 to current year.

WATER TEMPERATURE: March 1965 to May 1980, April 1983 to current year.

INSTRUMENTATION.--From March 1965 to October 1987, specific conductance was recorded continuously at this station. From April 1983 to October 1987, water temperature was recorded continuously at this station. Since October 1989, specific conductance and water temperature are continuously recorded at this station.

REMARKS.--Estimated mean specific conductance and temperature values and interruptions in the mean temperature values were due to malfunctions of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 70,000 microsiemens Nov. 17, 1968; minimum, 102 microsiemens Sept. 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, 13,300 microsiemens Feb. 25; minimum, 371 microsiemens May 30.

WATER TEMPERATURE: Maximum, 33.5°C July 6; minimum recorded, 4.0°C Nov. 30.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 05...	1215	0.04	5680	22.0	800	650	190	78	950
DEC 07...	0930	3.1	5230	11.0	980	720	240	92	850
FEB 07...	1553	3.7	6450	10.5	1100	850	260	110	1100
APR 12...	1500	3.7	7030	23.5	1400	1100	310	140	1000
JUN 15...	1202	11	3520	25.5	490	320	130	41	530

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 05...	15	9.1	140	450	1600	0.50	5.3	3370
DEC 07...	12	13	260	630	1400	1.1	6.2	3390
FEB 07...	14	11	250	800	1700	1.0	2.0	4130
APR 12...	12	11	260	880	1700	1.0	1.0	4200
JUN 15...	10	8.7	170	280	880	0.50	8.3	1980

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. 1994	23.60	7900	5150	328	2100	131	1200	76	1300
NOV. 1994	45.89	6270	4000	496	1500	186	960	119	1100
DEC. 1994	112.6	6210	3960	1200	1500	451	950	288	1100
JAN. 1995	152.2	6600	4230	1740	1600	660	1000	414	1200
FEB. 1995	191.2	6210	3960	2050	1500	771	950	489	1100
MAR. 1995	157.7	6040	3840	1630	1400	608	920	393	1100
APR. 1995	93.0	7050	4540	1140	1800	440	1100	269	1200
MAY 1995	2391.27	1670	1030	6650	340	2220	260	1680	340
JUNE 1995	619.56	2780	1710	2860	570	957	430	722	570
JULY 1995	97.23	6190	3950	1040	1500	389	950	248	1100
AUG. 1995	110.37	3560	2230	664	790	235	550	164	690
SEPT 1995	161.30	3060	1890	823	640	277	470	207	620
TOTAL	4155.92	**	**	20600	**	7320	**	5060	**
WTD.AVG.	11	2930	1840	**	650	**	450	**	560

COLORADO RIVER MAIN STEM  
08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	5140	4880	4990	7140	7020	7080	5140	4950	5040	5910	5670	5790
2	5280	5070	5150	7120	7010	7080	5020	4930	4980	6010	5700	5830
3	5410	5200	5300	7100	6890	7010	5150	5010	5080	6110	5670	6000
4	5590	5410	5470	6890	6740	6820	5300	5140	5210	6420	6110	6260
5	5840	5590	5690	6950	6810	6880	5340	5290	5310	6760	6420	6600
6	5930	5760	5870	6810	6510	6660	5310	5220	5260	7010	6760	6860
7	6010	5470	5830	6660	6510	6590	5390	5200	5260	7100	6800	7030
8	6380	5840	6050	6730	6560	6660	5790	5390	5630	7220	7070	7140
9	7660	6380	6910	6680	6580	6630	5850	5790	5810	7120	6860	7000
10	8320	7660	8040	6630	6520	6590	5960	5820	5880	6940	6680	6830
11	8480	8110	8330	6810	6630	6720	6170	5950	6080	6980	6810	6910
12	8810	8440	8570	6740	6660	6690	6380	6160	6300	7010	6770	6840
13	9020	8810	8900	6720	6640	6680	6400	6270	6330	7200	6920	7050
14	8980	8810	8920	6660	6520	6580	6380	6250	6320	7240	7120	7190
15	8930	8810	8860	6570	6460	6510	6550	6380	6470	7270	7190	7230
16	9220	8890	9090	6590	6470	6520	6650	6540	6590	7310	7190	7240
17	9680	9220	9430	6690	6590	6650	6680	6190	6360	7460	7100	7390
18	9930	9660	9740	6690	6500	6600	6590	6320	6460	7100	6580	6820
19	10800	9890	10200	6540	6450	6500	6650	6520	6580	7130	6340	6670
20	11600	10800	11300	6480	6230	6340	6610	6480	6550	7530	6100	6560
21	11400	9870	10300	6230	6000	6120	6730	6580	6640	7040	6570	6940
22	9870	9290	9540	6160	6070	6120	6860	6730	6780	7630	7040	7300
23	10600	8870	9560	6300	6150	6250	6990	6860	6930	7790	6830	7530
24	10500	10100	10300	6280	6140	6200	6990	6740	6830	6830	4780	5490
25	10100	6820	7570	6140	5950	6040	6830	6700	6770	5600	4780	5070
26	8130	6520	7500	6070	5890	5970	6820	6550	6710	6660	5600	6270
27	11500	8130	10400	6180	6070	6120	6830	6550	6710	6700	6500	6640
28	9380	5830	7550	6080	5700	5890	6810	6700	6760	6500	5980	6240
29	5830	5080	5520	5700	5370	5510	6710	6150	6390	6060	5980	6010
30	5630	4830	5040	5370	5110	5230	6420	5760	6080	6210	6060	6160
31	7250	5630	6730	---	---	---	6030	5640	5800	6250	6170	6200
MONTH	11600	4830	7830	7140	5110	6440	6990	4930	6130	7790	4780	6620

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6320	6240	6270	7720	6150	6870	6670	6420	6530	6750	6470	6620
2	6550	6320	6450	6450	6160	6350	6980	6570	6710	8000	6130	6870
3	6550	6510	6530	6330	6130	6190	7020	6870	6950	6200	5920	6040
4	6510	6310	6400	6340	6170	6300	7130	7000	7080	6440	6030	6210
5	6460	6310	6360	6390	6030	6240	7250	6380	6930	6400	1450	4960
6	6500	6370	6430	6030	5710	5830	6670	5940	6320	1450	584	981
7	6690	6370	6450	5720	5560	5670	7920	6080	7090	2890	1130	1720
8	7010	6690	6920	5610	5400	5480	7630	7410	7540	3900	2890	3310
9	6970	6660	6770	5730	5570	5650	7600	7400	7490	5430	3900	4750
10	6740	6280	6530	5910	5580	5760	7590	7390	7500	6630	5430	5990
11	6600	6160	6370	5910	5750	5840	7540	7320	7420	7520	6630	7130
12	6610	6490	6550	6130	5840	6020	7320	6700	7050	8320	7520	7920
13	6730	4920	5730	6420	6060	6200	6700	6250	6360	8790	8250	8520
14	5800	4920	5320	6100	5550	5890	6460	6150	6280	9200	8740	8910
15	6320	5800	6090	5840	5550	5710	6650	6420	6530	9360	8820	9160
16	6560	6320	6360	5930	5760	5850	7120	6580	6800	9390	9230	9320
17	6730	6560	6630	6060	5930	6020	7690	7090	7440	9530	9280	9430
18	6610	6420	6510	6350	5890	6210	8310	7690	8010	9410	9160	9330
19	6750	6540	6690	6270	5680	5870	8650	8310	8490	9160	8630	8780
20	6800	6750	6780	5850	5720	5790	8980	8620	8780	8760	8590	8660
21	6800	6680	6740	6060	5810	5960	9170	8920	9050	8920	8590	8750
22	6770	6610	6690	6600	5980	6130	9150	8540	8970	9510	8880	9230
23	6940	6660	6860	6570	5760	6040	8540	8030	8240	9670	9420	9530
24	6910	6510	6710	6050	5780	5910	8030	7100	7570	9890	9550	9750
25	13300	2760	7510	6270	5980	6100	7100	6910	6970	9970	8650	9390
26	8010	3360	5280	6270	6120	6210	6960	6270	6700	8650	5070	7220
27	4010	3130	3420	6160	6000	6070	6350	5870	6240	7960	4370	5270
28	7720	3370	6090	6050	5760	5860	6420	6250	6330	6020	2230	4310
29	---	---	---	6100	5840	5950	6450	6140	6260	3050	495	1810
30	---	---	---	6450	6100	6240	6650	6260	6450	1490	371	794
31	---	---	---	6700	6450	6600	---	---	---	2110	1490	1750
MONTH	13300	2760	6340	7720	5400	6030	9170	5870	7200	9970	371	6530



SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995e Estimated



## COLORADO RIVER MAIN STEM

31

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<sup>2</sup>, of which 2,381 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--November 1923 to August 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.

REMARKS.--No estimated daily discharge. Records good. Since July 1952, flow largely regulated by Lake J. B. Thomas (capacity, 203,600 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. Radio telemeter at station.

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

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1947-52).--Maximum discharge, 24,900 ft<sup>3</sup>/s July 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 June 20, 1939, present site and datum, based on floodmarks 1,000 ft upstream and 3,740 ft downstream from gage; discharge, 66,000 ft<sup>3</sup>/s, by slope-area measurement of peak flow at site 2.5 mi upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.24	.41	.41	.41	.41	.41	.24	180	.18	.26	.15
2	.13	.24	.46	.34	.43	.41	.41	.24	50	.19	.41	.15
3	.15	.24	.45	.41	.44	.41	.41	.24	30	.21	.31	.15
4	.15	.29	.41	.41	.41	.41	.41	.24	22	.17	.49	.15
5	.13	.37	.41	.41	.41	.41	2.3	28	4.0	.22	.60	.15
6	.09	.43	.36	.48	.41	.48	.48	360	.34	.24	.17	.15
7	.52	.41	.41	.45	.41	.64	.41	613	.24	.20	.27	.15
8	.32	.41	.41	.41	.41	.43	.52	200	.25	.22	.17	.15
9	.18	.41	.95	.41	.41	.54	.56	48	.30	.23	.12	.35
10	.15	.41	.73	.41	.53	.52	.46	17	24	.25	.07	.43
11	.15	.41	.53	.41	.68	.41	.41	.63	55	.24	.05	.41
12	.15	.41	.41	.41	.45	12	.45	.36	269	.24	.05	.31
13	.15	.52	.41	.41	.41	2.2	.41	.38	104	.21	.05	1.5
14	.15	.62	.41	.41	.41	.35	.41	.41	28	.19	.05	.53
15	.23	.50	.44	.41	.47	.24	.35	.31	3.1	.19	.05	.62
16	.23	.41	.51	.41	.42	.37	.24	.41	.41	.21	.05	.56
17	.23	.42	.41	.41	.41	.41	.37	.33	.24	.40	.05	25
18	.21	.41	.41	2.0	.41	.41	.48	.24	.24	.41	.05	1.1
19	.16	.56	.41	1.0	.47	.41	.37	.24	.24	.28	.04	35
20	.19	.50	.41	.50	.42	.41	.24	.24	.24	.21	.04	.85
21	.24	.41	.41	.41	.41	.41	.24	.24	.24	.20	.04	.56
22	.24	.41	.41	.41	.41	.41	.24	.19	.24	.23	.04	.26
23	.24	.44	.41	.41	.43	.33	.24	.23	.24	.21	.04	.24
24	.24	.78	.44	.41	.58	.39	.24	.27	.24	.19	.03	.24
25	.34	.62	.43	.41	.72	.41	.24	.24	.24	.13	.03	.43
26	.24	.62	.41	.41	.80	.41	.24	.37	.24	.09	51	.38
27	.24	.62	.68	.43	.54	.37	.24	.64	7.8	.08	2.2	.37
28	.24	.45	1.1	.41	.43	.39	.24	.24	1.1	.06	.37	.40
29	.24	.41	.65	.41	---	.41	.25	72	.44	.06	.21	.37
30	.24	.41	.43	.41	---	.41	.24	659	.24	.06	.15	.17
31	.24	---	.44	.41	---	.41	---	526	---	.10	.15	---
TOTAL	6.51	13.38	15.16	15.04	13.14	26.22	12.51	2529.93	782.62	6.10	57.61	71.28
MEAN	.21	.45	.49	.49	.47	.85	.42	81.6	26.1	.20	1.86	2.38
MAX	.52	.78	1.1	2.0	.80	12	2.3	659	269	.41	.51	.35
MIN	.09	.24	.36	.34	.41	.24	.24	.19	.24	.06	.03	.15
AC-FT	13	27	30	30	26	52	25	5020	1550	12	114	141

## COLORADO RIVER MAIN STEM

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995#, BY WATER YEAR (WY)

MEAN	40.4	7.62	6.12	4.79	9.78	8.10	38.7	106	79.2	22.0	42.6	61.6
MAX	339	61.1	49.6	33.6	99.0	88.3	332	1047	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

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1953 - 1995#
ANNUAL TOTAL	433.20	3549.50	
ANNUAL MEAN	1.19	9.72	35.6
HIGHEST ANNUAL MEAN			143
LOWEST ANNUAL MEAN			.41
HIGHEST DAILY MEAN	156 May 10	659 May 30	9560 May 25 1957
LOWEST DAILY MEAN	.00 Aug 7	.03 Aug 24	.00 Oct 4 1952
ANNUAL SEVEN-DAY MINIMUM	.00 Aug 23	.04 Aug 19	.00 Oct 4 1952
INSTANTANEOUS PEAK FLOW		930 May 30	13000 May 25 1957
INSTANTANEOUS PEAK STAGE		10.20 May 30	27.81 Sep 29 1980
ANNUAL RUNOFF (AC-FT)	859	7040	25820
10 PERCENT EXCEEDS	.64	.82	26
50 PERCENT EXCEEDS	.37	.41	.62
90 PERCENT EXCEEDS	.01	.15	.00

# Period of regulated streamflow.



## 08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1946 to September 1954, November 1956 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1946 to September 1954, November 1956 to current year.

WATER TEMPERATURE: November 1952 to September 1954, November 1956 to current year.

INSTRUMENTATION.--From 1969 to 1975, specific conductance was continuously recorded at this station.

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 regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the U.S. Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 67,400 microsiemens May 14, 17, 1961; minimum daily, 240 microsiemens Sept. 29, 1980.

WATER TEMPERATURE: Maximum daily, 39.0°C July 21, 1995; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 29,900 microsiemens Nov. 21; minimum daily, 1,030 microsiemens May 31.

WATER TEMPERATURE: Maximum daily, 39.0°C July 21; minimum daily, 2.0°C Mar. 2.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 05...	1320	0.17	15100	26.0	1300	1100	270	140	3200
DEC 07...	1110	0.37	27600	12.0	2300	2100	510	240	6600
FEB 08...	1130	0.43	24800	7.0	2000	1800	480	200	5200
APR 13...	1350	0.34	21000	25.0	2400	2200	650	190	4300
JUN 21...	1510	0.22	6450	32.0	910	690	200	100	1300
AUG 23...	1150	0.04	20600	27.5	1600	1500	320	200	4200

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 05...	39	11	140	1400	4700	0.60	0.10	9810
DEC 07...	60	18	180	2200	9800	0.60	0.50	19500
FEB 08...	50	16	190	2200	8100	0.70	0.90	16300
APR 13...	38	13	200	1900	6800	0.70	1.7	14000
JUN 21...	19	8.3	220	1200	1400	0.70	2.6	4340
AUG 23...	45	14	140	2100	6200	0.70	0.20	13100

## COLORADO RIVER MAIN STEM

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

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. 1994	6.51	21200	13600	238	6600	115	2100	37	*
NOV. 1994	13.38	29100	18700	675	9900	357	2200	78	*
DEC. 1994	15.16	28100	18000	739	9400	386	2200	90	*
JAN. 1995	15.04	25500	16400	665	8300	336	2200	90	*
FEB. 1995	13.14	25900	16600	589	8400	299	2200	79	*
MAR. 1995	26.22	18600	11800	839	5500	393	2000	140	*
APR. 1995	12.51	18900	12100	408	5700	191	2000	68	*
MAY 1995	2529.93	2300	1450	9910	530	3630	370	2500	320
JUNE 1995	782.62	2850	1790	3790	640	1360	470	984	400
JULY 1995	6.10	11500	7280	120	3000	49	1600	26	*
AUG. 1995	57.61	10800	6830	1060	2800	434	1500	230	*
SEPT 1995	71.28	11700	7450	1430	3100	596	1600	302	*
TOTAL	3549.50	**	**	20500	**	8140	**	4630	**
WTD.AVG.	9.7	3370	2140	**	850	**	480	**	420

FROM DAILY OBSERVER  
SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14600	27500	28800	e26500	25800	26200	e13500	25700	2330	11200	13800	e16900
2	14700	27500	28900	26300	25900	26800	e14000	24800	e3030	11000	14400	e17000
3	15000	27400	e29000	25600	26000	27300	14400	24600	e3720	11000	16100	e17100
4	15200	28100	e29000	26700	25900	26700	15300	26600	e4420	11100	15400	e17200
5	15400	e28500	29000	26900	25600	26600	12000	e20000	5120	11200	16700	17300
6	15600	e29000	28600	27100	25400	26500	16500	e5000	6020	10700	17500	17300
7	15500	29500	28400	26900	25200	26200	18200	e1350	6610	10700	19900	17300
8	e16000	29000	29000	26800	25200	26500	19100	2100	7140	10800	20400	e17700
9	e16000	28800	28800	26600	25400	26200	19900	3500	7630	10800	19900	e18100
10	16600	28500	27600	26600	e25500	e26000	20300	4700	7780	10900	20000	e18500
11	16600	28400	25400	26600	e25000	e26000	20900	5780	5600	10900	e19800	18900
12	16900	28400	28200	26700	e25500	e20000	20900	6960	2080	e10900	e19700	16300
13	17300	29000	28000	e26500	26200	13000	21300	7480	1770	e10900	e19500	14300
14	17600	29000	28200	e26500	25700	12600	22100	8070	2780	e11000	19400	13000
15	19000	29700	28300	e26500	25700	12200	22400	8420	3670	e11000	19200	14000
16	21000	29500	28500	26700	25800	12000	22500	8510	e4020	e10700	19400	13400
17	21500	29300	e28500	26700	25900	11900	22900	8850	e4710	10400	19800	13600
18	21900	29500	e28500	23600	25600	11800	23300	9160	e5060	11500	20200	9760
19	22300	e29500	28400	23400	25700	11700	22900	e9000	e5410	12000	20500	9670
20	22800	e29500	28500	23200	26200	11700	23100	e9000	e6100	12200	20900	8970
21	23000	29900	28700	25100	26000	11500	e23000	e9000	6450	12500	21200	11800
22	e23500	29400	28600	25300	26200	11600	e23000	8920	e6590	12400	21100	e13200
23	e24000	29400	28600	25400	26500	11700	e23000	8900	e6740	12300	20700	e13400
24	e25000	29400	28300	25100	e26500	e12000	23200	9080	e6880	12500	20100	e13600
25	e26000	29500	28400	25300	e26000	e12000	23400	e9000	6990	12900	e20200	13900
26	e27000	28700	28300	25200	e26500	e12000	23800	e9000	6590	13600	e10100	14300
27	e27500	29300	27700	e25500	26900	12300	23800	e8500	7480	14100	e13400	14500
28	27700	29700	27100	e25500	26400	12400	23800	e9000	8600	e14100	16700	14700
29	27700	29100	26500	e25500	---	12500	23900	5400	10500	e14200	16700	14800
30	27500	28900	26900	25900	---	e12500	25500	1450	11000	e14200	16700	14800
31	27400	---	26700	25800	---	e13000	---	1030	---	13600	e16800	---
MEAN	20600	29000	28200	25900	25900	17500	20700	9640	5760	11800	18300	14800

e Estimated

## COLORADO RIVER MAIN STEM

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08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

FROM DAILY OBSERVER  
 WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
 DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	14.0	10.0	---	6.0	4.5	---	18.5	24.0	24.0	22.0	---
2	20.5	16.0	10.0	3.5	7.0	2.0	---	16.0	---	24.5	22.5	---
3	20.0	17.5	---	5.5	13.0	6.5	15.0	18.0	---	27.5	23.0	---
4	21.5	19.0	---	3.0	6.5	6.5	15.0	25.5	---	26.0	28.0	---
5	20.0	---	10.0	3.0	7.0	9.0	14.5	---	23.0	33.0	26.5	25.5
6	28.0	---	15.5	5.0	6.5	11.5	24.0	---	26.0	29.5	27.0	25.0
7	21.5	14.0	13.0	5.0	7.0	7.5	24.5	---	25.5	32.5	27.0	30.0
8	---	19.0	8.0	7.0	5.0	5.5	18.0	16.5	26.0	28.0	28.0	---
9	---	18.0	7.0	5.5	13.5	14.0	19.0	19.0	30.5	27.0	25.0	---
10	13.5	10.5	6.0	8.0	---	---	17.0	17.0	25.0	33.5	32.0	---
11	14.5	11.0	4.5	7.0	---	---	14.0	16.5	22.0	26.5	---	23.0
12	15.0	13.5	5.0	10.5	---	---	13.0	26.5	22.5	26.0	---	24.0
13	15.0	17.5	8.0	---	6.0	10.0	22.0	21.5	24.0	35.0	---	22.0
14	16.0	15.0	8.0	---	9.0	11.0	23.0	21.0	23.5	---	25.5	22.0
15	16.0	11.5	12.0	---	11.0	12.5	19.0	22.0	28.5	---	27.0	24.0
16	20.0	10.0	10.0	9.5	9.0	18.0	21.5	23.5	---	---	26.5	24.0
17	20.0	16.0	---	7.5	7.5	19.5	23.0	21.0	---	26.5	27.0	23.5
18	19.0	10.5	---	5.0	7.5	15.0	17.0	24.5	---	27.5	32.0	23.0
19	20.0	---	13.5	3.5	9.5	17.0	16.5	---	---	26.0	28.5	21.0
20	26.5	---	9.5	9.5	9.0	16.0	21.0	---	---	26.0	27.0	19.5
21	21.0	9.0	11.5	9.0	11.0	19.5	---	---	32.0	39.0	25.5	17.5
22	---	11.0	6.0	8.0	11.5	18.5	---	23.0	---	26.0	27.5	---
23	---	9.0	6.0	4.0	16.5	17.5	---	26.0	---	29.5	24.5	---
24	---	9.0	8.0	6.5	---	---	13.0	21.0	---	26.5	28.0	---
25	---	10.0	6.0	5.5	---	---	16.5	---	22.5	27.5	---	17.5
26	---	13.5	5.5	14.5	---	---	16.5	---	24.5	27.0	---	18.0
27	---	11.0	8.0	---	13.5	13.5	15.0	---	24.0	33.0	---	19.5
28	14.5	6.0	8.0	---	8.5	12.5	23.0	---	25.5	---	24.5	20.5
29	16.0	6.0	11.5	---	---	---	19.5	16.5	24.5	---	26.5	29.0
30	18.0	6.0	9.0	4.5	---	---	22.0	18.5	23.0	---	25.5	22.5
31	15.0	---	7.5	6.0	---	---	---	19.0	---	25.0	---	---
MEAN	18.8	12.4	8.8	6.5	9.1	12.2	18.5	20.5	25.1	28.5	26.5	22.5



## 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.

## WATER-CONTENT RECORDS

DRAINAGE AREA.--344.7 mi<sup>2</sup>, of which 42.7 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--April 1949 to current year.

Water-quality records.--Chemical analyses: October 1969 to September 1984.

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 4,800 ft long. Storage began in April 1949, and the dam was completed in September 1949. The dam and lake are owned by the Texas Electric Service 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<sup>3</sup>/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<sup>3</sup>/s. A service outlet is provided for small releases downstream through a 30-inch valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. will show pumpage from Champion Creek Reservoir (capacity 42,500 acre-ft), into Lake Colorado City. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	2,090.0	-
Design flood.....	2,086.7	70,700
Crest of spillway.....	2,073.7	37,850
Crest of service spillway (top of conservation pool).....	2,070.2	31,810
Lowest gated outlet (invert).....	2,024.3	316

COOPERATION.--Capacity curve was furnished by the Texas Electric Service Co. Record of diversions for municipal use was furnished by the city of Colorado City.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,280 acre-ft Sept. 7, 1962 (elevation, 2,075.10 ft); minimum since first appreciable storage, 5,800 acre-ft Apr. 11-13, 1950 (elevation, 2,045.72 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 23,550 acre-ft Oct. 8 at 0900 hours (elevation, 2,064.55 ft); minimum, 20,370 acre-ft Apr. 26, 27 (elevation, 2,062.05 ft).

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

2,045.0	5,530	2,060.0	17,980	2,070.0	31,480
2,050.0	8,740	2,064.0	22,820	2,073.0	36,570
2,055.0	12,880	2,067.0	26,930	2,076.0	42,350

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23490	22990	22330	22030	21680	21390	20860	20470	22690	22370	21780	21330
2	23510	22940	22320	22030	21670	21280	20830	20510	22670	22310	21740	21280
3	23520	22930	22330	22000	21640	21550	20810	20530	22620	22260	21760	21230
4	23470	22950	22320	21990	21630	21570	20890	20540	22580	22210	21940	21180
5	23450	22910	22310	21940	21600	21240	20970	20840	22550	22210	21940	21150
6	23470	22890	22280	21960	21590	21230	20990	21050	22540	22220	21910	21080
7	23530	22860	22240	21940	21580	21400	20960	21420	22550	22220	21870	21040
8	23520	22850	22260	21940	21580	21440	20950	21420	22560	22220	21820	20970
9	23530	22810	22260	21910	21550	21160	20910	21380	22580	22220	21760	20970
10	23510	22770	22230	21890	21530	21270	20880	21340	22690	22220	21690	20950
11	23470	22740	22210	21870	21570	21450	20840	21330	22690	22210	21640	20900
12	23440	22740	22210	21870	21570	21240	20800	21360	22820	22190	21600	20910
13	23400	22740	22180	21870	21520	21370	20780	21360	22870	22180	21580	21060
14	23390	22740	22180	21860	21570	21230	20750	21370	22870	22150	21550	21100
15	23360	22690	22150	21830	21540	21430	20730	21370	22850	22140	21550	21120
16	23360	22650	22150	21820	21530	21390	20730	21450	22850	22150	21540	21150
17	23350	22630	22150	21820	21500	21180	20730	21470	22830	22180	21530	21330
18	23310	22600	22130	21890	21490	21170	20650	21430	22820	22170	21490	21320
19	23300	22600	22130	21870	21440	21160	20630	21430	22790	22150	21500	21400
20	23280	22550	22130	21870	21430	21130	20570	21450	22760	22150	21500	21400
21	23260	22540	22100	21870	21400	21110	20530	21450	22720	22130	21490	21370
22	23220	22500	22080	21830	21400	21080	20510	21500	22690	22130	21490	21310
23	23180	22500	22080	21820	21370	21060	20470	21580	22640	22120	21490	21270
24	23180	22500	22080	21810	21390	21010	20430	21580	22590	22060	21490	21260
25	23200	22490	22050	21810	21420	21010	20410	21580	22560	21990	21480	21240
26	23160	22490	22030	21800	21390	21010	20370	21670	22510	21910	21620	21310
27	23120	22440	22080	21770	21390	20960	20380	21640	22540	21850	21590	21280
28	23080	22410	22080	21740	21320	20920	20310	21600	22510	21820	21520	21310
29	23070	22380	22080	21730	---	20900	20430	21940	22450	21780	21470	21320
30	23040	22360	22050	21710	---	20880	20470	22210	22400	21770	21420	21330
31	23020	---	22050	21690	---	20880	---	22630	---	21800	21370	---
MAX	23530	22990	22330	22030	21680	21570	20990	22630	22870	22370	21940	21400
MIN	23020	22360	22030	21690	21320	20880	20370	20470	22400	21770	21370	20900
(+)	2064.15	2063.64	2063.40	2063.12	2062.82	2062.46	2062.13	2063.85	2063.67	2063.20	2062.86	2062.83
(@)	-460	-660	-310	-360	-370	-440	-410	+2160	-230	-600	-430	-40
CAL YR 1994	MAX	24590	MIN	22030	(@)	-2560						
WTR YR 1995	MAX	23530	MIN	20370	(@)	-2150						

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

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.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow is affected by diversion upstream from station. Radio telemeter at 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 4	2030	1.190	10.55	May 30	1400	1.130	10.21

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.08	.12	.14	.10	.09	.08	2.3	26	.54	.20	.03
2	.08	.08	.13	.16	.10	.08	.09	2.3	10	.43	.23	.02
3	.08	.09	.12	.17	.10	.08	7.0	2.3	5.7	.33	.39	.02
4	.08	.10	.13	.16	.09	.09	649	2.3	e4.7	.28	18	.02
5	.07	.21	.13	.15	.10	.08	422	2.6	e3.4	1.1	60	.02
6	.07	.11	.14	.16	.10	.09	56	200	e2.6	.39	4.8	.02
7	.11	.10	.14	.15	.10	.09	22	255	e1.9	.28	1.5	.02
8	.15	.10	.14	.15	.10	.08	20	63	e1.5	.25	e.54	.01
9	.09	.24	.34	.15	.10	.08	23	10	52	.24	e.29	.07
10	.08	.12	.16	.16	.10	.08	22	8.4	47	.21	e.25	.05
11	.08	.10	.14	.16	.11	.08	16	9.5	290	.20	e.21	.03
12	.08	.10	.13	.17	.10	.09	10	8.1	101	.18	e.14	.03
13	.08	.10	.14	.17	.10	.09	6.5	7.8	e14	.17	e.12	.03
14	.09	.14	.14	.16	.11	.08	6.1	7.5	e5.0	.17	e.08	.03
15	.10	.13	.14	.17	.10	.08	5.7	7.5	e3.4	.17	e.08	.06
16	.10	.10	.14	.17	.08	.08	5.3	16	e2.3	.18	e.07	.05
17	.10	.10	.14	.17	.08	.09	5.0	14	e1.6	.21	e.07	.04
18	.08	.09	.14	.86	.09	.10	4.7	6.5	e1.2	.79	e.05	.04
19	.08	.11	.15	.18	.08	.09	4.4	2.4	.92	.62	e.05	
20	.09	.10	.14	.11	.09	.08	4.1	1.2	.77	.21	e.04	54 23
21	.08	.10	.14	.10	.09	.09	3.8	.78	.69	.17	e.04	12
22	.08	.10	.14	.10	.09	.08	3.6	.59	.60	.17	e.03	2.2
23	.08	.11	.14	.10	.09	.08	3.4	1.1	.52	.16	.03	.51
24	.32	.14	.15	.10	.10	.09	3.1	1.4	32	.14	.03	.18
25	.82	.14	.15	.10	.10	.13	2.9	1.1	20	.14	.02	.11
26	.11	.13	.15	.10	.10	.13	2.4	4.4	7.5	.13	.02	.07
27	.09	.12	.18	.10	.10	.08	2.4	138	3.0	.12	.02	.04
28	.08	.12	.22	.09	.09	.08	2.4	43	1.5	.12	.02	.04
29	.08	.12	.17	.10	---	.08	2.4	170	1.2	.12	.02	.03
30	.09	.12	.17	.10	---	.08	2.3	832	.75	.12	.02	.02
31	.09	---	.17	.10	---	.08	---	327	---	.13	.02	---
TOTAL	3.68	3.50	4.73	4.96	2.69	2.70	1317.67	2148.07	642.75	8.47	87.38	92.79
MEAN	.12	.12	.15	.16	.096	.087	43.9	69.3	21.4	.27	2.82	3.09
MAX	.82	.24	.34	.86	.11	.13	649	832	290	1.1	60	54
MIN	.07	.08	.12	.09	.08	.08	.08	.59	.52	.12	.02	.01
AC-FT	7.3	6.9	9.4	9.8	5.3	5.4	2610	4260	1270	17	173	181

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY)

MEAN	43.9	6.35	5.88	5.58	8.35	7.58	20.7	63.5	43.1	27.9	16.9	68.2
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	.12	.10	.096	.087	.074	.14	.020	.000	.005	1.55
(WY)	1964	1990	1990	1959	1995	1995	1986	1962	1990	1964	1970	1968

### SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

## WATER YEARS 1959 - 1995

ANNUAL TOTAL	10809.89		4319.39						
ANNUAL MEAN	29.6		11.8			26.5			
HIGHEST ANNUAL MEAN						107			1987
LOWEST ANNUAL MEAN						4.30			1983
HIGHEST DAILY MEAN	3790	May 11	832	May 30	5890		Sep 29		1980
LOWEST DAILY MEAN	.07	Sep 17	.01	Sep 8	.00		Oct 1		1958
ANNUAL SEVEN-DAY MINIMUM	.07	Sep 16	.02	Sep 2	.00		Oct 1		1958
INSTANTANEOUS PEAK FLOW			1190	Apr 4	8780		May 19		1961
INSTANTANEOUS PEAK STAGE			10.55	Apr 4	21.94		Sep 29		1980
ANNUAL RUNOFF (AC-FT)	21440		8570		19230				
10 PERCENT EXCEEDS	6.8		8.2		27				
50 PERCENT EXCEEDS	.52		.14		2.5				
90 PERCENT EXCEEDS	.09		.07		.06				

e Estimated

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1958 to current year. Chemical and biochemical analyses: October 1974 to October 1977. Sediment analyses: October 1974 to October 1977.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1958 to current year.

WATER TEMPERATURE: November 1958 to current year.

INSTRUMENTATION.--Since Mar. 5, 1981, specific conductance and water temperature are recorded continuously at this station.

REMARKS.--Estimated mean specific conductance and estimated mean temperature values and interruptions in the mean temperature values were due to malfunction of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the U.S. Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 24,500 microsiemens Aug. 9, 1989; minimum, 169 microsiemens Apr. 4, 1995.

WATER TEMPERATURE: Maximum, 37.0°C June 28, 1960, and July 3, 1976; minimum, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 22,300 microsiemens Apr. 10; minimum, 169 microsiemens Apr. 4.

WATER TEMPERATURE: Maximum, 35.0°C July 9; minimum, 2.0°C Mar. 3.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 04...	0956	0.08	5580	21.0	1100	900	210	140	830
DEC 06...	0910	0.15	4970	15.0	1100	840	220	130	730
FEB 08...	0922	0.10	5230	6.0	1100	930	200	150	770
APR 13...	1055	6.3	18900	17.0	4600	4500	500	820	3100
MAY 16...	1220	10	2400	24.5	500	410	99	62	290
AUG 23...	1005	0.03	3150	25.5	630	480	130	75	410

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 04...	11	9.1	200	620	1400	0.80	9.6	3340
DEC 06...	10	6.9	240	580	1300	0.80	8.9	3120
FEB 08...	10	7.0	190	630	1400	0.70	0.90	3270
APR 13...	20	160	150	4300	5100	1.0	0.20	14100
MAY 16...	6	11	97	270	550	0.50	4.7	1350
AUG 23...	7	7.9	150	340	750	0.80	8.4	1810

COLORADO RIVER BASIN

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08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

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. 1994	3.68	5270	3310	33	1400	14	710	7.0	1200
NOV. 1994	3.50	4570	2850	27	1200	11	600	5.7	1000
DEC. 1994	4.73	5090	3180	41	1300	17	680	8.7	1100
JAN. 1995	4.96	5450	3430	46	1400	19	740	9.9	1200
FEB. 1995	2.69	5240	3290	24	1400	9.9	700	5.1	1100
MAR. 1995	2.70	5970	3770	27	1600	11	820	6.0	1300
APR. 1995	1317.67	3570	2360	8410	950	3380	550	1950	760
MAY 1995	2148.07	2130	1320	7640	550	3190	280	1600	470
JUNE 1995	642.75	6140	3970	6890	1600	2810	890	1550	1300
JULY 1995	8.47	4530	2820	65	1200	27	600	14	990
AUG. 1995	87.38	995	601	142	250	60	120	29	220
SEPT 1995	92.79	2330	1420	355	600	150	290	72	520
TOTAL	4319.39	**	**	23700	**	9700	**	5260	**
WTD.AVG.	12	3170	2030	**	830	**	450	**	690

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	5580	5310	5450	5960	5560	5760	5120	4680	4870	5280	5040	5190
2	5570	5260	5450	5760	5560	5670	5120	4720	4910	5160	5040	5110
3	5600	5290	5490	5640	5480	5540	5200	4800	4980	5200	5000	5100
4	5580	5450	5520	5600	5200	5420	5200	4840	4980	5240	5160	5210
5	5750	5580	5680	5240	4360	4810	5160	4600	4880	5480	5200	5300
6	5790	5660	5730	4560	4160	4360	5080	5000	5030	5320	5200	5260
7	5790	5410	5650	4560	4200	4430	5120	4800	4980	5600	5120	5310
8	5450	5280	5390	4440	4040	4230	5200	4920	5000	5520	5200	5330
9	5490	5280	5370	4520	3440	3860	5200	4760	4860	5520	5280	5390
10	5710	5280	5520	3840	3600	3710	4960	4760	4880	5360	5240	5280
11	5750	5280	5560	4040	3840	3970	5240	4760	4960	5590	5230	5370
12	5660	5240	5490	4120	3960	4030	5000	4560	4690	5500	5230	5340
13	5580	5280	5450	4560	3960	4220	4720	4480	4570	5540	5340	5430
14	5490	5070	5310	4080	3760	3880	4840	4480	4600	5530	5260	5410
15	5280	4850	5090	4000	3800	3880	4760	4520	4570	5730	5370	5510
16	5190	4900	5110	4080	3880	3940	5040	4560	4810	5600	5280	5450
17	5320	5150	5210	4840	4000	4370	5240	4840	4950	5550	5320	5460
18	5400	5240	5330	4600	4320	4400	5400	5000	5140	5470	4840	5110
19	5520	5280	5430	4880	4400	4590	5520	5160	5330	5030	4870	4970
20	5680	5360	5530	4880	4760	4830	5600	5320	5460	5220	4990	5090
21	5800	5480	5620	4920	4400	4670	5680	5360	5540	5570	5180	5330
22	5920	5520	5750	5040	4520	4740	5680	5400	5560	5920	5570	5740
23	5920	5520	5740	5200	4520	4850	5680	5440	5540	6230	5920	6070
24	5840	5280	5660	4920	4680	4770	5720	5440	5550	6570	6190	6400
25	5280	4440	4590	5080	4880	4930	5760	5360	5610	6650	6490	6580
26	4960	4560	4710	5120	4720	4930	5680	5400	5550	6570	6360	6460
27	5240	4960	5070	5280	4880	5000	5560	5120	5340	6480	6360	6420
28	5560	5240	5390	5080	4760	4960	5200	5040	5130	6430	6270	6370
29	5720	5520	5570	5000	4760	4850	5240	5040	5120	6390	6180	6270
30	5840	5720	5760	5040	4520	4820	5280	5080	5160	6260	6020	6160
31	5920	5720	5840	---	---	---	5320	5000	5140	6210	5980	6110
MONTH	5920	4440	5430	5960	3440	4610	5760	4480	5090	6650	4840	5600



## COLORADO RIVER BASIN

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6210	5970	6120	5320	5160	5230	6750	6450	6630	12800	12400	12500
2	6200	5920	6080	5240	5160	5210	6710	6500	6600	12500	11700	12100
3	6080	5840	5960	5240	5090	5180	6630	3210	6260	11800	11500	11700
4	5990	5680	5850	5440	5010	5180	3640	169	1150	11500	11100	11300
5	5830	5550	5690	5320	5010	5140	2830	846	2210	11200	8370	10300
6	5590	5240	5440	5330	5050	5220	5500	2620	3870	19800	1250	6930
7	5660	5350	5450	5370	5100	5230	8170	5500	7050	2050	1450	1850
8	5390	5230	5280	5330	5060	5180	10300	8130	9150	6270	1040	2440
9	5270	5080	5190	5610	5180	5380	17300	10300	12800	1450	1170	1350
10	5310	5080	5190	5610	5300	5460	22300	17300	21000	1650	1450	1530
11	5350	4930	5140	5690	5380	5550	21000	19200	20100	1690	723	1380
12	5160	4930	5050	5770	5540	5610	19300	19000	19200	1770	1120	1510
13	5010	4820	4920	5780	5500	5610	19300	18700	19000	1890	1650	1760
14	5010	4620	4790	5770	5620	5690	18700	17800	18200	2080	1840	1970
15	5170	4780	4910	5830	5660	5740	17900	17400	17600	2120	2000	2040
16	4980	4820	4900	6100	5720	5920	17500	17200	17300	7320	2120	3030
17	4980	4750	4850	6200	5900	6090	17200	17000	17100	9720	3360	6750
18	5060	4630	4870	6340	6040	6180	17100	16600	16900	9000	2600	5090
19	4980	4670	4820	6390	6140	6290	16900	16500	16700	2600	2240	2340
20	5100	4710	4910	6450	6190	6370	16600	16200	16400	3040	2320	2690
21	5180	4830	5040	6500	6290	6400	16400	16000	16100	3760	3040	3450
22	5190	4870	5090	6550	6420	6480	16000	15600	15700	4320	3760	4000
23	5230	4870	5100	6640	6480	6580	15700	15300	15500	4640	4280	4390
24	5230	4990	5070	6700	6530	6610	15400	14900	15100	5160	4640	4860
25	5190	5030	5070	6700	6450	6590	14900	14500	14800	5480	4960	5360
26	5270	5000	5190	6630	6500	6580	14800	14100	14400	5360	2200	4060
27	5390	5080	5200	6720	6590	6680	14300	13700	14100	7560	840	2980
28	5430	5320	5400	6770	6720	6740	13900	13300	13600	4240	1400	2390
29	---	---	---	6780	6690	6760	13600	13100	13300	2720	440	1800
30	---	---	---	6820	6740	6770	13200	12800	12900	1640	600	892
31	---	---	---	6790	6660	6720	---	---	---	2080	1440	1690
MONTH	6210	4620	5230	6820	5010	5950	22300	169	13400	19800	440	4400
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	4280	2080	3260	3160	2880	3020	6020	5890	5970	---	---	e4000
2	5000	4280	4720	3440	3120	3300	6000	5830	5950	---	---	e4200
3	5160	5000	5060	3680	3400	3570	5910	5590	5770	---	---	e4500
4	5080	4920	4990	4040	3600	3850	14100	347	2390	---	---	e4800
5	5000	4840	4920	4000	3520	3820	615	424	500	---	---	5200
6	5040	4880	4940	3920	3680	3810	729	577	656	5700	5340	5480
7	5120	4920	5000	4080	3840	3950	956	729	854	6010	5660	5800
8	5160	4960	5060	4240	4000	4130	1110	956	1030	6250	5970	6120
9	18200	5040	10500	4440	4200	4320	1600	1110	1310	6340	4750	5920
10	18700	5280	17300	4680	4440	4530	1970	1520	1670	4970	4630	4740
11	12300	1080	5180	4920	4640	4770	2380	1970	2110	5130	4680	4960
12	7440	1040	4350	5160	4880	5000	2670	2300	2430	5280	5130	5230
13	4200	4000	4090	5360	5080	5220	2790	2630	2710	5430	5240	5350
14	4280	4040	4140	5520	5320	5400	2780	2580	2720	5450	5340	5420
15	4480	4240	4360	5680	5480	5570	2870	2690	2760	5370	5110	5270
16	4680	4440	4540	5720	5480	5630	3120	2830	2940	5450	5120	5280
17	4840	4600	4710	5640	5520	5580	3370	3080	3210	5610	5410	5500
18	4960	4720	4830	5630	4710	5400	3620	3330	3490	5730	5610	5660
19	5200	4880	5040	4710	4260	4350	3640	2100	3090	5780	265	2800
20	5400	5120	5250	4610	4380	4500	2500	2160	2350	2960	1020	1560
21	5480	5200	5350	4800	4610	4720	2590	2260	2440	1740	1640	1690
22	5680	5360	5510	5030	4800	4950	2970	2480	2790	1740	1690	1710
23	5800	5520	5620	5260	5030	5170	3350	2940	3170	1840	1700	1760
24	11200	4240	6940	5530	5220	5420	3700	3320	3530	2210	1840	2010
25	4240	920	1560	5720	5480	5640	3900	3670	3810	2310	2210	2250
26	1560	1200	1320	5900	5670	5820	---	---	3950	2370	2270	2330
27	2200	1560	1880	6080	5810	5990	---	---	e4000	2610	2370	2460
28	2520	2200	2350	6260	5960	6160	---	---	e4100	2710	2560	2640
29	2760	2480	2610	6290	6100	6220	---	---	e4200	2910	2710	2810
30	2880	2720	2790	6270	6200	6240	---	---	e4300	3120	2910	3010
31	---	---	---	6260	5980	6090	---	---	e4400	---	---	---
MONTH	18700	920	4940	6290	2880	4910	14100	347	3050	6340	265	4020
YEAR	22300	169	5540									

e Estimated

## COLORADO RIVER BASIN

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08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	27.0	20.0	23.0	19.0	13.5	16.5	12.5	5.5	8.5	11.0	7.0	8.0
2	25.5	20.5	23.0	18.0	14.5	16.0	16.0	10.0	12.5	7.0	4.0	6.0
3	25.5	20.0	22.5	21.5	16.0	18.5	15.5	10.0	13.0	7.5	5.0	6.0
4	25.5	21.0	23.0	21.5	17.5	19.0	15.0	9.0	12.0	5.5	3.5	4.5
5	25.5	21.5	23.0	19.0	14.0	16.5	17.0	9.5	13.0	5.0	3.0	4.0
6	26.5	20.5	23.0	19.5	12.5	15.5	17.5	14.5	15.5	10.5	4.0	7.0
7	23.5	20.5	22.0	19.5	13.0	16.5	15.5	12.5	14.0	12.0	4.0	8.0
8	23.0	18.5	20.5	23.5	17.5	20.0	13.5	12.0	13.0	14.0	7.0	10.5
9	---	---	20.0	20.5	15.5	18.5	12.0	8.0	9.0	15.0	7.5	11.0
10	---	---	19.5	18.0	12.5	15.0	11.5	6.5	8.5	14.0	10.0	12.0
11	---	---	19.5	15.0	11.5	13.0	9.0	5.0	7.0	13.5	8.0	10.5
12	---	---	e19.0	15.5	13.0	14.0	9.0	3.5	6.5	12.5	9.5	11.0
13	---	---	19.0	19.5	15.5	17.5	10.5	7.5	9.0	13.0	8.5	10.5
14	---	---	e20.0	18.5	15.0	16.5	16.0	9.0	11.5	13.0	7.0	9.5
15	---	---	21.0	16.0	12.5	14.0	13.0	12.5	13.0	13.0	6.5	9.5
16	---	---	21.5	14.5	10.0	12.0	15.5	11.0	13.0	13.5	8.5	11.0
17	---	---	22.0	16.0	12.0	14.0	14.5	7.5	11.0	13.0	8.0	10.5
18	23.5	18.5	21.0	13.0	10.5	12.0	14.5	8.5	11.0	10.5	6.5	9.0
19	25.5	18.5	22.0	18.0	13.0	15.5	16.0	9.5	12.5	11.0	5.5	8.0
20	26.0	20.5	23.0	17.5	12.5	14.0	14.5	11.0	12.5	11.0	6.0	8.5
21	25.0	21.0	22.5	15.5	10.0	12.5	13.5	8.0	10.5	13.5	7.5	10.0
22	23.5	17.5	20.5	13.5	9.5	11.5	12.5	7.5	10.0	11.5	8.0	9.5
23	21.5	17.0	19.0	11.5	8.5	9.5	10.5	7.5	9.0	11.5	6.0	8.5
24	23.0	18.0	20.0	11.5	8.5	10.0	14.0	8.5	10.5	9.0	6.0	7.5
25	20.0	14.5	17.0	16.5	10.0	12.5	13.0	7.0	10.0	12.0	6.0	8.5
26	17.0	13.5	15.0	16.0	12.5	14.0	12.5	6.5	9.5	14.5	10.0	12.0
27	16.0	14.5	15.0	14.5	11.5	13.0	11.0	10.0	10.5	12.5	10.0	11.5
28	19.0	14.0	16.0	12.0	8.5	10.5	10.5	10.0	10.5	13.5	9.5	11.0
29	20.5	16.0	17.5	11.0	6.5	9.0	15.0	10.0	11.5	10.5	8.0	8.5
30	19.0	17.0	18.0	11.5	4.0	7.5	12.0	8.5	10.0	11.5	6.0	8.5
31	20.0	16.5	18.0	---	---	---	14.5	10.0	11.5	11.5	6.5	8.5
MONTH	27.0	13.5	20.0	23.5	4.0	14.0	17.5	3.5	11.0	15.0	3.0	9.0

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	15.0	7.0	10.5	9.0	5.0	6.5	20.5	11.0	15.0	23.5	19.0	21.0
2	15.5	8.5	11.5	5.0	3.0	3.5	19.0	13.0	15.5	20.0	17.0	18.5
3	14.0	10.0	12.0	6.0	2.0	4.0	19.5	9.5	16.5	26.5	17.5	21.5
4	13.0	8.0	10.5	14.0	5.5	9.0	12.0	4.0	9.0	25.0	19.0	21.5
5	14.0	8.5	11.0	17.0	8.0	12.0	15.0	11.0	13.0	22.0	19.0	20.0
6	16.0	7.0	11.0	15.0	10.5	12.5	20.0	13.0	16.0	21.0	18.0	19.5
7	12.0	8.0	10.5	13.5	8.0	10.5	22.5	16.0	19.0	24.5	19.5	21.5
8	10.5	6.0	8.5	15.5	5.5	10.0	23.5	17.0	20.0	21.5	18.0	20.0
9	15.0	6.0	10.5	12.5	7.0	9.5	23.0	18.0	20.5	24.0	15.5	19.5
10	17.0	10.0	13.0	16.0	8.0	11.5	23.0	17.5	20.0	25.5	17.5	21.0
11	12.5	8.0	10.5	20.0	11.0	14.5	20.0	13.5	16.5	23.5	18.5	21.0
12	8.0	6.0	7.0	21.0	14.5	17.0	21.5	14.0	17.5	27.0	20.0	23.0
13	7.5	6.0	7.0	20.5	14.0	17.0	23.5	15.5	19.0	29.0	21.5	24.5
14	16.0	7.0	10.5	15.5	12.5	14.0	24.5	17.0	20.5	29.0	21.0	25.0
15	16.0	11.0	13.0	15.5	13.0	14.0	25.5	18.5	22.0	29.0	22.5	25.5
16	12.0	8.5	10.0	21.5	13.0	16.5	28.0	21.0	24.0	26.0	23.0	24.5
17	15.0	6.0	10.0	21.0	13.0	16.5	26.0	19.5	24.0	25.0	21.0	23.5
18	16.5	6.5	11.0	23.0	13.0	17.5	25.0	15.0	19.0	26.0	18.0	21.5
19	17.5	9.0	13.0	21.5	14.5	18.0	23.0	16.0	19.0	27.0	18.5	22.5
20	18.5	9.0	13.5	23.5	15.5	19.0	22.0	15.0	18.0	27.0	20.0	23.5
21	18.0	10.0	14.0	22.5	15.5	19.0	25.0	14.5	19.0	30.5	20.5	25.0
22	15.0	11.5	13.5	20.5	17.5	19.0	20.0	13.5	15.5	30.0	22.5	25.5
23	18.5	11.0	14.5	22.5	15.5	19.0	20.5	11.0	15.0	28.5	23.5	25.0
24	17.0	12.5	15.0	23.0	16.5	19.0	23.5	12.5	17.0	26.0	22.5	24.0
25	16.5	13.5	15.0	23.5	18.5	20.5	23.0	14.5	18.0	23.0	19.5	21.0
26	21.5	14.5	17.5	22.5	16.5	19.0	24.0	15.5	19.0	24.0	18.5	21.0
27	19.5	14.5	16.5	19.5	14.5	17.0	18.0	14.0	15.5	23.0	19.5	21.0
28	15.5	9.0	12.0	16.5	12.0	14.0	22.5	15.5	18.5	24.5	20.0	22.0
29	---	---	---	13.0	10.5	12.0	27.5	18.0	22.0	22.0	16.0	19.0
30	---	---	---	12.0	11.0	12.0	25.5	19.5	22.5	18.0	16.5	17.5
31	---	---	---	16.0	10.5	13.0	---	---	---	25.0	18.0	21.5
MONTH	21.5	6.0	12.0	23.5	2.0	14.0	28.0	4.0	18.0	30.5	15.5	22.0



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<sup>2</sup>, of which 10,260 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--August 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.

REMARKS.--No estimated daily discharge. Records good. For affects by upstream diversions, see station 08121000. There is also regulation upstream by Lake J. B. Thomas (capacity 203,600 acre-ft), by Lake Colorado City (station 08123000), and by Champion Creek Reservoir (capacity, 42,500 acre-ft). Radio telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	3.3	4.1	6.6	4.6	3.7	3.3	2.1	558	14	1.4	.28
2	1.7	3.3	4.1	5.9	4.2	3.7	3.6	2.2	206	8.3	1.7	.29
3	1.4	3.4	4.1	5.6	3.5	4.1	3.3	2.5	90	5.1	1.6	.71
4	1.4	3.7	4.1	5.5	3.3	5.3	760	2.0	58	3.5	1.6	1.5
5	1.4	6.7	4.1	5.0	3.3	5.0	730	4.1	44	5.7	59	1.1
6	1.1	5.8	4.8	4.6	3.3	5.4	228	91	35	3.8	46	.85
7	1.8	4.2	4.1	4.7	3.3	4.2	69	411	25	2.5	12	.62
8	1.9	4.0	4.0	4.8	3.3	4.3	39	412	17	2.3	5.6	.52
9	1.1	3.7	3.7	4.6	3.3	4.6	29	246	12	2.7	3.1	1.0
10	1.1	4.3	3.7	4.6	3.3	4.9	27	85	43	2.0	2.0	2.2
11	1.1	5.4	3.9	4.6	3.3	4.8	25	66	228	1.7	1.6	1.6
12	1.1	5.9	3.7	4.1	3.5	4.6	22	56	307	1.6	1.4	1.1
13	1.1	5.3	4.0	4.1	3.7	4.6	17	28	127	1.5	.94	.88
14	1.7	12	5.0	4.1	4.3	4.0	13	18	111	1.4	.70	.90
15	3.6	5.1	5.0	4.3	4.6	8.9	9.4	14	57	1.4	.53	1.1
16	3.3	4.1	4.9	4.5	4.6	12	7.7	12	37	1.1	.52	1.4
17	3.2	4.0	4.5	4.1	4.5	9.0	6.1	10	23	1.1	.41	837
18	3.2	3.7	4.4	5.8	4.1	7.1	4.0	25	14	1.4	.39	39
19	3.3	3.9	4.7	6.9	4.0	5.9	3.3	15	9.6	1.4	.29	28
20	3.2	3.9	4.3	7.1	3.7	4.6	2.8	12	7.4	1.4	.29	114
21	2.5	3.7	4.1	9.3	3.7	4.2	2.8	7.9	5.5	1.3	.29	59
22	1.8	3.7	4.1	9.8	3.7	3.6	2.7	6.2	4.2	1.2	.29	34
23	1.7	3.7	4.1	8.0	3.7	3.3	2.4	4.8	3.5	1.1	.29	18
24	2.0	3.7	4.1	7.1	3.7	3.4	2.4	4.3	3.2	1.1	.29	12
25	2.7	3.7	4.1	6.6	4.1	3.6	2.6	3.7	16	.94	.29	9.7
26	3.3	3.7	4.0	6.2	4.9	11	2.6	4.7	28	.95	.29	7.8
27	3.3	3.9	4.2	5.4	4.1	6.6	2.0	8.5	17	.88	.34	6.3
28	3.3	3.7	5.5	4.7	3.9	4.6	2.5	132	9.3	.71	.39	5.3
29	3.3	3.7	6.1	4.4	---	3.5	2.4	197	45	.68	.39	4.5
30	3.5	3.9	6.6	4.6	---	3.3	2.4	807	30	.79	.39	3.7
31	3.5	---	6.6	4.6	---	3.3	---	892	---	.88	.31	---
TOTAL	70.4	133.1	138.7	172.2	107.5	161.1	2027.3	3582.0	2170.7	74.43	144.63	1194.35
MEAN	2.27	4.44	4.47	5.55	3.84	5.20	67.6	116	72.4	2.40	4.67	39.8
MAX	3.6	12	6.6	9.8	4.9	12	760	892	558	14	59	837
MIN	1.1	3.3	3.7	4.1	3.3	3.3	2.0	2.0	3.2	.68	.29	.28
AC-FT	140	264	275	342	213	320	4020	7100	4310	148	287	2370

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	139	20.8	20.6	19.7	30.6	30.6	55.8	172	168	57.3	91.4	167																	
MAX	1834	67.5	120	90.7	256	280	599	681	1242	313	1122	1853																	
(WY)	1967	1973	1992	1987	1992	1973	1981	1994	1982	1988	1971	1980																	
MIN	.000	.000	.30	1.17	1.02	.36	2.19	1.91	.23	.000	.010	.000																	
(WY)	1969	1971	1971	1971	1971	1971	1980	1984	1984	1970	1984	1968																	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1967 - 1995

	1994 CALENDAR YEAR	1995 WATER YEAR	WATER YEARS 1967 - 1995
ANNUAL TOTAL	23690.35	9976.41	
ANNUAL MEAN	64.9	27.3	81.5
HIGHEST ANNUAL MEAN			298
LOWEST ANNUAL MEAN			11.7
HIGHEST DAILY MEAN	8100 May 11	892 May 31	15900 Sep 30 1980
LOWEST DAILY MEAN	.66 Aug 30	.28 Sep 1	.00 Aug 2 1968
ANNUAL SEVEN-DAY MINIMUM	.68 Aug 24	.29 Aug 19	.00 Aug 2 1968
INSTANTANEOUS PEAK FLOW		2460 Sep 17	18900 Sep 9 1980
INSTANTANEOUS PEAK STAGE		10.22 Sep 17	22.73 Sep 9 1980
ANNUAL RUNOFF (AC-FT)	46990	19790	59060
10 PERCENT EXCEEDS	32	34	104
50 PERCENT EXCEEDS	4.8	4.1	10
90 PERCENT EXCEEDS	1.1	1.1	.34



08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1967 to current year. Chemical and biochemical analyses: November 1977 to August 1994. Pesticide analyses: October 1969 to August 1981. Sediment analyses: August 1977 to August 1994.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1967 to current year.  
WATER TEMPERATURE: December 1967 to current year.

INSTRUMENTATION.--Since December 1967, specific conductance was recorded continuously. Since June 1981, specific conductance and water temperature are recorded continuously at this station.

REMARKS.--Estimated mean specific conductance values were due to malfunctions of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the U.S. Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 19,900 microsiemens Sept. 10, 1988; minimum, 154 microsiemens Sept. 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, 12,400 microsiemens May 1, 2; minimum, 285 microsiemens Apr. 4.  
WATER TEMPERATURE: Maximum, 32.5°C Aug. 6; minimum, 3.0°C Jan. 5.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS TOTAL (MG/L AS CAC03)	HARDNESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)
DEC 07...	1355	3.9	6070	7.9	15.0	--	--	1700	1600	450	140
JAN 12...	1115	4.1	6950	8.1	11.0	11.0	111	1700	1600	440	150
FEB 09...	0842	3.1	7080	7.9	6.5	--	--	1800	1700	460	170
APR 12...	1145	23	4600	8.4	16.0	13.6	150	1000	900	220	110
JUN 14...	1515	105	3690	8.5	27.5	9.5	132	680	560	150	74
JUL 12...	1155	1.7	3220	7.9	28.0	5.7	79	930	840	240	80
AUG 30...	1020	0.39	6560	8.0	27.5	6.5	91	2200	2100	560	190

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)
DEC 07...	840	9	8.8	120	1500	1300	0.50	6.6	4320	--	--
JAN 12...	1100	12	8.6	120	1600	1600	0.50	2.8	4970	0.110	--
FEB 09...	980	10	9.4	130	1600	1600	0.60	2.5	4900	--	--
APR 12...	630	9	13	110	670	1100	0.60	3.8	2820	0.850	0.850
JUN 14...	550	9	11	120	430	910	0.50	5.0	2200	0.070	--
JUL 12...	340	5	10	92	790	560	0.50	9.0	2080	--	--
AUG 30...	820	8	13	86	1800	1400	0.60	15	4850	--	--

DATE	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
DEC 07...	--	--	--	--	--	--	--	--	--	--
JAN 12...	<0.010	0.110	0.110	0.020	0.28	0.30	0.020	<0.010	<1	<100
FEB 09...	--	--	--	--	--	--	--	--	--	--
APR 12...	0.110	0.960	0.960	0.030	0.57	0.60	0.020	<0.010	--	--
JUN 14...	<0.010	0.070	0.070	0.020	0.38	0.40	<0.010	<0.010	3	200
JUL 12...	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	<0.010	2	100
AUG 30...	<0.010	--	<0.050	0.100	0.20	0.30	0.030	<0.010	2	100

COLORADO RIVER MAIN STEM  
08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 07...	--	--	--	--	--	--	--	--	--	--
JAN 12...	<2.0	3	<2	<10	<2	30	1.7	2	<2.0	<10
FEB 09...	--	--	--	--	--	--	--	--	--	--
APR 12...	--	--	--	--	--	--	--	--	--	--
JUN 14...	<1.0	<1	1	10	<1	<10	0.1	<1	<1.0	<10
JUL 12...	<1.0	2	<1	10	<1	160	0.2	1	<1.0	<10
AUG 30...	<1.0	<1	<1	40	<2	100	<0.1	<2	<2.0	<10

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. 1994	70.4	7040	4690	892	1600	303	1400	272	1600
NOV. 1994	133.1	6670	4410	1590	1500	537	1300	484	1500
DEC. 1994	138.7	6530	4300	1610	1500	545	1300	492	1500
JAN. 1995	172.2	6780	4490	2090	1500	707	1400	637	1500
FEB. 1995	107.5	6960	4620	1340	1600	455	1400	409	1600
MAR. 1995	161.1	7370	4920	2140	1700	727	1500	652	1700
APR. 1995	2027.3	1840	1150	6300	380	2100	360	1950	430
MAY 1995	3582.0	2270	1420	13800	470	4590	440	4260	530
JUNE 1995	2170.7	2900	1830	10700	610	3590	570	3320	670
JULY 1995	74.43	4600	2960	595	990	200	910	183	1100
AUG. 1995	144.63	3550	2240	876	750	292	690	270	820
SEPT 1995	1194.35	1660	1010	3260	330	1080	310	1010	390
TOTAL	9976.41	**	**	45200	**	15100	**	13900	**
WTD.AVG.	27	2650	1680	**	560	**	520	**	610

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

## SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	4640	4400	4560	7440	7360	7410	6000	5920	5950	6920	6680	6800
2	4880	4560	4780	7440	7360	7390	5960	5920	5930	6680	6530	6610
3	5040	4800	4970	7400	7240	7330	6000	5880	5940	6530	6340	6420
4	5200	4960	5130	7280	6840	7180	6120	5920	6060	6630	6460	6530
5	5440	5120	5340	6840	6520	6620	6160	6040	6100	6870	6590	6740
6	5640	5440	5540	6760	6640	6700	6120	6040	6090	6920	6840	6890
7	5800	5560	5670	6880	6640	6780	6080	6020	6060	6930	6840	6870
8	5800	5520	5650	7000	6880	6940	6100	6010	6060	6930	6860	6900
9	5840	5720	5780	7200	6880	7060	6100	6060	6080	6980	6860	6930
10	6040	5760	5940	7320	7200	7270	6270	6100	6180	6990	6910	6960
11	6200	5920	6140	7680	7280	7580	6350	6190	6270	7070	6910	7020
12	6320	6120	6250	7680	7400	7600	6360	6280	6320	7150	7060	7100
13	6360	6200	6290	7400	7040	7180	6490	6320	6410	7140	7060	7100
14	6440	6240	6350	7040	6680	6880	6650	6490	6600	7060	6970	7040
15	6560	6400	6480	6680	6040	6160	6860	6580	6700	7010	6850	6920
16	6880	6560	6790	6120	5960	6010	6940	6860	6900	6890	6800	6840
17	7080	6800	6960	6200	6120	6180	6950	6870	6910	6840	6760	6800
18	7040	6920	7000	6200	6120	6190	6910	6730	6800	6800	6510	6610
19	7080	6960	7020	6360	6160	6240	6730	6540	6630	6790	6550	6690
20	7400	6960	7220	6480	6320	6420	6540	6470	6510	6750	6670	6710
21	7680	7240	7550	6480	6400	6440	6510	6430	6480	6790	6700	6750
22	7960	7600	7870	6400	5920	6200	6640	6480	6570	6740	6500	6630
23	8200	7880	8100	6200	6120	6160	6730	6560	6670	6540	6410	6470
24	8360	8160	8300	6200	6120	6150	6850	6690	6800	6570	6410	6470
25	8360	8240	8320	6240	6160	6210	6940	6740	6890	6930	6570	6730
26	8720	8360	8560	6200	6160	6180	7030	6910	7000	7090	6890	6970
27	8760	8440	8620	6280	6120	6230	7040	6920	7000	7170	7050	7100
28	8440	8080	8230	6240	6160	6220	6930	6840	6880	7170	7040	7100
29	8080	7880	7960	6200	6040	6130	6890	6740	6810	7040	6840	6930
30	7880	7640	7760	6080	5960	6010	6950	6740	6860	6840	6750	6810
31	7680	7440	7540	---	---	---	6950	6870	6930	6790	6670	6750
MONTH	8760	4400	6730	7680	5920	6630	7040	5880	6500	7170	6340	6810
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6790	6700	6750	6760	6710	6730	6440	5620	5930	12400	12000	12200
2	6820	6660	6760	6800	6720	6750	6440	5620	6100	12400	12000	12100
3	6900	6700	6830	6850	6800	6830	6560	5700	6490	12100	11800	11900
4	6940	6820	6870	6890	6810	6850	5700	285	1360	12200	11900	12100
5	6970	6850	6920	6930	6810	6880	1430	407	957	12100	11200	11800
6	7050	6890	7000	7020	6890	6960	2730	1060	2240	12300	3910	7620
7	7130	6970	7050	7020	6940	6970	2770	2610	2690	8880	1500	4090
8	7120	7000	7080	7110	7020	7060	3050	2770	2900	4670	1170	2220
9	7160	7080	7120	7190	7070	7140	3380	3050	3240	1580	1040	1220
10	7160	7040	7090	7320	7190	7260	3420	3300	3380	2090	1460	1770
11	7130	7010	7070	7450	7280	7340	4150	3300	3620	2470	2090	2310
12	7090	7050	7090	7490	7410	7430	5360	4150	4700	3010	2340	2680
13	7090	6940	7020	7500	7330	7400	6730	5360	6040	3310	3010	3110
14	6980	6820	6910	7590	7460	7500	7480	6690	7110	3400	3310	3380
15	6900	6820	6880	7550	7390	7440	8140	7480	7640	3360	3060	3160
16	7030	6820	6960	7590	7550	7570	8430	8140	8230	3410	3230	3320
17	7070	6950	7010	7750	7510	7680	8850	8430	8690	3670	3410	3510
18	7160	6950	7090	7710	7550	7630	8890	8610	8830	4010	3670	3790
19	7280	7080	7210	7590	7420	7500	9480	8610	9210	4270	4010	4100
20	7410	7240	7370	7510	7420	7460	9900	9360	9520	4660	4270	4440
21	7370	7290	7330	7550	7380	7490	9940	9730	9870	4800	4660	4750
22	7330	7130	7210	7630	7380	7570	10300	9820	10100	5100	4710	4950
23	7140	6940	7030	7670	7550	7640	10500	10300	10400	5100	4850	5040
24	6980	6820	6910	7750	7540	7660	10700	10500	10700	4850	4510	4620
25	6860	6660	6740	7750	7460	7690	11200	10700	10900	4560	4170	4320
26	6660	6580	6640	7910	7460	7780	11300	10900	11100	4220	4090	4130
27	6670	6580	6650	7790	7620	7670	11400	11100	11300	4270	4050	4120
28	6750	6630	6700	7620	7420	7490	11600	11100	11400	6000	3970	4830
29	---	---	---	7420	7300	7380	11800	11400	11600	5270	908	3690
30	---	---	---	7380	7170	7270	12200	11600	11900	1770	649	971
31	---	---	---	7170	6400	6760	---	---	---	2430	736	1270
MONTH	7410	6580	6970	7910	6400	7320	12200	285	7270	12400	649	4950

COLORADO RIVER MAIN STEM

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08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1860	824	1040	7740	6440	6780	5000	4580	4790	5700	5390	5570
2	1480	955	1190	6450	5370	5850	4580	4460	4510	5930	5590	5770
3	2090	1480	1830	5370	4580	4970	4710	4460	4590	6080	5810	5950
4	2440	2090	2270	4580	3540	3970	4710	4580	4620	6700	5980	6410
5	2790	2440	2630	3540	2980	3350	4620	413	2610	7130	6540	6800
6	3140	2740	2950	3030	2890	2940	5700	413	3490	6580	6190	6410
7	3490	3140	3300	2910	2850	2860	5700	4500	4920	6230	5800	6100
8	3710	3450	3560	2930	2820	2860	---	---	e5000	6020	5660	5800
9	3890	3710	3770	2990	2830	2940	---	---	e5000	6660	5070	5940
10	4200	3890	4040	3150	2950	3070	---	---	e5100	5550	4600	4840
11	9420	1530	4950	3270	3060	3180	---	---	e5100	4680	4390	4590
12	10700	1930	4770	3340	3170	3270	---	---	e5200	5620	4050	4410
13	3030	1620	2140	3560	3330	3460	---	---	e5200	4790	3930	4060
14	4520	2680	3790	3740	3490	3650	---	---	e5300	5300	4020	4200
15	3350	2650	2880	3910	3710	3830	---	---	e5300	4320	3930	4130
16	2750	2610	2650	4060	3790	3960	---	---	e5400	4430	4140	4330
17	3030	2750	2900	4170	3950	4130	---	---	e5400	4140	393	1540
18	3170	3030	3100	4290	4130	4210	---	---	e5500	2430	1100	1490
19	3230	3130	3180	4250	4170	4210	---	---	e5500	1560	1170	1310
20	3330	3180	3300	4250	4170	4210	---	---	e5600	3380	1120	2000
21	3520	3290	3410	4290	4170	4240	---	---	e5600	1700	1120	1340
22	3670	3390	3580	4380	4250	4350	---	---	e5700	1420	1040	1160
23	3780	3590	3700	4500	4330	4440	---	---	e5700	2600	1420	1980
24	3850	3690	3790	4660	4330	4550	---	---	e5800	3050	2470	2770
25	4000	3800	3890	4660	4580	4640	---	---	e5800	2730	2430	2560
26	4440	3960	4160	4790	4580	4710	---	---	e5900	2640	2180	2430
27	4780	4440	4650	4870	4710	4830	---	---	e5800	3040	2220	2460
28	5450	4690	5280	5000	4830	4890	---	---	e5700	3680	2470	2790
29	8040	5370	6160	4950	4830	4900	---	---	e5800	3640	2820	3060
30	8280	7740	8080	5040	4910	4970	---	---	5840	3240	2990	3090
31	---	---	---	5040	4910	4980	5900	5370	5580	---	---	---
MONTH	10700	824	3560	7740	2820	4170	5900	413	5200	7130	393	3840
YEAR	12400	285	5830									

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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



08123850 COLORADO RIVER ABOVE SILVER, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.5	7.5	8.5	10.5	7.0	8.5	13.5	12.5	13.0	23.5	18.0	20.5
2	10.0	8.5	9.5	7.0	5.5	6.0	18.0	13.0	15.5	21.0	16.5	18.5
3	12.5	10.0	11.5	6.5	4.5	5.5	17.5	15.5	16.0	19.0	17.0	18.0
4	11.5	8.0	9.0	9.5	6.5	7.5	16.5	5.5	10.5	21.0	19.0	20.0
5	10.0	9.0	9.5	10.5	9.5	10.0	14.0	9.5	12.0	21.0	19.0	20.5
6	10.0	8.5	9.5	13.0	10.5	11.5	18.5	12.5	15.5	24.0	17.5	21.0
7	10.5	9.5	10.0	13.0	9.0	10.5	22.5	16.5	19.0	23.0	19.5	22.0
8	9.5	6.5	8.0	10.0	7.5	9.0	24.0	17.5	20.5	21.0	14.5	19.5
9	8.5	6.5	7.5	11.5	8.5	10.0	24.5	19.0	21.0	22.0	17.0	19.5
10	11.0	8.5	10.0	13.5	9.0	11.0	23.5	17.5	20.5	24.0	19.0	21.0
11	11.5	10.0	11.0	16.0	12.0	13.5	21.0	14.5	17.5	24.0	20.0	22.0
12	10.0	7.0	7.5	16.5	15.0	15.5	21.0	15.0	17.5	26.5	21.0	23.5
13	7.0	6.5	6.5	17.0	15.5	16.0	24.0	17.0	20.0	26.5	20.5	23.0
14	9.5	7.0	8.0	17.0	14.5	15.5	23.5	16.5	19.5	24.5	22.0	22.5
15	11.5	9.5	10.5	15.0	14.0	14.5	23.0	19.0	20.0	28.0	22.0	24.5
16	12.0	9.5	11.0	14.5	13.0	13.5	24.0	21.0	22.5	26.5	23.0	25.0
17	9.5	8.0	8.5	14.0	13.5	14.0	26.5	19.5	24.0	25.5	21.0	23.0
18	9.5	8.5	9.0	15.0	14.0	14.5	19.5	16.0	17.0	22.5	18.0	20.0
19	11.5	9.5	10.5	17.0	15.0	16.5	22.0	17.0	19.0	23.5	19.0	20.5
20	12.0	10.0	11.0	18.0	17.0	17.0	19.5	15.0	17.0	24.5	18.5	21.0
21	12.5	10.5	11.5	17.5	16.5	17.0	19.0	15.0	17.0	23.5	19.5	20.5
22	14.0	12.5	13.0	19.0	17.5	18.5	19.0	13.0	16.5	26.0	20.5	23.0
23	14.0	12.0	12.5	19.0	16.5	17.5	14.5	11.0	12.5	26.0	23.5	24.5
24	13.0	12.5	13.0	21.0	17.0	18.5	16.0	12.5	14.0	25.0	21.5	22.5
25	15.0	13.0	14.0	20.5	19.0	20.0	20.5	14.5	17.5	22.0	21.5	22.0
26	15.5	14.5	15.0	20.0	17.5	18.0	21.0	16.0	18.0	22.5	20.0	21.0
27	16.0	15.0	15.0	18.0	16.0	16.5	19.5	15.0	16.5	23.5	20.0	20.5
28	15.0	10.5	13.5	16.0	14.0	15.5	20.0	16.0	17.5	25.5	21.5	23.5
29	---	---	---	14.0	12.5	12.5	23.0	19.0	20.5	23.5	17.0	20.5
30	---	---	---	13.5	12.5	13.0	25.0	21.0	23.0	19.0	16.0	17.0
31	---	---	---	13.5	13.5	13.5	---	---	---	21.5	18.0	19.5
MONTH	16.0	6.5	10.5	21.0	4.5	13.5	26.5	5.5	17.5	28.0	14.5	21.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	24.5	20.0	22.0	26.0	23.5	24.5	26.5	22.5	24.0	27.0	25.0	26.0
2	27.0	22.0	24.5	25.5	24.5	25.0	24.0	22.0	23.0	26.5	25.5	26.0
3	27.5	23.5	25.5	26.0	24.5	25.5	26.0	24.0	25.0	26.0	25.0	25.5
4	26.0	23.5	24.5	26.0	24.0	25.0	27.0	26.0	26.5	26.0	25.5	26.0
5	29.0	21.5	25.0	25.5	24.0	24.5	31.0	25.0	28.0	26.5	25.5	26.0
6	30.5	24.0	27.0	25.5	24.5	25.0	32.5	27.0	29.5	27.0	25.5	26.0
7	32.0	25.5	28.5	26.0	24.5	25.5	30.5	27.5	29.0	28.0	25.5	27.0
8	31.5	26.5	28.5	27.0	24.5	26.0	30.5	27.0	29.0	27.5	24.5	25.5
9	30.0	25.0	27.5	27.5	25.5	27.0	30.0	25.5	27.5	25.5	22.0	24.0
10	29.5	25.5	27.0	27.5	25.5	27.0	28.5	25.0	27.0	22.5	20.5	21.5
11	25.5	21.5	23.5	27.5	27.0	27.0	28.0	25.0	26.5	25.0	22.0	24.0
12	26.0	21.5	24.0	27.5	27.0	27.0	28.5	26.0	27.5	26.0	24.0	25.0
13	28.0	23.0	25.0	27.5	27.0	27.5	29.5	26.0	28.0	26.0	23.5	24.5
14	28.5	24.0	26.0	27.5	26.5	27.0	30.5	26.0	28.0	24.5	23.5	24.0
15	28.5	23.5	26.0	28.0	26.5	27.0	29.5	26.5	28.0	24.5	23.0	23.5
16	28.5	23.0	25.0	27.5	27.0	27.0	29.0	25.5	27.5	26.0	23.0	24.0
17	27.5	22.0	24.5	27.5	26.0	26.5	29.0	25.5	27.5	25.5	21.0	23.0
18	27.5	22.0	24.5	27.0	26.5	27.0	28.5	25.5	27.0	25.5	23.0	24.0
19	25.0	22.0	23.0	27.5	26.0	26.5	27.5	26.0	27.0	26.0	22.5	24.0
20	25.5	23.0	24.0	27.5	26.0	27.0	27.5	26.0	27.0	25.0	22.5	23.5
21	25.5	23.5	24.5	29.5	27.5	28.0	27.5	26.5	27.5	23.0	16.0	20.5
22	25.0	24.0	24.5	29.0	27.5	28.0	28.0	26.5	27.5	19.5	14.0	16.5
23	25.0	24.5	24.5	29.0	26.5	28.0	28.0	26.0	27.0	22.0	15.5	18.5
24	25.5	24.0	24.5	29.0	27.0	28.0	27.5	26.0	26.5	23.0	18.0	20.0
25	28.5	24.0	26.0	29.0	26.0	28.0	27.5	26.5	27.0	23.0	19.0	20.0
26	27.0	25.0	26.0	29.5	26.5	28.0	27.5	25.5	27.0	20.5	18.0	19.0
27	25.0	23.5	24.5	29.5	26.0	28.0	27.5	26.5	27.0	22.5	20.5	21.5
28	28.0	25.0	26.5	29.0	26.0	27.0	27.5	26.0	27.0	26.0	22.0	24.0
29	31.5	26.0	28.5	30.0	27.0	28.5	28.0	26.0	27.0	26.5	23.0	25.0
30	29.0	24.5	27.0	30.0	26.0	27.0	28.5	25.5	27.0	26.0	21.5	23.5
31	---	---	---	28.0	26.5	27.5	28.5	25.5	26.5	---	---	---
MONTH	32.0	20.0	25.5	30.0	23.5	27.0	32.5	22.0	27.0	28.0	14.0	23.5
YEAR	32.5	3.0	18.5									

## 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<sup>2</sup>, approximately, of which 10,260 mi<sup>2</sup> probably is noncontributing.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--December 1968 to current year.

Water-Quality records.--Chemical analyses: November 1969 to August 1988. Biochemical analyses: January 1978 to August 1988.

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

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to June 24, 1969, non-recording gage at same site and datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 21,500 ft long. Closure was made Dec. 30, 1968, and dam was completed in June 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 (capacity, 283,600 acre-ft), Lake Colorado City (station 08123000), and Champion Creek Reservoir (capacity, 42,500 acre-ft). 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 and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,928.0	-
Crest of spillway.....	1,908.0	653,400
Top of gates.....	1,900.0	519,300
Top of conservation pool.....	1,898.0	488,800
Crest of spillway.....	1,878.0	262,900
Lowest gated outlet (invert).....	1,815.85	4,000

COOPERATION.--Capacity table (dated March 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 June 16, 1987 (elevation, 1,887.03 ft); minimum since first appreciable storage in June 1969 (not from recorder), about 330 acre-ft May 29, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 184,100 acre-ft Oct. 1 at 0000 hours (elevation, 1,868.25 ft); minimum, 167,600 acre-ft Apr. 2 (elevation, 1,865.88 ft).

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

1,806.0	225	1,846.0	67,900	1,873.0	219,900
1,816.0	4,430	1,856.0	109,900	1,878.0	262,900
1,826.0	19,050	1,862.0	142,400	1,883.0	312,000
1,836.0	38,760	1,868.0	182,400	1,888.0	366,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184100	179600	176800	173600	171000	169000	167800	170900	176900	177100	173800	169900
2	183900	179500	176700	173800	171000	168800	167600	170400	177100	176800	173600	169700
3	183700	179500	176700	173800	170800	168700	167800	170700	177300	176700	173800	169600
4	183400	179500	176500	173400	170600	168800	170400	170400	177400	176600	174200	169300
5	183000	179500	176300	173200	170600	168800	172500	171000	177300	176800	174200	169200
6	183000	179200	176300	173200	170400	168700	173200	170900	177400	176700	174100	169000
7	182700	179000	176200	173200	170400	168400	173300	171600	177200	176700	174100	168700
8	182500	179100	176200	173200	170200	168300	173300	172000	177100	176600	174000	168600
9	182000	178900	175900	173000	170300	168200	173300	172600	177100	176400	173900	168700
10	181900	178600	175800	173000	170100	168200	173300	172500	177500	176400	173600	168600
11	181700	178500	175600	173000	169900	168200	173100	172700	177400	176100	173500	168600
12	181600	178400	175600	172900	169700	168500	173200	172800	177800	176000	173200	168300
13	181400	178400	175300	172700	169700	168500	172900	172900	178100	175700	173100	168400
14	181100	179200	175400	172600	169800	168500	172900	173000	178100	175500	172800	168500
15	181100	179000	175300	172400	169800	168600	172900	173000	178100	175300	172800	168300
16	181300	178800	175100	172300	169800	168600	172900	173200	177700	175100	172600	169900
17	181200	178700	175100	172500	169600	168600	172700	172700	177600	175000	172400	170300
18	181400	178500	174800	172500	169500	168600	172500	172600	177400	174800	172300	170100
19	181200	178400	174800	172300	169500	168500	172400	172300	177400	174400	172200	169800
20	181100	178300	174700	172300	169400	168400	172200	172200	177400	174400	172000	169900
21	181100	178200	174600	172100	169400	168400	172200	172000	177100	174300	171900	170400
22	180900	178100	174500	172100	169200	168300	171800	172000	177100	174100	171700	170400
23	180700	177800	174300	172000	169300	168300	171800	172000	176800	173900	171600	170100
24	181000	177600	174300	171800	169200	168100	171600	172000	176900	173600	171300	169900
25	180800	177600	174100	171700	169100	168500	171300	171800	176800	173200	171000	169900
26	180600	177600	173900	171800	169400	168300	171300	171800	176600	173100	171000	169800
27	180500	177400	174100	171700	169200	168300	171200	172000	176800	172700	170800	170400
28	180200	177200	174100	171400	169100	168000	171100	171900	177100	172600	170700	170200
29	180200	176900	174100	171300	---	167900	171100	172200	177100	172200	170400	170200
30	180000	176800	173900	171200	---	167800	171000	173900	177200	172100	170200	170100
31	179900	---	173900	171100	---	167800	---	175500	---	172100	170000	---
MAX	184100	179600	176800	173800	171000	169000	173300	175500	178100	177100	174200	170400
MIN	179900	176800	173900	171100	169100	167800	167600	170400	176600	172100	170000	168300
(+)	1867.64	1867.20	1866.78	1866.39	1866.10	1865.91	1866.37	1867.02	1867.26	1866.53	1866.23	1866.24
(@)	-4200	-3100	-2900	-2800	-2000	-1300	+3200	+4500	+1700	-5100	-2100	+100
CAL YR 1994	MAX 207100	MIN 170800	(+) -8800									
WTR YR 1995	MAX 184100	MIN 167600	(@) -14000									

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

## COLORADO RIVER MAIN STEM

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<sup>2</sup>, of which 10,260 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1923 to December 1927, April 1939 to May 1956, and October 1968 to current year. Prior to December 1927, published as "near Robert Lee".  
Water-quality records.--Chemical analyses: October 1947 to September 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 Sept. 26, 1939, nonrecording gage, and Sept. 27, 1939, to May 9, 1956, water-stage recorder at site 200 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Beginning April 1949, flow was affected by Lake Colorado City (see station 08123000) and since July 1952 by Lake J. B. Thomas (capacity 203,600 acre-ft). Since December 1968, flow completely regulated by E. V. Spence Reservoir (station 08123950) 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. Radio telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--19 years (water years 1924-27, 1940-55) prior to completion of Robert Lee Dam, 207 ft<sup>3</sup>/s (150,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1924-27, 1940-55).--Maximum discharge, 32,500 ft<sup>3</sup>/s Sept. 6, 1926 (gage height, 20.20 ft, site and datum then in use), from rating curve extended above 15,000 ft<sup>3</sup>/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 April 1922 reached a stage of 25.5 ft, present datum, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.0	2.7	2.8	.91	.95	.70	3.0	5.7	8.0	8.1	19	8.6
2	e5.0	2.5	2.0	1.1	.96	.65	2.9	5.7	7.8	8.1	11	8.6
3	e5.0	2.5	.93	1.5	.96	.75	2.9	5.7	7.8	8.0	10	8.5
4	e5.0	2.7	.71	1.6	1.1	.87	5.3	5.5	7.8	7.3	17	8.4
5	e5.0	3.8	.71	1.6	1.3	.87	10	8.5	7.8	8.0	10	8.6
6	4.8	3.1	.68	1.4	1.2	.86	3.1	7.1	7.5	8.5	9.2	8.6
7	e4.6	3.0	.67	1.4	1.2	.84	9.6	5.7	7.5	8.2	9.4	8.8
8	e4.8	3.0	.74	1.5	1.2	.69	3.8	5.5	7.4	8.3	9.9	8.9
9	e5.0	3.4	.74	1.4	.93	.56	3.4	5.2	7.2	8.3	9.9	11
10	e4.6	3.0	.79	1.4	.77	.42	3.5	5.3	7.5	8.3	9.8	9.4
11	e4.8	3.0	.79	1.4	1.2	.50	3.5	6.1	9.4	8.0	9.2	8.4
12	4.8	3.0	.83	1.5	1.3	.50	3.4	5.7	7.8	8.3	9.2	8.8
13	e3.9	3.0	.87	1.5	1.3	.74	3.4	5.2	7.8	8.3	9.2	9.2
14	e3.6	7.8	.82	1.6	1.2	.67	3.3	5.4	7.8	8.1	9.2	9.7
15	e3.4	3.3	.79	1.6	1.0	.49	3.1	5.6	7.8	7.7	9.1	9.7
16	e3.4	2.9	.79	1.3	1.1	.49	3.3	6.0	7.8	8.1	8.6	8.9
17	e3.6	2.7	.79	1.2	1.2	.52	3.4	5.3	7.8	8.1	8.6	9.6
18	e3.6	2.7	.78	1.5	1.0	.76	3.4	5.0	7.8	8.1	8.6	11
19	3.6	2.8	.75	1.7	.80	1.2	3.4	5.1	7.9	8.3	8.6	9.2
20	e3.6	3.0	.79	1.5	.89	1.3	3.1	5.2	8.0	8.3	8.6	9.0
21	e3.4	2.6	.79	1.3	.94	1.3	3.2	5.2	7.8	8.1	8.6	8.9
22	e3.6	2.5	.89	1.3	.75	1.4	3.3	5.1	7.8	7.8	8.3	8.9
23	e4.1	2.5	.74	1.3	.63	1.3	3.4	5.2	7.6	8.1	8.5	8.9
24	e4.1	2.8	.80	1.2	.57	1.2	3.4	5.4	7.6	7.7	8.6	8.6
25	e4.8	2.8	.99	1.1	.56	2.2	3.4	5.4	7.5	7.7	8.7	8.9
26	e4.1	2.8	.94	1.0	1.2	3.0	3.1	5.6	7.5	9.0	8.3	8.9
27	e2.8	2.8	1.0	.93	.90	2.9	3.6	5.8	7.5	9.6	8.3	8.8
28	2.7	2.8	1.3	.95	.71	2.9	5.3	5.2	7.8	9.9	8.5	9.2
29	2.7	2.8	1.5	1.0	---	3.0	5.2	5.2	8.6	9.7	8.6	8.5
30	2.7	2.8	1.1	.96	---	3.0	5.3	15	9.2	9.4	8.9	8.6
31	2.7	---	.94	.93	---	3.0	---	8.3	---	9.9	8.9	---
TOTAL	125.8	91.1	29.76	40.58	27.82	39.58	120.0	185.9	235.1	259.3	298.3	271.1
MEAN	4.06	3.04	.96	1.31	.99	1.28	4.00	6.00	7.84	8.36	9.62	9.04
MAX	6.0	7.8	2.8	1.7	1.3	3.0	10	15	9.4	9.9	19	11
MIN	2.7	2.5	.67	.91	.56	.42	2.9	5.0	7.2	7.3	8.3	8.4
AC-FT	250	181	59	80	55	79	238	369	466	514	592	538

COLORADO RIVER MAIN STEM

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08124000 COLORADO RIVER AT ROBERT LEE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1995#, BY WATER YEAR (WY)

MEAN	24.5	9.84	1.58	1.25	1.45	1.55	2.69	6.20	36.9	42.2	41.9	35.7
MAX	578	219	9.85	9.14	9.34	9.73	29.0	68.1	473	495	512	438
(WY)	1987	1987	1990	1991	1990	1990	1989	1987	1989	1988	1988	1986
MIN	.005	.008	.12	.049	.046	.015	.020	.011	.000	.000	.011	.034
(WY)	1969	1979	1974	1980	1969	1980	1972	1971	1980	1970	1985	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1969 - 1995#
ANNUAL TOTAL	1800.56	1724.34	
ANNUAL MEAN	4.93	4.72	17.2
HIGHEST ANNUAL MEAN			182
LOWEST ANNUAL MEAN			1.04
HIGHEST DAILY MEAN	30 May 27	19 Aug 1	5600 Sep 9 1980
LOWEST DAILY MEAN	.67 Dec 7	.42 Mar 10	.00 Oct 1 1968
ANNUAL SEVEN-DAY MINIMUM	.72 Dec 4	.54 Mar 10	.00 Oct 14 1968
INSTANTANEOUS PEAK FLOW		36 Aug 4	24500 Sep 9 1980
INSTANTANEOUS PEAK STAGE		2.36 Aug 4	20.63 Sep 9 1980
ANNUAL RUNOFF (AC-FT)	3570	3420	12480
10 PERCENT EXCEEDS	15	8.9	9.3
50 PERCENT EXCEEDS	3.2	3.6	.49
90 PERCENT EXCEEDS	1.1	.80	.02

e Estimated

# Period of regulated streamflow.



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<sup>2</sup>, approximately, of which 10,260 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--June 1907 to September 1979 (published as "at Ballinger", station 08126500), October 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, to Sept. 30, 1979, water-stage recorder at site 5.4 mi downstream, both at datum 12.77 ft lower.

REMARKS.--No estimated daily discharge. Records good. Many diversions upstream from station for irrigation, municipal supplies, and for oil field operations. Flow is also affected by E. V. Spence (station 08123950) and Oak Creek Reservoirs (capacity, 39,360 acre-ft), and at times by discharge from the floodwater-retarding structures in the Kickapoo and Valley Creeks drainage basins. Radio telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--61 years (water years 1908-68) prior to completion of Robert Lee Dam, 336 ft<sup>3</sup>/s (243,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1908-68).--Maximum discharge, 75,400 ft<sup>3</sup>/s Sept. 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 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	7.1	11	9.0	6.7	8.7	12	5.4	79	11	3.7	30
2	7.3	7.1	11	8.7	6.7	8.7	12	4.8	120	12	63	28
3	7.9	7.1	11	8.7	6.9	8.1	12	4.8	94	185	116	27
4	7.9	7.8	11	8.7	6.7	7.2	116	3.3	135	19	739	23
5	7.2	11	11	8.7	6.7	6.7	503	8.9	145	9.8	1400	22
6	5.4	10	11	9.3	6.7	6.7	299	35	134	7.7	960	19
7	8.2	10	11	9.6	6.6	8.1	134	14	125	6.5	796	19
8	9.4	10	11	9.6	6.3	7.3	90	9.7	108	5.6	673	17
9	7.1	11	11	9.6	6.3	7.5	69	9.0	93	5.5	583	16
10	7.1	11	17	9.2	6.5	6.9	55	9.6	78	6.9	497	15
11	7.1	10	15	9.0	6.7	7.0	45	17	75	4.9	411	17
12	7.1	10	11	8.7	6.6	9.5	38	28	64	2.7	356	17
13	7.1	10	9.9	8.7	6.3	15	33	15	54	2.0	300	22
14	7.4	16	9.4	8.3	6.3	13	28	12	49	1.0	232	26
15	9.6	59	8.7	8.2	6.3	9.6	23	11	42	1.6	194	30
16	9.6	39	8.7	7.9	6.3	10	22	8.5	36	1.7	168	29
17	10	23	8.7	7.9	6.3	9.5	22	8.0	38	1.9	134	28
18	31	21	8.7	8.3	6.3	8.8	21	8.0	31	2.2	108	32
19	23	18	8.6	8.7	6.3	8.6	17	8.2	28	1.4	100	67
20	14	34	7.9	8.7	6.3	7.5	14	5.7	24	1.5	89	61
21	12	28	7.9	8.7	6.2	7.4	10	5.7	21	2.5	91	61
22	10	20	7.9	8.7	4.6	7.2	11	5.5	19	2.4	81	55
23	10	15	7.9	8.7	5.2	7.0	8.9	4.7	15	1.9	75	48
24	9.7	14	7.9	8.7	7.1	6.5	4.8	5.2	12	1.2	58	44
25	8.5	12	7.9	8.7	7.1	19	5.2	5.3	8.9	1.0	48	41
26	8.1	12	7.6	8.7	14	31	5.2	23	6.5	.87	43	36
27	7.8	12	7.5	8.5	14	36	5.6	22	6.1	.54	40	33
28	7.5	12	11	7.9	9.5	23	5.2	21	6.5	1.3	38	31
29	7.5	12	11	7.9	---	17	5.2	28	14	.69	38	30
30	7.5	11	11	7.8	---	13	5.2	18	26	.65	35	27
31	7.4	---	9.6	7.0	---	12	---	27	---	1.4	32	---
TOTAL	295.5	480.1	309.8	266.8	197.5	353.5	1631.3	391.3	1687.0	304.35	8501.7	951
MEAN	9.53	16.0	9.99	8.61	7.05	11.4	54.4	12.6	56.2	9.82	274	31.7
MAX	31	59	17	9.6	14	36	503	35	145	185	1400	67
MIN	5.4	7.1	7.5	7.0	4.6	6.5	4.8	3.3	6.1	.54	3.7	15
AC-FT	586	952	614	529	392	701	3240	776	3350	604	16860	1890

COLORADO RIVER MAIN STEM

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08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1995#, BY WATER YEAR (WY)

MEAN	110	40.6	33.2	28.6	57.7	39.8	35.8	84.1	118	55.1	109	131
MAX	1194	374	259	159	756	299	122	377	739	455	639	833
(WY)	1987	1987	1992	1992	1992	1987	1992	1969	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

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1969 - 1995#	
ANNUAL TOTAL	11297.62		15369.85		70.2	
ANNUAL MEAN	31.0		42.1		405	
HIGHEST ANNUAL MEAN					7.18	
LOWEST ANNUAL MEAN					9220	
HIGHEST DAILY MEAN	1810	May 27	1400	Aug 5		Aug 28 1986
LOWEST DAILY MEAN	.10	Apr 21	.54	Jul 27	.00	Mar 20 1971
ANNUAL SEVEN-DAY MINIMUM	.28	Jul 31	.89	Jul 24	.00	Mar 20 1971
INSTANTANEOUS PEAK FLOW			1790	Aug 5	16600	Aug 3 1978
INSTANTANEOUS PEAK STAGE			11.47	Aug 5	27.50	Sep 21 1990
ANNUAL RUNOFF (AC-FT)	22410		30490		50860	
10 PERCENT EXCEEDS	40		76		116	
50 PERCENT EXCEEDS	8.6		10		12	
90 PERCENT EXCEEDS	1.6		5.4		.95	

# Period of regulated streamflow.

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1961 to current year.

WATER TEMPERATURE: October 1961 to current year.

SUSPENDED SEDIMENT DISCHARGE: January 1978 to September 1981.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Prior to October 1979, station was operated as 08126500 Colorado River at Ballinger.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 13,500 microsiemens May 3, 1963; minimum daily, 244 microsiemens Sept. 9, 1980.

WATER TEMPERATURE: Maximum daily, 39.0°C July 3, 1977; minimum daily, 0.0°C Jan. 9-11, 1973.

SEDIMENT CONCENTRATION: Maximum daily mean, 3,740 mg/L Sept. 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.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,310 microsiemens Aug. 1; minimum daily, 617 microsiemens Aug. 11.

WATER TEMPERATURE: Maximum daily, 37.0°C July 26; minimum daily, 6.5°C Mar. 3.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. . CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 01...	1450	7.1	3730	19.0	1200	1000	290	110	430
JAN 03...	1310	8.5	3380	8.5	1300	1100	320	110	320
MAR 08...	1505	7.1	3820	11.5	1400	1300	370	120	340
MAY 16...	1425	8.1	2700	26.0	950	810	240	86	250
JUN 28...	1000	5.9	2600	26.0	850	670	200	84	180
AUG 24...	1320	52	800	29.0	240	100	56	24	65

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 01...	5	11	140	1000	640	0.50	7.9	2580
JAN 03...	4	8.2	160	1100	490	0.40	4.6	2450
MAR 08...	4	8.4	150	1300	540	0.50	3.3	2770
MAY 16...	4	8.5	140	780	380	0.50	5.3	1830
JUN 28...	3	6.7	180	570	270	0.60	8.2	1430
AUG 24...	2	4.8	140	110	90	0.40	13	446

COLORADO RIVER MAIN STEM

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08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- STEMENS)	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. 1994	295.5	3590	2470	1970	550	443	1000	813	1200
NOV. 1994	480.1	3310	2280	2960	500	645	950	1230	1100
DEC. 1994	309.8	2760	1900	1590	390	323	810	681	980
JAN. 1995	266.8	3570	2460	1770	550	394	1000	734	1200
FEB. 1995	197.5	3800	2610	1390	600	319	1100	572	1300
MAR. 1995	353.5	3480	2400	2290	530	504	1000	951	1200
APR. 1995	1631.3	1350	935	4120	160	704	420	1840	520
MAY 1995	391.3	3110	2150	2270	450	479	910	957	1100
JUNE 1995	1687.0	1650	1140	5200	200	913	510	2320	630
JULY 1995	304.35	1890	1310	1080	240	198	570	472	700
AUG. 1995	8501.7	848	590	13500	94	2150	270	6170	340
SEPT 1995	951	1930	1340	3430	250	631	590	1510	720
TOTAL	15369.85	**	**	41600	**	7700	**	18200	**
WTD.AVG.	42	1450	1000	**	190	**	440	**	540

FROM DAILY OBSERVER  
SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3250	3800	2270	3440	3730	3820	3390	2750	2550	2040	4310	1240
2	3070	3760	2370	3450	3730	3830	3160	2820	2290	e1800	4000	1240
3	3090	3770	2150	3380	3730	3820	3260	2900	2160	e1500	3020	1220
4	2960	3740	2040	3500	3750	3830	2410	2960	1800	2010	1460	1200
5	2950	e3700	2130	3510	3750	3820	1080	2990	1520	2120	812	1200
6	3060	e3600	2420	3480	3720	3820	965	2960	1410	2320	753	1240
7	3190	3570	2560	3450	3740	3800	1180	2930	1390	2410	756	1290
8	2980	3580	2470	3440	3800	3820	e1180	2940	1370	2420	684	1280
9	3050	3740	e2500	3450	3780	3820	1170	2960	1350	2530	645	e1370
10	3080	3840	2620	3430	3780	3830	1250	e2960	1360	2760	645	e1560
11	3160	3930	2620	3520	3790	3810	1320	2960	1380	2750	617	e1650
12	3160	4030	2620	3470	3800	e3600	1340	3150	1360	2790	e628	e1740
13	3210	4030	2670	3520	3830	3050	1380	2980	1370	2760	640	e1920
14	3280	4000	e2750	3550	3840	3720	1450	2800	1380	2990	670	2010
15	3330	3760	2890	3550	3870	3690	1560	2690	1470	3240	670	2510
16	3590	3410	2900	3590	3880	3650	1570	2680	1470	3270	702	2390
17	3570	3190	3010	3590	3910	3610	1590	2820	1450	3290	708	2440
18	2930	3150	3010	3530	3950	3540	1650	2930	1470	3040	702	2300
19	3920	3330	3010	3560	3980	3550	1740	3060	1550	3060	703	3150
20	4070	3520	3040	3580	3980	3540	1860	3120	1740	3130	715	2350
21	4190	3350	3100	3630	4000	3560	2010	3270	1730	3420	761	1880
22	4250	3010	3100	3630	e4000	3550	2150	3370	1680	3470	786	1840
23	4120	2490	3110	3640	3990	e3900	2160	3470	1630	3510	802	1870
24	4150	e2680	3170	3730	3840	e3600	2500	3480	1610	3630	802	1930
25	e4200	2570	3170	3700	3950	e3200	2740	3380	e1800	3640	814	1930
26	e4200	2400	3160	3700	3270	3300	2780	3320	e2000	3690	845	1930
27	e4200	2170	3170	3730	3850	3400	2570	3270	e2300	3780	954	1930
28	4260	2170	e3100	e3750	e3850	3200	2800	3480	2500	3780	1050	1890
29	4240	2170	3050	e3750	---	3200	2780	3530	2350	3870	1140	1890
30	4140	2170	3220	3760	---	e3100	2810	3430	2200	3890	1150	1890
31	4150	---	3350	3760	---	3050	---	3010	---	3730	1190	---
MEAN	3580	3290	2800	3570	3820	3570	1990	3080	1720	2990	1100	1810

e Estimated



## COLORADO RIVER MAIN STEM

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

FROM DAILY OBSERVER WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995 DAILY INSTANTANEOUS VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	20.0	14.0	9.5	12.0	9.5	14.0	23.5	27.0	30.0	24.0	28.0
2	26.0	21.0	15.0	7.5	12.5	7.0	16.0	19.5	27.0	---	26.0	30.0
3	25.0	21.0	15.0	8.5	13.5	6.5	17.0	25.0	26.0	---	27.0	30.5
4	26.0	22.0	16.0	9.0	13.0	12.0	16.0	24.5	24.5	31.5	25.5	30.5
5	26.0	---	15.0	7.5	15.0	12.0	16.5	21.0	26.5	29.0	27.0	32.0
6	26.0	---	16.0	10.5	15.0	12.0	17.0	22.5	27.0	30.5	27.0	31.0
7	23.0	17.0	16.0	8.0	12.0	12.0	17.0	24.0	27.0	31.0	22.0	31.0
8	20.0	20.0	15.0	11.0	13.0	11.0	22.0	24.0	27.0	27.5	28.0	29.0
9	21.0	20.0	---	13.0	14.0	10.0	22.0	26.0	26.5	31.0	27.5	---
10	20.5	15.5	12.0	16.0	16.0	11.0	20.0	---	27.0	31.0	28.0	---
11	20.0	15.0	10.0	16.0	8.0	13.0	21.0	24.0	27.0	31.0	27.5	---
12	17.5	17.0	10.0	16.5	8.0	---	18.0	27.0	27.0	33.0	---	---
13	17.0	17.5	11.0	14.0	8.5	17.0	21.5	25.0	25.0	30.0	28.5	---
14	17.0	16.0	---	14.0	14.0	16.0	20.0	25.5	28.5	31.0	28.0	24.0
15	17.0	16.0	12.0	13.0	11.0	15.5	21.5	28.0	27.0	30.5	27.5	22.5
16	20.0	15.5	13.0	14.0	11.0	18.5	22.0	25.0	27.0	30.0	28.0	29.0
17	22.5	15.0	14.0	14.5	10.0	18.0	23.0	29.0	24.5	32.0	28.5	31.0
18	22.0	13.5	14.0	11.5	14.0	19.0	21.0	25.0	26.0	32.0	28.5	26.5
19	21.5	17.0	14.5	12.0	16.5	22.5	21.0	22.5	27.0	33.0	27.0	25.0
20	25.0	16.0	12.5	13.0	14.5	21.0	19.0	26.5	28.0	35.0	29.5	26.0
21	25.5	17.0	11.0	13.5	14.0	20.0	19.0	26.0	29.0	34.0	29.5	19.5
22	21.0	15.0	10.0	10.0	---	23.0	19.0	26.5	30.0	31.0	30.0	22.0
23	21.0	11.5	10.0	10.5	17.5	---	19.0	24.5	31.0	32.5	29.5	22.0
24	21.5	---	10.5	11.5	16.0	---	21.0	23.5	31.0	33.0	29.0	22.0
25	---	13.0	11.0	13.0	16.0	---	22.0	23.0	---	33.5	29.0	22.0
26	---	17.0	12.0	15.5	18.0	18.0	23.0	26.5	---	37.0	29.5	25.0
27	---	15.0	11.0	14.0	15.0	20.5	21.5	24.0	---	32.0	28.5	26.0
28	23.5	14.0	---	---	12.0	15.0	23.0	25.0	26.0	35.5	31.5	26.0
29	19.0	13.5	11.0	---	---	14.0	23.5	25.5	26.5	35.0	29.0	26.0
30	19.0	12.0	10.0	11.5	---	---	23.5	22.0	24.5	28.0	28.0	26.0
31	18.5	---	15.0	12.0	---	12.5	---	25.5	---	25.5	25.0	---
MEAN	21.6	16.4	12.7	12.1	13.3	14.9	20.0	24.6	27.1	31.6	27.8	26.5

## COLORADO RIVER BASIN

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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<sup>2</sup>, of which 63.5 mi<sup>2</sup> is above Lake Winters dam.

PERIOD OF RECORD.--April 1932 to current year.

Water-quality records.--Chemical analyses: October 1957 to September 1991. Specific conductance: October 1967 to September 1991. Water temperatures: October 1967 to September 1991.

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

GAGE.--Water-stage recorder and masonry dam control. Datum of gage is 1,617.72 ft sea level.

REMARKS.--No estimated daily discharge. Records good except those below 10 ft<sup>3</sup>/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. The city of Winters diverts water from New Lake Winters (capacity, 8,374 acre-ft at elevation, 1,790.0 ft) for municipal use. Prior to June 1982, capacity of Old Lake Winters (just upstream from new dam) was 3,060 acre-ft. Radio-telemeter at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	1.9	31	20	6.6	9.7	7.5	3.1	222	5.7	.00	1.4
2	.01	1.6	29	18	6.3	8.4	6.7	3.4	190	4.6	.79	1.2
3	.00	1.6	29	19	4.5	8.0	6.3	3.4	854	12	.52	1.0
4	.00	1.7	27	17	3.9	8.0	.57	3.5	195	5.5	.431	.94
5	.00	1.6	25	17	4.4	8.0	282	46	110	5.5	1710	.82
6	.00	.97	21	15	5.7	7.1	201	186	81	4.0	187	.72
7	.00	.81	20	15	6.6	5.9	102	51	66	8.2	83	.68
8	.00	.90	20	14	5.7	4.3	74	42	57	4.5	59	.65
9	.00	1.4	25	13	5.4	4.9	62	40	52	2.8	46	.65
10	.00	1.2	53	13	5.6	5.8	55	23	46	2.0	36	.70
11	.00	1.6	36	13	6.5	5.4	48	48	262	1.8	29	.65
12	.00	1.8	28	13	6.2	7.8	41	26	162	1.6	24	.41
13	.00	2.0	23	11	6.6	14	36	14	84	1.3	17	.64
14	.00	3.4	20	10	7.0	15	32	11	64	1.1	14	.91
15	.00	130	20	11	8.0	17	30	9.7	53	.94	12	1.8
16	.00	69	18	11	5.5	14	29	8.3	42	.79	9.7	2.0
17	.00	57	17	8.8	4.6	11	25	6.8	33	.76	6.4	2.0
18	.43	47	14	11	5.5	9.1	21	4.6	26	.73	4.2	.69
19	41	40	13	12	5.3	7.4	18	2.9	20	.61	4.1	84
20	14	207	11	13	5.2	7.4	15	3.1	16	.30	3.5	39
21	5.6	236	10	14	5.4	6.2	14	3.0	13	.11	3.3	23
22	2.7	138	9.7	12	5.4	6.0	13	2.6	11	.04	3.2	15
23	1.7	93	9.7	9.7	5.4	5.4	9.9	2.5	8.2	.01	3.2	12
24	1.3	73	9.7	9.7	6.0	5.0	12	2.7	5.2	.00	2.2	10
25	1.5	63	9.5	9.5	6.5	9.8	11	2.6	3.4	.00	1.9	7.4
26	46	57	8.9	8.7	17	57	8.4	3.7	3.0	.00	2.2	6.6
27	23	51	10	7.2	11	42	6.2	11	2.8	.00	1.9	5.8
28	13	46	17	7.3	9.7	22	5.4	13	2.3	.00	1.8	4.6
29	7.2	37	24	6.7	---	14	4.1	42	2.8	.00	1.3	5.7
30	3.9	33	34	6.6	---	11	3.4	27	10	.00	1.1	5.0
31	2.6	---	27	6.6	---	8.7	---	50	---	.00	1.0	---
TOTAL	163.96	1399.48	649.5	372.8	181.5	365.3	1235.9	695.9	2696.7	64.89	2830.00	304.27
MEAN	5.29	46.6	21.0	12.0	6.48	11.8	41.2	22.4	89.9	2.09	91.3	10.1
MAX	46	236	53	20	17	57	282	186	854	12	1710	84
MIN	.00	.81	8.9	6.6	3.9	4.3	3.4	2.5	2.3	.00	.00	.41
AC-FT	325	2780	1290	739	360	725	2450	1380	5350	129	5610	604
CFSM	.01	.10	.05	.03	.01	.03	.09	.05	.20	.00	.20	.02
IN.	.01	.12	.05	.03	.02	.03	.10	.06	.22	.01	.23	.03

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1995, BY WATER YEAR (WY)

	MEAN	61.6	13.8	19.0	12.3	27.3	19.7	46.5	155	93.7	26.0	32.8	69.0
MAX	823	253	576	164	911	268	538	822	700	623	740	1248	
(WY)	1982	1975	1992	1992	1992	1992	1954	1935	1982	1932	1978	1935	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1934	1935	1934	1934	1934	1935	1939	1984	1934	1933	1933	1938	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1932 - 1995

ANNUAL TOTAL	24029.43	10960.20	46.3
ANNUAL MEAN	65.8	30.0	261
HIGHEST ANNUAL MEAN			.96
LOWEST ANNUAL MEAN			1935
HIGHEST DAILY MEAN	5540	May 12	1710
LOWEST DAILY MEAN	.00	Apr 23	Aug 5
ANNUAL SEVEN-DAY MINIMUM	.00	Apr 23	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			2830
ANNUAL RUNOFF (AC-FT)	47660	21740	50000
ANNUAL RUNOFF (CFSM)	.15	.067	a14.20
ANNUAL RUNOFF (INCHES)	1.99	.91	33550
10 PERCENT EXCEEDS	56	57	.10
50 PERCENT EXCEEDS	1.4	8.2	1.40
90 PERCENT EXCEEDS	.00	.65	.44
			1.2
			.00

a From floodmark, not affected by backwater from Colorado River.

## 08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

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.--412.6 mi<sup>2</sup>, of which 58.6 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--February 1930 to current year.

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 July 17, 1930, nonrecording gage at same site and datum. July 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.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow is materially affected by diversions to the South Concho Irrigation Company canal 800 ft upstream from station. Several observations of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1882, about 23 ft Aug. 6, 1906 (discharge, 115,000 ft<sup>3</sup>/s), from rating curve extended above 15,100 ft<sup>3</sup>/s on basis of slope-area measurement of 80,100 ft<sup>3</sup>/s, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 14	1730	673	3.98	Sept. 19	0100	1,080	4.68

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	16	19	21	15	14	12	15	14	12	13	e8.3
2	12	17	20	21	16	14	12	15	13	12	13	e8.3
3	12	17	20	20	16	14	12	15	13	12	13	e8.3
4	12	17	20	21	16	14	16	15	13	13	13	e8.3
5	13	18	20	20	16	13	16	15	13	13	13	e8.3
6	13	18	20	21	16	13	16	15	13	13	13	8.3
7	14	18	20	21	16	13	16	16	13	15	13	8.3
8	13	18	20	19	16	13	16	16	13	13	13	7.9
9	12	18	20	16	16	14	16	14	13	13	13	7.6
10	12	17	20	16	16	14	14	14	12	14	13	7.6
11	12	17	20	16	16	14	14	14	12	14	13	7.6
12	13	17	20	16	16	15	14	15	12	14	13	7.6
13	13	17	20	16	16	16	14	15	12	14	13	8.7
14	13	18	20	16	16	16	14	16	12	13	13	114
15	14	18	20	16	16	16	15	15	12	12	13	36
16	14	18	21	16	15	16	15	14	12	12	e13	18
17	14	18	21	15	15	16	15	14	12	12	e13	17
18	14	18	21	15	15	16	16	13	12	12	e12	42
19	14	19	21	16	15	16	15	13	12	12	e12	215
20	15	22	21	16	15	15	15	13	11	12	e11	27
21	15	19	21	15	14	15	16	13	11	13	e11	25
22	16	19	21	16	14	15	16	13	11	13	e11	25
23	17	20	21	16	14	13	15	13	10	13	e11	26
24	18	20	21	16	16	13	16	14	12	13	e10	26
25	18	20	21	16	15	13	16	13	12	15	e10	26
26	18	20	20	16	16	13	16	16	12	14	e9.7	26
27	17	20	20	16	15	12	16	16	12	13	e9.7	26
28	18	19	22	16	15	12	15	13	13	12	e9.7	26
29	17	19	21	16	---	12	15	12	15	12	e9.7	26
30	17	19	21	16	---	12	15	13	12	12	e9.0	26
31	17	---	21	16	---	12	---	14	---	12	e9.0	---
TOTAL	449	551	634	529	433	434	449	442	369	399	365.8	832.1
MEAN	14.5	18.4	20.5	17.1	15.5	14.0	15.0	14.3	12.3	12.9	11.8	27.7
MAX	18	22	22	21	16	16	16	16	15	15	13	215
MIN	12	16	19	15	14	12	12	12	10	12	9.0	7.6
AC-FT	891	1090	1260	1050	859	861	891	877	732	791	726	1650

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1930	47.7	851	1931	.54	1955
1931	21.8	146	1975	.51	1955
1932	21.4	126	1975	.57	1955
1933	20.0	100	1975	.40	1955
1934	20.7	91.5	1975	.35	1955
1935	20.3	88.4	1992	.39	1955
1936	28.2	479	1957	1.09	1955
1937	42.4	1116	1957	2.83	1954
1938	27.4	189	1958	1.08	1954
1939	41.0	1445	1938	1.08	1952
1940	19.8	162	1971	1.08	1952
1941	65.6	2352	1936	.85	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1930 - 1995

ANNUAL TOTAL	6394	5886.9	31.4
ANNUAL MEAN	17.5	16.1	207
HIGHEST ANNUAL MEAN			3.20
LOWEST ANNUAL MEAN			1936
HIGHEST DAILY MEAN	812	215	29500
LOWEST DAILY MEAN	10	7.6	Jul 23 1938
ANNUAL SEVEN-DAY MINIMUM	10	7.8	Feb 27 1955
INSTANTANEOUS PEAK FLOW		1080	Feb 25 1955
INSTANTANEOUS PEAK STAGE		4.68	Jul 23 1938
ANNUAL RUNOFF (AC-FT)	12680	11680	a21.95
10 PERCENT EXCEEDS	20	20	22770
50 PERCENT EXCEEDS	15	15	40
90 PERCENT EXCEEDS	11	12	14
			3.6

e Estimated

a From floodmark.

c From rating curve extended above 15,100 cfs on basis of slope-area measurement of 80,100 cfs.

## 08128400 MIDDLE CONCHO RIVER ABOVE TANKERSLEY, TX

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<sup>2</sup>, of which 968 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--March 1961 to current year.

Water-quality records.--Chemical analyses: August 1964 to April 1965.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several observations of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 29.5 ft Sept. 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 1,700 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	1.5	1.7	1.1	.73	.45	.13	.00	.00
2	.00	.00	.00	.00	1.5	1.6	1.3	.66	.29	.13	.00	.00
3	.00	.00	.00	.00	1.5	1.6	1.6	.66	.21	.13	.00	.00
4	.00	.00	.00	.00	1.2	1.6	4.0	.66	.24	.11	.00	.00
5	.00	.00	.00	.00	.90	1.6	9.2	.66	.36	.07	.00	.00
6	.00	.00	.00	.00	.90	1.6	6.5	.73	.41	.14	.00	.00
7	.00	.00	.00	.00	.90	1.7	4.8	e.73	.39	.15	.00	.00
8	.00	.00	.00	.00	.68	1.5	3.4	.66	.31	.12	.00	.00
9	.00	.00	.00	.00	.81	1.5	2.8	.66	.27	.05	.00	.00
10	.00	.00	.00	.02	.85	1.6	2.2	.66	.24	.01	.00	.00
11	.00	.00	.00	.12	.73	1.6	1.9	1.2	.19	.00	.00	.00
12	.00	.00	.00	.36	.73	1.7	1.9	.59	.21	.00	.00	.00
13	.00	.00	.00	.46	.73	1.9	1.7	2.1	.18	.00	.00	.00
14	.00	.00	.00	.46	.82	1.9	1.7	2.2	.18	.00	.00	.00
15	.00	.00	.00	.46	.90	1.9	1.7	1.3	.09	.00	.00	.00
16	.00	.00	.00	.75	.90	1.9	1.7	.67	.09	.00	.00	.00
17	.00	.00	.00	1.1	.87	1.9	1.7	.50	.07	.00	.00	.00
18	.00	.00	.00	1.4	.66	1.9	1.7	.30	.07	.00	.00	.00
19	.00	.00	.00	1.8	.70	1.9	e1.3	.24	.07	.00	.00	.00
20	.00	.00	.00	1.9	.73	1.7	e1.0	.22	.07	.00	.00	.00
21	.00	.00	.00	1.0	.82	1.7	.73	.17	.04	.00	.00	.00
22	.00	.00	.00	1.0	.90	1.8	e.73	.11	.00	.00	.00	.00
23	.00	.00	.00	1.0	.90	1.5	.73	.11	.00	.00	.00	.00
24	.00	.00	.00	1.1	1.5	1.5	.81	.15	.00	.00	.00	.00
25	.00	.00	.00	1.2	1.5	1.5	e.90	.18	.00	.00	.00	.00
26	.00	.00	.00	1.2	4.9	1.5	1.0	.40	.00	.00	.00	.00
27	.00	.00	.00	1.0	2.8	1.5	.90	.77	.00	.00	.00	.00
28	.00	.00	.00	1.2	2.1	1.3	.81	.42	.12	.00	.00	.00
29	.00	.00	.00	1.2	---	1.1	.81	.41	.57	.00	.00	.00
30	.00	.00	.00	1.2	---	1.1	.90	.43	.17	.00	.00	.00
31	.00	---	.00	1.4	---	1.1	---	.46	---	.00	.00	---
TOTAL	0.00	0.00	0.00	21.33	33.93	49.9	61.52	19.74	5.29	1.04	0.00	0.00
MEAN	.000	.000	.000	.69	1.21	1.61	2.05	.64	.18	.034	.000	.000
MAX	.00	.00	.00	1.9	4.9	1.9	9.2	2.2	.57	.15	.00	.00
MIN	.00	.00	.00	.00	.66	1.1	.73	.11	.00	.00	.00	.00
AC-FT	.00	.00	.00	42	67	99	122	39	10	2.1	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	MEAN	26.5	8.82	8.17	8.33	13.7	11.6	15.1	19.5	19.5	3.28	8.57	56.3
MAX	363	107	59.4	44.3	169	86.7	143	134	375	27.2	115	1181	
(WY)	1975	1975	1975	1975	1992	1987	1992	1965	1986	1992	1974	1974	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1962	1962	1962	1962	1962	1962	1961	1961	1962	1961	1961	1962	

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1961 - 1995
ANNUAL TOTAL	883.94	192.75	
ANNUAL MEAN	2.42	.53	16.7
HIGHEST ANNUAL MEAN			110
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	13 May 13	9.2 Apr 5	12900 Sep 21 1974
LOWEST DAILY MEAN	.00 Jul 3	.00 Oct 1	.00 Apr 1 1961
ANNUAL SEVEN-DAY MINIMUM	.00 Jul 3	.00 Oct 1	.00 Apr 1 1961
INSTANTANEOUS PEAK FLOW		16 Feb 26	15500 Sep 21 1974
INSTANTANEOUS PEAK STAGE		7.01 Feb 26	24.98 Sep 21 1974
ANNUAL RUNOFF (AC-FT)	1750	382	12060
10 PERCENT EXCEEDS	6.6	1.6	20
50 PERCENT EXCEEDS	.03	.00	1.5
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated



## 08129300 SPRING CREEK ABOVE TANKERSLEY, TX

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.--424.7 mi<sup>2</sup>, of which 19.7 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1960 to current year.

Water-quality records.--Chemical analyses: September 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.

REMARKS.--No estimated daily discharge. Records good. There are many small diversions above station for irrigation. Several observations of water temperature were made during the year. Satellite telemeter at station.

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<sup>3</sup>/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 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	8.7	6.6	7.9	6.4	16	1.4	2.0	23	2.8	.25	.11
2	.17	8.7	6.9	7.9	6.7	16	.99	1.9	14	2.3	.24	.10
3	.14	8.6	6.8	9.3	6.1	16	.87	1.6	12	1.1	.33	.10
4	.64	9.4	7.1	9.0	6.4	16	9.8	1.2	11	.69	.32	.10
5	.56	11	6.8	9.0	6.7	15	27	.84	11	.51	.27	.10
6	.31	10	4.8	9.8	8.0	14	22	2.0	11	.44	.25	.10
7	.20	9.6	3.6	7.8	3.8	13	19	3.2	9.2	.43	.23	.10
8	.14	8.9	4.0	9.0	2.6	13	17	5.9	8.4	.48	.21	.09
9	.12	9.2	6.6	8.7	2.3	12	16	3.1	8.2	.53	.21	.08
10	.11	9.2	7.8	9.0	4.3	12	8.7	3.0	8.0	.53	.18	.08
11	.11	11	8.4	8.6	3.4	10	11	2.8	7.1	.49	.19	.08
12	.13	12	8.2	8.7	1.8	9.3	13	3.0	6.0	.44	.22	.08
13	.14	12	7.9	8.6	2.3	15	14	3.5	4.5	.41	.23	.10
14	.14	23	8.1	9.0	2.3	10	12	2.1	1.3	.40	.23	.23
15	.15	16	8.4	9.6	1.6	11	11	1.1	.77	.32	.22	.27
16	.16	12	8.4	9.7	1.6	12	13	.83	.62	.26	.21	.19
17	.21	9.7	8.4	9.6	2.0	12	10	.69	.69	.27	.17	.16
18	5.9	8.4	8.7	9.6	3.5	12	9.0	.66	.71	.28	.16	.14
19	4.1	8.9	9.1	9.6	3.8	11	7.9	.44	.64	.27	.14	.14
20	3.8	9.8	8.4	9.6	5.7	9.6	8.4	.35	.50	.27	.13	.14
21	3.5	6.1	8.3	9.8	3.9	9.6	8.8	.34	.40	.26	.12	.15
22	2.5	6.9	7.9	10	3.5	9.3	9.1	.31	.33	.26	.12	.14
23	5.8	6.9	7.9	9.3	3.5	6.1	6.3	.31	.30	.26	.12	.13
24	36	6.9	7.9	8.1	11	5.7	4.4	.31	.28	.25	.12	.13
25	13	6.9	7.9	9.2	12	6.6	3.6	.32	.28	.23	.11	.12
26	8.6	6.9	7.9	11	35	5.5	2.2	.46	.28	.23	.11	.11
27	6.8	6.8	7.8	12	28	5.0	1.6	8.2	.28	.21	.11	.10
28	6.4	6.4	9.6	8.4	17	2.9	2.0	12	.38	.21	.11	.10
29	6.2	6.6	10	9.6	---	2.1	2.1	11	7.0	.20	.11	.08
30	5.8	6.4	9.5	9.6	---	1.9	1.8	12	3.7	.20	.11	.08
31	7.7	---	8.8	9.8	---	1.7	---	19	---	.21	.11	---
TOTAL	119.70	282.9	238.5	286.8	195.2	311.3	273.96	104.46	151.86	15.74	5.64	3.63
MEAN	3.86	9.43	7.69	9.25	6.97	10.0	9.13	3.37	5.06	.51	.18	.12
MAX	36	23	10	12	35	16	27	19	23	2.8	.33	.27
MIN	.11	6.1	3.6	7.8	1.6	1.7	.87	.31	.28	.20	.11	.08
AC-FT	237	561	473	569	387	617	543	207	301	31	11	7.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
MEAN	14.6	10.7	11.1	11.1	12.0	10.3	13.4	18.8	9.62	5.92	27.0	12.2
MAX	200	57.9	47.4	37.2	50.5	41.5	105	153	48.3	49.9	840	126
(WY)	1975	1975	1975	1987	1987	1987	1977	1975	1961	1990	1971	1974
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1963	1963	1963	1963	1963	1966	1966	1966	1966	1964	1962	1963

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1961 - 1995

ANNUAL TOTAL	2290.63	1989.69	13.1
ANNUAL MEAN	6.28	5.45	86.6
HIGHEST ANNUAL MEAN			.000
LOWEST ANNUAL MEAN			1971
HIGHEST DAILY MEAN	36	36	11500
LOWEST DAILY MEAN	.00	.08	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.09	.00
INSTANTANEOUS PEAK FLOW		67	30400
INSTANTANEOUS PEAK STAGE		4.51	16.57
ANNUAL RUNOFF (AC-FT)	4540	3950	9490
10 PERCENT EXCEEDS	14	12	22
50 PERCENT EXCEEDS	6.1	4.0	5.8
90 PERCENT EXCEEDS	.03	.13	.00

## 08130500 DOVE CREEK AT KNICKERBOCKER, TX

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.--226.43 mi<sup>2</sup>, of which 8.43 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1960 to current year.

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.

REMARKS.--No estimated daily discharge. Records good. Flow is partly regulated by storage, 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. Several observations of water temperature were made during the year. Satellite telemeter at station.

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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 23	1800	750	7.82	Sept. 18	2400	5,420	13.64
June 29	0200	364	6.50				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	8.5	9.7	8.9	9.6	9.1	8.5	5.5	8.8	7.9	4.4	4.3
2	7.3	8.5	9.7	8.8	7.8	9.1	8.7	7.5	8.0	6.7	4.4	4.7
3	7.3	8.8	9.7	8.8	8.0	9.1	8.3	7.6	7.1	6.4	6.6	2.4
4	7.3	8.8	9.7	8.8	8.1	9.1	11	7.5	7.0	5.7	9.3	2.2
5	6.6	9.3	9.7	8.8	7.4	9.1	14	7.3	7.7	5.7	8.8	1.8
6	6.2	9.4	9.7	8.8	7.2	9.1	9.6	7.6	7.9	5.8	7.6	1.9
7	7.1	9.4	9.7	8.8	7.9	8.8	9.1	7.9	6.2	15	6.7	4.0
8	7.5	9.4	9.7	8.8	8.2	5.7	8.8	9.1	6.6	8.4	5.9	2.2
9	7.6	11	9.4	8.2	8.4	6.9	8.7	7.2	6.8	4.0	4.8	2.2
10	7.6	11	9.4	8.2	7.4	8.5	8.3	7.1	6.7	4.8	3.0	2.2
11	7.5	10	9.4	8.3	6.7	8.5	7.9	5.8	5.2	5.1	2.1	2.5
12	7.4	10	9.4	8.2	7.9	9.0	7.8	5.9	4.9	6.1	2.3	2.7
13	7.6	10	9.4	7.9	7.9	12	7.9	6.8	5.9	4.9	3.1	3.4
14	6.9	16	9.4	7.8	7.8	9.6	7.9	6.9	3.6	3.8	2.8	7.8
15	7.4	14	9.4	7.6	6.6	9.4	7.9	7.0	3.3	4.1	2.6	8.0
16	8.1	11	9.4	7.7	7.2	9.4	7.9	6.3	3.5	6.0	3.1	5.0
17	9.7	11	9.1	8.2	7.8	9.4	7.6	6.8	4.5	9.3	4.1	4.1
18	12	10	9.1	8.5	7.8	10	6.3	6.4	4.6	4.0	4.6	312
19	9.9	11	9.1	8.5	7.9	6.7	5.8	6.3	2.8	3.0	4.4	389
20	9.3	12	9.0	8.5	7.9	8.3	6.7	6.2	2.8	3.4	3.3	27
21	9.0	11	7.9	7.8	7.7	8.8	6.8	6.3	4.2	4.9	3.3	14
22	8.8	10	7.7	7.2	7.1	9.2	7.0	6.5	4.2	4.3	5.3	14
23	86	10	8.5	8.1	6.4	9.1	7.0	6.5	5.0	4.2	3.8	14
24	30	10	8.5	6.8	8.4	9.1	6.1	6.9	5.7	4.9	2.8	14
25	11	10	8.5	7.9	7.5	9.1	5.9	6.9	5.6	4.1	2.1	13
26	9.5	10	8.5	8.1	16	8.2	5.7	9.6	6.8	3.9	1.9	10
27	9.0	10	8.7	7.9	9.7	8.5	5.6	18	5.7	3.5	1.7	9.7
28	8.8	9.7	9.7	7.2	9.2	8.6	5.9	9.6	4.8	3.3	1.7	7.9
29	8.8	9.7	9.7	6.6	---	8.7	5.9	8.5	52	3.6	1.7	6.1
30	8.8	9.7	9.1	7.9	---	8.8	5.5	11	11	4.5	3.1	5.1
31	8.7	---	9.1	7.9	---	8.6	---	11	---	4.5	5.1	---
TOTAL	355.9	309.2	285.0	251.5	227.5	273.5	230.1	239.5	218.9	165.8	126.4	897.2
MEAN	11.5	10.3	9.19	8.11	8.12	8.82	7.67	7.73	7.30	5.35	4.08	29.9
MAX	86	16	9.7	8.9	16	12	14	18	52	15	9.3	389
MIN	6.2	8.5	7.7	6.6	6.4	5.7	5.5	5.5	2.8	3.0	1.7	1.8
AC-FT	706	613	565	499	451	542	456	475	434	329	251	1780

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
MEAN	18.5	16.0	15.6	14.5	14.4	12.9	16.8	23.9	15.8	10.2	20.6	15.1			
MAX	126	77.6	61.4	61.2	54.0	47.9	107	164	109	38.3	360	73.8			
(WY)	1975	1975	1975	1975	1975	1975	1971	1977	1961	1975	1971	1974			
MIN	.23	.91	1.06	1.03	.82	.75	.35	.81	.55	.000	.000	.000			
(WY)	1966	1971	1966	1966	1967	1967	1966	1964	1966	1964	1964	1965			

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1961 - 1995

ANNUAL TOTAL	3307.1	3580.5	
ANNUAL MEAN	9.06	9.81	
HIGHEST ANNUAL MEAN			16.2
LOWEST ANNUAL MEAN			62.2
HIGHEST DAILY MEAN	86	389	1.56
LOWEST DAILY MEAN	3.3	1.7	6920
ANNUAL SEVEN-DAY MINIMUM	4.0	2.1	.00
INSTANTANEOUS PEAK FLOW		5420	.00
INSTANTANEOUS PEAK STAGE		13.64	17500
ANNUAL RUNOFF (AC-FT)	6560	7100	20.66
10 PERCENT EXCEEDS	12	10	11740
50 PERCENT EXCEEDS	9.1	7.9	30
90 PERCENT EXCEEDS	4.9	3.7	10
			1.2

## 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<sup>2</sup>, of which 1,055 mi<sup>2</sup> probably is noncontributing.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--October 1962 to current year.

Water-quality records.--Chemical analyses: October 1969 to September 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.

REMARKS.--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. Capacity curve is based on a survey made in 1958. Reservoir was built for flood control, irrigation, and municipal uses. Satellite telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,991.0	-
Crest of spillway.....	1,969.1	640,600
Top of conservation storage.....	1,940.2	186,200
Bottom of equalizing channel (Middle Concho-Spring Creek pool).....	1,926.5	86,480
Dead storage in South Concho pool.....	1,926.5	5,440
Lowest gated outlet (invert at Middle Concho-Spring Creek pool).....	1,885.0	3,750

COOPERATION.--Capacity curve 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, 68,330 acre-ft Apr. 17, 18; minimum combined daily, 42,760 acre-ft Sept. 12.

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61930	62260	63220	64150	64570	66030	66780	67150	65110	61650	52330	45560
2	61830	62260	63250	64230	64570	66120	66720	67060	65140	61580	52120	45200
3	61790	62250	63250	64260	64540	66170	66710	66960	65170	61490	52230	44820
4	61760	62250	63250	64330	64530	66260	67280	66800	65170	61330	52210	44480
5	61630	62280	63220	64420	64500	66300	67740	66710	65200	61180	52210	44210
6	61500	62220	63250	64410	64490	66390	67880	66580	65170	61040	52200	44020
7	61430	62220	63250	64410	64450	66380	67980	66640	65100	60910	52160	43760
8	61310	62190	63220	64410	64450	66400	68080	66540	65000	60800	52050	43580
9	61190	62160	63310	64430	64450	66430	68180	66520	64930	60640	51890	43420
10	61090	62140	63320	64430	64380	66490	68170	66460	64760	60500	51700	43180
11	60970	62080	63320	64460	64340	66550	68160	66430	64660	60310	51480	42990
12	60890	62080	63320	64480	64370	66930	68170	66350	64540	60160	51300	42760
13	60770	62080	63310	64480	64300	67020	68160	66230	64400	59960	51100	42790
14	60800	62560	63310	64480	64360	67020	68180	66140	64210	59620	50900	43080
15	60810	62640	63310	64480	64330	67070	68170	66060	64020	59350	50710	43370
16	60860	62600	63340	64510	64330	67140	68240	65990	63810	59140	50500	43420
17	60970	62660	63370	64510	64320	67230	68330	65860	63590	58910	50290	43440
18	61320	62660	63430	64540	64320	67290	68330	65640	63410	58650	50020	43710
19	61350	62930	63520	64540	64290	67340	68290	65490	63200	58370	49770	45750
20	61370	62960	63550	64530	64290	67320	68240	65260	62980	58050	49540	45880
21	61420	62960	63580	64530	64290	67310	68180	65100	62730	57650	49290	45740
22	61420	62950	63620	64530	64290	67300	68010	64880	62480	57260	49030	45620
23	61600	62980	63650	64520	64260	67270	67910	64650	62160	56870	48740	45560
24	61720	63040	63650	64520	64200	67200	67820	64240	62010	56390	48470	45540
25	62100	63040	63630	64520	64980	67200	67750	64090	61770	55960	48100	45500
26	62130	63100	63630	64550	65750	67160	67590	64600	61590	55440	47780	45310
27	62120	63130	63750	64570	65920	67070	67520	64640	61430	54830	47430	45250
28	62150	63130	63930	64540	65980	66990	67460	64740	61520	54220	47100	45140
29	62170	63160	64010	64540	---	66950	67360	64760	61620	53610	46700	45040
30	62200	63160	64070	64570	---	66890	67280	64890	61680	53060	46300	44870
31	62200	---	64130	64570	---	66820	---	65080	---	52510	45940	---
MAX	62200	63160	64130	64570	65980	67340	68330	67150	65200	61650	52330	45880
MIN	60770	62080	63220	64150	64260	66030	66710	64090	61430	52510	45940	42760
(+)	18.36	18.67	18.97	19.14	19.58	19.90	20.04	19.34	18.22	15.02	12.41	11.83
(#)	+150	+960	+970	+440	+1410	+840	+460	-2200	-3400	-9170	-6570	-1070

CAL YR 1994 MAX 108100 MIN 60360 (#) -40470

WTR YR 1995 MAX 68330 MIN 42760 (#) -17180

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

## 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<sup>2</sup>, of which 3,868 mi<sup>2</sup> is above Twin Buttes Reservoir and 1,055 mi<sup>2</sup> probably is noncontributing.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--March 1930 to current year. Prior to October 1969, monthend contents only.  
Water-quality records.--Chemical analyses: October 1969 to September 1984.

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

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft sea level.

REMARKS.--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 July 1966, West Texas Utilities Co. has operated a steam generating powerplant on the lake. Since September 1962, the lake has been almost totally controlled by releases or pumpage from Twin Buttes Reservoir (station 08131200). Siltation surveys in December 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 March 1930 to December 1938 and an additional 1,023 acre-ft was deposited from December 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 National Resource Conservation Service in 1953 and has been used since 1955. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	43.5	-
Crest of spillway (300 ft).....	39.1	27,810
Top of gates.....	33.2	13,990
Top of collapsible floodgate.....	32.2	12,390
Lowest outlet to canal (invert).....	27.5	6,370
Crest of spillway (tainter gates sill).....	15.3	435
Lowest gated outlet (invert).....	-4.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 26,900 acre-ft Sept. 15, 1936 (elevation, 38.36 ft); minimum, 209 acre-ft Aug. 22, 1964 (elevation, 13.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,730 acre-ft May 29 at 0100 hours (elevation, 31.79 ft); minimum, 10,740 acre-ft July 26, 27 (elevation, 31.17 ft).

## Capacity table (gage height, in feet, and total contents, in acre-feet)

13.0	190	28.0	6,870	32.0	12,070
18.0	960	29.0	7,970	33.0	13,670
23.0	2,880	30.0	9,170	36.0	19,170
27.0	5,870	31.0	10,470	39.0	27,470

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11080	10970	10870	10900	10840	11330	11000	10930	11540	11140	11370	11050
2	11090	10920	10870	10890	10850	11300	11030	10900	11460	11090	11370	11130
3	11190	10950	10890	10840	10850	11290	11050	10890	11380	11060	11480	11220
4	11210	11010	10900	10810	10870	11320	11430	10870	11300	11060	11460	11320
5	11220	11030	10920	10790	10850	11270	11540	10900	11240	11010	11380	11330
6	11210	11050	10950	10770	10850	11240	11560	10920	11190	10980	11290	11290
7	11270	11080	10950	10810	10840	11210	11560	11030	11190	11030	11190	11220
8	11250	11090	10950	10840	10850	11190	11560	10970	11170	11050	11170	11210
9	11250	11110	11030	10850	10840	11140	11540	10870	11170	11050	11160	11220
10	11250	11110	11030	10870	10840	11080	11480	10820	11140	11050	11170	11240
11	11270	11110	11030	10890	10820	11060	11480	10900	11140	11030	11210	11250
12	11290	11130	11030	10890	10850	11160	11450	10950	11140	10950	11240	11250
13	11290	11160	11050	10890	10850	11110	11410	10930	11140	10890	11250	11290
14	11350	11370	11060	10870	10930	11060	11400	10920	11110	11000	11240	11380
15	11330	11330	11080	10870	10950	11050	11370	10950	11080	11000	11210	11290
16	11290	11410	11060	10850	10970	11030	11370	10950	11030	11000	11160	11190
17	11450	11370	11030	10870	10980	11010	11290	10920	11000	10980	11090	11060
18	11570	11320	10980	10900	10980	11010	11190	10870	10970	10930	11060	11010
19	11530	11380	10970	10900	10980	10980	11110	10850	10950	10900	11010	10900
20	11490	11320	10900	10930	10970	10930	11010	10870	10970	10900	11000	10890
21	11450	11270	10870	10950	10970	11000	10980	10870	11000	10870	10950	10870
22	11380	11220	10820	10930	10970	11000	10950	10890	11010	10890	10890	10890
23	11350	11190	10820	10930	10950	10950	10950	10930	11000	10890	10840	10900
24	11290	11170	10840	10930	11080	10950	10980	11210	11000	10820	10790	10920
25	11270	11130	10840	10950	11140	10970	11050	11370	11000	10760	10790	10950
26	11220	11140	10850	11000	11450	10970	10980	11540	11060	10740	10810	10980
27	11190	11080	10930	10980	11430	10950	10980	11460	11090	10820	10810	11000
28	11160	11010	11030	10900	11380	10930	11000	11720	11290	10920	10840	11010
29	11080	10970	11030	10840	---	10950	10980	11650	11220	10950	10900	11030
30	11050	10920	11000	10840	---	10970	11000	11640	11210	11030	10950	11010
31	10980	---	10950	10840	---	11000	---	11590	---	11210	11000	---
MAX	11570	11410	11080	11000	11450	11330	11560	11720	11540	11210	11480	11380
MIN	10980	10920	10820	10770	10820	10930	10950	10820	10950	10740	10790	10870
(+)	31.32	31.28	31.30	31.23	31.57	31.33	31.33	31.70	31.46	31.46	31.33	31.34
(@)	-100	-60	+30	-110	-540	-380	0	+590	-380	0	-210	+10

CAL YR 1994 MAX 11770 MIN 10760 (@) -100  
WTR YR 1995 MAX 11720 MIN 10740 (@) -1150

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



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.

PERIOD OF RECORD.--September 1939 to September 1985 (continuous-record station); October 1985 to current year, (flood-hydrograph partial-record station).

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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft<sup>3</sup>/s July 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 July 6, 1948.

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

[illegible]

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<sup>2</sup>, of which 75.1 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--March 1924 to current year.

Water-quality records: Chemical and biochemical analyses: October 1980 to September 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 Sept. 27, 1936, to Feb. 7, 1937, nonrecording gage; Feb. 4, 1925, to Sept. 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.

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

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
No peak greater than base discharge.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	2.2	3.2	2.4	3.7	2.6	1.2	.00	.00	.00
2	.00	.00	.00	2.3	3.1	1.8	3.5	2.4	1.0	.00	.00	.00
3	.00	.00	.00	2.7	2.3	1.8	3.5	2.4	.71	.00	.00	.00
4	.00	.00	.00	2.7	2.2	1.8	6.3	2.0	.87	.00	.00	.00
5	.00	.00	.00	2.9	2.2	1.8	17	1.8	1.2	.00	.00	.00
6	.00	.00	.01	2.9	2.2	1.8	8.9	2.1	1.2	.00	.00	.00
7	.00	.00	.06	2.9	2.2	1.8	7.5	2.2	.84	.00	.00	.00
8	.00	.00	.08	2.9	2.2	1.5	5.7	2.2	.80	.00	.00	.00
9	.00	.00	.51	2.9	2.2	1.5	5.3	1.8	.36	.00	.00	.00
10	.00	.00	.71	3.1	2.2	1.5	4.9	1.4	.13	.00	.00	.00
11	.00	.00	.84	3.1	2.5	1.5	4.5	1.4	.07	.00	.00	.00
12	.00	.00	.95	3.1	2.9	1.5	4.1	1.4	.03	.00	.00	.00
13	.00	.00	1.1	3.1	2.9	1.6	3.9	1.4	.00	.00	.00	.00
14	.00	.00	1.3	2.9	2.9	1.6	3.9	1.3	.00	.00	.00	.00
15	.00	.00	1.9	2.9	2.8	1.6	3.9	1.1	.00	.00	.00	.00
16	.00	.00	1.9	2.9	2.7	1.6	3.7	.84	.00	.00	.00	.00
17	.00	.00	1.8	2.9	2.7	1.6	3.6	.74	.00	.00	.00	.00
18	.00	.00	1.8	3.8	2.7	1.6	2.9	.60	.00	.00	.00	.00
19	.00	.00	1.8	4.5	2.7	1.6	3.1	.38	.00	.00	.00	.00
20	.00	.00	1.8	4.5	2.7	1.6	3.6	.24	.00	.00	.00	.00
21	.00	.00	1.8	4.5	2.7	1.6	3.7	.08	.00	.00	.00	.00
22	.00	.00	1.8	4.5	2.6	1.6	3.7	.07	.00	.00	.00	.00
23	.00	.00	1.8	3.7	2.5	1.9	3.5	.07	.00	.00	.00	.00
24	.00	.00	2.0	3.3	3.6	3.1	3.5	.08	.00	.00	.00	.00
25	.00	.00	2.0	3.3	3.6	4.1	3.5	.08	.00	.00	.00	.00
26	.00	.00	2.0	3.3	3.9	4.9	3.5	.24	.00	.00	.00	.00
27	.00	.00	2.0	3.3	3.0	4.9	3.5	.60	.00	.00	.00	.00
28	.00	.00	2.5	3.3	2.4	4.8	3.5	.82	.00	.00	.00	.00
29	.00	.00	2.8	3.3	---	3.7	3.4	1.2	.00	.00	.00	.00
30	.00	.00	2.9	3.3	---	3.7	3.0	1.2	.00	.00	.00	.00
31	.00	---	2.9	3.3	---	3.7	---	1.2	---	.00	.00	---
TOTAL	0.00	0.00	41.06	100.3	75.8	71.5	138.3	35.94	8.41	0.00	0.00	0.00
MEAN	.000	.000	1.32	3.24	2.71	2.31	4.61	1.16	.28	.000	.000	.000
MAX	.00	.00	2.9	4.5	3.9	4.9	17	2.6	1.2	.00	.00	.00
MIN	.00	.00	.00	2.2	2.2	1.5	2.9	.07	.00	.00	.00	.00
AC-FT	.00	.00	81	199	150	142	274	71	17	.00	.00	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995, BY WATER YEAR (WY)

	38.0	4.14	4.28	4.07	6.71	10.6	36.9	82.6	28.0	41.8	15.7	86.5
MEAN	1463	65.2	20.1	16.0	85.0	307	631	1355	252	1195	255	4019
MAX (WY)	1958	1935	1931	1937	1935	1926	1925	1925	1937	1948	1953	1936
MIN (WY)	.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

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1924 - 1995

ANNUAL TOTAL	1737.89	471.31	
ANNUAL MEAN	4.76	1.29	
HIGHEST ANNUAL MEAN			30.2
LOWEST ANNUAL MEAN			336
HIGHEST DAILY MEAN	469	May 13	.000
LOWEST DAILY MEAN	.00	Jul 17	1970
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 17	1936
INSTANTANEOUS PEAK FLOW			62900
INSTANTANEOUS PEAK STAGE			.00
ANNUAL RUNOFF (AC-FT)	3450		.00
10 PERCENT EXCEEDS	5.5		29.10
50 PERCENT EXCEEDS	1.5		21860
90 PERCENT EXCEEDS	.00		12
			1.6
			.00

## COLORADO RIVER BASIN

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<sup>2</sup>, of which 105 mi<sup>2</sup> probably is noncontributing.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--February 1952 to current year. Published as San Angelo Reservoir prior to October 1970, and as San Angelo Lake, October 1970 to September 1974.

Water-quality records.--Chemical analyses: October 1969 to September 1984.

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.

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<sup>3</sup>/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 February 1973, the capacity is based on a survey made in 1962. Prior to 1973, the capacity was based on a survey made in 1944. Satellite telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,964.0	-
Design flood.....	1,958.0	690,000
Crest of spillway.....	1,938.5	392,700
Top of conservation pool.....	1,908.0	115,700
Lowest gated outlet (invert).....	1,840.0	0

COOPERATION.--Records of elevations and 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 July 16, 1970, to Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,140 acre-ft Oct. 1 (elevation, 1,880.31 ft); minimum, 19,220 acre-ft Sept. 30 (elevation, 1,877.44 ft).

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

1,877.0	18,560	1,885.0	33,940	1,891.0	49,455
1,879.0	21,750	1,887.0	36,820	1,892.0	52,371
1,881.0	25,470	1,888.0	41,220	1,893.0	55,357
1,883.0	29,550	1,890.0	46,620	1,894.0	58,412

COLORADO RIVER BASIN

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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24110	23690	23380	23190	22880	23010	22410	22360	22320	21720	20580	19660
2	24090	23690	23390	23190	22880	23010	22410	22340	22300	21700	20560	19630
3	24030	23670	23380	23190	22830	23010	22370	22320	22270	21680	20650	19600
4	23990	23690	23360	23170	22830	23010	22540	22270	22230	21630	20710	19550
5	23950	23670	23340	23210	22810	23010	22770	22250	22210	21560	20710	19520
6	23950	23650	23360	23230	22810	23010	22930	22250	22190	21510	20710	19490
7	23900	23640	23340	23150	22770	23010	22950	22280	22160	21470	20690	19450
8	23840	23650	23320	23140	22750	23010	22970	22270	22120	21450	20680	19400
9	23790	23620	23340	23140	22770	22990	22990	22190	22070	21420	20610	19410
10	23770	23580	23320	23140	22770	22990	22990	22140	22050	21370	20560	19410
11	23750	23560	23320	23150	22730	23010	22920	22140	22020	21330	20510	19400
12	23730	23560	23300	23150	22720	23010	22860	22160	21980	21280	20480	19370
13	23670	23560	23300	23140	22720	22970	22840	22120	21950	21230	20450	19370
14	23670	23600	23300	23100	22730	22970	22840	22070	21890	21180	20400	19460
15	23710	23580	23280	23100	22730	22970	22840	22050	21840	21150	20350	19490
16	23690	23600	23280	23100	22700	22990	22840	22030	21770	21100	20320	19490
17	23690	23620	23250	23080	22700	22970	22880	22020	21700	21060	20260	19480
18	23750	23580	23250	23080	22700	22950	22810	21910	21660	21030	20230	19460
19	23750	23580	23270	23040	22680	22930	22810	21860	21630	20980	20160	19430
20	23750	23650	23230	23040	22680	22900	22750	21820	21590	20940	20130	19410
21	23770	23580	23210	23040	22660	22880	22700	21770	21560	20880	20100	19410
22	23750	23540	23170	23030	22700	22810	22660	21730	21510	20860	20070	19370
23	23730	23520	23170	22990	22660	22770	22590	21700	21470	20840	20020	19350
24	23730	23540	23170	22990	22700	22730	22550	21700	21440	20790	19990	19320
25	23770	23540	23150	22990	22810	22700	22540	21680	21390	20730	19960	19310
26	23770	23560	23140	23010	22990	22660	22500	21790	21510	20680	19910	19290
27	23770	23540	23150	23040	22950	22550	22430	21840	21520	20630	19860	19280
28	23770	23510	23210	22950	22950	22500	22450	22070	21560	20560	19830	19250
29	23750	23430	23250	22920	---	22480	22430	22300	21730	20510	19800	19230
30	23730	23410	23250	22920	---	22450	22410	22340	21730	20470	19750	19200
31	23710	---	23250	22920	---	22410	---	22340	---	20450	19710	---
MAX	24110	23690	23390	23230	22990	23010	22990	22360	22320	21720	20710	19660
MIN	23670	23410	23140	22920	22660	22410	22370	21680	21390	20450	19710	19200
(+)	1880.08	1879.92	1879.83	1879.65	1879.67	1879.37	1879.37	1879.33	1878.99	1878.23	1877.76	1877.43
(@)	-430	-300	-160	-330	+30	-540	0	-70	-610	-1280	-740	-510
CAL YR 1994	MAX 30820	MIN 23140	(+) -6390									
WTR YR 1995	MAX 24110	MIN 19200	(@) -4940									

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



## 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, and 61.9 mi upstream from mouth.

DRAINAGE AREA.--5,542 mi<sup>2</sup>, of which 1,131 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year. Prior to October 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.

REMARKS.--No estimated daily discharge. Records good. There are many diversions upstream from station for irrigation, industrial, and municipal supply. Since December 1962, flow regulated by Twin Buttes Reservoir (station 08131200) on the South Concho River and since February 1952 by O. C. Fisher Lake (station 08134500) on the North Concho River. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 158 ft<sup>3</sup>/s (114,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1916-62).--Maximum discharge, 230,000 ft<sup>3</sup>/s Sept. 17, 1936 (gage height, 46.6 ft, from floodmarks), from rating curve extended above 105,000 ft<sup>3</sup>/s on basis of slope-area measurements of 167,000 and 230,000 ft<sup>3</sup>/s; no flow at times in 1921, and 1952-53.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	6.8	6.0	7.8	12	7.4	10	7.9	53	25	84	12
2	13	7.1	8.2	11	6.3	10	7.4	10	28	28	44	13
3	33	8.5	10	11	3.3	11	7.0	11	17	17	140	16
4	70	15	9.4	10	3.4	5.8	224	9.0	21	9.2	132	18
5	15	30	9.4	8.1	3.2	5.5	314	9.8	34	14	38	13
6	11	10	11	11	3.8	6.1	36	21	10	14	10	11
7	5.9	6.9	6.4	5.6	4.1	4.7	19	46	7.6	12	7.3	8.8
8	11	5.5	6.3	5.3	4.9	3.3	16	39	6.5	9.5	6.0	4.2
9	8.1	6.2	49	5.4	7.8	5.3	14	9.1	4.2	10	5.6	55
10	7.3	5.0	22	5.0	11	6.0	13	5.6	21	8.7	12	56
11	6.0	5.0	9.8	5.0	10	17	10	96	74	8.4	6.7	39
12	3.8	5.0	7.9	4.6	9.1	71	10	23	21	5.4	5.4	19
13	3.7	5.7	7.5	4.8	10	101	7.6	12	18	8.8	4.9	40
14	11	188	8.0	12	17	17	7.8	10	9.6	9.4	4.6	169
15	22	45	8.5	11	8.9	22	7.5	6.4	5.5	7.5	4.3	69
16	11	9.1	11	13	5.5	13	7.9	7.1	5.8	8.1	5.3	25
17	31	7.6	12	9.1	4.8	11	12	8.8	5.1	13	4.8	22
18	128	8.5	8.2	16	5.5	12	9.3	4.6	5.1	13	4.2	26
19	26	25	8.5	15	5.7	11	14	16	11	7.9	4.0	24
20	8.9	74	6.0	4.8	9.6	11	12	9.5	12	6.2	16	28
21	6.5	13	4.9	5.5	9.5	12	9.4	7.1	8.7	6.0	16	28
22	4.7	7.1	5.1	5.2	8.8	15	12	9.3	6.7	5.1	11	18
23	6.3	7.2	6.3	7.2	8.3	16	14	19	7.0	11	11	19
24	7.6	7.4	8.3	8.3	121	23	13	19	22	12	14	22
25	65	5.4	8.7	13	103	31	9.2	26	25	9.7	13	23
26	20	5.8	9.2	5.9	247	21	9.0	262	151	4.3	12	19
27	5.5	5.1	18	5.9	21	18	8.1	102	70	3.5	10	19
28	5.3	4.4	66	5.3	8.2	17	9.2	640	94	3.3	9.8	18
29	4.8	4.7	37	5.2	---	17	15	256	285	2.3	9.8	15
30	5.6	4.8	9.8	8.2	---	16	15	105	25	1.9	11	16
31	6.9	---	11	6.5	---	14	---	94	---	18	13	---
TOTAL	569.4	538.8	409.4	251.7	672.7	551.1	872.4	1901.2	1063.8	312.2	669.7	865.0
MEAN	18.4	18.0	13.2	8.12	24.0	17.8	29.1	61.3	35.5	10.1	21.6	28.8
MAX	128	188	66	16	247	101	314	640	285	28	140	169
MIN	3.7	4.4	4.9	4.6	3.2	3.3	7.0	4.6	4.2	1.9	4.0	4.2
AC-FT	1130	1070	812	499	1330	1090	1730	3770	2110	619	1330	1720

COLORADO RIVER BASIN

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08136000 CONCHO RIVER AT SAN ANGELO, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995#, BY WATER YEAR (WY)

MEAN	22.5	21.9	18.3	15.1	19.7	11.8	22.0	47.9	22.2	16.3	14.4	27.5
MAX	210	434	274	195	213	58.6	315	444	88.0	66.4	72.9	183
(WY)	1975	1975	1975	1975	1975	1975	1977	1975	1992	1977	1977	1980
MIN	.12	.11	.095	.055	.062	.050	.067	.083	.090	.069	.15	.86
(WY)	1965	1971	1974	1974	1971	1971	1972	1971	1971	1969	1985	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995#	
ANNUAL TOTAL	6956.4		8677.4		21.6	
ANNUAL MEAN	19.1		23.8		169	
HIGHEST ANNUAL MEAN					2.10	
LOWEST ANNUAL MEAN					3010	
HIGHEST DAILY MEAN	904	Sep 8	640	May 28	.00	Oct 31 1974
LOWEST DAILY MEAN	1.0	Feb 18	1.9	Jul 30	.02	Apr 30 1965
ANNUAL SEVEN-DAY MINIMUM	2.3	Apr 15	4.1	Feb 2	.02	Apr 9 1971
INSTANTANEOUS PEAK FLOW			4490	May 28	11500	Sep 9 1980
INSTANTANEOUS PEAK STAGE			8.81	May 28	14.37	Sep 9 1980
ANNUAL RUNOFF (AC-FT)	13800		17210		15670	
10 PERCENT EXCEEDS	33		44		39	
50 PERCENT EXCEEDS	8.5		10		5.1	
90 PERCENT EXCEEDS	3.0		5.0		.10	

# Period of regulated streamflow.

## COLORADO RIVER BASIN

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<sup>2</sup>, of which 1,131 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year. Prior to October 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 with 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.

REMARKS.--No estimated daily discharge. Records good. There are many diversions above station for irrigation and municipal supply. Regulation is the same as that for Concho River at San Angelo (station 08136000). 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<sup>2</sup> in the Willow Creek drainage basin. Radio telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft<sup>3</sup>/s (152,100 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1916-62).--Maximum discharge, 301,000 ft<sup>3</sup>/s Sept. 17, 1936 (gage height, 43.4 ft, from floodmarks), from rating curve extended above 98,000 ft<sup>3</sup>/s on basis of slope-area measurements of 144,000 and 301,000 ft<sup>3</sup>/s; no flow at times. Maximum stage since at least 1853, that of Sept. 17, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1882 reached a stage of about 39.9 ft, and flood in August 1906 reached a stage of 39.5 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	36	33	51	31	68	38	7.8	1340	170	4.0	30
2	28	36	34	44	33	49	39	6.9	351	83	7.2	28
3	23	37	33	45	32	43	38	7.4	126	396	78	30
4	29	36	36	43	34	41	67	7.9	81	100	534	32
5	61	37	39	44	34	41	365	9.0	63	50	885	28
6	75	36	41	44	31	38	494	9.8	63	39	192	30
7	50	47	41	46	28	36	152	10	72	53	83	30
8	41	43	41	41	26	33	77	22	57	61	54	27
9	34	38	42	41	27	33	56	45	46	44	41	25
10	31	37	40	41	27	28	47	45	39	35	37	24
11	32	33	62	41	27	25	41	30	125	30	34	54
12	33	32	56	41	24	26	38	36	131	27	32	62
13	33	31	44	39	28	40	37	83	96	22	34	70
14	34	40	39	38	33	153	34	45	58	19	31	68
15	38	115	36	37	31	84	31	38	43	17	29	121
16	38	162	33	38	32	55	30	35	38	14	28	215
17	44	65	33	41	33	52	29	26	32	19	26	95
18	60	45	33	45	31	46	27	21	28	20	22	70
19	91	38	38	45	27	40	25	17	29	20	22	61
20	118	59	41	43	24	37	23	19	31	22	23	78
21	58	79	39	45	20	38	22	18	27	20	26	67
22	43	78	38	44	17	36	21	15	24	14	25	59
23	38	50	37	38	17	36	20	20	25	9.8	35	57
24	37	40	34	37	24	34	17	17	22	8.3	35	49
25	44	37	33	36	55	38	15	16	21	7.5	31	46
26	44	36	33	35	187	48	15	31	24	5.8	31	47
27	81	35	38	39	355	52	13	448	49	4.5	32	50
28	58	33	52	40	154	44	11	312	179	3.4	32	48
29	43	33	61	35	---	39	9.7	3350	501	2.2	31	42
30	37	33	101	31	---	37	8.4	591	472	1.2	30	41
31	36	---	71	31	---	36	---	242	---	2.4	31	---
TOTAL	1445	1457	1332	1259	1422	1406	1840.1	5580.8	4193	1320.1	2535.2	1684
MEAN	46.6	48.6	43.0	40.6	50.8	45.4	61.3	180	140	42.6	81.8	56.1
MAX	118	162	101	51	355	153	494	3350	1340	396	885	215
MIN	23	31	33	31	17	25	8.4	6.9	21	1.2	4.0	24
AC-FT	2870	2890	2640	2500	2820	2790	3650	11070	8320	2620	5030	3340

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995#, BY WATER YEAR (WY)

MEAN	59.5	59.7	56.9	53.2	70.1	45.9	54.5	127	81.7	36.7	45.6	109
MAX	242	615	367	274	740	318	494	823	741	175	287	1546
(WY)	1982	1975	1975	1975	1992	1992	1977	1975	1992	1992	1971	1980
MIN	.000	.000	.000	.000	.63	1.06	.77	.057	.000	.000	.10	.000
(WY)	1966	1966	1966	1966	1967	1967	1967	1984	1967	1966	1965	1965

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1963 - 1995#
ANNUAL TOTAL	17217.99	25474.2	66.5
ANNUAL MEAN	47.2	69.8	261
HIGHEST ANNUAL MEAN			14.0
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1020	May 13	23800
LOWEST DAILY MEAN	.93	Apr 24	.00
ANNUAL SEVEN-DAY MINIMUM	1.5	Apr 22	.00
INSTANTANEOUS PEAK FLOW		7050	46600
INSTANTANEOUS PEAK STAGE		17.14	28.25
ANNUAL RUNOFF (AC-FT)	34150	50530	48200
10 PERCENT EXCEEDS	73	83	109
50 PERCENT EXCEEDS	37	37	30
90 PERCENT EXCEEDS	8.1	19	.90

# Period of regulated streamflow.

## COLORADO RIVER BASIN

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08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1946 to October 1949. Chemical and biochemical analyses: March 1964 to current year. Pesticide analyses: April 1968 to October 1981. Sediment analyses: February 1978 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1946 to October 1949, October 1967 to September 1990.

WATER TEMPERATURE: April 1946 to October 1949, October 1967 to September 1990.

SUSPENDED SEDIMENT DISCHARGE: February 1978 to September 1981.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,690 microsiemens June 28, Aug. 12, 1984; minimum daily, 268 microsiemens Sept. 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 Sept. 9, 1980; minimum daily mean, 3 mg/L Feb. 2, 1979.

SEDIMENT LOAD: Maximum daily, 269,000 tons Sept. 9, 1980; minimum daily, 0.0 tons on several days during September 1980.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
NOV 16...	1545	125	2350	8.2	14.0	9.3	97	1.1	770	560	
JAN 12...	1520	41	2200	8.3	13.5	10.1	105	1.5	730	550	
APR 12...	1620	38	1440	8.3	21.0	10.2	122	2.2	420	250	
JUN 14...	1040	58	1000	8.0	26.0	6.9	91	2.4	320	210	
JUL 12...	1525	27	1550	8.2	31.0	8.4	122	3.8	420	300	
AUG 30...	1350	31	2320	8.0	29.0	7.2	101	2.7	750	590	
DATE		CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 16...	180	77	200	3	4.8	210	300	430	0.60	20	
JAN 12...	170	74	200	3	4.2	180	280	430	0.60	17	
APR 12...	94	45	130	3	5.8	170	160	260	0.50	13	
JUN 14...	83	28	77	2	6.0	120	120	160	0.40	16	
JUL 12...	95	45	140	3	5.9	130	180	280	0.40	19	
AUG 30...	160	84	210	3	5.0	160	310	460	0.60	21	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)
NOV 16...	1410	16.0	16.0	0.030	16.0	16.0	<0.015	--	0.50	0.030	
JAN 12...	1350	15.0	15.0	0.020	15.0	15.0	0.020	0.28	0.30	0.020	
APR 12...	820	2.37	2.37	0.030	2.40	2.40	0.020	0.48	0.50	<0.010	
JUN 14...	576	3.66	3.66	0.040	3.70	3.70	0.030	0.37	0.40	<0.010	
JUL 12...	861	3.92	3.92	0.080	4.00	4.00	0.030	0.47	0.50	<0.010	
AUG 30...	1380	8.01	8.01	0.090	8.10	8.10	<0.015	--	0.40	<0.010	



COLORADO RIVER BASIN

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## COLORADO RIVER BASIN

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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<sup>2</sup>, of which 11,391 mi<sup>2</sup> probably is noncontributing.

## WATER-CONTENT RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is sea level.

REMARKS.--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 March 15, 1990. Recording equipment was installed May 30, 1990, but water did not reach the sensing point until September 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, Fort Worth, Tex. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,584.0	-
Crest of overflow spillway.....	1,563.0	806,800
Top of conservation storage.....	1,551.5	554,300
Crest of spillway (tainter gates sill).....	1,528.0	216,100
Lowest gated outlet (service outlet).....	1,440.0	90

COOPERATION.--The capacity table was furnished by the Colorado River Municipal Water District, and based on a survey made in 1989 by Freese and Nichols, Consulting Engineers, Fort Worth, Texas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 557,600 acre-ft Sept. 1, 1992 (elevation, 1,551.67 ft); minimum recorded, 57,780 acre-ft Sept. 21, 1990 (elevation, 1,502.05 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 552,200 acre-ft June 11, 12, Aug. 9 at 0500 hours (elevation, 1,551.39 ft); minimum, 513,900 acre-ft Oct. 16, 17 (elevation, 1,549.34 ft).

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

1,502.0	57,610	1,525.0	187,600	1,540.0	361,600
1,515.0	114,900	1,530.0	236,800	1,545.0	438,600
1,520.0	147,300	1,535.0	294,500	1,552.0	563,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	517800	515400	522400	525300	525700	529400	529800	533100	548800	546700	536100	543600
2	517600	515400	522400	524600	525700	529400	529200	532000	550300	547400	536000	543600
3	516700	515400	522400	524600	525700	529000	529200	532400	550700	548400	535600	543400
4	516700	517400	522400	524600	525300	529000	532200	531800	548800	548200	536700	543100
5	516700	516700	522400	524200	524700	529200	534500	532800	547200	547800	545300	542500
6	516300	516700	522400	524600	524600	530300	536900	532800	547800	547800	548400	542100
7	516900	516500	522400	524600	524600	530000	538000	536700	548200	547800	550100	541800
8	516300	516500	522400	524600	524400	529200	538600	534100	548400	547800	551700	540800
9	515800	516900	522700	524600	524400	528800	538800	533900	548600	547800	551800	539700
10	515400	516300	522700	524600	524600	528800	539900	533700	551500	547600	549400	539100
11	515000	515900	522000	524700	524400	528800	538900	534300	552200	547100	548400	538900
12	514800	515600	522000	525100	524000	529800	538900	534300	550700	546900	548200	538600
13	514300	515600	522000	525700	523600	530300	538800	534300	550300	546100	548200	541200
14	514100	516900	522000	525700	523600	530900	538600	534300	550300	545300	548200	542100
15	514100	516900	522000	525700	524600	530900	538600	534300	549700	544600	548200	542100
16	513900	516900	522400	525500	524700	530900	538400	534100	549500	544000	548200	542100
17	514500	518300	522400	525100	524700	530900	538900	534100	548600	543300	548200	542700
18	515600	518000	522400	526200	524700	530700	538400	533300	548600	542900	547800	544600
19	515600	518000	522400	526200	524700	530700	538200	532800	548400	542300	547200	545000
20	515600	521100	523100	526200	524700	530900	537600	532200	548400	542100	547200	545000
21	515800	521100	523100	526200	524700	530900	537300	531800	548200	541400	547200	545000
22	516100	521800	523100	526200	524700	530900	537100	530900	547600	540300	547200	544600
23	516100	521800	523100	525800	524700	530700	535800	530700	547400	540100	547100	544000
24	516100	521800	523100	525500	525100	530100	535000	530500	546700	539100	546300	543800
25	516900	521800	523100	525500	525700	531100	534600	530500	546500	539100	545900	543600
26	516500	522200	522900	525700	528100	531100	534500	531600	545700	538800	545900	543600
27	516100	522700	523300	526200	528800	530700	533900	532400	545100	538000	545500	543600
28	516100	522700	524000	526000	529400	530000	533500	535000	545900	537500	545000	543600
29	516100	522700	524000	526000	---	530000	533500	540100	546300	535400	544800	543400
30	515900	522500	524000	525800	---	529800	533300	542300	546700	535400	543800	543400
31	515900	---	525300	525700	---	529800	---	545700	---	536100	543600	---
MAX	517800	522700	525300	526200	529400	531100	539900	545700	552200	548400	551800	545000
MIN	513900	515400	522000	524200	523600	528800	529200	530500	545100	535400	535600	538600
(+)	1549.45	1549.81	1549.96	1549.98	1550.18	1550.20	1550.39	1551.05	1551.10	1550.54	1550.94	1550.93
(@)	-2100	+6600	+2800	+400	+3700	+400	+3500	+12400	+1000	-10600	+7500	-200
CAL YR 1994	MAX 554900	MIN 513900	(@) +3700									
WTR YR 1995	MAX 552200	MIN 513900	(@) +25400									

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

## COLORADO RIVER MAIN STEM

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<sup>2</sup>, approximately, of which 11,391 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--March 1968 to current year. Prior to October 1970, published as "at Stacy".

Water-quality records.--Chemical analyses: December 1961 to September 1994. Chemical and biochemical analyses: October 1974 to October 1977. Pesticide analyses: April 1975 to August 1977. Sediment analyses: October 1974 to October 1977.

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

GAGE.--Water-stage recorder. Datum of gage is 1,394.66 ft above sea level (State Department of Highways and Public Transportation bridge plans).

REMARKS.--No estimated daily discharge. Records good. There are many diversions above station for irrigation, municipal, and oil field operations. Sewage effluent is returned to the river from numerous sewage plants above station. Flow affected by upstream reservoirs (see stations 08126380 and 08136000), and since March 15, 1990, flow completely regulated by O.H. Ivie Reservoir (station 08136600), 10.5 mi upstream. 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<sup>2</sup> above this station. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1882, 356,000 ft<sup>3</sup>/s Sept. 18, 1936 (gage height, 64.59 ft), by slope-area measurement of peak flow. The flood of Sept. 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 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	6.5	6.1	6.8	4.9	9.7	4.3	12	267	24	36	12
2	28	6.1	7.4	6.5	4.9	8.8	5.6	13	51	24	26	12
3	28	6.5	19	6.5	4.8	8.2	15	15	752	29	25	12
4	19	7.0	11	6.1	4.9	8.0	42	15	1750	23	32	12
5	7.4	10	7.2	6.1	4.9	7.7	57	15	1100	21	34	12
6	5.1	11	6.5	5.8	4.9	7.6	30	18	54	32	22	12
7	4.6	8.9	6.5	5.5	7.4	7.0	31	17	30	25	21	12
8	5.0	8.0	6.8	5.8	8.8	6.8	18	25	28	24	21	11
9	5.5	8.4	7.2	5.5	7.8	7.0	16	14	26	23	597	12
10	5.3	8.9	7.6	5.5	7.4	6.8	15	11	28	23	1740	13
11	4.6	8.0	7.6	5.5	7.8	6.5	13	11	192	23	1070	12
12	4.4	7.6	6.8	5.8	8.0	7.4	13	11	1330	23	89	11
13	4.7	7.6	6.5	5.7	8.0	14	13	11	725	22	78	32
14	4.7	8.0	6.5	6.3	8.0	10	14	11	50	22	74	35
15	6.7	8.9	6.7	6.0	8.0	7.8	13	10	29	23	28	23
16	7.2	8.9	8.8	5.6	8.4	7.4	13	11	27	23	14	13
17	6.7	7.6	6.8	5.5	8.2	7.1	14	10	26	24	12	12
18	6.2	7.6	6.5	6.1	7.8	6.4	14	9.6	25	24	12	15
19	6.1	7.6	6.5	6.6	7.2	5.0	13	9.3	26	22	12	16
20	5.8	44	6.5	6.5	6.8	4.7	11	9.1	26	23	12	13
21	5.2	30	6.5	5.8	6.8	4.6	12	9.5	26	23	13	14
22	5.2	13	7.6	5.6	6.8	4.4	13	9.5	24	22	16	17
23	5.2	9.5	6.5	6.9	6.5	4.0	12	13	23	23	13	13
24	5.3	8.0	6.1	11	7.4	4.1	12	23	23	23	13	11
25	9.6	7.2	5.8	11	14	4.6	25	23	22	22	13	11
26	9.5	6.8	5.5	6.1	37	5.2	13	25	22	22	12	17
27	8.0	6.5	5.7	5.1	31	5.0	12	36	25	22	12	16
28	7.2	6.1	12	5.0	13	4.5	12	28	25	22	12	14
29	7.2	6.1	14	5.0	---	4.4	13	36	26	21	12	13
30	7.6	6.1	10	4.9	---	4.3	13	29	25	20	11	13
31	7.2	---	7.6	4.9	---	4.3	---	37	---	25	11	---
TOTAL	269.2	296.4	241.8	191.0	261.4	203.3	501.9	527.0	6783	722	4093	441
MEAN	8.68	9.88	7.80	6.16	9.34	6.56	16.7	17.0	226	23.3	132	14.7
MAX	28	44	19	11	37	14	57	37	1750	32	1740	35
MIN	4.4	6.1	5.5	4.9	4.8	4.0	4.3	9.1	22	20	11	11
AC-FT	534	588	480	379	518	403	996	1050	13450	1430	8120	875

COLORADO RIVER MAIN STEM

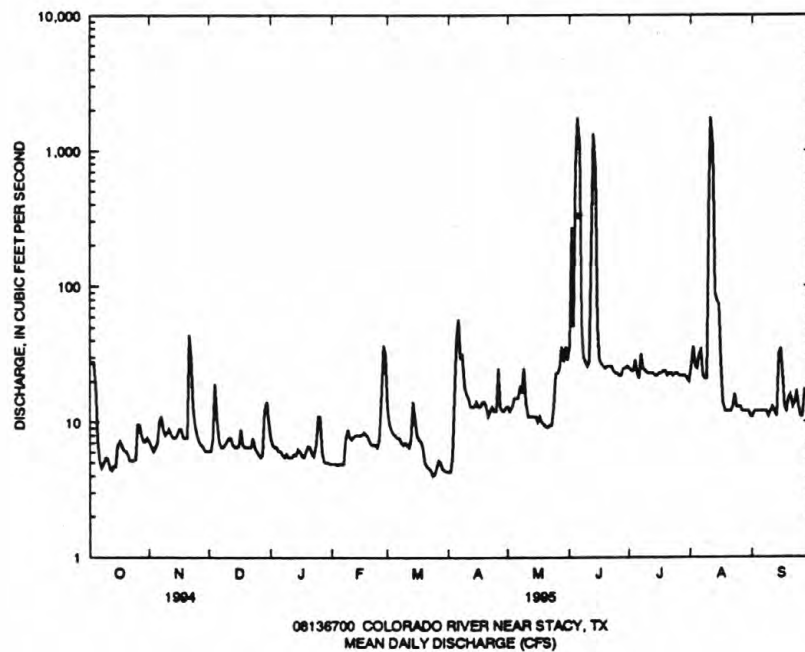
75

08136700 COLORADO RIVER NEAR STACY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

MEAN	252	136	117	118	121	157	153	353	346	122	194	309
MAX	1475	1344	562	470	666	732	873	1440	1732	623	1516	2953
(WY)	1987	1975	1975	1975	1975	1987	1977	1987	1982	1987	1978	1980
MIN	8.68	7.61	7.80	6.16	7.44	6.14	.41	.000	.000	.000	2.24	.000
(WY)	1995	1992	1995	1995	1994	1986	1986	1984	1984	1974	1983	1983

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1968 - 1995
ANNUAL TOTAL	35891.6	14531.0	
ANNUAL MEAN	98.3	39.8	197
HIGHEST ANNUAL MEAN			719
LOWEST ANNUAL MEAN			24.6
HIGHEST DAILY MEAN	4600 May 12	1750 Jun 4	31300 Sep 10 1980
LOWEST DAILY MEAN	4.4 Oct 12	4.0 Mar 23	.00 Jun 22 1974
ANNUAL SEVEN-DAY MINIMUM	4.9 Oct 7	4.5 Mar 19	.00 Jun 22 1974
INSTANTANEOUS PEAK FLOW		1750 Jun 4	45000 Sep 10 1980
INSTANTANEOUS PEAK STAGE		7.77 Jun 4	28.00 Sep 10 1980
ANNUAL RUNOFF (AC-FT)	71190	28820	142400
10 PERCENT EXCEEDS	35	29	402
50 PERCENT EXCEEDS	17	11	54
90 PERCENT EXCEEDS	6.5	5.3	7.7





## COLORADO RIVER BASIN

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<sup>2</sup>, approximately.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--April 1948 to current year. Prior to October 1970, published as Hords Creek Reservoir.

GAGE.--Water-stage recorder. Datum of gage is sea level.

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 June 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 August 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<sup>2</sup> in the Jim Ned Creek drainage basin. Satellite telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,939.0	-
Design flood.....	1,933.6	-
Crest of spillway.....	1,920.0	24,730
Crest of spillway (top of conservation pool).....	1,900.0	8,110
Lowest gated outlet (invert).....	1,856.0	3

COOPERATION.--Records of elevations and 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 June 1951, 1,550 acre-ft Sept. 2, 1984 (elevation, 1878.01 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,800 acre-ft June 12 (elevation, 1899.37 ft); minimum, 6,300 acre-ft May 24 (elevation, 1896.06 ft).

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

1888.0	3,600	1896.0	6,280	1904.0	10,360
1892.0	4,780	1900.0	8,110	1908.0	13,050

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6760	6660	6650	6590	6480	6400	6330	6380	6350	7630	7330	7040
2	6750	6660	6640	6580	6480	6400	6330	6370	7160	7620	7320	7020
3	6740	6660	6640	6580	6470	6390	6330	6370	7160	7610	7320	7010
4	6740	6670	6640	6570	6460	6390	6420	6360	7160	7590	7350	7000
5	6730	6670	6630	6570	6450	6390	6550	6410	7150	7610	7340	6980
6	6710	6660	6630	6570	6450	6400	6560	6410	7150	7610	7330	6970
7	6720	6660	6630	6560	6450	6390	6570	6430	7140	7610	7320	6960
8	6710	6650	6630	6560	6440	6380	6560	6410	7130	7600	7310	6940
9	6700	6660	6630	6560	6430	6380	6560	6400	7120	7590	7290	6930
10	6690	6650	6620	6550	6420	6370	6550	6390	7360	7580	7280	6920
11	6680	6640	6620	6550	6430	6360	6540	6410	7790	7560	7270	6910
12	6670	6640	6610	6550	6420	6410	6540	6400	7790	7550	7250	6900
13	6660	6640	6600	6550	6420	6410	6530	6390	7790	7530	7240	6940
14	6660	6670	6600	6540	6420	6400	6520	6390	7780	7520	7230	6950
15	6660	6660	6600	6540	6420	6400	6520	6390	7770	7510	7220	6950
16	6660	6660	6600	6540	6410	6390	6520	6380	7750	7500	7210	6940
17	6660	6660	6600	6530	6410	6390	6520	6370	7750	7490	7190	6970
18	6710	6650	6600	6540	6400	6390	6510	6350	7740	7480	7180	6980
19	6700	6700	6590	6540	6400	6380	6500	6340	7730	7460	7160	6970
20	6700	6700	6590	6540	6390	6370	6480	6330	7720	7450	7160	6970
21	6700	6700	6580	6530	6390	6370	6470	6320	7710	7440	7150	6950
22	6690	6680	6580	6530	6390	6370	6460	6320	7700	7420	7140	6930
23	6680	6690	6570	6520	6380	6360	6450	6310	7680	7410	7120	6930
24	6700	6690	6570	6510	6390	6350	6440	6310	7670	7410	7110	6920
25	6700	6680	6570	6510	6390	6380	6430	6310	7660	7390	7120	6910
26	6700	6680	6560	6510	6420	6380	6420	6320	7650	7370	7110	6900
27	6700	6670	6580	6510	6410	6370	6410	6320	7650	7350	7100	6900
28	6690	6670	6600	6500	6400	6350	6400	6340	7670	7340	7090	6890
29	6690	6660	6600	6490	---	6350	6400	6330	7650	7320	7070	6880
30	6680	6650	6600	6490	---	6340	6390	6340	7640	7310	7060	6880
31	6670	---	6590	6490	---	6340	---	6350	---	7330	7050	---
MAX	6760	6700	6650	6590	6480	6410	6570	6430	7790	7630	7350	7040
MIN	6660	6640	6560	6490	6380	6340	6330	6310	6350	7310	7050	6880
(+)	1896.92	1896.87	1896.74	1896.50	1896.29	1896.15	1896.27	1896.17	1899.04	1898.34	1897.78	1897.40
(@)	-100	-20	-60	-100	-90	-60	+50	-40	+1290	-310	-280	-170

CAL YR 1994 MAX 8630 MIN 4610 (@) +1630  
WTR YR 1995 MAX 7790 MIN 6310 (@) +110

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

## COLORADO RIVER BASIN

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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<sup>2</sup>.

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,202.93 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow affected by Lake Brownwood (capacity, 143,400 acre-ft) 45 miles upstream. In addition, at end of year, flow from 152 mi<sup>2</sup> (from an intervening drainage area of 641 mi<sup>2</sup>) 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. Radio telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	13	24	82	48	8.5	e95	86	529	52	270	8.3
2	4.9	13	24	67	48	8.9	e92	77	245	40	260	8.3
3	4.9	11	23	65	47	8.8	e108	79	154	521	122	7.8
4	4.8	11	23	60	47	8.8	5810	82	123	153	78	7.3
5	3.8	46	22	56	46	8.8	4070	89	104	116	74	6.8
6	5.3	51	22	53	44	8.2	3190	602	91	189	45	6.1
7	9.2	31	22	49	43	8.7	2670	325	78	171	36	5.2
8	11	20	21	46	42	8.1	2060	645	69	80	29	4.7
9	8.4	24	63	42	42	7.2	1600	666	62	61	26	5.3
10	7.7	63	150	41	42	5.7	1250	531	58	48	23	8.1
11	7.6	44	89	41	42	4.7	1000	913	251	39	22	8.8
12	6.7	26	54	42	42	4.6	773	647	159	35	22	8.4
13	6.7	20	42	41	42	408	561	467	103	32	20	110
14	6.7	19	38	41	43	434	512	389	80	27	19	113
15	6.8	47	38	38	43	288	511	351	65	24	16	91
16	7.5	71	36	36	43	225	475	331	56	23	16	45
17	27	37	34	35	43	199	421	320	49	23	16	33
18	1420	28	31	78	43	217	455	310	45	22	14	312
19	231	30	30	243	43	219	398	302	43	20	11	159
20	66	854	29	126	43	197	417	294	40	25	10	70
21	28	618	28	87	44	192	383	289	39	21	9.6	93
22	17	143	27	72	45	194	363	285	37	17	9.0	55
23	13	71	26	63	43	191	350	193	35	15	8.4	58
24	11	49	26	58	40	e177	341	285	33	15	7.5	38
25	255	40	26	56	45	e162	243	175	32	14	9.8	29
26	99	37	25	55	51	e150	132	120	30	14	12	25
27	42	34	29	54	17	e137	110	142	31	14	11	22
28	26	30	261	52	9.2	e128	104	223	131	13	8.6	20
29	22	28	442	51	---	e120	99	865	324	13	8.3	20
30	18	25	185	51	---	e109	94	353	102	13	8.3	19
31	14	---	110	49	---	e99	---	304	---	30	8.3	---
TOTAL	2395.9	2534	2000	1930	1170.2	3937.0	28687	10740	3198	1880	1229.8	1397.1
MEAN	77.3	84.5	64.5	62.3	41.8	127	956	346	107	60.6	39.7	46.6
MAX	1420	854	442	243	51	434	5810	913	529	521	270	312
MIN	3.8	11	21	35	9.2	4.6	92	77	30	13	7.5	4.7
AC-FT	4750	5030	3970	3830	2320	7810	56900	21300	6340	3730	2440	2770

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

	MEAN	168	89.4	217	163	239	225	244	313	299	36.7	24.8	83.5
MAX	987	1227	4741	1965	4416	2361	3510	1975	1841	330	195	980	
(WY)	1975	1975	1992	1968	1992	1992	1990	1994	1986	1982	1971	1991	
MIN	.59	4.79	3.90	4.57	6.55	7.16	3.63	.12	.000	.000	.000	.79	
(WY)	1989	1989	1984	1986	1983	1986	1984	1984	1984	1974	1980	1989	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1968 - 1995

ANNUAL TOTAL	81755.6	61099.0	
ANNUAL MEAN	224	167	
HIGHEST ANNUAL MEAN			175
LOWEST ANNUAL MEAN			1245
HIGHEST DAILY MEAN	9560	May 15	9.01
LOWEST DAILY MEAN	3.8	Oct 5	37000
ANNUAL SEVEN-DAY MINIMUM	4.8	Sep 29	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			38300
ANNUAL RUNOFF (AC-FT)	162200	121200	42.15
10 PERCENT EXCEEDS	242	357	261
50 PERCENT EXCEEDS	13	43	14
90 PERCENT EXCEEDS	5.8	8.5	2.7

e Estimated

a From floodmark.

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1991. Chemical and biochemical analyses: October 1991 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1991.

WATER TEMPERATURES: October 1967 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 37.0°C July 18, 1979; minimum daily, 0.5°C Feb. 7, 1979.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CaCO3)	HARD- NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS Ca)
NOV 16...	1020	66	690	8.2	14.5	9.0	92	1.4	220	65	61
JAN 10...	1310	40	750	8.4	10.5	11.4	108	1.2	310	87	71
APR 04...	1418	7960	209	7.9	15.0	8.2	86	6.1	91	7	23
JUN 12...	1525	145	738	8.3	25.5	7.8	100	2.1	300	59	61
JUL 10...	1410	49	595	8.2	29.0	8.2	112	3.7	220	55	46
AUG 28...	1230	8.3	884	8.1	28.0	6.5	88	3.5	300	88	60

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV 16...	17	53	2	6.0	160	63	80	0.30	8.9	389
JAN 10...	32	38	0.9	4.0	220	54	69	0.30	7.9	414
APR 04...	8.1	5.5	0.3	3.8	84	7.2	11	<0.10	7.7	117
JUN 12...	36	41	1	3.9	240	46	66	0.30	9.4	410
JUL 10...	25	31	0.9	4.6	160	34	53	0.20	10	304
AUG 28...	36	68	2	5.3	210	76	110	0.30	13	495

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 16...	1.07	1.07	0.030	1.10	1.10	0.040	0.36	0.40	0.170	0.160
JAN 10...	0.540	--	<0.010	0.540	0.540	0.030	0.27	0.30	0.050	0.050
APR 04...	0.070	0.070	0.030	0.100	0.100	0.040	0.46	0.50	0.070	0.060
JUN 12...	0.240	--	<0.010	0.240	0.240	0.020	0.38	0.40	<0.010	<0.010
JUL 10...	0.210	0.210	0.020	0.230	0.230	0.020	0.28	0.30	0.030	0.030
AUG 28...	--	--	<0.010	--	<0.050	<0.015	--	0.40	0.020	<0.010

[illegible]

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]



## 08147000 COLORADO RIVER NEAR SAN SABA, TX

LOCATION.--Lat 31°13'04", long 98°33'51", San Saba-Lampasas County line, Hydrologic Unit 12090201, near left bank at downstream side of pier 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<sup>2</sup>, approximately, of which 11,398 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1915 to October 1922 (published as "near Chadwick"), October 1923 to August 1930 (published as "near Tow"), September 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water-quality records.--Chemical analyses: August 1941, September 1947 to September 1992. Chemical and biochemical analyses: January 1968 to September 1993. Pesticide analyses: January 1968 to April 1982. Sediment analyses: May 1951 to October 1962, October 1977 to September 1993. Specific conductance and water temperature: September 1947 to September 1992. Suspended sediment discharge: December 1950 to September 1962.

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.

REMARKS.--No estimated daily discharge. Records good. There are many diversions above station for irrigation, municipal use, and for oil field operations. Since March 15, 1990, 66 percent 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 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<sup>2</sup> area above this station. Radio telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--50 years (water years 1917-19, 1921-22, 1924-68) prior to completion of Robert Lee Dam, 1,340 ft<sup>3</sup>/s (970,100 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1917-19, 1921-22, 1924-68).--Maximum discharge, 224,000 ft<sup>3</sup>/s July 23, 1938 (gage height, 63.2 ft, present site), based on floodmarks at site then in use; no flow for several days in 1954, 1963, 1964, and 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1878 to July 22, 1938, 58.4 ft Sept. 25, 1900 (discharge, 184,000 ft<sup>3</sup>/s, present site), from floodmarks at former site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	156	191	615	196	579	345	225	2820	303	71	69
2	77	144	179	481	192	432	316	214	3570	263	174	67
3	80	138	175	406	188	359	294	207	1830	260	341	67
4	98	136	171	361	182	309	4400	206	983	688	213	61
5	87	153	165	331	176	279	13500	207	1050	324	194	57
6	86	163	165	311	175	263	10300	210	1840	230	167	61
7	86	213	162	294	173	253	6290	751	1250	343	161	57
8	91	209	160	281	164	234	4250	841	553	334	121	52
9	95	178	169	269	158	227	3040	1340	363	218	105	49
10	109	157	230	258	152	213	2330	1090	288	201	97	65
11	110	151	408	250	156	203	1830	955	285	163	86	73
12	104	183	392	247	155	203	1510	2350	513	144	1090	66
13	100	180	304	247	153	1690	1160	2230	1310	137	964	62
14	95	168	279	251	156	2760	868	1400	1520	120	354	60
15	100	173	258	234	158	1610	848	964	1000	105	198	118
16	103	164	239	224	160	1120	802	730	508	96	134	172
17	105	174	225	219	159	915	775	592	333	88	107	146
18	534	197	208	226	162	771	1060	514	260	87	94	133
19	1580	180	197	241	155	725	848	459	224	79	86	1340
20	491	187	189	432	155	688	667	423	194	73	78	954
21	303	2240	179	370	146	646	658	400	171	73	67	369
22	215	1600	170	307	146	613	604	385	156	65	58	345
23	160	753	168	273	143	589	549	369	144	60	52	325
24	131	483	167	248	149	568	520	343	136	61	49	217
25	1030	376	167	240	243	553	503	406	127	59	46	178
26	720	326	166	234	315	590	412	345	118	53	49	148
27	413	285	167	227	535	1200	288	297	120	44	52	133
28	273	254	303	217	812	897	257	312	127	36	48	124
29	235	228	1690	213	---	592	244	1980	174	34	50	117
30	206	207	1570	207	---	446	237	4490	429	38	56	109
31	176	---	885	201	---	380	---	2660	---	63	71	---
TOTAL	8072	10156	10098	8915	5814	20907	59705	27895	22396	4842	5433	5794
MEAN	260	339	326	288	208	674	1990	900	747	156	175	193
MAX	1580	2240	1690	615	812	2760	13500	4490	3570	688	1090	1340
MIN	77	136	160	201	143	203	237	206	118	34	46	49
AC-FT	16010	20140	20030	17680	11530	41470	118400	55330	44420	9600	10780	11490

COLORADO RIVER MAIN STEM

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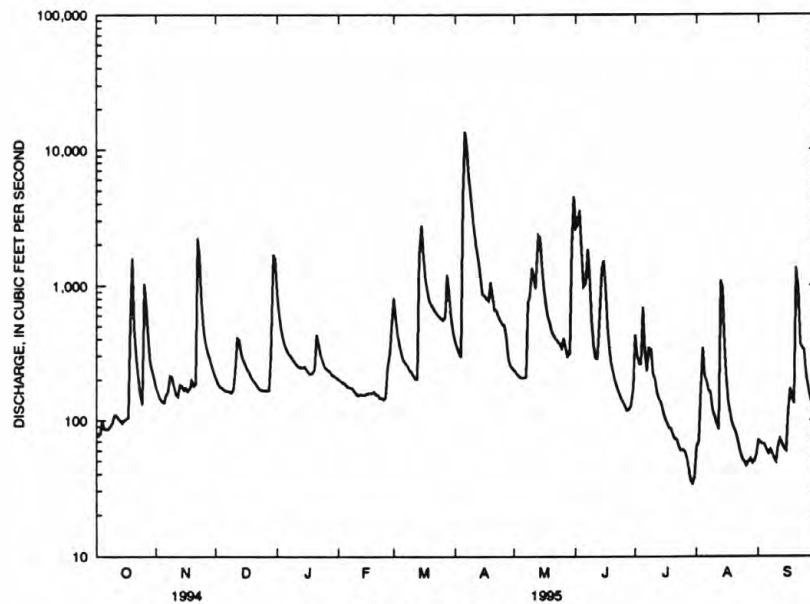
08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1995#, BY WATER YEAR (WY)

MEAN	889	436	668	491	761	695	711	1041	1188	417	480	895
MAX	3439	3444	9242	2756	10760	5002	4699	4504	4811	1981	3915	5214
(WY)	1972	1975	1992	1992	1992	1992	1990	1994	1986	1971	1971	1980
MIN	34.6	82.2	76.5	93.4	86.2	46.8	33.6	11.2	4.16	10.4	13.0	23.7
(WY)	1984	1980	1984	1986	1984	1986	1986	1984	1984	1984	1980	1983

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1969 - 1995#	
ANNUAL TOTAL	231794		190027		722	
ANNUAL MEAN	635		521		3078	
HIGHEST ANNUAL MEAN					84.1	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	23800	May 14	13500	Apr 5	45500	Dec 21 1991
LOWEST DAILY MEAN	48	Aug 15	34	Jul 29	.00	Jul 21 1984
ANNUAL SEVEN-DAY MINIMUM	51	Aug 10	46	Jul 24	.01	Jul 20 1984
INSTANTANEOUS PEAK FLOW			15200	Apr 5	47400	Dec 21 1991
INSTANTANEOUS PEAK STAGE			a14.85	Apr 5	31.60	Dec 21 1991
ANNUAL RUNOFF (AC-FT)	459800		376900		522700	
10 PERCENT EXCEEDS	872		1090		1270	
50 PERCENT EXCEEDS	165		218		211	
90 PERCENT EXCEEDS	68		73		62	

# Period of regulated streamflow.  
a From floodmark.



08147000 COLORADO RIVER NEAR SAN SABA, TX  
MEAN DAILY DISCHARGE (CFS)

## 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<sup>2</sup>.

PERIOD OF RECORD.--July 1963 to current year.

REVISED RECORDS.--WSP 2122: 1964-65. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,253.24 ft above sea level. Prior to Aug. 3, 1978, at site 300 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There is no known regulation or diversion above station. 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 29	1100	4,940	a6.46	June 11	1600	4,690	a6.33

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	1.8	1.9	14	3.3	6.9	13	6.1	e29	e1.5	e1.7	.57
2	.31	1.4	1.9	11	3.3	6.7	11	5.7	e17	e1.3	e1.8	.39
3	.31	1.3	1.8	10	3.3	6.7	10	5.5	e14	e1.2	e4.4	.37
4	.28	1.4	1.7	9.3	3.1	6.7	13	5.5	e13	e1.1	e1.8	.31
5	.22	5.9	1.7	8.2	3.0	6.7	49	5.5	e12	e1.1	e1.3	.29
6	.18	12	1.7	7.7	3.0	6.7	36	5.3	e11	e1.0	e1.2	.21
7	.94	7.1	1.7	7.1	3.0	6.4	23	4.8	e10	e1.0	e1.1	.13
8	4.0	4.6	1.7	6.7	3.0	6.0	18	11	e9.5	e.90	e1.0	.13
9	4.9	3.5	2.9	6.0	3.0	7.1	16	17	e8.5	e.90	.88	.13
10	4.1	3.1	4.6	5.8	3.0	6.0	14	9.2	e7.0	e.90	.80	.13
11	2.3	2.7	5.0	5.5	3.0	6.9	12	6.9	1090	e.90	.62	.12
12	1.4	2.6	4.1	5.5	3.2	7.4	12	5.7	e86	e.80	.62	.10
13	1.0	2.1	2.9	8.7	3.7	318	12	5.5	e16	e.80	.56	.08
14	.89	2.1	2.6	11	4.1	63	11	5.5	e12	e.80	.39	.08
15	1.6	5.4	2.6	7.3	4.9	28	10	4.3	e9.5	e.70	.37	.08
16	2.8	11	2.8	6.1	5.5	26	10	3.2	e7.5	e.70	.28	.55
17	3.3	9.0	3.0	5.7	5.2	22	11	2.6	e2.5	e.70	.17	.87
18	3.1	6.1	3.2	5.5	4.9	18	15	2.2	e4.0	e.70	.08	.73
19	2.1	5.2	2.6	5.3	4.3	16	19	1.7	e3.5	e.60	.08	.65
20	1.7	5.4	2.1	4.9	3.9	14	12	1.6	e3.0	e.60	.07	3.1
21	2.2	5.3	1.9	4.7	3.7	13	10	1.4	e2.5	e.60	.05	6.1
22	1.9	4.5	1.8	4.6	3.7	12	9.0	1.2	e1.5	e.50	.06	30
23	1.4	4.0	1.7	4.4	3.8	12	8.4	.97	e1.2	e.50	.06	11
24	1.2	4.0	1.7	4.0	4.2	11	8.4	5.5	e1.0	e.40	.06	5.6
25	4.4	4.0	1.7	4.0	7.6	11	8.4	8.8	e2.5	e.40	.08	3.3
26	4.9	3.9	1.7	4.0	11	11	8.0	6.8	e1.5	e.30	.11	2.4
27	6.2	3.5	2.5	4.4	9.6	11	7.3	4.9	e1.1	e.30	2.5	2.0
28	4.8	2.7	136	4.5	7.6	10	7.1	4.4	e1.0	e.25	1.9	1.7
29	3.7	2.1	71	3.7	---	10	7.1	1650	e8.5	e.25	1.3	1.5
30	2.7	1.9	27	3.3	---	10	6.8	e215	e3.0	e.40	.91	1.2
31	2.2	---	18	3.3	---	10	---	e58	---	e2.8	.82	---
TOTAL	71.30	129.6	317.5	196.2	124.9	706.2	407.5	2071.77	1388.8	24.90	27.07	73.82
MEAN	2.30	4.32	10.2	6.33	4.46	22.8	13.6	66.8	46.3	.80	.87	2.46
MAX	6.2	12	136	14	11	318	49	1650	1090	2.8	4.4	30
MIN	.18	1.3	1.7	3.3	3.0	6.0	6.8	.97	1.0	.25	.05	.08
AC-FT	141	257	630	389	248	1400	808	4110	2750	49	54	146
CFSM	.01	.02	.05	.03	.02	.11	.06	.31	.22	.00	.00	.01
IN.	.01	.02	.05	.03	.02	.12	.07	.36	.24	.00	.00	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

	MEAN	23.9	7.84	14.8	13.8	19.7	17.3	18.8	30.9	25.5	3.44	22.1	11.6
MAX	292	32.2	220	183	285	105	132	197	327	23.0	443	167	
(WY)	1970	1970	1992	1968	1992	1970	1977	1975	1987	1987	1978	1964	
MIN	.37	.91	1.44	1.84	1.41	1.29	.49	1.56	.21	.003	.000	.021	
(WY)	1983	1980	1983	1971	1984	1967	1984	1964	1971	1964	1985	1977	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1963 - 1995

ANNUAL TOTAL	1733.96	5539.56	
ANNUAL MEAN	4.75	15.2	17.5
HIGHEST ANNUAL MEAN			65.5
LOWEST ANNUAL MEAN			1.97
HIGHEST DAILY MEAN	136 Dec 28	1650 May 29	12800 Aug 3 1978
LOWEST DAILY MEAN	.00 Jul 20	.05 Aug 21	.00 Aug 3 1963
ANNUAL SEVEN-DAY MINIMUM	.00 Jul 20	.07 Aug 18	.00 Aug 3 1963
INSTANTANEOUS PEAK FLOW		4940 May 29	66900 Aug 3 1978
INSTANTANEOUS PEAK STAGE		a6.46 May 29	24.00 Aug 3 1978
ANNUAL RUNOFF (AC-FT)	3440	10990	12710
ANNUAL RUNOFF (CFSM)	.022	.071	.082
ANNUAL RUNOFF (INCHES)	.30	.96	1.11
10 PERCENT EXCEEDS	8.3	12	21
50 PERCENT EXCEEDS	3.3	3.7	3.1
90 PERCENT EXCEEDS	.05	.39	.20

e Estimated

a From floodmark.

## COLORADO RIVER BASIN

83

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 downstream from bridge on State Highway 16, 7 mi upstream from Little Llano River, and 29.3 mi upstream from mouth.

DRAINAGE AREA.--4,197.14 mi<sup>2</sup>, of which 5.14 mi<sup>2</sup> probably is noncontributing.

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

Water-quality records.--Chemical analyses: April 1948 to October 1967. Chemical and Biochemical analyses: April 1979 to September 1986. Sediment analyses: September 1964, April 1979 to September 1986.

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

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Part of low flow of the Llano River disappears into various formations, many of which are faulted, between this station and station near Junction. Rain gage at station. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft June 14, 1935 (discharge, 380,000 ft<sup>3</sup>/s), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0330	13,000	9.26				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	209	202	505	157	236	199	120	1840	252	72	67
2	151	203	223	410	165	217	199	116	987	199	64	78
3	145	199	247	365	188	205	199	119	588	169	70	79
4	143	202	227	368	162	172	200	115	414	151	99	65
5	138	392	211	347	164	192	539	112	318	139	118	59
6	211	349	239	303	164	228	749	109	255	132	121	56
7	245	344	134	265	170	197	478	114	221	129	106	57
8	225	316	142	268	174	211	364	355	202	321	79	53
9	206	285	220	255	130	198	292	288	184	238	63	48
10	186	253	235	227	151	151	242	197	173	292	54	55
11	174	239	242	230	138	159	214	167	398	225	46	60
12	172	232	258	224	181	163	210	149	606	183	42	51
13	161	227	278	433	169	2560	187	137	417	157	40	55
14	157	227	245	281	173	1710	192	126	278	139	30	66
15	179	293	226	237	204	738	198	133	215	124	26	66
16	178	321	225	239	193	597	186	158	186	111	26	65
17	183	292	225	215	181	495	172	152	167	110	23	60
18	224	266	221	205	181	397	184	90	154	100	22	77
19	227	256	216	215	178	342	255	31	143	113	32	83
20	199	257	212	191	171	307	225	e2.5	135	109	34	88
21	184	246	221	194	169	278	183	78	128	97	27	106
22	174	246	203	212	163	316	168	79	126	86	25	2050
23	173	236	194	147	164	222	149	80	131	78	24	2390
24	173	228	194	160	165	202	142	114	122	71	24	1050
25	450	226	187	198	211	205	139	160	114	65	37	642
26	339	230	183	229	328	205	139	259	112	58	37	492
27	251	235	204	197	402	205	134	210	122	50	42	410
28	243	233	830	181	298	206	131	169	111	44	108	357
29	255	221	1270	184	---	205	130	227	670	40	91	320
30	241	210	863	197	---	205	126	7130	384	41	76	288
31	224	---	633	180	---	200	---	2200	---	75	73	---
TOTAL	6372	7673	9410	7862	5294	11924	6925	13496.5	9901	4098	1731	9393
MEAN	206	256	304	254	189	385	231	435	330	132	55.8	313
MAX	450	392	1270	505	402	2560	749	7130	1840	321	121	2390
MIN	138	199	134	147	130	151	126	2.5	111	40	22	48
AC-FT	12640	15220	18660	15590	10500	23650	13740	26770	19640	8130	3430	18630
CFSM	.05	.06	.07	.06	.05	.09	.06	.10	.08	.03	.01	.07
IN.	.06	.07	.08	.07	.05	.11	.06	.12	.09	.04	.02	.08



## COLORADO RIVER BASIN

08151500 LLANO RIVER AT LLANO, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1995, BY WATER YEAR (WY)

MEAN	504	228	297	291	362	280	381	542	523	229	313	459
MAX	3700	1005	3179	2483	3754	1539	3115	3350	3231	1796	3605	3891
(WY)	1974	1975	1992	1968	1992	1970	1977	1957	1961	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

## SUMMARY STATISTICS

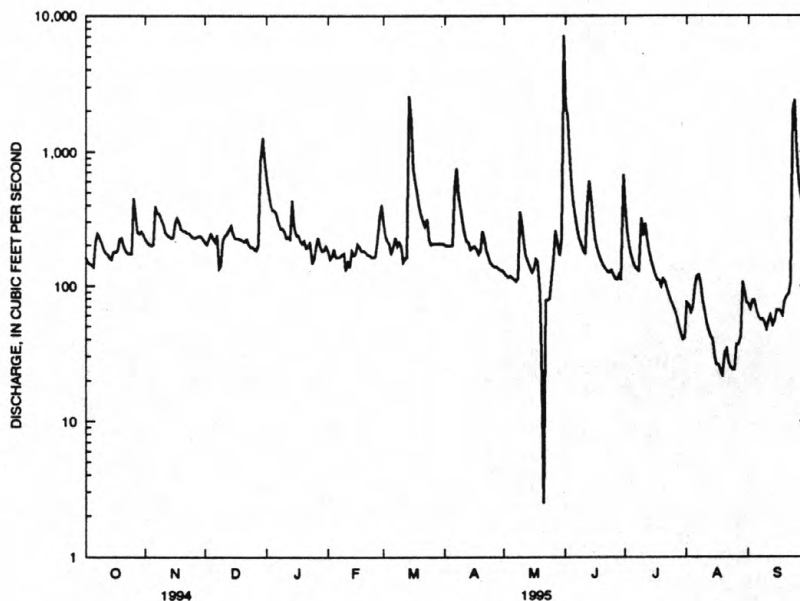
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1940 - 1995

ANNUAL TOTAL	80866.53	94079.5	
ANNUAL MEAN	222	258	
HIGHEST ANNUAL MEAN			367
LOWEST ANNUAL MEAN			1097
HIGHEST DAILY MEAN	5400	7130	50.0
LOWEST DAILY MEAN	.03	2.5	1992
ANNUAL SEVEN-DAY MINIMUM	14	27	1954
INSTANTANEOUS PEAK FLOW		13000	71200
INSTANTANEOUS PEAK STAGE		9.26	Sep 8 1980
ANNUAL RUNOFF (AC-FT)	160400	186600	.00
ANNUAL RUNOFF (CFSM)	.053	.061	Aug 5 1952
ANNUAL RUNOFF (INCHES)	.72	.83	Aug 27 1952
10 PERCENT EXCEEDS	323	374	Sep 10 1952
50 PERCENT EXCEEDS	170	192	Sep 10 1952
90 PERCENT EXCEEDS	76	64	39

e Estimated

08151500 LLANO RIVER AT LLANO, TX  
MEAN DAILY DISCHARGE (CFS)

## COLORADO RIVER BASIN

85

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<sup>2</sup>.

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

Water-quality records.--Chemical analyses: April 1948 to September 1950, October 1971 to September 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 Sept. 13, 1939, nonrecording gage, and Sept. 14, 1939, to Sept. 10, 1952, water-stage recorder at upstream side of bridge at same datum. Sept. 11, 1952, to June 29, 1953, nonrecording gage, and June 30, 1953, to Oct. 7, 1954, water-stage recorder at site 360 ft downstream at same datum.

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 sewage effluent into the river upstream from station. The city of Johnson City diverts varying amounts of water from the pool at gage and discharges sewage 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 of 15.6 mi<sup>2</sup> in the Williamson Creek drainage basin. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 25	0630	5,460	12.45	May 31	0030	7,570	12.98
Dec. 9	1430	9,360	13.36	June 1	0130	7,660	13.00
Dec. 28	1400	5,980	12.58	June 29	0200	21,700	15.37
May 30	0130	83,400	21.38	June 29	1500	6,390	12.73

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	51	96	257	115	126	152	121	2670	446	51	19
2	45	34	106	224	115	126	145	108	745	297	47	14
3	41	31	106	213	107	122	145	106	466	243	45	9.2
4	33	33	115	224	110	115	149	106	361	269	45	7.4
5	27	613	115	202	115	122	253	106	294	239	45	6.7
6	25	338	115	173	115	126	282	110	252	231	45	6.7
7	25	180	115	174	115	86	237	100	224	224	40	6.4
8	31	116	115	169	115	92	184	338	219	209	40	3.2
9	35	76	3530	163	115	92	148	319	212	186	40	2.0
10	29	66	937	158	115	87	135	163	186	150	40	1.8
11	20	70	294	152	112	88	116	112	313	146	38	4.9
12	16	70	202	158	106	92	117	75	420	135	35	6.7
13	14	74	182	169	114	1180	116	72	262	118	35	6.7
14	14	74	159	217	115	881	120	64	195	102	35	6.7
15	19	278	152	177	115	314	112	62	177	103	35	6.7
16	21	395	152	155	115	238	102	52	179	90	33	6.7
17	23	246	145	152	111	206	100	103	180	76	31	7.3
18	35	174	152	139	105	187	111	106	190	72	31	7.7
19	82	159	152	132	97	174	132	106	201	67	31	21
20	94	152	152	132	88	171	158	98	110	64	31	128
21	85	139	132	132	88	167	155	94	133	64	27	636
22	34	132	126	130	88	167	152	88	127	64	27	765
23	18	126	115	129	88	167	122	83	125	64	28	285
24	16	126	115	132	113	167	120	112	129	57	27	138
25	1410	132	96	132	161	164	132	118	129	57	27	93
26	230	132	106	132	135	159	132	114	126	57	27	95
27	108	126	96	132	132	159	132	127	126	57	27	96
28	76	115	2700	125	130	158	132	109	125	55	26	90
29	55	106	1650	115	---	152	132	299	5400	51	24	88
30	38	96	562	115	---	152	132	26300	978	51	24	88
31	47	---	349	115	---	152	---	3610	---	51	98	---
TOTAL	2791	4460	13139	4929	3150	6389	4355	33481	15254	4095	1135	2652.8
MEAN	90.0	149	424	159	112	206	145	1080	508	132	36.6	88.4
MAX	1410	613	3530	257	161	1180	282	26300	5400	446	98	765
MIN	14	31	96	115	88	86	100	52	110	51	24	1.8
AC-FT	5540	8850	26060	9780	6250	12670	8640	66410	30260	8120	2250	5260

## COLORADO RIVER BASIN

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

MEAN	229	87.8	180	129	208	163	230	342	306	99.6	115	208
MAX	2041	600	3161	1177	2794	1289	2368	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

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1939 - 1995

ANNUAL TOTAL	66600.4	95830.8	192	
ANNUAL MEAN	182	263	840	1992
HIGHEST ANNUAL MEAN			4.12	1956
LOWEST ANNUAL MEAN			129000	Sep 11 1952
HIGHEST DAILY MEAN	10500 May 13	26300 May 30	.00	Aug 8 1951
LOWEST DAILY MEAN	3.2 Aug 8	1.8 Sep 10	.00	Aug 8 1951
ANNUAL SEVEN-DAY MINIMUM	4.1 Aug 2	4.5 Sep 5	441000	Sep 11 1952
INSTANTANEOUS PEAK FLOW		83400 May 30	42.50	Sep 11 1952
INSTANTANEOUS PEAK STAGE			139100	
ANNUAL RUNOFF (AC-FT)	132100	190100	275	
10 PERCENT EXCEEDS	196	265	50	
50 PERCENT EXCEEDS	88	115	4.8	
90 PERCENT EXCEEDS	21	27		

## 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<sup>2</sup>.

PERIOD OF RECORD.--April 1976 to July 1978 (operated as a flood-hydrograph partial-record station only), July 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).

REMARKS.--No estimated daily discharge. Records good. No known regulation or diversions above this station. Rain gage at station. Radio telemeter at station.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 07	2400	13,400	12.31	May 30	1600	845	5.18
May 08	0215	803	5.13	June 29	0145	879	5.22
May 29	0415	2,270	6.43	Aug. 1	2000	313	4.29
May 30	0415	1,070	5.42				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	17	5.7	22	6.6	13	8.7	5.1	104	20	29	.12
2	1.8	16	6.1	19	6.6	12	6.6	4.0	69	17	20	.12
3	1.6	15	6.1	19	6.6	12	6.6	4.0	56	16	6.9	.12
4	1.4	13	6.0	17	6.5	12	20	4.2	48	14	4.5	.12
5	1.4	41	5.6	16	6.2	12	34	4.0	40	13	3.7	.12
6	1.4	21	5.6	16	5.7	11	25	3.2	36	13	3.5	.12
7	794	18	5.7	15	5.6	14	17	2.8	32	12	2.9	12
8	777	17	5.6	13	5.3	12	14	142	28	11	2.3	15
9	42	16	5.1	12	5.1	11	12	29	24	9.1	1.9	3.3
10	27	14	5.1	12	5.1	11	12	23	22	7.0	1.7	1.9
11	21	13	5.1	12	5.1	10	11	20	73	6.9	1.4	1.4
12	18	12	4.3	24	5.1	9.4	8.6	19	31	6.8	1.2	1.1
13	15	11	4.1	21	5.1	95	7.5	18	24	6.4	1.1	.78
14	13	11	4.7	15	5.1	32	6.2	15	21	5.5	1.0	.75
15	20	11	27	14	5.1	32	6.1	13	20	4.3	.94	.78
16	21	11	32	13	4.3	30	6.0	12	18	3.9	.64	.74
17	23	11	21	12	4.0	25	6.1	11	16	3.2	.63	.70
18	49	11	17	11	4.0	22	20	30	13	3.1	.63	.47
19	39	11	15	11	4.0	21	17	18	12	2.6	.56	.46
20	27	10	13	9.6	4.1	20	22	15	10	2.0	.44	13
21	23	8.3	12	8.9	4.3	19	12	13	8.9	1.9	.35	15
22	22	8.4	11	8.5	4.3	16	16	11	6.9	1.9	.25	11
23	17	8.2	11	6.8	4.3	16	29	11	5.4	1.8	.26	5.3
24	15	8.1	11	6.6	17	15	14	11	4.3	1.4	.25	4.6
25	57	7.6	8.7	6.6	25	13	11	11	5.8	1.4	.29	3.9
26	30	8.2	8.0	6.6	26	21	11	11	8.4	1.1	.23	3.2
27	30	8.0	8.1	7.1	18	17	8.7	17	9.7	1.0	.18	2.4
28	28	7.6	60	7.6	17	13	7.6	13	11	.85	.18	2.3
29	22	6.7	34	7.6	---	12	7.3	344	105	.76	.19	2.2
30	20	5.9	26	6.4	---	11	5.8	473	25	2.2	.13	1.9
31	19	---	23	6.3	---	11	---	119	---	11	.12	---
TOTAL	2178.4	377.0	412.6	382.6	221.1	580.4	388.8	1426.3	887.4	202.11	87.37	104.90
MEAN	70.3	12.6	13.3	12.3	7.90	18.7	13.0	46.0	29.6	6.52	2.82	3.50
MAX	794	41	60	24	26	95	34	473	105	20	29	15
MIN	1.4	5.9	4.1	6.3	4.0	9.4	5.8	2.8	4.3	.76	.12	.12
AC-FT	4320	748	818	759	439	1150	771	2830	1760	401	173	208
CFSM	3.15	.56	.60	.55	.35	.84	.58	2.06	1.33	.29	.13	.16
IN.	3.63	.63	.69	.64	.37	.97	.65	2.38	1.48	.34	.15	.17

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	MEAN	13.5	9.45	17.1	12.6	18.9	15.8	9.49	28.8	28.3	3.80	3.02	3.38
MAX	70.3	43.2	130	55.9	114	64.7	21.6	58.9	141	16.7	26.3	15.3	
(WY)	1995	1988	1992	1992	1992	1992	1993	1992	1987	1987	1991	1987	
MIN	.27	.60	.64	1.08	2.67	3.95	1.28	.33	.64	.043	.16	.053	
(WY)	1979	1989	1990	1990	1984	1984	1984	1984	1984	1994	1984	1984	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1978 - 1995

ANNUAL TOTAL	4511.51	7248.98	
ANNUAL MEAN	12.4	19.9	13.7
HIGHEST ANNUAL MEAN			40.6
LOWEST ANNUAL MEAN			1.86
HIGHEST DAILY MEAN	794	794	1170
LOWEST DAILY MEAN	.00	.12	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.12	.00
INSTANTANEOUS PEAK FLOW		13400	13700
INSTANTANEOUS PEAK STAGE		12.31	12.31
ANNUAL RUNOFF (AC-FT)	8950	14380	9900
ANNUAL RUNOFF (CFSM)	.55	.89	.61
ANNUAL RUNOFF (INCHES)	7.53	12.09	8.33
10 PERCENT EXCEEDS	19	28	24
50 PERCENT EXCEEDS	4.2	11	4.1
90 PERCENT EXCEEDS	.11	1.1	.34



## COLORADO RIVER BASIN

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1978 to current year. Pesticide analyses: June 1978 to September 1986, January 1993 to current year. Radiochemical analyses: January to April 1980. Samples collected during storm events are collected by automatic sampler.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
OCT													
07...	2042	135	109	7.5	21.0	22	68	--	--	47	4.3	46000	
07...	2142	3650	156	7.7	21.0	90	730	--	--	240	7.1	58000	
07...	2242	6010	160	7.7	21.0	110	560	--	--	180	6.2	94000	
07...	2312	8390	155	7.6	21.0	100	630	--	--	310	2.8	100000	
08...	0100	5040	179	7.7	21.0	110	520	--	--	130	4.3	K16000	
08...	0525	708	350	8.1	21.0	55	38	--	--	31	1.9	9200	
DEC													
06...	1335	5.6	656	8.4	19.5	8	0.40	9.1	101	<10	0.2	80	
MAY													
29...	0323	135	237	7.8	--	23	39	--	--	36	4.8	32000	
29...	0353	723	408	8.1	--	37	51	--	--	50	3.5	8800	
29...	0423	1660	409	8.1	--	42	40	--	--	33	2.7	K4000	
29...	1252	117	389	8.0	24.0	35	16	--	--	15	1.3	8000	
29...	1720	79	446	8.1	24.5	24	8.8	--	--	13	1.6	E2800	
JUN													
06...	1000	36	641	8.0	24.0	4	0.20	8.5	104	<10	0.6	100	
DATE	TIME	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT													
07...	33000	--	--	--	--	--	--	--	--	44	--	--	--
07...	48000	--	--	--	--	--	--	--	--	53	--	--	--
07...	42000	--	--	--	--	--	--	--	--	53	--	--	--
07...	62000	--	--	--	--	--	--	--	--	60	--	--	--
08...	29000	--	--	--	--	--	--	--	--	51	--	--	--
08...	10000	--	--	--	--	--	--	--	--	120	--	--	--
DEC													
06...	160	300	67	86	21	25	0.6	1.5	240	52	44	0.20	
MAY													
29...	43000	--	--	--	--	--	--	--	--	82	--	--	--
29...	28000	--	--	--	--	--	--	--	--	160	--	--	--
29...	21000	--	--	--	--	--	--	--	--	170	--	--	--
29...	18000	--	--	--	--	--	--	--	--	170	--	--	--
29...	E6000	--	--	--	--	--	--	--	--	190	--	--	--
JUN													
06...	190	310	44	89	20	20	0.5	1.4	260	37	26	0.20	
DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)
OCT													
07...	--	--	--	290	92	198	0.250	--	<0.010	0.250	0.250	0.060	1.2
07...	--	--	--	2290	440	1850	0.570	0.570	0.020	0.590	0.590	0.060	1.7
07...	--	--	--	1780	300	1480	0.610	0.610	0.020	0.630	0.630	0.060	2.1
07...	--	--	--	1950	364	1590	0.600	0.600	0.020	0.620	0.620	0.070	4.9
08...	--	--	--	1360	280	1080	0.710	0.710	0.020	0.730	0.730	0.070	1.8
08...	--	--	--	105	37	68	1.08	1.08	0.020	1.10	1.10	0.030	2.0
DEC													
06...	9.2	382	1	10	0	--	--	--	<0.010	--	<0.050	<0.015	--
MAY													
29...	--	--	--	180	28	152	0.210	0.210	0.010	0.220	0.220	0.080	1.6
29...	--	--	--	210	22	188	0.540	0.540	0.010	0.550	0.550	0.020	1.8
29...	--	--	--	142	14	128	0.560	0.560	0.010	0.570	0.570	0.030	1.4
29...	--	--	--	32	9	23	0.500	--	<0.010	0.500	0.500	0.020	0.80
29...	--	--	--	14	8	6	0.580	--	<0.010	0.580	0.580	0.030	0.88
JUN													
06...	11	366	1	2	0	0.590	--	--	<0.010	0.590	0.590	0.020	0.79

COLORADO RIVER BASIN

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08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC DIS- SOLVED (UG/L AS AS)
OCT												
07...	0.84	0.24	0.30	0.90	0.200	0.090	0.100	0.31	13	--	--	--
07...	1.0	0.34	0.40	1.1	0.140	0.060	0.050	0.15	72	--	--	--
07...	1.4	0.54	0.60	1.5	0.240	0.070	0.080	0.25	46	--	--	--
07...	4.2	0.43	0.50	4.3	0.610	0.070	0.070	0.21	120	--	--	--
08...	1.0	0.53	0.60	1.1	0.160	0.080	0.070	0.21	34	--	--	--
08...	0.87	0.47	0.50	0.90	0.100	0.050	0.060	0.18	13	--	--	--
DEC												
06...	--	--	--	<0.20	<0.010	<0.010	<0.010	--	2.2	--	--	1
MAY												
29...	1.3	--	--	1.4	0.170	0.020	0.030	0.09	10	--	--	--
29...	1.3	--	--	1.3	0.170	0.020	0.020	0.06	13	--	--	--
29...	0.77	--	--	0.80	0.090	0.010	0.020	0.06	12	--	--	--
29...	0.28	--	--	0.30	0.030	<0.010	0.010	0.03	6.6	--	--	--
29...	0.27	--	--	0.30	0.020	<0.010	<0.010	--	6.3	--	--	--
JUN												
06...	0.18	--	--	0.20	<0.010	<0.010	<0.010	--	2.6	0.300	<0.100	<1
DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT												
07...	--	--	<1	--	--	--	--	--	31	--	--	--
07...	--	--	<1	--	--	--	--	--	58	--	--	--
07...	--	--	1	--	--	--	--	--	63	--	--	--
07...	--	--	1	--	--	--	--	--	57	--	--	--
08...	--	--	<1	--	--	--	--	--	21	--	--	--
08...	--	--	<1	--	--	--	--	--	4	--	--	--
DEC												
06...	55	<0.5	<1	<1.0	<5	<3	<10	5	<1	<10	<4	1
MAY												
29...	--	--	<1	--	--	--	--	--	8	--	--	--
29...	--	--	<1	--	--	--	--	--	5	--	--	--
29...	--	--	<1	--	--	--	--	--	5	--	--	--
29...	--	--	<1	--	--	--	--	--	<1	--	--	--
29...	--	--	<1	--	--	--	--	--	<1	--	--	--
JUN												
06...	60	<0.5	<1	1.0	<5	<3	<10	8	<1	<10	8	1
DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	BENZENE TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)
OCT												
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
06...	<0.1	<10	<10	<1	<1.0	1300	<6	<3	--	--	--	--
MAY												
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
06...	<0.1	<10	<10	<1	<1.0	1100	<6	3	<3.0	<3.0	<3.0	<3.0

## COLORADO RIVER BASIN

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE-CHLO-RIDE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)
OCT												
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
06...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
06...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
DATE	TOLUENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	ETHANE, 1,1,2,2-TETRA-CHLORO-WAT UNF REC (UG/L)	BENZENE O-CHLORO-WATER UNFLTRD REC (UG/L)	
OCT												
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
DEC												
06...	--	--	--	--	--	--	--	--	--	--	--	
MAY												
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
JUN												
06...	<3.0	<3.0	<3.0	<3.0	<1.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
DATE	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L)	1,2-TRANS DI-CHLORO-ETHENE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL (UG/L)	
OCT												
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
DEC												
06...	--	--	--	--	--	--	--	--	--	--	--	
MAY												
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	--	
JUN												
06...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<0.1	<0.10	<0.010	<0.10	

## COLORADO RIVER BASIN

91

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010	<0.010
DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
DATE	PROME- TONE TOTAL (UG/L)	PROME- TRYNE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA- ZINE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	<0.01	<0.01	<0.01



## COLORADO RIVER BASIN

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<sup>2</sup>, of which 11,403 mi<sup>2</sup> probably is noncontributing.

## WATER QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to August 1990.  
Chemical and Biochemical analyses: October 1990 to current year.

## 301739097471601 - LAKE AUSTIN SITE AR

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)
MAY							
29...	1007	1.00	539	7.8	22.5	8.1	95
29...	1009	10.0	570	7.7	19.0	7.9	86
29...	1011	20.0	571	7.7	18.5	7.8	85
29...	1013	25.0	571	7.6	18.5	7.7	83
30...	1115	1.00	505	8.2	22.5	8.2	96
30...	1117	10.0	510	8.2	22.0	8.0	93
30...	1119	20.0	576	8.0	18.5	8.3	90
30...	1121	26.0	578	8.0	18.5	8.2	89

## 301739097471201 - LAKE AUSTIN SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR-ENCY (SECCHI DISK) (M)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)
MAY									
29...	1056	1.00	544	7.8	22.5	0.61	7.5	8.2	96
29...	1058	10.0	571	7.7	18.5	--	--	8.0	87
29...	1100	20.0	572	7.7	18.5	--	--	7.9	86
29...	1102	30.0	572	7.7	18.5	--	--	7.8	85
29...	1104	40.0	571	7.7	18.5	--	--	7.7	83
29...	1106	48.0	573	7.6	18.5	--	3.3	7.6	82
30...	1125	1.00	508	8.2	22.5	0.61	5.8	8.3	97
30...	1127	10.0	510	8.2	22.0	--	--	8.0	93
30...	1129	20.0	576	8.0	18.5	--	--	8.3	90
30...	1131	30.0	581	8.0	18.5	--	--	8.3	90
30...	1133	40.0	585	8.0	18.0	--	--	8.2	88
30...	1135	48.0	585	8.0	18.0	--	3.3	8.2	88

DATE	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	ALKALINITY, WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAY									
29...	<10	940	900	150	305	3	0.140	<0.010	0.140
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	150	325	4	0.140	<0.010	0.140
30...	11	K1400	1400	140	282	4	0.280	<0.010	0.280
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	150	323	<1	0.150	<0.010	0.150

## COLORADO RIVER BASIN

93

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 - LAKE AUSTIN SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY									
29...	0.140	0.020	<0.20	<0.010	<0.010	<0.010	18	1	<1
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	0.140	0.040	<0.20	<0.010	<0.010	<0.010	3.7	2	<1
30...	0.280	0.030	<0.20	<0.010	<0.010	<0.010	4.0	2	<1
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	0.150	0.040	<0.20	<0.010	<0.010	<0.010	2.8	2	<1

301739097470901 - LAKE AUSTIN SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY							
29...	1035	1.00	538	7.8	23.0	8.1	96
29...	1037	10.0	572	7.7	18.5	8.0	87
29...	1039	23.0	571	7.7	18.5	7.9	86
30...	1152	1.00	478	8.1	22.5	8.1	95
30...	1154	10.0	530	8.1	20.5	8.3	93
30...	1156	23.0	581	8.0	18.5	8.5	92

302043097472401 - LAKE AUSTIN SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY									
29...	1130	1.00	478	7.8	22.5	0.21	32	7.8	91
29...	1132	10.0	488	7.7	20.5	--	--	8.0	90
29...	1134	20.0	557	7.7	18.5	--	--	8.2	89
29...	1136	28.0	568	7.7	18.0	--	5.3	8.2	88
30...	1222	1.00	530	8.1	22.0	0.70	7.7	8.5	99
30...	1224	10.0	498	8.1	21.5	--	--	8.4	96
30...	1226	20.0	569	8.0	19.0	--	--	8.6	94
30...	1228	28.0	568	8.0	19.0	--	3.0	8.6	94

DATE	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY									
29...	13	2700	6200	130	272	37	0.170	<0.010	0.170
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	150	324	4	0.150	<0.010	0.150
30...	10	800	400	140	295	4	0.170	<0.010	0.170
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	150	313	3	0.140	<0.010	0.140

## COLORADO RIVER BASIN

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

302043097472401 - LAKE AUSTIN SITE BC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY									
29...	0.170	0.030	<0.20	0.060	<0.010	<0.010	5.6	1	<1
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	0.150	0.040	<0.20	<0.010	<0.010	<0.010	4.3	2	<1
30...	0.170	0.040	<0.20	<0.010	<0.010	<0.010	3.4	1	<1
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	0.140	0.030	<0.20	<0.010	<0.010	<0.010	2.9	2	<1

302044097472301 - LAKE AUSTIN SITE BL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY							
29...	1121	1.00	532	7.8	23.0	7.8	92
29...	1123	10.0	454	7.7	21.0	7.8	89
29...	1125	17.0	555	7.7	18.5	8.1	88
30...	1208	1.00	495	8.1	22.0	8.2	95
30...	1210	10.0	497	8.1	21.5	8.2	94
30...	1212	18.0	537	8.1	20.0	8.6	96

301926097502201 - LAKE AUSTIN SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY									
29...	1210	1.00	543	7.8	19.5	0.94	4.3	8.6	95
29...	1212	10.0	565	7.8	18.0	--	--	8.4	90
29...	1214	22.0	566	7.8	18.0	--	2.1	8.4	90
30...	1300	1.00	540	8.0	18.5	0.61	6.5	8.3	90
30...	1302	10.0	541	8.0	18.5	--	--	8.2	88
30...	1304	22.0	540	8.0	18.5	--	21	8.1	87

DATE	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY									
29...	10	K350	340	150	303	<1	0.140	<0.010	0.140
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	150	321	<1	0.140	<0.010	0.140
30...	<10	640	680	140	300	5	0.150	<0.010	0.150
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	140	300	44	0.150	<0.010	0.150

COLORADO RIVER BASIN

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08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 - LAKE AUSTIN SITE CC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY									
29...	0.140	0.020	<0.20	<0.010	<0.010	<0.010	9.1	1	<1
29...	--	--	--	--	--	--	--	--	--
29...	0.140	0.030	<0.20	<0.010	<0.010	<0.010	6.4	2	<1
30...	0.150	0.040	<0.20	<0.010	<0.010	<0.010	3.4	1	<1
30...	--	--	--	--	--	--	--	--	--
30...	0.150	0.030	<0.20	<0.010	<0.010	<0.010	5.4	2	<1

302021097540001 - LAKE AUSTIN SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY									
29...	1236	1.00	519	7.8	19.0	0.46	12	7.9	86
29...	1238	10.0	545	7.7	17.0	--	--	7.4	78
29...	1240	16.0	547	7.7	17.0	--	5.9	7.4	78
30...	1326	1.00	572	7.9	14.5	0.46	13	7.3	72
30...	1328	10.0	573	7.9	14.5	--	--	7.3	72
30...	1330	17.0	571	7.9	15.0	--	13	7.3	73

DATE	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAY									
29...	11	K660	K840	140	302	7	0.150	<0.010	0.150
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	140	310	4	0.150	<0.010	0.150
30...	13	270	610	150	319	19	0.220	<0.010	0.220
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	150	318	18	0.200	<0.010	0.200

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)
MAY									
29...	0.150	0.030	<0.20	<0.010	<0.010	<0.010	7.0	1	<1
29...	--	--	--	--	--	--	--	--	--
29...	0.150	0.030	<0.20	<0.010	<0.010	<0.010	4.1	1	<1
30...	0.220	0.030	<0.20	<0.010	<0.010	<0.010	3.8	1	<1
30...	--	--	--	--	--	--	--	--	--
30...	0.200	0.030	<0.20	<0.010	<0.010	<0.010	3.6	1	<1

## 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<sup>2</sup>.

PERIOD OF RECORD.--August 1975 to February 1978 (operated as a flood-hydrograph partial-record station only), February 1978 to September 1982, January 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 737.04 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair above 15 ft<sup>3</sup>/s and poor below. No known regulation or diversions above station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0745	1890	7.73	June 1	0515	5330	12.07

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	44	22	90	23	20	32	25	1450	43	18	.22
2	.33	43	22	82	22	19	31	23	318	37	20	.22
3	.32	40	22	79	21	20	30	22	252	35	17	.18
4	.30	39	21	72	19	21	40	22	211	32	24	.15
5	.30	99	21	66	19	22	135	21	177	29	20	.13
6	.31	79	21	67	18	22	92	19	153	29	15	.11
7	14	60	21	61	18	24	62	19	135	31	10	.10
8	269	56	21	57	17	28	55	107	120	29	7.2	.16
9	64	53	22	55	17	25	53	53	102	25	5.2	.14
10	33	50	26	53	17	24	52	33	90	23	3.7	.13
11	24	49	27	52	17	25	50	27	179	21	2.9	.15
12	19	46	25	51	16	25	45	26	117	19	2.4	.15
13	17	46	24	57	16	119	42	26	93	17	2.5	.14
14	15	44	24	49	16	71	41	25	84	16	2.5	.18
15	19	42	39	45	17	56	39	22	73	15	1.8	.16
16	21	43	137	43	16	57	39	21	66	14	1.4	.14
17	20	43	90	42	15	55	39	20	59	14	1.4	.11
18	34	41	78	41	14	52	51	19	53	13	1.3	.10
19	41	40	75	38	14	49	49	17	48	13	.80	.09
20	37	38	72	36	13	49	54	15	42	11	.62	.18
21	35	36	64	36	13	46	48	14	35	11	.55	.26
22	32	34	62	34	13	46	40	13	30	11	.55	.28
23	29	32	59	32	13	44	41	13	27	13	.55	.25
24	28	31	59	31	15	42	37	13	30	12	.54	.21
25	173	30	56	30	31	42	34	14	41	9.9	.39	.17
26	97	29	56	31	35	39	32	13	37	9.7	.31	.16
27	66	29	56	32	28	36	31	14	35	7.4	.26	.16
28	61	26	244	29	22	35	29	14	33	6.2	.26	.15
29	55	25	192	26	---	35	28	139	84	4.7	.24	.14
30	51	24	124	25	---	35	26	962	64	4.6	.22	.13
31	48	---	105	24	---	34	---	364	---	11	.19	---
TOTAL	1303.89	1291	1887	1466	515	1217	1377	2135	4238	566.5	161.78	4.85
MEAN	42.1	43.0	60.9	47.3	18.4	39.3	45.9	68.9	141	18.3	5.22	.16
MAX	269	99	244	90	35	119	135	962	1450	43	24	.28
MIN	.30	24	21	24	13	19	26	13	27	4.6	.19	.09
AC-FT	2590	2560	3740	2910	1020	2410	2730	4230	8410	1120	321	9.6
CFSM	.47	.48	.68	.53	.21	.44	.51	.77	1.57	.20	.06	.00
IN.	.54	.54	.78	.61	.21	.50	.57	.89	1.76	.23	.07	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	15.4	9.89	66.3	51.7	74.5	66.2	45.1	80.2	94.9	10.2	3.66	2.95						
MAX	57.6	43.0	520	293	465	338	196	226	613	46.8	15.2	24.2						
(WY)	1982	1995	1992	1992	1992	1992	1979	1992	1981	1981	1991	1991						
MIN	.000	.059	.039	.046	.072	.17	1.07	.15	2.19	.000	.086	.004						
(WY)	1991	1990	1990	1990	1990	1978	1978	1978	1994	1978	1990	1990						

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1978 - 1995

ANNUAL TOTAL	5112.86	16163.02	47.8
ANNUAL MEAN	14.0	44.3	182
HIGHEST ANNUAL MEAN			1.94
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	269	Oct 8	4960
LOWEST DAILY MEAN	.00	Jul 23	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 23	.00
INSTANTANEOUS PEAK FLOW			14900
INSTANTANEOUS PEAK STAGE			18.10
ANNUAL RUNOFF (AC-FT)	10140	32060	34600
ANNUAL RUNOFF (CFSM)	.16	.49	.53
ANNUAL RUNOFF (INCHES)	2.12	6.70	7.24
10 PERCENT EXCEEDS	43	78	88
50 PERCENT EXCEEDS	1.8	28	5.8
90 PERCENT EXCEEDS	.20	.30	.05



## COLORADO RIVER BASIN

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08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1978 to September 1982, February 1989 to current year.  
 Pesticide analyses: April 1978 to September 1982, January 1993 to current year. Radiochemical analyses:  
 October 1979 to September 1980. Samples collected during storm events are collected by automatic sampler.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
07...	2228	75	177	7.8	21.0	48	170	--	--	53	6.4	34000
07...	2328	296	127	7.6	21.0	56	200	--	--	68	4.3	24000
08...	0028	558	123	7.7	21.0	70	220	--	--	40	4.7	25000
08...	0128	613	129	7.7	21.0	96	430	--	--	76	5.2	18000
08...	0228	427	129	7.7	21.0	90	490	--	--	140	7.1	43000
08...	0258	349	153	7.7	21.0	110	190	--	--	59	3.3	52000
25...	0530	94	463	8.0	22.5	8	19	--	--	31	4.5	K1200
25...	0837	291	468	8.0	23.0	5	34	--	--	<10	0.9	K2800
25...	0957	246	432	8.0	22.5	10	44	--	--	33	1.4	20000
25...	1210	335	335	7.9	21.0	23	110	--	--	40	4.9	40000
25...	1504	246	311	7.8	20.5	40	72	--	--	23	2.3	20000
26...	0530	112	406	8.1	18.5	20	31	--	--	<10	0.9	K6400
DEC												
06...	1038	21	530	7.4	19.0	3	0.40	8.3	92	<10	0.2	32
16...	0100	103	503	7.8	--	8	5.9	--	--	22	3.8	K400
16...	0200	159	485	--	--	--	--	--	--	--	--	--
16...	0300	173	493	7.9	--	5	8.5	--	--	14	1.7	110000
16...	0500	164	471	7.9	--	15	20	--	--	14	2.3	44000
16...	0922	143	514	7.8	15.0	10	5.5	--	--	<10	0.6	14000
17...	0845	92	524	7.9	14.0	10	2.2	10.2	--	<10	0.1	920
28...	0838	110	521	7.9	10.0	9	1.3	--	--	<10	0.1	K400
28...	1106	195	495	7.9	11.0	15	18	--	--	11	0.4	K4000
28...	1326	253	493	7.9	11.0	10	24	--	--	17	0.8	18000
28...	1712	529	501	7.9	10.0	13	72	--	--	28	1.2	K4000
29...	0725	209	449	7.9	11.0	20	20	--	--	34	1.0	2300
29...	1505	166	485	7.9	14.0	18	11	--	--	11	0.6	720
APR												
11...	0958	50	--	--	--	3	0.40	--	--	<10	--	--
MAY												
29...	0518	88	428	7.7	--	13	47	--	--	47	4.8	K1700
29...	0618	423	232	7.6	--	120	390	--	--	140	4.8	K33000
29...	0718	251	--	--	--	--	--	--	--	--	--	--
29...	0818	154	282	7.7	--	55	120	--	--	37	3.3	E14000
29...	0918	115	313	7.8	--	53	67	--	--	34	2.2	E8400
29...	1000	92	340	8.0	24.0	42	35	--	--	17	1.1	5700
JUN												
07...	1237	136	559	7.8	24.5	4	0.30	8.4	105	<10	0.5	59
AUG												
14...	0905	2.5	461	7.6	27.5	6	0.20	6.0	78	<10	0.5	K270

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	STREP- TOCOCCL FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT												
07...	110000	--	--	--	--	--	--	--	64	--	--	--
07...	80000	--	--	--	--	--	--	--	44	--	--	--
08...	46000	--	--	--	--	--	--	--	48	--	--	--
08...	37000	--	--	--	--	--	--	--	48	--	--	--
08...	23000	--	--	--	--	--	--	--	42	--	--	--
08...	51000	--	--	--	--	--	--	--	65	--	--	--
25...	8000	--	--	--	--	--	--	--	200	--	--	--
25...	K5200	--	--	--	--	--	--	--	230	--	--	--
25...	14000	--	--	--	--	--	--	--	200	--	--	--
25...	38000	160	25	46	10	6.1	0.2	2.1	130	19	12	0.10
25...	41000	--	--	--	--	--	--	--	140	--	--	--
26...	K2800	--	--	--	--	--	--	--	180	--	--	--
DEC												
06...	52	270	56	76	19	12	0.3	1.0	210	33	23	0.20
16...	K2000	--	--	--	--	--	--	--	200	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	88000	--	--	--	--	--	--	--	200	--	--	--
16...	40000	--	--	--	--	--	--	--	190	--	--	--
16...	9200	250	50	70	17	12	0.3	1.2	200	38	24	0.20
17...	720	--	--	--	--	--	--	--	210	--	--	--
28...	K1000	--	--	--	--	--	--	--	210	--	--	--
28...	K5000	--	--	--	--	--	--	--	210	--	--	--
28...	11000	--	--	--	--	--	--	--	200	--	--	--
28...	K5600	--	--	--	--	--	--	--	190	--	--	--
29...	5000	--	--	--	--	--	--	--	180	--	--	--
29...	2000	--	--	--	--	--	--	--	200	--	--	--
APR												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
29...	1800	--	--	--	--	--	--	--	170	--	--	--
29...	30000	--	--	--	--	--	--	--	82	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	E15000	--	--	--	--	--	--	--	120	--	--	--
29...	E9600	--	--	--	--	--	--	--	130	--	--	--
29...	8200	--	--	--	--	--	--	--	150	--	--	--
JUN												
07...	45	270	29	78	19	11	0.3	1.1	240	26	17	0.30
AUG												
14...	1300	--	--	--	--	--	--	--	180	--	--	--
DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
OCT												
07...	--	--	348	52	296	0.340	0.340	0.020	0.360	0.360	0.020	1.4
07...	--	--	412	56	356	0.160	0.160	0.020	0.180	0.180	0.030	1.6
08...	--	--	400	56	344	0.140	0.140	0.020	0.160	0.160	0.020	0.76
08...	--	--	764	120	644	0.150	0.150	0.020	0.170	0.170	0.040	1.1
08...	--	--	1300	168	1130	0.190	0.190	0.020	0.210	0.210	0.060	2.2
08...	--	--	374	62	312	0.190	0.190	0.020	0.210	0.210	0.040	1.4
25...	--	--	182	124	58	--	--	<0.010	--	<0.050	<0.015	0.50
25...	--	--	52	14	38	0.050	--	<0.010	0.050	0.050	<0.015	0.85
25...	--	--	77	16	61	0.090	--	<0.010	0.090	0.090	<0.015	0.49
25...	6.8	181	210	38	172	0.120	--	<0.010	0.120	0.120	<0.015	0.92
25...	--	--	122	20	102	0.140	--	<0.010	0.140	0.140	<0.015	0.84
26...	--	--	43	10	33	0.100	--	<0.010	0.100	0.100	<0.015	0.40
DEC												
06...	8.5	300	4	11	0	0.060	--	<0.010	0.060	0.060	<0.015	--
16...	--	--	118	95	23	--	--	<0.010	--	<0.050	<0.015	1.0
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	50	46	4	--	--	<0.010	--	<0.050	<0.015	--
16...	--	--	41	26	15	--	--	<0.010	--	<0.050	<0.015	0.50
16...	7.4	287	4	14	0	--	--	<0.010	--	<0.050	<0.015	--
17...	--	--	<1	11	--	--	--	<0.010	--	<0.050	<0.015	--
28...	--	--	3	4	0	0.070	--	<0.010	0.070	0.070	<0.015	--
28...	--	--	34	10	24	0.060	0.060	0.010	0.070	0.070	<0.015	--
28...	--	--	40	13	27	0.110	0.110	0.010	0.120	0.120	<0.015	0.32
28...	--	--	180	28	152	0.180	0.180	0.010	0.190	0.190	<0.015	0.99
29...	--	--	27	8	19	0.130	--	<0.010	0.130	0.130	<0.015	0.43
29...	--	--	12	6	6	0.200	0.200	0.010	0.210	0.210	<0.015	--
APR												
11...	--	--	<1	1	--	0.070	--	<0.010	0.070	0.070	<0.015	--
MAY												
29...	--	--	140	20	120	0.060	--	<0.010	0.060	0.060	0.030	0.36
29...	--	--	898	120	778	0.150	0.150	0.020	0.170	0.170	0.030	2.9
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	278	43	235	0.090	--	<0.010	0.090	0.090	0.030	1.8
29...	--	--	149	29	120	0.070	--	<0.010	0.070	0.070	0.020	0.67
29...	--	--	53	11	42	0.060	--	<0.010	0.060	0.060	0.020	--
JUN												
07...	9.8	309	1	3	0	0.150	--	<0.010	0.150	0.150	0.020	0.35
AUG												
14...	--	--	<1	<1	--	--	--	<0.010	--	<0.050	<0.015	--

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LITUM, DIS- SOLVED (UG/L AS BE)
OCT												
07...	0.98	1.0	0.130	0.030	0.030	0.09	15	--	--	--	--	--
07...	1.4	1.4	0.140	0.020	0.030	0.09	16	--	--	--	--	--
08...	0.58	0.60	0.060	<0.010	0.020	0.06	16	--	--	--	--	--
08...	0.86	0.90	0.110	0.030	0.030	0.09	24	--	--	--	--	--
08...	1.9	2.0	0.270	0.030	0.030	0.09	48	--	--	--	--	--
08...	1.2	1.2	0.150	0.030	0.040	0.12	19	--	--	--	--	--
25...	0.50	0.50	0.030	<0.010	<0.010	--	6.3	--	--	--	--	--
25...	0.80	0.80	0.100	<0.010	<0.010	--	4.0	--	--	--	--	--
25...	0.40	0.40	0.030	<0.010	<0.010	--	5.1	--	--	--	--	--
25...	0.80	0.80	0.100	<0.010	<0.010	--	10	--	--	<1	19	<0.5
25...	0.70	0.70	0.050	<0.010	<0.010	--	8.8	--	--	--	--	--
26...	0.30	0.30	0.040	<0.010	<0.010	--	5.0	--	--	--	--	--
DEC												
06...	--	<0.20	<0.010	<0.010	<0.010	--	1.8	--	--	1	33	<0.5
16...	1.0	1.0	0.060	<0.010	<0.010	--	4.9	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	<0.20	0.030	<0.010	<0.010	--	2.1	--	--	--	--	--
16...	0.50	0.50	0.040	<0.010	<0.010	--	3.2	--	--	--	--	--
16...	--	<0.20	<0.010	<0.010	<0.010	--	1.5	--	--	<1	25	<0.5
17...	--	<0.20	<0.010	<0.010	<0.010	--	2.7	--	--	--	--	--
28...	--	<0.20	<0.010	0.010	<0.010	--	2.5	--	--	--	--	--
28...	--	<0.20	<0.010	<0.010	<0.010	--	5.7	--	--	--	--	--
28...	0.20	0.20	0.020	0.030	0.020	0.06	3.3	--	--	--	--	--
28...	0.80	0.80	0.050	0.010	<0.010	--	9.2	--	--	--	--	--
29...	0.30	0.30	0.020	<0.010	<0.010	--	4.7	--	--	--	--	--
29...	--	<0.20	<0.010	<0.010	0.010	0.03	4.8	--	--	--	--	--
APR												
11...	--	<0.20	<0.010	<0.010	<0.010	--	8.2	0.100	<0.100	--	--	--
MAY												
29...	0.27	0.30	0.030	<0.010	<0.010	--	11	--	--	--	--	--
29...	2.7	2.7	0.350	0.030	0.030	0.09	37	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	1.7	1.7	0.120	<0.010	<0.010	--	13	--	--	--	--	--
29...	0.58	0.60	0.020	<0.010	<0.010	--	9.3	--	--	--	--	--
29...	--	<0.20	<0.010	<0.010	<0.010	--	6.9	--	--	--	--	--
JUN												
07...	0.18	0.20	<0.010	<0.010	<0.010	--	1.8	<0.100	<0.100	<1	30	<0.5
AUG												
14...	--	<0.20	<0.010	<0.010	<0.010	--	5.7	--	--	--	--	--
DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)
OCT												
07...	<1	--	--	--	--	--	44	--	--	--	--	--
07...	1	--	--	--	--	--	14	--	--	--	--	--
08...	<1	--	--	--	--	--	6	--	--	--	--	--
08...	<1	--	--	--	--	--	15	--	--	--	--	--
08...	<1	--	--	--	--	--	26	--	--	--	--	--
08...	<1	--	--	--	--	--	6	--	--	--	--	--
25...	<1	--	--	--	--	--	2	--	--	--	--	--
25...	<1	--	--	--	--	--	<1	--	--	--	--	--
25...	<1	--	--	--	--	--	2	--	--	--	--	--
25...	<1	<1.0	<5	<3	<10	26	3	<10	<4	2	<0.1	<10
25...	<1	--	--	--	--	--	2	--	--	--	--	--
26...	<1	--	--	--	--	--	<1	--	--	--	--	--
DEC												
06...	<1	<1.0	5	<3	10	4	<1	<10	<4	3	<0.1	10
16...	<1	--	--	--	--	--	2	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	<1	--	--	--	--	--	2	--	--	--	--	--
16...	<1	--	--	--	--	--	2	--	--	--	--	--
16...	<1	2.0	<5	<3	<10	4	<1	20	<4	1	<0.1	10
17...	<1	--	--	--	--	--	<1	--	--	--	--	--
28...	<1	--	--	--	--	--	<1	--	--	--	--	--
28...	<1	--	--	--	--	--	<1	--	--	--	--	--
28...	<1	--	--	--	--	--	<1	--	--	--	--	--
28...	<1	--	--	--	--	--	2	--	--	--	--	--
29...	<1	--	--	--	--	--	<1	--	--	--	--	--
29...	<1	--	--	--	--	--	<1	--	--	--	--	--
APR												
11...	<1	--	--	--	--	--	<1	--	--	--	--	--
MAY												
29...	--	--	--	--	--	--	6	--	--	--	--	--
29...	--	--	--	--	--	--	18	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	6	--	--	--	--	--
29...	--	--	--	--	--	--	5	--	--	--	--	--
29...	--	--	--	--	--	--	1	--	--	--	--	--
JUN												
07...	--	<1.0	<5	<3	<10	<3	<1	<10	<4	3	<0.1	<10
AUG												
14...	<1	--	--	--	--	--	<1	--	--	--	--	--

08155200 BARTON CREEK AT STATE HIGHWAY 71 NEAR OAK HILL, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible][illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]



WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## COLORADO RIVER BASIN

08155220 BARTON CREEK AT BARTON CREEK BOULEVARD, AUSTIN, TX

## WATER-QUALITY RECORDS

LOCATION.--Lat 30°16'26", long 97°50'40", Travis County, Hydrologic Unit 12090205, 0.9 mi west of intersection of Ranch Road 2244 and Barton Creek Boulevard, and 7.0 mi northwest of State Capitol Building Austin.

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

PERIOD OF RECORDS.--Chemical and biochemical analyses: April 1990 to September 1991, July 1993 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)
DEC 06...	0900	16	535	8.5	19.0	8	0.30	8.1	90
DATE		OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECA, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECA, KF AGAR (COLS. PER 100 ML)	ALKALINITY, WAT DIS FIX END FIELD CAC03 (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLATILE, SUS-PENDED (MG/L)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)
DEC 06...		<10	0.1	K15	33	210	2	8	0
DATE		NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
DEC 06...		<0.050	<0.015	<0.20	0.010	<0.010	<0.010	2.1	<1

## 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<sup>2</sup>.

PERIOD OF RECORD.--January 1979 to September 1980 (periodic gage heights and discharge measurements only). December 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 600 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharge. Records fair. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929 was probably the highest since that date (discharge 39,400 ft<sup>3</sup>/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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	1500	1,530	5.24	June 1	0845	4,770	7.99
May 30	1115	2,000	5.72				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	40	16	138	27	26	44	33	1910	46	4.4	.56
2	.17	38	16	127	27	25	42	31	708	39	5.6	.56
3	.18	37	16	126	26	26	41	30	515	36	7.6	.56
4	.20	34	15	117	25	27	48	30	416	31	6.0	.53
5	.21	74	14	107	23	28	126	31	347	29	6.2	.53
6	.21	88	14	107	23	28	163	32	285	28	5.3	.49
7	51	54	14	97	23	30	95	34	236	28	4.3	.53
8	476	47	13	85	22	34	79	214	196	30	3.6	.50
9	72	41	14	79	22	34	71	132	163	24	3.0	.44
10	31	36	17	74	21	31	68	67	149	21	2.5	.46
11	22	34	16	70	21	31	65	49	281	20	2.0	.46
12	18	33	16	73	20	31	57	45	199	17	1.8	.45
13	15	32	15	76	20	114	52	45	152	15	1.8	.47
14	14	32	15	69	21	109	51	44	140	14	2.0	.47
15	19	31	34	60	21	69	49	40	127	13	1.6	.42
16	21	32	109	56	20	72	48	38	117	12	1.5	.39
17	22	31	91	55	19	68	48	37	108	11	1.3	.37
18	53	30	66	52	18	63	53	35	99	11	1.2	.37
19	61	30	58	50	17	62	61	33	87	10	1.0	.37
20	42	28	54	47	17	61	67	31	77	9.1	.87	.64
21	38	26	52	45	17	58	61	29	67	7.9	.80	.57
22	31	25	50	44	16	56	51	27	59	6.9	.71	.51
23	25	23	48	42	16	54	49	26	52	5.9	.66	.58
24	21	22	47	40	16	52	46	27	49	5.5	.68	.68
25	214	22	44	40	26	52	43	28	46	4.9	.68	.68
26	145	21	44	41	42	51	41	26	42	4.2	.68	.66
27	79	20	44	40	36	49	39	27	39	3.7	.65	.63
28	65	18	210	38	30	46	38	29	37	3.2	.62	.64
29	55	17	392	35	---	45	37	303	62	2.6	.61	.62
30	49	17	193	31	---	44	35	1340	83	2.4	.59	.60
31	44	---	156	27	---	44	---	920	---	3.2	.56	---
TOTAL	1684.15	1013	1903	2088	632	1520	1768	3813	6848	494.5	70.81	15.74
MEAN	54.3	33.8	61.4	67.4	22.6	49.0	58.9	123	228	16.0	2.28	.52
MAX	476	88	392	138	42	114	163	1340	1910	46	7.6	.68
MIN	.17	17	13	27	16	25	35	26	37	2.4	.56	.37
AC-FT	3340	2010	3770	4140	1250	3010	3510	7560	13580	981	140	31
CFSM	.51	.32	.57	.63	.21	.46	.55	1.15	2.13	.15	.02	.00
IN.	.59	.35	.66	.73	.22	.53	.61	1.33	2.38	.17	.02	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1995, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993	1994	1995
MEAN	11.0	9.21	121	82.5	128	82.8	51.8
MAX	54.3	33.7	627	307	581	381	108
(WY)	1995	1995	1992	1992	1992	1992	1992
MIN	.10	.23	.22	.40	.97	6.50	4.60
(WY)	1994	1990	1990	1990	1989	1994	1994

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1989 - 1995

ANNUAL TOTAL	5361.13	21850.20	
ANNUAL MEAN	14.7	59.9	
HIGHEST ANNUAL MEAN			62.2
LOWEST ANNUAL MEAN			2.22
HIGHEST DAILY MEAN	476	1910	7000
LOWEST DAILY MEAN	.09	.17	.00
ANNUAL SEVEN-DAY MINIMUM	.10	.41	.00
INSTANTANEOUS PEAK FLOW		4840	16400
INSTANTANEOUS PEAK STAGE		8.04	12.90
ANNUAL RUNOFF (AC-FT)	10630	43340	45040
ANNUAL RUNOFF (CFSM)	.14	.56	.58
ANNUAL RUNOFF (INCHES)	1.86	7.60	7.89
10 PERCENT EXCEEDS	38	109	125
50 PERCENT EXCEEDS	3.4	31	7.1
90 PERCENT EXCEEDS	.23	.64	.26

## COLORADO RIVER BASIN

08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1988 to current year. Pesticide analyses: January 1993 to current year. Samples collected during storm events are collected by automatic sampler.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)		
OCT													
07...	2238	105	368	7.9	21.0	28	57	--	--	61	26000		
07...	2338	1190	238	7.8	21.0	54	230	--	--	140	27000		
08...	0038	1260	217	7.7	21.0	96	370	--	--	96	43000		
08...	0125	895	216	7.8	21.0	90	300	--	--	74	21000		
08...	0138	815	191	7.7	21.0	110	280	--	--	81	30000		
08...	0334	423	242	7.8	21.0	56	170	--	--	54	23000		
25...	0315	105	486	8.0	--	10	22	--	--	18	3000		
25...	0515	125	460	8.0	--	18	24	--	--	15	K5600		
25...	0935	119	503	8.0	17.5	15	29	--	--	15	K5600		
25...	1315	115	522	8.0	18.0	18	13	--	--	11	56000		
25...	1740	455	471	8.0	18.5	12	32	--	--	11	K6000		
26...	0610	161	427	8.0	18.5	20	23	--	--	14	K9300		
DEC													
06...	0953	12	571	7.6	19.0	5	0.60	7.9	87	10	51		
28...	0916	112	547	7.9	10.0	5	2.4	--	--	<10	K500		
28...	1210	164	531	7.9	10.0	8	5.4	--	--	<10	K1000		
28...	1434	189	540	7.9	11.0	13	7.6	--	--	10	K1200		
28...	2030	670	501	7.9	11.0	20	40	--	--	29	K4000		
29...	0810	442	482	8.0	11.0	15	33	--	--	16	2200		
29...	1537	309	480	7.9	14.0	18	18	--	--	21	1000		
APR													
11...	1048	70	538	8.2	18.0	3	0.40	8.8	95	<10	K9		
MAY													
29...	0400	115	397	8.0	--	18	19	--	--	28	5200		
29...	0500	315	330	7.9	--	40	52	--	--	34	4700		
29...	0600	468	--	--	--	--	--	--	--	--	--		
29...	1025	569	342	7.8	--	45	45	--	--	26	16000		
29...	1645	244	401	8.0	--	25	12	--	--	13	3800		
29...	2310	265	387	8.0	24.0	25	20	--	--	<10	3600		
JUN													
07...	1135	239	568	7.8	25.5	5	1.3	7.9	100	<10	80		
AUG													
14...	1013	2.2	505	7.6	28.0	7	0.50	5.8	76	<10	420		
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT													
07...	27000	--	--	--	--	--	--	--	--	100	--	--	--
07...	26000	--	--	--	--	--	--	--	--	84	--	--	--
08...	19000	--	--	--	--	--	--	--	--	120	--	--	--
08...	26000	--	--	--	--	--	--	--	--	68	--	--	--
08...	14000	--	--	--	--	--	--	--	--	69	--	--	--
08...	34000	--	--	--	--	--	--	--	--	81	--	--	--
25...	4100	--	--	--	--	--	--	--	--	230	--	--	--
25...	K6000	--	--	--	--	--	--	--	--	170	--	--	--
25...	K4800	--	--	--	--	--	--	--	--	200	--	--	--
25...	24000	--	--	--	--	--	--	--	--	230	--	--	--
25...	K4400	230	3	67	15	9.0	0.3	1.7	230	25	16	0.20	--
26...	7100	--	--	--	--	--	--	--	--	200	--	--	--
DEC													
06...	80	270	58	78	19	16	0.4	1.2	220	41	33	0.20	--
28...	K400	--	--	--	--	--	--	--	--	210	--	--	--
28...	3800	--	--	--	--	--	--	--	--	200	--	--	--
28...	33000	--	--	--	--	--	--	--	--	200	--	--	--
28...	K5600	240	39	70	16	11	0.3	1.3	200	31	21	0.40	--
29...	4600	--	--	--	--	--	--	--	--	190	--	--	--
29...	5700	--	--	--	--	--	--	--	--	190	--	--	--
APR													
11...	59	--	--	--	--	--	--	--	--	210	--	--	--
MAY													
29...	12000	--	--	--	--	--	--	--	--	140	--	--	--
29...	10000	--	--	--	--	--	--	--	--	120	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	3500	--	--	--	--	--	--	--	--	140	--	--	--
29...	2500	--	--	--	--	--	--	--	--	160	--	--	--
29...	6000	--	--	--	--	--	--	--	--	160	--	--	--
JUN													
07...	K68	280	35	80	19	12	0.3	1.2	240	28	18	0.30	--
AUG													
14...	480	--	--	--	--	--	--	--	--	180	--	--	--



## COLORADO RIVER BASIN

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08155240 BARTON CREEK AT LOST CREEK BOULEVARD, AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
OCT												
07...	--	--	194	66	128	0.160	0.160	0.010	0.170	0.170	0.020	2.5
07...	--	--	796	124	672	0.410	0.410	0.010	0.420	0.420	0.040	4.8
08...	--	--	716	112	604	0.380	0.380	0.020	0.400	0.400	0.040	2.3
08...	--	--	548	88	460	0.480	0.480	0.020	0.500	0.500	0.040	2.0
08...	--	--	620	100	520	0.430	0.430	0.020	0.450	0.450	0.030	3.3
08...	--	--	272	72	200	0.490	0.490	0.020	0.510	0.510	0.030	1.5
25...	--	--	71	20	51	0.150	--	<0.010	0.150	0.150	0.020	0.65
25...	--	--	47	15	32	0.240	--	<0.010	0.240	0.240	<0.015	0.74
25...	--	--	41	8	33	0.280	--	<0.010	0.280	0.280	<0.015	0.68
25...	--	--	24	10	14	0.280	--	<0.010	0.280	0.280	<0.015	0.68
25...	8.0	278	66	13	53	0.140	--	<0.010	0.140	0.140	<0.015	0.54
26...	--	--	33	12	21	0.210	--	<0.010	0.210	0.210	<0.015	0.61
DEC												
06...	8.7	327	2	12	0	0.150	--	<0.010	0.150	0.150	<0.015	--
28...	--	--	5	12	0	0.130	0.130	0.010	0.140	0.140	<0.015	--
28...	--	--	7	7	0	0.170	0.170	0.020	0.190	0.190	0.020	0.39
28...	--	--	16	12	4	0.200	0.200	0.020	0.220	0.220	<0.015	0.42
28...	7.4	280	79	13	66	0.090	0.090	0.010	0.100	0.100	<0.015	0.70
29...	--	--	50	11	39	0.170	--	<0.010	0.170	0.170	<0.015	0.47
29...	--	--	28	9	19	0.160	--	<0.010	0.160	0.160	<0.015	0.46
APR												
11...	--	--	<1	3	--	0.060	--	<0.010	0.060	0.060	<0.015	--
MAY												
29...	--	--	60	22	38	0.160	0.160	0.010	0.170	0.170	0.060	0.67
29...	--	--	138	21	117	0.220	0.220	0.010	0.230	0.230	0.060	1.1
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	89	15	74	0.200	0.200	0.010	0.210	0.210	0.040	0.71
29...	--	--	19	5	14	0.150	--	<0.010	0.150	0.150	0.020	0.35
29...	--	--	34	7	27	0.110	--	<0.010	0.110	0.110	0.030	0.31
JUN												
07...	10	315	6	9	0	0.140	--	<0.010	0.140	0.140	0.020	--
AUG												
14...	--	--	<1	1	--	0.080	--	<0.010	0.080	0.080	<0.015	--
DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)
OCT												
07...	2.3	2.3	0.690	0.330	0.350	1.1	17	--	--	--	--	--
07...	4.4	4.4	0.680	0.110	0.120	0.37	42	--	--	--	--	--
08...	1.9	1.9	0.360	0.120	0.130	0.40	29	--	--	--	--	--
08...	1.5	1.5	0.240	0.060	0.060	0.18	24	--	--	--	--	--
08...	2.8	2.8	0.410	0.070	0.080	0.25	26	--	--	--	--	--
08...	0.97	1.0	0.140	0.060	0.040	0.12	16	--	--	--	--	--
25...	0.48	0.50	0.060	0.020	<0.010	--	6.8	--	--	--	--	--
25...	0.50	0.50	0.080	0.040	0.020	0.06	4.8	--	--	--	--	--
25...	0.40	0.40	0.040	0.030	0.010	0.03	5.3	--	--	--	--	--
25...	0.40	0.40	0.050	0.040	0.010	0.03	4.9	--	--	--	--	--
25...	0.40	0.40	0.050	0.020	<0.010	--	5.5	--	--	<1	25	<0.5
26...	0.40	0.40	0.030	0.030	<0.010	--	5.5	--	--	--	--	--
DEC												
06...	--	<0.20	<0.010	<0.010	<0.010	--	1.6	--	--	1	28	<0.5
28...	--	<0.20	0.020	0.030	0.010	0.03	2.3	--	--	--	--	--
28...	0.18	0.20	0.030	0.020	0.030	0.09	2.5	--	--	--	--	--
28...	0.20	0.20	0.030	0.060	0.030	0.09	3.0	--	--	--	--	--
28...	0.60	0.60	0.040	0.010	<0.010	--	7.2	--	--	<1	22	<0.5
29...	0.30	0.30	0.020	<0.010	<0.010	--	5.1	--	--	--	--	--
29...	0.30	0.30	0.020	<0.010	<0.010	--	4.3	--	--	--	--	--
APR												
11...	--	<0.20	<0.010	<0.010	<0.010	--	2.4	0.200	<0.100	--	--	--
MAY												
29...	0.44	0.50	0.090	0.070	0.070	0.21	6.9	--	--	--	--	--
29...	0.84	0.90	0.140	0.060	0.070	0.21	9.2	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	0.46	0.50	0.050	0.020	<0.010	--	8.9	--	--	--	--	--
29...	0.18	0.20	0.010	0.010	<0.010	--	4.2	--	--	--	--	--
29...	0.17	0.20	<0.010	<0.010	<0.010	--	4.9	--	--	--	--	--
JUN												
07...	--	<0.20	0.010	<0.010	<0.010	--	1.9	<0.100	<0.100	<1	30	<0.5
AUG												
14...	--	<0.20	<0.010	<0.010	<0.010	--	6.1	--	--	--	--	--



WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

	DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)
OCT												
	07...	--	--	--	--	--	--	--	--	--	--	--
	07...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	26...	--	--	--	--	--	--	--	--	--	--	--
DEC												
	06...	--	--	--	--	--	--	--	--	--	--	--
	28...	--	--	--	--	--	--	--	--	--	--	--
	28...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
	28...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
APR												
	11...	--	--	--	--	--	--	--	--	--	--	--
MAY												
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	<0.01	<0.020	<0.020	<0.020	<0.01	<0.02	<0.01	<0.02	<0.01	<0.2	<0.01
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
JUN												
	07...	--	--	--	--	--	--	--	--	--	--	--
AUG												
	14...	--	--	--	--	--	--	--	--	--	--	--
	DATE	PROME- TONE TOTAL (UG/L)	PROME- TRYNE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA- ZINE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT												
	07...	--	--	--	--	--	--	--	--	--	--	--
	07...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	08...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	25...	--	--	--	--	--	--	--	--	--	--	--
	26...	--	--	--	--	--	--	--	--	--	--	--
DEC												
	06...	--	--	--	--	--	--	--	--	--	--	--
	28...	--	--	--	--	--	--	--	--	--	--	--
	28...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	<0.01	<0.01	<0.01
	28...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
APR												
	11...	--	--	--	--	--	--	--	--	--	--	--
MAY												
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	<0.20	<0.10	<0.10	<0.01	0.10	<0.10	<2	<0.01	<0.01	<0.01	<0.01
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
	29...	--	--	--	--	--	--	--	--	--	--	--
JUN												
	07...	--	--	--	--	--	--	--	--	--	--	--
AUG												
	14...	--	--	--	--	--	--	--	--	--	--	--



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<sup>2</sup>.

PERIOD OF RECORD.--June 1975 to January 1977 (operated as a flood-hydrograph partial-record station only), February 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).

REMARKS.--Records poor. There are no known regulations or diversions. Gage height and rain gage telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date (discharge 39,400 ft<sup>3</sup>/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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	0030	4,800	8.43	June 1	0115	3,200	7.53
Oct. 8	0615	1,110	5.87	June 1	0945	7,520	9.96
May 30	1330	3,430	7.67				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	13	.00	93	12	11	26	23	2980	e25	.48	.00
2	.00	11	.00	81	11	10	25	21	766	e18	.00	.00
3	.00	10	.00	74	9.8	10	23	19	489	e15	.00	.00
4	.00	10	.00	67	7.7	10	31	18	372	e13	.00	.00
5	.00	36	.00	62	7.5	11	73	16	303	e11	.00	.00
6	.00	43	.00	59	7.7	11	134	13	244	e12	.00	.00
7	60	19	.00	52	7.7	14	63	12	186	e14	.00	.46
8	790	16	.00	47	7.8	14	51	170	158	e16	.00	.00
9	66	13	.00	42	8.4	18	47	102	131	e14	.00	.00
10	16	11	.00	40	7.7	15	43	52	111	e9.0	.00	.00
11	3.6	10	.00	37	7.7	15	43	40	248	e6.4	.00	.00
12	.00	7.7	.00	40	8.1	14	40	36	172	e4.0	.00	.00
13	.00	6.5	.00	41	9.0	80	38	36	112	.00	.00	.00
14	.00	5.1	.00	38	9.0	87	35	33	94	.00	.00	.00
15	.00	6.4	23	33	9.0	47	34	29	78	.00	.00	.00
16	.00	7.4	59	29	9.2	48	33	25	75	.00	.00	.00
17	.00	5.5	48	29	9.1	44	33	23	73	.00	.00	.00
18	15	5.0	34	27	7.6	40	34	21	64	.00	.00	.00
19	46	5.0	30	25	1.1	37	41	18	58	.00	.00	.00
20	19	4.9	28	23	.00	35	53	15	52	.00	.00	.00
21	12	2.2	28	21	.00	35	43	11	47	.00	.00	.00
22	10	.11	25	20	.00	37	36	9.9	42	.00	.00	.00
23	1.8	.00	24	19	.00	36	33	8.0	37	.00	.00	.00
24	.00	.00	23	18	.00	34	33	7.0	33	.00	.00	.00
25	130	.00	22	17	4.0	34	30	7.0	31	.00	.00	.00
26	107	.00	21	16	23	33	28	7.0	30	.00	.00	.00
27	47	.00	20	16	19	31	25	7.0	27	.00	.00	.00
28	38	.00	157	15	13	29	24	7.0	25	.00	.00	.00
29	29	.00	292	13	---	29	25	364	37	.00	.00	.00
30	22	.00	141	13	---	29	26	2030	68	1.3	.00	.00
31	17	---	112	12	---	28	---	1080	---	.16	.00	---
TOTAL	1429.40	247.81	1087.00	1119	216.10	926	1203	4259.9	7143	158.86	0.48	0.46
MEAN	46.1	8.26	35.1	36.1	7.72	29.9	40.1	137	238	5.12	.015	.015
MAX	790	43	292	93	23	87	134	2030	2980	25	.48	.46
MIN	.00	.00	.00	12	.00	10	23	7.0	25	.00	.00	.00
AC-FT	2840	492	2160	2220	429	1840	2390	8450	14170	315	1.0	.9
CFSM	.40	.07	.30	.31	.07	.26	.35	1.18	2.05	.04	.00	.00
IN.	.46	.08	.35	.36	.07	.30	.39	1.37	2.29	.05	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1995, BY WATER YEAR (WY)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	19.3	9.48	85.5	43.4	69.5	54.6	46.8	86.2	154	7.94	.91	.62							
MAX	134	77.3	865	281	609	342	319	321	1142	73.1	13.9	7.57							
(WY)	1985	1986	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							

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1977 - 1995

ANNUAL TOTAL	2812.01	17791.01	
ANNUAL MEAN	7.70	48.7	
HIGHEST ANNUAL MEAN			47.6
LOWEST ANNUAL MEAN			229
HIGHEST DAILY MEAN	790	Oct 8	.000
LOWEST DAILY MEAN	.00	Jan 1	10800
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			.00
ANNUAL RUNOFF (AC-FT)	5580	35290	18100
ANNUAL RUNOFF (CFSM)	.066	.42	15.03
ANNUAL RUNOFF (INCHES)	.90	5.71	34510
10 PERCENT EXCEEDS	14	70	.41
50 PERCENT EXCEEDS	.00	13	5.58
90 PERCENT EXCEEDS	.00	.00	.96

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT-INUM- COBALT UNITS)	TUR-BID- ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-I- CAL (HIGH LEVEL)	OXYGEN DEMAND, BIO-CHEM- ICAL, 5 DAY (MG/L)
OCT											
07...	2335	2470	82	7.6	20.0	140	490	--	--	88	3.4
08...	0050	4880	--	7.8	20.0	90	200	--	--	99	4.3
08...	0150	2680	--	7.7	20.0	70	220	--	--	82	4.8
08...	0320	1340	196	7.8	20.0	110	150	--	--	67	3.5
08...	0500	742	--	7.8	20.0	90	230	--	--	60	3.2
08...	1025	443	--	7.9	20.0	48	110	--	--	41	2.9
25...	0730	126	367	8.1	21.5	24	22	--	--	15	1.6
25...	1115	111	513	8.2	22.0	14	3.8	--	--	11	0
25...	1436	61	470	8.0	22.0	13	4.7	--	--	<10	0.4
25...	1808	215	498	8.5	21.5	20	23	--	--	20	0.1
26...	0502	109	495	8.2	19.5	11	8.5	--	--	<10	0
26...	1143	74	449	8.1	19.0	18	20	--	--	12	0.3
DEC											
28...	0718	47	450	7.9	10.0	8	8.0	--	--	31	0.7
28...	0925	96	406	7.9	10.5	13	26	--	--	18	1.2
28...	1100	152	355	7.9	10.5	30	31	--	--	37	1.3
28...	2204	500	526	8.0	11.0	11	38	--	--	17	1.0
29...	0851	318	503	8.0	11.0	13	38	--	--	14	0.8
29...	1602	221	480	8.0	14.0	15	21	--	--	42	0.7
APR											
11...	1143	46	520	8.3	18.5	9	0.30	9.4	102	<10	0.1
MAY											
29...	0748	690	238	7.9	22.0	55	38	--	--	25	2.3
29...	1102	410	300	8.0	--	38	21	--	--	19	1.6
29...	1625	285	362	8.0	--	27	20	--	--	14	1.5
29...	2245	291	395	8.0	23.5	20	12	--	--	<10	1.1
JUN											
07...	0923	188	522	8.0	26.0	5	0.40	8.1	103	<10	0.7
	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT											
07...	21000	25000	--	--	--	--	--	--	--	33	--
08...	16000	18000	--	--	--	--	--	--	--	58	--
08...	12000	26000	--	--	--	--	--	--	--	57	--
08...	20000	16000	--	--	--	--	--	--	--	62	--
08...	44000	28000	--	--	--	--	--	--	--	65	--
08...	12000	12000	--	--	--	--	--	--	--	92	--
25...	19000	41000	--	--	--	--	--	--	--	130	--
25...	K5200	8400	--	--	--	--	--	--	--	180	--
25...	K4000	K6000	--	--	--	--	--	--	--	200	--
25...	K7200	K4400	220	55	64	15	14	0.4	2.2	170	35
26...	4100	2600	--	--	--	--	--	--	--	200	--
26...	9200	5500	--	--	--	--	--	--	--	150	--
DEC											
28...	K900	2500	--	--	--	--	--	--	--	170	--
28...	2800	11000	--	--	--	--	--	--	--	150	--
28...	K1200	10000	--	--	--	--	--	--	--	130	--
28...	K2400	26000	--	--	--	--	--	--	--	200	--
29...	2800	4100	--	--	--	--	--	--	--	200	--
29...	K1800	3600	--	--	--	--	--	--	--	200	--
APR											
11...	K12	88	--	--	--	--	--	--	--	200	--
MAY											
29...	12000	30000	--	--	--	--	--	--	--	95	--
29...	5100	18000	--	--	--	--	--	--	--	120	--
29...	K29000	15000	--	--	--	--	--	--	--	150	--
29...	3700	2200	--	--	--	--	--	--	--	160	--
JUN											
07...	80	190	--	--	--	--	--	--	--	230	--

## COLORADO RIVER BASIN

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS STO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT											
07...	--	--	--	--	2150	196	1950	0.430	0.430	0.020	0.450
08...	--	--	--	--	672	108	564	0.500	0.500	0.020	0.520
08...	--	--	--	--	534	78	456	0.580	0.580	0.020	0.600
08...	--	--	--	--	420	42	378	0.580	0.580	0.020	0.600
08...	--	--	--	--	338	46	292	0.610	0.610	0.020	0.630
08...	--	--	--	--	230	40	190	0.420	0.420	0.020	0.440
25...	--	--	--	--	33	9	24	0.220	--	<0.010	0.220
25...	--	--	--	--	3	2	1	0.210	--	<0.010	0.210
25...	--	--	--	--	8	1	7	0.230	--	<0.010	0.230
25...	26	0.10	7.7	266	24	12	12	0.310	--	<0.010	0.310
26...	--	--	--	--	13	10	3	0.150	--	<0.010	0.150
26...	--	--	--	--	21	12	9	0.210	--	<0.010	0.210
DEC											
28...	--	--	--	--	10	9	1	0.170	0.170	0.010	0.180
28...	--	--	--	--	37	14	23	0.220	0.220	0.010	0.230
28...	--	--	--	--	48	15	33	0.170	0.170	0.010	0.180
28...	--	--	--	--	98	20	78	0.220	0.220	0.010	0.230
29...	--	--	--	--	62	11	51	0.170	0.170	0.010	0.180
29...	--	--	--	--	29	8	21	0.180	--	<0.010	0.180
APR											
11...	--	--	--	--	<1	2	--	0.060	--	<0.010	0.060
MAY											
29...	--	--	--	--	81	12	69	0.210	0.210	0.010	0.220
29...	--	--	--	--	35	8	27	0.250	0.250	0.010	0.260
29...	--	--	--	--	26	6	20	0.180	0.180	0.010	0.190
29...	--	--	--	--	17	4	13	0.160	--	<0.010	0.160
JUN											
07...	--	--	--	--	3	9	0	0.150	--	<0.010	0.150
DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	
OCT											
07...	0.450	0.050	1.2	0.75	0.80	0.180	0.060	0.040	0.12	30	
08...	0.520	0.040	1.9	1.4	1.4	0.200	0.070	0.070	0.21	25	
08...	0.600	0.040	2.1	1.5	1.5	0.270	0.090	0.080	0.25	24	
08...	0.600	0.030	1.4	0.77	0.80	0.140	0.080	0.090	0.28	23	
08...	0.630	0.020	1.4	0.78	0.80	0.120	0.080	0.060	0.18	18	
08...	0.440	<0.015	1.2	0.80	0.80	0.090	<0.010	<0.010	--	14	
25...	0.220	<0.015	0.62	0.40	0.40	0.060	0.030	0.030	0.09	6.5	
25...	0.210	<0.015	--	--	<0.20	0.010	<0.010	<0.010	--	3.8	
25...	0.230	<0.015	0.43	0.20	0.20	<0.010	<0.010	<0.010	--	4.5	
25...	0.310	<0.015	0.71	0.40	0.40	0.030	<0.010	<0.010	--	6.0	
26...	0.150	<0.015	--	--	<0.20	<0.010	<0.010	<0.010	--	4.1	
26...	0.210	<0.015	0.51	0.30	0.30	0.010	0.020	<0.010	--	4.9	
DEC											
28...	0.180	<0.015	--	--	<0.20	0.020	<0.010	<0.010	--	3.4	
28...	0.230	<0.015	--	--	<0.20	0.020	<0.010	<0.010	--	3.6	
28...	0.180	<0.015	0.48	0.30	0.30	0.050	0.010	0.020	0.06	4.5	
28...	0.230	<0.015	0.63	0.40	0.40	0.040	<0.010	<0.010	--	5.6	
29...	0.180	<0.015	0.48	0.30	0.30	0.010	<0.010	<0.010	--	4.3	
29...	0.180	<0.015	0.48	0.30	0.30	0.010	<0.010	<0.010	--	4.3	
APR											
11...	0.060	<0.015	--	--	<0.20	<0.010	<0.010	<0.010	--	8.0	
MAY											
29...	0.220	0.030	0.62	0.37	0.40	0.060	0.030	0.030	0.09	13	
29...	0.260	0.020	0.56	0.28	0.30	0.030	0.010	0.020	0.06	16	
29...	0.190	0.030	0.49	0.27	0.30	0.020	<0.010	<0.010	--	17	
29...	0.160	0.030	0.46	0.27	0.30	<0.010	<0.010	<0.010	--	6.9	
JUN											
07...	0.150	0.020	0.45	0.28	0.30	0.030	0.020	<0.010	--	1.8	



## 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.

PERIOD OF RECORD.--November 1894 to April 1917, and October 1918 to February 1978 (discharge measurements only), May 1917 to September 1918 (published as "Barton Creek at Austin, Texas"), March 1978 to 1994 (mean daily discharge), and discharge at 1200 hours October 1994 to September 1995.

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 September 1918, nonrecording gage at site 1,000 ft downstream at different datum.

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. Due to the interaction of Barton Springs Pool, gage height is inversely related to discharge and this creates extensive problems when computing daily discharges. Determination of flow from spring is considered best when pool/well level has stabilized at 1200 hrs. Beginning 1995, daily flow will be determined using the recorded level at 1200 hrs.

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft<sup>3</sup>/s May 10, 1941; minimum measured, 9.6 ft<sup>3</sup>/s Mar. 29, 1956.

EXTREMES FOR PERIOD (1917-18).--Maximum daily spring discharge, 24 ft<sup>3</sup>/s Apr. 20, 21, 1918; minimum daily, 12 ft<sup>3</sup>/s Feb. 25, 1918.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	53	46	33	41	e42	77	85	e95	e95	84	75
2	25	52	46	35	40	e44	76	85	e100	e95	83	76
3	25	51	46	35	39	e44	76	85	e105	e95	82	75
4	25	50	46	35	38	e44	79	85	e105	e95	85	73
5	25	57	46	35	37	e46	79	85	e104	e95	85	73
6	25	57	45	35	37	e49	80	83	e104	e94	83	73
7	e25	58	45	35	35	e49	83	84	e104	e94	83	73
8	e30	57	45	35	34	e54	83	e86	e102	e94	83	74
9	e35	58	46	35	34	e59	83	e88	e102	e93	80	73
10	39	57	45	35	34	e59	83	89	e100	e93	80	73
11	35	56	42	35	34	e59	83	88	e102	e92	82	72
12	33	56	e40	37	33	e59	83	88	e102	e92	83	71
13	33	56	e40	45	33	e69	83	88	e100	e91	82	69
14	31	55	e40	45	e33	e84	83	88	e99	e91	82	70
15	33	53	e40	45	e33	e86	80	88	e98	e90	81	68
16	34	53	e40	42	e33	e84	82	88	e98	e90	80	68
17	34	53	e40	40	e33	e82	83	87	e98	e89	80	69
18	35	53	e40	40	e33	e81	84	87	e98	e88	80	70
19	39	52	e40	40	e32	e80	84	88	e98	88	80	65
20	43	52	40	44	e32	e79	86	87	e98	88	80	68
21	42	52	39	44	32	78	85	87	e97	89	79	68
22	38	50	40	43	e32	78	85	87	e97	89	78	63
23	37	49	40	42	e32	78	85	87	e97	87	78	67
24	36	48	40	41	e32	77	84	87	e97	88	78	59
25	51	48	40	41	e34	78	85	86	e96	87	78	59
26	51	47	e40	41	e36	77	85	e86	e96	87	78	65
27	54	48	39	42	e38	77	85	e86	e96	86	76	65
28	55	49	39	42	e40	77	85	e86	e96	86	77	63
29	55	48	40	41	---	77	84	e86	e96	86	75	59
30	54	48	40	41	---	77	85	e87	e96	85	73	59
31	54	---	37	41	---	77	---	e90	---	86	73	---
TOTAL	1156	1576	1292	1220	974	2104	2478	2687	2976	2798	2481	2055
MEAN	37.3	52.5	41.7	39.4	34.8	67.9	82.6	86.7	99.2	90.3	80.0	68.5
MAX	55	58	46	45	41	86	86	90	105	95	85	76
MIN	25	47	37	33	32	42	76	83	95	85	73	59
AC-FT	2290	3130	2560	2420	1930	4170	4920	5330	5900	5550	4920	4080
CAL YR 1994	TOTAL 15524											
WTR YR 1995	TOTAL 23797											
	MEAN 42.5											
	MAX 58											
	MIN 25											
	AC-FT 30790											
	TOTAL 47200											

e Estimated



08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1903, June 1941 to February 1959. Chemical and biochemical analyses: December 1978 to current year. Radiochemical analyses: January to September 1980. Organics analyses: December 1978 to November 1994.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	
OCT												
09...	1524	35	505	7.1	21.0	17	7.0	--	--	<10	0.3	
26...	1215	51	596	7.3	21.0	5	2.7	--	--	<10	0.3	
DEC												
06...	1158	45	615	6.9	21.5	3	0.60	5.7	66	<10	0.3	
17...	1052	40	534	6.7	20.5	30	7.3	6.8	--	21	0.6	
29...	1414	40	573	7.0	19.5	13	5.0	7.0	78	37	0.1	
MAR												
14...	1056	80	555	7.2	18.5	13	4.2	7.6	82	<10	0.5	
AUG												
14...	1222	84	620	7.0	21.5	5	0.30	6.8	79	<10	0.1	
SEP												
25...	1025	59	630	7.0	21.5	--	--	6.1	--	--	--	
DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCEI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)
OCT												
09...	2000	2500	--	--	--	--	--	--	--	--	210	--
26...	K360	520	290	21	87	18	12	0.3	1.7	270	31	
DEC												
06...	K13	K8	310	49	87	21	16	0.4	1.3	260	31	
17...	1200	2700	270	46	84	15	11	0.3	1.5	230	28	
29...	340	3600	280	46	85	16	12	0.3	1.5	230	32	
MAR												
14...	580	3500	270	39	81	16	12	0.3	1.3	230	30	
AUG												
14...	210	160	300	120	86	21	13	0.3	1.2	190	22	
SEP												
25...	--	--	--	--	--	--	--	--	--	--	--	--
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT												
09...	--	--	--	--	--	16	12	4	1.40	<0.010	1.40	1.40
26...	20	0.20	10	350	6	8	0	1.40	<0.010	1.40	1.40	1.40
DEC												
06...	27	0.20	11	354	1	7	0	1.10	<0.010	1.10	1.10	1.10
17...	18	0.10	11	309	10	16	0	0.880	<0.010	0.880	0.880	0.880
29...	21	0.20	9.8	322	11	7	4	0.820	<0.010	0.820	0.820	0.820
MAR												
14...	20	0.20	10	313	9	10	0	0.870	<0.010	0.870	0.870	0.870
AUG												
14...	22	0.20	12	290	<1	2	--	--	<0.010	--	--	--
SEP												
25...	--	--	--	--	--	--	--	--	1.30	<0.010	1.30	1.30
DATE		NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT												
09...	<0.015	1.6	0.20	0.20	0.050	0.030	0.030	0.09	4.3	--	--	--
26...	<0.015	--	--	<0.20	<0.010	<0.010	0.010	0.03	1.4	<1	53	53
DEC												
06...	<0.015	--	--	<0.20	<0.010	<0.010	<0.010	--	1.1	<1	52	52
17...	<0.015	2.2	1.3	0.290	0.010	<0.010	<0.010	--	2.3	<1	46	46
29...	<0.015	--	--	<0.20	<0.010	0.010	0.020	0.06	1.8	<1	40	40
MAR												
14...	<0.015	--	--	<0.20	0.010	<0.010	0.010	0.03	3.8	<1	43	43
AUG												
14...	<0.015	--	--	<0.20	0.020	<0.010	<0.010	--	11	<1	51	51
SEP												
25...	<0.015	--	--	<0.20	0.010	0.010	0.010	0.03	--	--	--	--

DATE	BERYL- LUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
------	---	---	--	---	--	--	--	---	--	--

[illegible][illegible]

## 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<sup>2</sup>.

PERIOD OF RECORD.--November 1974 to March 1975, periodic discharge measurement, periodic QW sample collection and associated peak discharges along with annual maximum. April 1975 to September 1984, operated as a flood-hydrograph partial-record site. October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 455.33 ft above sea level.

REMARKS.--Records fair. There is no known regulation or diversion. The station is equipped with an automatic water-quality sampler. One observation of water temperature was made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 7	2400	4,730	14.89	May 8	0200	2,150	9.41
Oct. 18	1515	1,330	7.07	May 29	0530	3,460	13.17
Oct. 25	0030	1,090	6.36	May 30	0445	1,520	7.60
Nov. 5	0030	1,090	6.35	June 11	0245	1,550	7.70
Jan. 12	1930	2,730	11.01	Aug. 1	1945	1,740	8.23
Mar. 13	0300	2,320	9.87	Sept. 7	2115	1,900	8.70

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	.00	.48	.00	.00	.01	.00	92	.01	107	.00
2	.00	.00	5.3	.16	.00	.00	.01	.00	14	.00	119	.00
3	.00	.00	12	.03	.00	.00	.01	.00	6.6	.00	4.5	.00
4	.00	10	.06	.01	.00	.00	.53	.00	2.9	.00	.04	.00
5	.00	99	.00	.00	.00	.00	95	.00	1.4	.00	.00	.00
6	.00	5.4	.00	.01	.00	.00	8.4	.00	.75	.00	.00	.00
7	218	1.2	.00	.00	.00	1.8	2.2	.00	.32	.00	1.5	99
8	441	.18	.00	.00	.00	.02	.71	259	.08	.00	.00	44
9	14	.01	.00	.00	.00	.00	.29	1.4	.01	.00	.00	2.4
10	1.1	.00	.00	.00	.00	.00	4.7	.03	.01	.00	.00	.04
11	.00	.00	.00	.00	.00	.00	2.4	.01	205	.00	.00	.00
12	.00	.00	.00	184	.00	1.4	.20	.00	5.2	.04	.00	.00
13	.00	.00	.00	36	.00	328	.03	.00	1.0	.00	.00	.25
14	.21	.00	17	5.2	.00	10	.01	.01	.26	.00	.00	7.1
15	57	.00	152	1.0	.00	61	.01	.00	.04	.00	.00	.25
16	25	.00	36	.02	.00	37	.01	.00	.14	.00	.00	.00
17	14	.00	4.4	.00	.00	17	.01	.00	.01	.00	.00	.00
18	120	.00	1.4	.00	.00	11	29	19	.01	.00	.00	.00
19	23	.00	.33	.00	.00	6.7	4.8	.04	.00	.00	.00	.00
20	7.3	.00	.06	.00	.00	3.7	64	.00	.00	.00	.00	69
21	2.0	.00	.01	.00	.00	1.6	1.9	.00	.00	.00	.00	34
22	.07	.00	.00	.00	.00	.44	2.3	.00	.00	.00	.00	20
23	.00	.00	.00	.00	.00	.28	3.3	.00	.00	.00	25	1.4
24	5.4	.00	.00	.00	25	.21	.23	.86	.00	.00	2.8	.08
25	169	.00	.00	.00	69	.18	.01	.05	.00	.00	.00	.01
26	12	.00	.00	.00	16	.12	.01	.00	.00	.00	.00	.00
27	22	.00	.32	.00	.51	.03	.01	12	.00	.00	.00	.00
28	14	.00	208	.00	.00	.03	.01	.37	26	.00	.00	.00
29	4.5	.00	13	.00	---	.01	.01	401	110	.00	19	.00
30	1.6	.00	3.5	.00	---	.01	.01	435	1.8	24	5.7	.00
31	.34	---	1.2	.00	---	.03	---	72	---	21	.00	---
TOTAL	1151.52	115.81	454.58	226.91	110.51	480.56	272.59	1200.77	467.53	45.05	284.54	277.53
MEAN	37.1	3.86	14.7	7.32	3.95	15.5	9.09	38.7	15.6	1.45	9.18	9.25
MAX	441	99	208	184	69	328	95	435	205	24	119	99
MIN	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
AC-FT	2280	230	902	450	219	953	541	2380	927	89	564	550
CFSM	3.02	.31	1.19	.60	.32	1.26	.74	3.15	1.27	.12	.75	.75
IN.	3.48	.35	1.37	.69	.33	1.45	.82	3.63	1.41	.14	.86	.84

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY)

	MEAN	12.5	5.99	12.6	6.09	6.53	5.91	5.62	19.2	11.7	2.34	4.53	5.67
MAX	42.6	14.9	70.8	22.6	29.2	15.5	16.0	38.7	46.1	11.9	18.4	12.5	
(WY)	1985	1986	1992	1991	1992	1995	1991	1995	1987	1987	1991	1986	
MIN	.34	.000	.45	.13	.084	.66	1.48	4.58	2.57	.000	.000	.033	
(WY)	1988	1989	1989	1988	1988	1986	1987	1988	1994	1989	1993	1993	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1985 - 1995

ANNUAL TOTAL	3198.00	5087.90	
ANNUAL MEAN	8.76	13.9	8.24
HIGHEST ANNUAL MEAN			15.7
LOWEST ANNUAL MEAN			3.26
HIGHEST DAILY MEAN	441	Oct 8	948
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			16000
INSTANTANEOUS PEAK STAGE			23.11
ANNUAL RUNOFF (AC-FT)	6340	10090	5970
ANNUAL RUNOFF (CFSM)	.71	1.13	.67
ANNUAL RUNOFF (INCHES)	9.67	15.39	9.10
10 PERCENT EXCEEDS	14	24	14
50 PERCENT EXCEEDS	.00	.00	.05
90 PERCENT EXCEEDS	.00	.00	.00

## COLORADO RIVER BASIN

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical and biochemical analyses: February 1943, January 1975 to current year. Pesticide analyses: January 1975 to September 1985, January 1993 to current year. Radiochemical analyses: April 1980. Samples collected during storm events are collected by automatic sampler.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
07...	2205	356	380	7.7	21.0	32	4000	--	--	7.5	K750000	K300000
07...	2220	1580	150	7.5	21.0	65	2000	--	--	7.6	K170000	150000
07...	2250	2460	107	--	21.0	130	900	--	--	5.9	86000	80000
07...	2305	2630	99	--	21.0	110	700	--	--	5.0	58000	48000
07...	2320	3090	97	7.4	21.0	120	700	--	--	5.2	46000	72000
08...	0155	1200	148	7.8	21.0	110	380	--	--	3.3	30000	42000
NOV												
05...	0305	145	148	7.9	--	--	--	--	--	--	64000	90000
JAN												
11...	1105	0.0	873	7.4	20.0	--	--	9.0	--	--	--	--
FEB												
27...	0519	0.96	495	7.7	19.5	9	2.3	--	12	0.4	2100	3400
MAR												
13...	0312	2020	--	M7.8	--	--	--	--	--	--	18000	110000
APR												
20...	0150	430	--	--	--	--	--	--	--	--	60000	160000
AUG												
24...	0646	2.6	405	7.5	28.0	35	4.0	--	26	2.0	24000	5500

DATE	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)
OCT												
07...	--	--	--	--	--	--	--	78	--	--	--	--
07...	--	--	--	--	--	--	--	36	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	27	--	--	--	--
08...	--	--	--	--	--	--	--	35	--	--	--	--
NOV												
05...	60	27	22	1.3	4.8	0.3	2.1	33	20	5.8	0.10	<0.010
JAN												
11...	370	--	130	11	44	1	4.5	--	110	81	0.30	0.39
FEB												
27...	200	81	73	4.8	18	0.6	2.9	120	72	29	0.20	--
MAR												
13...	47	10	17	1.0	2.1	0.1	2.5	36	13	2.7	0.10	<0.010
APR												
20...	94	35	33	2.8	8.6	0.4	3.4	59	26	12	0.10	<0.010
AUG												
24...	160	70	56	4.4	12	0.4	3.8	88	69	22	0.40	--

DATE	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)
OCT												
07...	--	--	9090	780	8310	0.660	0.660	0.060	0.720	0.720	0.200	12
07...	--	--	4680	384	4300	0.410	0.410	0.020	0.430	0.430	0.170	3.0
07...	--	--	2200	168	2030	0.400	0.400	0.020	0.420	0.420	0.110	3.5
07...	--	--	1600	144	1460	0.320	0.320	0.020	0.340	0.340	0.120	3.1
07...	--	--	1550	140	1410	0.320	0.320	0.020	0.340	0.340	0.110	2.7
08...	--	--	926	74	852	0.500	0.500	0.020	0.520	0.520	0.030	2.0
NOV												
05...	--	97	--	--	--	0.238	0.238	0.002	0.240	0.240	0.031	--
JAN												
11...	--	499	--	--	--	0.705	0.705	0.015	0.720	0.720	0.198	--
FEB												
27...	4.7	280	2	8	0	0.570	--	<0.010	0.570	0.570	<0.015	--
MAR												
13...	--	62	--	--	--	0.350	0.350	0.010	0.360	0.360	0.003	--
APR												
20...	--	124	--	--	--	0.470	0.470	0.020	0.490	0.490	0.123	--
AUG												
24...	5.2	229	4	3	1	0.600	0.600	0.020	0.620	0.620	0.020	1.1

## COLORADO RIVER BASIN

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08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)
OCT												
07...	11	11	4.50	0.030	<0.010	--	190	--	--	--	--	--
07...	2.4	2.6	1.30	0.040	0.030	0.09	53	--	--	--	--	--
07...	3.0	3.1	1.70	0.070	0.050	0.15	24	--	--	--	--	--
07...	2.7	2.8	1.40	0.070	0.070	0.21	35	--	--	--	--	--
07...	2.3	2.4	1.30	0.100	0.090	0.28	30	--	--	--	--	--
08...	1.5	1.5	0.830	0.100	0.110	0.34	14	--	--	--	--	--
NOV												
05...	--	--	--	--	0.027	0.08	--	--	--	--	--	--
JAN												
11...	--	--	--	--	0.043	0.13	--	--	--	--	--	--
FEB												
27...	--	<0.20	<0.010	<0.010	0.020	0.06	2.6	0.400	<0.100	<1	43	<0.5
MAR												
13...	--	--	--	--	0.080	0.25	--	--	--	--	--	--
APR												
20...	--	--	--	--	0.080	0.25	--	--	--	--	--	--
AUG												
24...	0.48	0.50	0.030	0.020	0.030	0.09	9.0	1.60	0.100	2	36	<0.5
DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)
OCT												
07...	--	--	--	--	--	290	--	--	--	--	--	--
07...	--	--	--	--	--	130	--	--	--	--	--	--
07...	--	--	--	--	--	69	--	--	--	--	--	--
07...	--	--	--	--	--	71	--	--	--	--	--	--
07...	--	--	--	--	--	62	--	--	--	--	--	--
08...	--	--	--	--	--	33	--	--	--	--	--	--
NOV												
05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
27...	<1.0	<5	<3	<10	7	<1	<10	15	3	0.1	<10	<10
MAR												
13...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	<1.0	<5	<3	<10	19	<1	<10	11	3	<0.1	20	<10
DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
OCT												
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
27...	<1	<1.0	290	<6	<3	--	--	--	--	--	--	--
MAR												
13...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	<1	<1.0	240	<6	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010



## COLORADO RIVER BASIN

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
NOV											
05...	--	--	--	--	--	--	--	--	--	--	--
JAN											
11...	--	--	--	--	--	--	--	--	--	--	--
FEB											
27...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	0.03	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.01	<0.01
DATE	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
NOV											
05...	--	--	--	--	--	--	--	--	--	--	--
JAN											
11...	--	--	--	--	--	--	--	--	--	--	--
FEB											
27...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	0.02	<0.01	<0.01

## 123

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<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1975 to August 1990. Chemical and Biochemical analyses: October 1990 to current year. Trace metal and Pesticide analyses of bed sediments at selected sites February 1991 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
13...	0934	1.00	516	7.6	16.5	9.1	95
13...	0936	10.0	583	7.5	16.0	9.1	94
13...	0938	20.0	606	7.4	15.0	8.3	84
13...	0940	27.0	608	7.2	15.0	7.9	80
14...	0813	1.00	481	7.8	17.0	8.8	92
14...	0815	10.0	470	7.7	16.5	8.6	89
14...	0817	20.0	598	7.7	15.0	8.2	82
14...	0819	27.0	604	7.8	15.0	7.4	74
15...	0817	1.00	444	7.6	17.0	8.2	86
15...	0819	10.0	444	7.6	17.0	8.2	86
15...	0821	20.0	587	7.6	15.5	8.3	84
15...	0823	27.0	602	7.8	15.0	6.6	66

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

DATE	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
MAR											
13...	160	287	40	0.320	0.320	0.010	0.330	0.330	--	--	0.050
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	180	340	5	0.340	0.340	0.020	0.360	0.360	--	--	0.040
14...	140	266	28	0.320	0.320	0.010	0.330	0.330	--	--	0.030
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	180	340	6	0.340	0.340	0.010	0.350	0.350	--	--	0.050
15...	130	248	23	0.340	--	<0.010	0.340	0.340	--	--	0.040
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	190	336	8	0.320	--	<0.010	0.320	0.320	--	--	0.080
JUL											
18...	--	--	--	--	--	--	--	--	48	73	--

## COLORADO RIVER BASIN

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE AC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)
MAR											
13...	0.63	0.25	0.30	0.040	0.030	0.020	0.06	4.0	3.40	0.400	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.66	0.26	0.30	<0.010	<0.010	<0.010	--	3.3	--	--	--
14...	1.0	0.67	0.70	0.070	<0.010	0.020	0.06	4.5	4.00	0.300	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	0.75	0.35	0.40	<0.010	<0.010	<0.010	--	10	--	--	--
15...	0.64	0.26	0.30	0.050	0.030	0.020	0.06	5.7	3.30	0.200	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	0.52	0.12	0.20	<0.010	<0.010	<0.010	--	4.4	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	--	5
DATE	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
MAR											
13...	--	--	3	--	--	<1	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	3	--	--	<1	--	--	--	--	--
14...	--	--	2	--	--	<1	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	2	--	--	<1	--	--	--	--	--
15...	--	--	2	--	--	<1	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	2	--	--	<1	--	--	--	--	--
JUL											
18...	2	7	--	10	2800	--	60	39	0.06	50	2300
DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	27	<1.0	<0.2	34	17	29	3.7	1.2	<0.2	<0.3	<0.1

## COLORADO RIVER BASIN

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08157900 TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	0.1	<0.1	<0.8	<0.1	<1.00	<10	89	98	100	100	100

301503097424701 - TOWN LAKE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
13...	1013	1.00	427	7.8	17.0	9.0	95
13...	1015	10.0	460	7.8	16.5	9.0	94
13...	1017	17.0	562	7.8	16.0	8.9	92
14...	0840	1.00	485	7.8	17.0	8.6	90
14...	0842	10.0	407	7.8	16.5	8.4	87
14...	0844	17.0	514	7.8	16.0	8.3	85
15...	0844	1.00	432	7.6	17.5	7.9	83
15...	0846	10.0	428	7.6	16.5	8.0	83
15...	0848	17.0	424	7.7	16.5	8.0	83

301500097440801 - TOWN LAKE BR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
13...	1028	1.00	355	7.7	16.5	8.8	92
13...	1030	10.0	353	7.7	16.5	8.8	92
13...	1032	20.0	341	7.7	16.5	8.8	92
13...	1034	26.0	341	7.8	16.5	8.8	92
14...	0850	1.00	384	7.7	17.0	8.0	84
14...	0852	10.0	420	7.7	16.0	7.9	81
14...	0854	20.0	519	7.7	16.0	7.8	80
14...	0856	27.0	520	7.7	16.0	7.8	80
15...	0855	1.00	462	7.6	16.0	7.6	78
15...	0857	10.0	462	7.6	16.0	7.6	78
15...	0859	20.0	533	7.6	16.0	7.3	75
15...	0901	27.0	546	7.6	16.0	7.4	76

## COLORADO RIVER BASIN

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301504097440901 - TOWN LAKE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
MAR											
13...	1042	1.00	337	7.7	17.0	8.8	93	--	--	--	--
13...	1044	10.0	337	7.7	16.5	8.9	93	--	--	--	--
13...	1046	20.0	335	7.7	16.0	8.8	91	--	--	--	--
13...	1048	29.0	333	7.7	16.0	8.8	91	--	--	--	--
14...	0859	1.00	404	7.7	17.0	8.2	86	--	--	--	--
14...	0901	10.0	444	7.7	16.0	8.0	82	--	--	--	--
14...	0903	20.0	507	7.7	16.0	8.1	83	--	--	--	--
14...	0905	29.0	516	7.7	16.0	8.0	82	--	--	--	--
15...	0903	1.00	465	7.6	16.0	7.6	78	--	--	--	--
15...	0905	10.0	465	7.6	16.0	7.6	78	--	--	--	--
15...	0907	20.0	504	7.6	16.0	7.5	77	--	--	--	--
15...	0909	29.0	555	7.6	16.0	7.7	79	--	--	--	--
JUL											
18...	0900	--	--	--	--	--	--	43	72	6	2

DATE	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR										
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	10	20	3400	100	27	0.09	130	1300	23	<1.0

DATE	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ODE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR										
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	<0.2	40	22	23	5.6	1.9	<0.1	<0.3	<0.1	0.2



## 08157900 TOWN LAKE AT AUSTIN, TX--Continued

301504097440901 - TOWN LAKE BC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM
MAR										
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	<0.1	<0.8	<0.1	<1.00	<10	78	84	90	96	99

301544097445201 - TOWN LAKE CR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
13...	1106	1.00	482	7.6	17.0	8.7	92
13...	1108	10.0	459	7.6	16.5	8.8	92
13...	1110	18.0	457	7.6	16.5	8.8	92
14...	0916	1.00	491	7.5	16.5	7.7	80
14...	0918	10.0	507	7.6	16.0	7.7	79
14...	0920	18.0	503	7.6	16.0	7.5	77
15...	0918	1.00	547	7.5	16.5	8.0	83
15...	0920	10.0	544	7.5	16.5	7.9	82
15...	0922	18.0	543	7.5	16.5	7.9	82

301546097445101 - TOWN LAKE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## COLORADO RIVER BASIN

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301546097445101 - TOWN LAKE CC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INOR- GANIC + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
MAR											
13...	130	228	45	0.430	0.430	0.010	0.440	0.440	--	--	0.060
13...	--	--	--	--	--	--	--	--	--	--	--
13...	140	260	33	0.370	0.370	0.010	0.380	0.380	--	--	0.060
14...	160	284	22	0.570	0.570	0.010	0.580	0.580	--	--	0.040
14...	--	--	--	--	--	--	--	--	--	--	--
14...	150	288	32	0.340	0.340	0.020	0.360	0.360	--	--	0.080
15...	180	313	7	0.410	--	<0.010	0.410	0.410	--	--	0.040
15...	--	--	--	--	--	--	--	--	--	--	--
15...	180	312	9	0.430	--	<0.010	0.430	0.430	--	--	0.070
JUL											
18...	--	--	--	--	--	--	--	--	40	91	--

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)
MAR											
13...	0.84	0.34	0.40	0.120	0.090	0.060	0.18	4.9	0.400	<0.100	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.78	0.34	0.40	0.090	0.070	0.050	0.15	5.3	--	--	--
14...	0.88	0.26	0.30	0.050	0.020	0.030	0.09	4.0	0.800	0.100	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	0.76	0.32	0.40	0.070	0.060	0.040	0.12	7.3	--	--	--
15...	0.71	0.26	0.30	<0.010	0.010	<0.010	--	4.9	0.500	<0.100	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	0.63	0.13	0.20	0.010	<0.010	0.010	0.03	5.9	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	--	8

DATE	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
MAR											
13...	--	--	2	--	--	<1	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	2	--	--	<1	--	--	--	--	--
14...	--	--	1	--	--	<1	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	1	--	--	<1	--	--	--	--	--
15...	--	--	<1	--	--	<1	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	<1	--	--	<1	--	--	--	--	--
JUL											
18...	2	8	--	10	5600	--	70	27	0.12	110	1300

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	27	<1.0	<0.1	100	26	44	9.3	5.1	<0.3	<0.5	<0.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
MAR											
13...	150	274	27	0.450	0.450	0.020	0.470	0.470	--	--	0.050
13...	--	--	--	--	--	--	--	--	--	--	--
13...	150	292	19	0.270	0.270	0.010	0.280	0.280	--	--	0.040
14...	180	300	13	0.440	--	<0.010	0.440	0.440	--	--	0.030
14...	--	--	--	--	--	--	--	--	--	--	--
14...	160	315	6	0.240	--	<0.010	0.240	0.240	--	--	0.060
15...	180	314	6	0.380	--	<0.010	0.380	0.380	--	--	0.030
15...	--	--	--	--	--	--	--	--	--	--	--
15...	170	315	2	0.300	--	<0.010	0.300	0.300	--	--	0.080
JUL											
18...	--	--	--	--	--	--	--	--	53	82	--

## COLORADO RIVER BASIN

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301558097452201 - TOWN LAKE DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)
MAR											
13...	0.87	0.35	0.40	0.080	0.060	0.040	0.12	5.6	0.400	<0.100	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.58	0.26	0.30	0.050	0.050	0.030	0.09	4.1	--	--	--
14...	0.64	0.17	0.20	0.030	<0.010	0.010	0.03	2.8	0.800	<0.100	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	0.54	0.24	0.30	0.020	0.020	0.020	0.06	4.4	--	--	--
15...	0.58	0.17	0.20	0.020	0.010	<0.010	--	3.7	0.800	<0.100	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	0.60	0.22	0.30	0.010	0.010	0.020	0.06	4.0	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	--	6
DATE	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
MAR											
13...	--	--	2	--	--	<1	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	2	--	--	<1	--	--	--	--	--
14...	--	--	1	--	--	<1	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	1	--	--	<1	--	--	--	--	--
15...	--	--	<1	--	--	<1	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	<1	--	--	<1	--	--	--	--	--
JUL											
18...	2	5	--	6	3500	--	60	32	0.04	30	1800
DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	12	<1.0	<0.1	16	6.8	13	2.3	0.8	<0.1	<0.2	<0.1
DATE	HEPTA- CHLOR EPOXIDE TOT. IN BOT- TOM MA- TERIAL (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOT- TOM MA- TERIAL (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	<0.1	<0.1	<0.8	<0.1	<1.00	<10	79	85	95	97	98

COLORADO RIVER BASIN

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08157900 TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR											
13...	1213	1.00	598	7.6	16.5	0.91	4.8	9.2	96	13	K260
13...	1215	10.0	595	7.8	14.5	--	--	9.2	92	--	--
13...	1217	17.0	593	7.7	15.0	--	2.1	9.3	94	--	--
14...	1020	1.00	590	7.7	16.0	1.80	1.6	9.3	95	<10	110
14...	1022	10.0	589	7.8	15.0	--	--	9.4	94	--	--
14...	1024	17.0	587	7.7	15.0	--	1.6	9.3	93	--	--
15...	1014	1.00	588	7.5	16.0	2.40	1.2	9.0	92	<10	38
15...	1016	10.0	582	7.8	15.5	--	--	9.4	95	--	--
15...	1018	17.0	581	7.7	15.5	--	1.5	9.4	95	--	--

DATE	TIME	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
MAR											
13...	K420	170	330	7	0.270	--	<0.010	0.270	0.270	0.020	0.47
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	160	334	7	0.140	0.140	0.010	0.150	0.150	0.030	0.45
14...	260	180	335	5	0.250	--	<0.010	0.250	0.250	0.020	0.55
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	160	331	8	0.190	--	<0.010	0.190	0.190	0.020	0.49
15...	72	180	323	3	0.240	--	<0.010	0.240	0.240	<0.015	0.54
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	160	326	4	0.150	--	<0.010	0.150	0.150	<0.015	0.45

DATE	TIME	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTH, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)
MAR											
13...		0.18	0.20	0.010	0.020	<0.010	5.3	0.800	<0.100	2	<1
13...		--	--	--	--	--	--	--	--	--	--
13...		0.27	0.30	<0.010	<0.010	<0.010	3.4	--	--	2	<1
14...		0.28	0.30	<0.010	0.020	<0.010	14	1.30	<0.100	1	<1
14...		--	--	--	--	--	--	--	--	--	--
14...		0.28	0.30	<0.010	0.010	<0.010	13	--	--	1	<1
15...		0.30	0.30	0.010	<0.010	<0.010	4.1	2.40	<0.100	<1	<1
15...		--	--	--	--	--	--	--	--	--	--
15...		0.30	0.30	<0.010	<0.010	<0.010	6.3	--	--	<1	<1

301601097454001 - TOWN LAKE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
13...	1202	3.00	499	7.3	19.0	8.4	92
14...	1010	3.00	530	7.4	18.0	9.1	97
15...	1004	3.00	549	7.3	18.0	8.5	91



## COLORADO RIVER MAIN STEM

08158000 COLORADO RIVER AT AUSTIN, TX  
(National stream-quality accounting network)

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<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--February 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.

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 June 19, 1939, all records collected at or near Congress Avenue bridge 3.9 mi upstream at datum 19.6 ft higher; prior to June 18, 1915, nonrecording gages, recording gages thereafter; June 20, 1939, to Oct. 16, 1963, at site 1,000 ft downstream from present site at datum 5.0 ft higher.

REMARKS.--Records fair. Since 1937, at least 10 percent of drainage area has been regulated by upstream reservoirs. Flow largely regulated by Lake Travis (station 08154500). The city of Austin diverts water for municipal use upstream from station and returns sewage effluent downstream. There are many other diversions above Lake Buchanan for irrigation, municipal supplies, and oil field operations. Radio telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--38 years (water years 1899-1936) prior to regulation by Lake Travis, 2,711 ft<sup>3</sup>/s (1,964,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1899-1936).--Maximum discharge, 481,000 ft<sup>3</sup>/s June 15, 1935 (gage height, 50 ft, present site and datum, from floodmark).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft July 7, 1869, present site and datum (adjusted to present site on basis of record for flood of June 15, 1935), determined from information concerning stage at former site furnished by Dean T. U. Taylor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	202	194	289	336	167	397	1060	21800	3530	1680	2110
2	1120	168	254	277	252	140	387	1050	19200	3610	1100	1220
3	991	169	214	1330	281	e326	397	1120	18700	3050	767	1230
4	799	234	231	2030	187	361	629	1230	18500	1460	1160	1240
5	610	548	231	1940	233	406	583	1250	18100	1260	1360	1260
6	834	272	210	2010	133	363	264	1190	e4520	1800	1090	1250
7	915	227	232	635	292	396	175	1230	815	1780	1240	1650
8	4820	237	215	195	191	328	194	1700	964	1790	1110	1730
9	e7500	124	195	150	274	334	223	1270	1290	1060	1160	1510
10	e1500	139	145	176	290	425	458	1010	1390	1490	1050	1350
11	e1000	312	158	208	261	332	416	898	3870	906	1050	1330
12	e600	195	138	617	242	344	419	1090	2200	1700	1240	1340
13	399	188	199	420	187	1510	409	1190	1090	1510	1180	1240
14	287	190	288	297	212	380	417	1480	1850	1520	1060	1580
15	419	191	1050	165	259	284	424	1520	1810	1640	1070	1380
16	361	204	502	145	269	293	392	e1200	1500	1430	1060	1340
17	876	420	208	160	257	194	448	1590	1910	1510	1090	1360
18	47	220	136	178	227	252	589	1750	1430	1290	875	1380
19	589	156	188	155	202	201	361	1550	1690	1430	1020	1420
20	123	213	196	166	237	247	1450	1510	1180	1460	1250	1470
21	181	188	237	153	226	190	1140	1560	874	1410	1050	1080
22	143	204	217	152	240	178	1570	1590	1570	1170	977	1060
23	233	179	267	162	257	317	1500	1570	1460	1170	1130	1280
24	237	162	319	134	269	609	1570	1730	1580	1170	1060	1100
25	1420	152	212	124	427	240	628	1280	2070	1220	1230	1030
26	408	183	232	242	237	424	166	1620	1550	1350	973	1090
27	326	182	371	317	139	446	235	1560	1990	1280	1420	1130
28	140	374	2040	201	190	385	800	e3750	1640	1300	1320	728
29	148	90	1620	160	---	1110	750	e11800	3470	735	1260	1110
30	98	151	392	126	---	27	757	e15600	3580	1310	1130	2150
31	101	---	325	246	---	542	---	e19600	---	1380	1270	---
TOTAL	28485	6474	11416	13560	6807	11751	18148	87548	143593	48721	35432	40148
MEAN	919	216	368	437	243	379	605	2824	4786	1572	1143	1338
MAX	7500	548	2040	2030	427	1510	1570	19600	21800	3610	1680	2150
MIN	47	90	136	124	133	27	166	898	815	735	767	728
AC-FT	56500	12840	22640	26900	13500	23310	36000	173700	284800	96640	70280	79630

COLORADO RIVER MAIN STEM

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08158000 COLORADO RIVER AT AUSTIN, TX--Continued  
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995#, BY WATER YEAR (WY)

MEAN	1547	1228	1292	1406	1618	1631	2004	3082	3521	2910	1943	1496
MAX	14810	8801	11660	15080	25890	13640	10420	27270	19600	36110	5862	4606
(WY)	1937	1975	1992	1992	1992	1992	1941	1957	1987	1938	1938	1974
MIN	132	38.7	43.9	46.2	49.7	55.0	389	969	1131	1102	505	285
(WY)	1965	1990	1964	1967	1964	1964	1962	1937	1993	1937	1937	1937

SUMMARY STATISTICS FOR 1994 CALENDAR YEAR FOR 1995 WATER YEAR WATER YEARS 1937 - 1995#

ANNUAL TOTAL	368858	452083	
ANNUAL MEAN	1011	1239	1975
HIGHEST ANNUAL MEAN			7464
LOWEST ANNUAL MEAN			729
HIGHEST DAILY MEAN	7500	Oct 9	21800
LOWEST DAILY MEAN	47	Oct 18	27
ANNUAL SEVEN-DAY MINIMUM	133	Mar 15	147
INSTANTANEOUS PEAK FLOW			24000
INSTANTANEOUS PEAK STAGE			18.23
ANNUAL RUNOFF (AC-FT)	731600	896700	1431000
10 PERCENT EXCEEDS	2050	1710	3590
50 PERCENT EXCEEDS	861	635	1450
90 PERCENT EXCEEDS	191	167	136

e Estimated

# Period of regulated streamflow.

## COLORADO RIVER BASIN

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<sup>2</sup>.

PERIOD OF RECORD.--January to July 1975 (periodic discharge measurements only), August 1975 to June 1977 (operated as a flood-hydrograph partial-record station only), June 1977 to September 1986, (daily mean discharge), October 1986 to May 1994 (annual maximum discharge). May 1994 to current year.

GAGE.--Water-stage recorder. Datum of gage is 411.29 ft sea level (levels from city of Austin bench mark).

REMARKS.--Records fair except those above 200 and below 2,000 ft<sup>3</sup>/s which are poor. No known regulation or diversions.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 4,370 ft<sup>3</sup>/s May 17, 1989, gage height, 14.79 ft, from flood mark.

EXTREMES FOR WATER YEARS 1994 AND 1995.--Peak discharges greater than base discharge of 750 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 14, 94	1630	1,780	8.14	Oct. 25, 94	0330	974	6.54
May 31, 94	0245	814	6.22	Mar. 13, 95	0400	969	6.53
Aug. 9, 94	0445	4,600	14.11	Apr. 5, 95	1200	828	6.25
Aug. 9, 94	0700	1,720	8.02	May 8, 95	0300	1,030	6.66
Aug. 15, 94	2130	2,080	8.75	May 29, 95	0545	2,770	10.20
Sept. 8, 94	0945	3,780	12.39	May 30, 95	0400	1,080	6.76
Oct. 8, 94	0030	3,920	12.68	June 1, 95	0115	1,080	6.76
Oct. 18, 94	1615	1,020	6.64	Aug. 2, 95	0430	878	6.35

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.24	.00	.00	16
2	---	---	---	---	---	---	---	---	.04	.00	.00	3.0
3	---	---	---	---	---	---	---	---	.00	.00	.00	.23
4	---	---	---	---	---	---	---	---	.00	.00	.00	.01
5	---	---	---	---	---	---	---	---	.00	.00	.00	.00
6	---	---	---	---	---	---	---	---	.00	.00	.00	.02
7	---	---	---	---	---	---	---	---	.00	.00	.00	.00
8	---	---	---	---	---	---	---	---	.00	.00	2.8	276
9	---	---	---	---	---	---	---	---	.00	1.5	503	73
10	---	---	---	---	---	---	---	---	.00	.26	8.2	2.9
11	---	---	---	---	---	---	---	.00	.00	.00	.41	1.3
12	---	---	---	---	---	---	---	.00	.00	.00	.03	28
13	---	---	---	---	---	---	---	.00	.00	.00	.00	1.3
14	---	---	---	---	---	---	---	112	.00	.00	.23	49
15	---	---	---	---	---	---	---	3.4	.00	.00	97	5.7
16	---	---	---	---	---	---	---	19	.00	.00	13	.55
17	---	---	---	---	---	---	---	25	.02	.00	.36	.23
18	---	---	---	---	---	---	---	3.9	.00	.00	.08	.01
19	---	---	---	---	---	---	---	.38	.00	.00	.00	.18
20	---	---	---	---	---	---	---	.09	.00	.00	.00	.04
21	---	---	---	---	---	---	---	.01	.42	.00	.00	.01
22	---	---	---	---	---	---	---	.01	.03	.00	2.7	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.19	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	---	---	---	---	---	---	---	51	---	.00	1.6	---
TOTAL	---	---	---	---	---	---	---	---	0.75	1.76	629.60	457.48
MEAN	---	---	---	---	---	---	---	---	.025	.057	20.3	15.2
MAX	---	---	---	---	---	---	---	---	.42	1.5	503	276
MIN	---	---	---	---	---	---	---	---	.00	.00	.00	.00
AC-FT	---	---	---	---	---	---	---	---	1.5	3.5	1250	907
CFSM	---	---	---	---	---	---	---	---	.00	.00	1.55	1.16
IN.	---	---	---	---	---	---	---	---	.00	.00	1.79	1.30

COLORADO RIVER BASIN

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08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	7.15	5.64	3.04	2.19	162	6.44	3.38	17.1	9.97	6.44	2.97	5.81
MAX	31.5	16.8	9.51	4.54	1580	18.5	12.7	48.7	55.2	54.5	20.3	15.2
(WY)	1985	1986	1985	1979	1977	1983	1979	1979	1981	1979	1994	1994
MIN	.44	.10	.027	.23	.44	.31	.063	.39	.025	.025	.002	.16
(WY)	1979	1980	1978	1982	1982	1986	1984	1984	1994	1986	1984	1984

SUMMARY STATISTICS

WATER YEARS 1977 - 1994

ANNUAL MEAN	6.30	
HIGHEST ANNUAL MEAN	15.1	1979
LOWEST ANNUAL MEAN	1.29	1984
HIGHEST DAILY MEAN	1660	Feb 11 1977
LOWEST DAILY MEAN	.00	Jul 13 1978
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 13 1978
INSTANTANEOUS PEAK FLOW	6100	May 23 1975
INSTANTANEOUS PEAK STAGE	17.03	May 23 1975
ANNUAL RUNOFF (AC-FT)	4560	
ANNUAL RUNOFF (CFSM)	.48	
ANNUAL RUNOFF (INCHES)	6.54	
10 PERCENT EXCEEDS	7.7	
50 PERCENT EXCEEDS	.23	
90 PERCENT EXCEEDS	.00	

## COLORADO RIVER BASIN

08158050 BOGGY CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.19	.01	1.5	.66	.50	1.2	.39	e279	.41	31	.46
2	.00	.17	8.9	1.1	.62	.55	.95	.37	19	.30	118	.28
3	.00	.17	3.3	1.0	.58	1.1	.92	.39	13	.23	2.0	.08
4	.00	.27	.33	.86	.51	.61	63	.34	10	.17	.47	.01
5	.00	71	.27	.85	.64	.57	103	.33	8.9	.14	.27	.00
6	.00	1.0	.20	1.4	.64	.46	4.4	.33	7.9	4.2	.12	.00
7	58	.55	.17	1.0	.69	7.9	1.4	.35	7.0	.93	7.3	38
8	461	.39	.17	.77	.68	.62	1.1	145	6.4	.34	1.9	7.3
9	1.7	.34	.49	.73	.72	.42	.98	1.5	6.2	.26	.34	.45
10	.31	6.1	.43	.68	.75	.39	.94	.72	6.1	.20	.19	.17
11	.09	.31	.17	.65	.82	.44	.92	.51	39	.09	.12	.05
12	.01	.20	.10	27	.75	.57	.70	.52	2.3	.08	.10	.02
13	.00	.21	.09	8.4	2.3	126	.65	.50	1.0	.05	.10	.63
14	.01	.22	17	1.2	1.8	2.4	.62	.41	.81	.04	.10	19
15	29	4.4	88	.91	1.1	16	.62	.37	.63	.07	.07	.39
16	18	1.9	37	.89	.96	7.2	.67	.28	.80	.04	.02	.14
17	11	.37	4.0	1.3	.82	1.3	.67	.23	.64	.01	.09	.01
18	80	.28	1.7	1.1	.80	1.2	14	15	.61	.00	.02	.00
19	5.0	.24	1.1	.80	.83	1.0	1.1	.56	.50	.00	.00	.00
20	.76	.18	.86	.80	.79	.90	52	.31	.44	.00	.00	36
21	.45	.08	.80	.92	.81	.93	1.1	.26	.42	.00	.26	14
22	.30	.04	1.0	.82	.85	.97	3.0	.21	.39	.00	.35	3.9
23	.25	.01	.90	.72	.98	.98	1.9	.21	.41	.00	.26	.51
24	.20	.01	.83	.67	27	1.0	.81	3.5	.35	.00	.48	.20
25	116	.01	.68	.69	35	.97	.68	.70	.27	.00	.13	.15
26	1.5	.01	.60	2.5	6.4	.91	.65	.37	.24	.00	.01	.07
27	4.0	.02	.71	1.2	1.2	.77	.61	1.4	.26	.00	.00	.02
28	2.0	.01	91	.77	.76	.75	.58	.59	.26	.00	.42	.01
29	.47	.01	8.5	.72	---	1.3	.52	e317	40	.00	60	.00
30	.34	.00	3.9	.65	---	1.0	.45	e252	1.1	9.1	4.7	.00
31	.27	---	3.7	.63	---	1.3	---	e46	---	10	.82	---
TOTAL	790.66	88.69	276.91	63.23	90.46	181.01	260.14	790.65	453.93	26.66	229.64	121.85
MEAN	25.5	2.96	8.93	2.04	3.23	5.84	8.67	25.5	15.1	.86	7.41	4.06
MAX	461	71	91	27	35	126	103	317	279	10	118	38
MIN	.00	.00	.01	.63	.51	.39	.45	.21	.24	.00	.00	.00
AC-FT	1570	176	549	125	179	359	516	1570	900	53	455	242
CFSM	1.95	.23	.68	.16	.25	.45	.66	1.95	1.16	.07	.57	.31
IN.	2.25	.25	.79	.18	.26	.51	.74	2.25	1.29	.08	.65	.35

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1995, BY WATER YEAR (WY)

	MEAN	8.98	5.37	3.63	2.18	148	6.38	3.91	17.9	10.4	5.97	3.34	5.66
MAX	31.5	16.8	9.51	4.54	1580	18.5	12.7	48.7	55.2	54.5	20.3	15.2	
(WY)	1985	1986	1985	1979	1977	1983	1979	1979	1981	1979	1994	1994	
MIN	.44	.10	.027	.23	.44	.31	.063	.39	.025	.025	.002	.16	
(WY)	1979	1980	1978	1982	1982	1986	1984	1984	1994	1986	1984	1984	

## SUMMARY STATISTICS

## FOR 1995 WATER YEAR

## WATER YEARS 1977 - 1995

ANNUAL TOTAL	3373.83		
ANNUAL MEAN	9.24	6.59	
HIGHEST ANNUAL MEAN		15.1	1979
LOWEST ANNUAL MEAN		1.29	1984
HIGHEST DAILY MEAN	461	1660	Feb 11 1977
LOWEST DAILY MEAN	.00	.00	Jul 13 1978
ANNUAL SEVEN-DAY MINIMUM	.00	.00	Jul 13 1978
INSTANTANEOUS PEAK FLOW	3920	6100	May 23 1975
INSTANTANEOUS PEAK STAGE	12.68	17.03	May 23 1975
ANNUAL RUNOFF (AC-FT)	6690	4780	
ANNUAL RUNOFF (CFSM)	.71	.50	
ANNUAL RUNOFF (INCHES)	9.58	6.84	
10 PERCENT EXCEEDS	13	8.0	
50 PERCENT EXCEEDS	.64	.26	
90 PERCENT EXCEEDS	.01	.00	

e Estimated



PERIOD OF RECORD.--Chemical and biochemical analyses: January 1975 to September 1986, April 1994 to current year.  
Pesticide analyses: January 1975 to December 1984. Radiochemical analyses: January 1980.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, I-CAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	
FEB 27...	1000	1.1	480	7.9	18.5	13	2.2	7.3	79	16	1.0	
APR 04...	1350	545	292	7.6	17.0	40	470	--	--	130	17	
04...	1455	342	146	7.5	17.0	80	520	--	--	79	12	
04...	1530	173	137	7.8	17.0	80	180	--	--	71	10	
04...	1650	74	150	7.7	17.5	60	210	--	--	42	9.6	
04...	1930	24	186	7.7	18.0	53	92	--	--	21	5.0	
DATE		COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FAT END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)
FEB 27...	2000	2800	200	40	70	5.7	20	0.6	2.8	160	41	
APR 04...	48000	390000	110	22	38	2.9	13	0.5	3.3	85	20	
04...	50000	380000	--	--	--	--	--	--	--	49	--	
04...	40000	240000	--	--	--	--	--	--	--	49	--	
04...	40000	100000	--	--	--	--	--	--	--	54	--	
04...	17000	68000	--	--	--	--	--	--	--	64	--	
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
FEB 27...	24	0.30	8.4	269	5	1	4	0.240	--	<0.010	0.240	
APR 04...	20	0.20	4.2	155	1460	190	1270	0.330	0.330	0.030	0.360	
04...	--	--	--	--	1020	90	930	0.270	0.270	0.030	0.300	
04...	--	--	--	--	648	84	564	0.230	0.230	0.030	0.260	
04...	--	--	--	--	320	60	260	0.220	0.220	0.030	0.250	
04...	--	--	--	--	168	40	128	0.190	0.190	0.030	0.220	
DATE		NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	
FEB 27...	0.240	<0.015	0.44	0.20	0.20	<0.010	<0.010	<0.010	<0.010	--	7.2	
APR 04...	0.360	0.060	0.76	0.34	0.40	0.070	0.040	0.040	0.12	38		
04...	0.300	0.110	0.80	0.39	0.50	0.090	0.060	0.070	0.21	28		
04...	0.260	0.100	0.66	0.30	0.40	0.280	0.080	0.070	0.21	18		
04...	0.250	0.060	0.65	0.34	0.40	0.070	0.080	0.060	0.18	12		
04...	0.220	0.040	0.52	0.26	0.30	0.050	0.050	0.050	0.15	7.2		
DATE		ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	
FEB 27...	1	73	<0.5	<1.0	<5	<3	<10	23	--	<10		
APR 04...	2	44	<0.5	4.0	<5	4	<10	18	81	30		
04...	--	--	--	--	--	--	--	--	49	--		
04...	--	--	--	--	--	--	--	--	32	--		
04...	--	--	--	--	--	--	--	--	13	--		
04...	--	--	--	--	--	--	--	--	66	--		

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

COLORADO RIVER BASIN

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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<sup>2</sup>.

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversion. An automatic water-quality sampler installed Feb. 22, 1989. Rain gage at station. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	0445	8,630	24.23	May 30	0500	2,380	13.67
Dec. 15	1915	1,890	12.39	June 1	0100	1,550	11.44
Dec. 28	1030	1,650	11.72	June 11	0315	1,590	11.57
Jan. 12	2030	2,520	14.00	Aug. 1	2030	1,970	12.61
May 8	0345	1,960	12.59	Aug. 2	0530	2,390	13.69
May 29	0615	7,480	22.69	Sept. 7	2145	1,530	11.40

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	20	11	42	21	16	13	11	279	13	185	23
2	2.3	19	26	39	21	16	13	10	59	12	407	6.1
3	2.6	17	22	37	20	17	12	10	43	10	30	4.0
4	2.4	19	13	34	19	16	81	9.1	33	8.9	15	3.0
5	2.1	263	12	34	18	15	158	9.1	27	12	10	2.0
6	2.1	34	12	36	18	15	27	8.1	25	12	8.7	1.7
7	146	27	13	29	17	23	19	8.6	23	9.9	8.1	122
8	2440	25	12	27	16	14	17	426	22	8.9	7.8	71
9	50	24	14	27	16	13	15	29	20	8.5	6.6	8.4
10	30	21	13	26	16	13	21	18	19	7.9	6.4	5.3
11	23	18	12	24	18	14	15	15	346	7.6	6.4	4.5
12	19	18	11	358	17	14	14	15	37	7.0	6.1	4.9
13	15	18	11	104	20	326	13	14	27	5.3	6.4	23
14	14	18	38	40	19	33	12	13	24	4.8	5.0	92
15	74	23	327	33	19	38	12	13	21	4.5	4.4	8.8
16	41	24	96	28	17	36	11	12	20	4.5	4.1	6.1
17	55	18	40	27	16	22	41	12	18	4.2	3.9	4.4
18	179	16	31	26	15	20	22	42	17	4.0	3.5	3.7
19	55	15	27	24	14	18	14	17	16	3.6	3.3	3.3
20	33	15	25	23	14	17	83	14	15	3.3	3.2	57
21	26	15	23	23	14	17	16	13	13	3.2	6.2	30
22	22	13	20	23	16	17	13	12	13	2.9	14	21
23	18	12	20	22	16	16	17	11	13	2.9	15	8.3
24	16	11	20	22	44	15	17	23	13	2.8	6.7	6.5
25	236	11	18	22	79	14	14	14	12	2.6	4.1	5.4
26	41	11	17	28	40	14	12	12	12	2.5	3.7	4.8
27	49	12	19	27	21	14	12	30	11	2.1	3.7	4.4
28	37	12	429	23	18	14	11	14	17	2.0	3.5	4.9
29	27	11	77	21	---	16	11	1290	101	1.8	26	4.9
30	24	11	57	21	---	14	11	808	19	16	11	4.9
31	23	---	50	21	---	15	---	125	---	19	25	---
TOTAL	3706.6	771	1516	1271	599	862	747	3057.9	1315	209.7	849.8	549.3
MEAN	120	25.7	48.9	41.0	21.4	27.8	24.9	98.6	43.8	6.76	27.4	18.3
MAX	2440	263	429	358	79	326	158	1290	346	19	407	122
MIN	2.1	11	11	21	14	13	11	8.1	11	1.8	3.2	1.7
AC-FT	7350	1530	3010	2520	1190	1710	1480	6070	2610	416	1690	1090
CFSM	2.33	.50	.95	.80	.42	.54	.49	1.92	.85	.13	.53	.36
IN.	2.69	.56	1.10	.92	.43	.63	.54	2.22	.95	.15	.62	.40

## COLORADO RIVER BASIN

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1995, BY WATER YEAR (WY)

MEAN	29.7	20.5	34.9	30.9	32.5	26.9	24.4	61.0	43.5	11.4	9.63	13.1
MAX	175	161	367	237	203	121	90.0	170	435	55.7	50.4	51.7
(WY)	1985	1975	1992	1968	1992	1992	1977	1981	1981	1987	1991	1973
MIN	1.37	1.03	1.22	1.07	1.88	1.06	1.79	.58	.23	.052	.32	1.42
(WY)	1979	1967	1967	1967	1967	1967	1971	1971	1967	1971	1977	1972

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1966 - 1995
ANNUAL TOTAL	9935.54	15454.3	
ANNUAL MEAN	27.2	42.3	28.4
HIGHEST ANNUAL MEAN			94.6
LOWEST ANNUAL MEAN			1.91
HIGHEST DAILY MEAN	2440 Oct 8	2440 Oct 8	4330 Dec 21 1991
LOWEST DAILY MEAN	.00 Aug 2	1.7 Sep 6	.00 Jun 17 1967
ANNUAL SEVEN-DAY MINIMUM	.00 Aug 1	2.4 Jul 23	.00 Jun 17 1967
INSTANTANEOUS PEAK FLOW		8630 Oct 8	14300 May 25 1981
INSTANTANEOUS PEAK STAGE		24.23 Oct 8	27.24 May 25 1981
ANNUAL RUNOFF (AC-FT)	19710	30650	20550
ANNUAL RUNOFF (CFSM)	.53	.83	.55
ANNUAL RUNOFF (INCHES)	7.20	11.21	7.51
10 PERCENT EXCEEDS	37	49	42
50 PERCENT EXCEEDS	5.8	16	7.3
90 PERCENT EXCEEDS	.55	4.4	1.0

COLORADO RIVER BASIN

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08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1976 to current year. Pesticide analyses: November 1976 to September 1986. Sediment analyses: December 1977 to July 1982. Radiochemical analyses: January 1980. Samples collected during storm events are collected by automatic sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	
OCT												
07...	2230	211	564	--	21.0	12	1400	--	--	190	20	
07...	2330	2470	107	7.6	21.0	90	1800	--	--	120	7.3	
07...	2359	5390	164	7.7	21.0	48	1000	--	--	86	4.5	
08...	0230	7550	117	7.8	21.0	120	1100	--	--	74	4.0	
08...	1151	282	278	7.8	22.0	52	1300	--	--	51	3.0	
09...	1407	46	553	7.9	20.0	17	7.7	--	--	17	0.5	
DEC												
05...	1246	12	628	7.7	19.0	8	1.9	9.7	107	<10	0.5	
MAR												
13...	0352	1250	134	7.7	16.5	55	1200	--	--	96	18	
13...	0628	1090	227	7.6	16.5	50	910	--	--	94	7.2	
13...	0710	855	204	7.8	16.5	60	560	--	--	97	5.5	
13...	0813	527	193	7.8	17.5	53	740	--	--	65	3.8	
13...	1141	162	232	7.8	18.5	55	250	--	--	33	2.3	
DATE		COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L CAC03)	SULFATE DIS-SOLVED (MG/L AS S04)
OCT												
07...	40000	37000	--	--	--	--	--	--	--	--	--	--
07...	72000	80000	--	--	--	--	--	--	--	--	34	--
07...	52000	60000	--	--	--	--	--	--	--	--	49	--
08...	44000	78000	--	--	--	--	--	--	--	--	36	--
08...	33000	28000	--	--	--	--	--	--	--	--	83	--
09...	K5600	2000	--	--	--	--	--	--	--	--	170	--
DEC												
05...	290	200	280	89	100	6.7	28	0.7	3.4	190	61	
MAR												
13...	20000	100000	58	7	21	1.3	3.9	0.2	2.3	51	9.6	
13...	18000	94000	--	--	--	--	--	--	--	--	66	--
13...	20000	62000	--	--	--	--	--	--	--	--	66	--
13...	14000	86000	--	--	--	--	--	--	--	--	66	--
13...	9200	36000	--	--	--	--	--	--	--	--	75	--
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON-FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT												
07...	--	--	--	--	--	4000	436	3560	0.100	--	<0.010	0.100
07...	--	--	--	--	--	3640	360	3280	0.230	0.230	0.020	0.250
07...	--	--	--	--	--	3040	332	2710	0.220	0.220	0.010	0.230
08...	--	--	--	--	--	2060	276	1780	0.310	0.310	0.020	0.330
08...	--	--	--	--	--	1070	204	866	0.690	0.690	0.030	0.720
09...	--	--	--	--	--	23	15	8	0.990	0.990	0.010	1.00
DEC												
05...	45	0.40	7.3	368	3	9	0	0.370	--	<0.010	0.370	
MAR												
13...	5.7	0.10	2.9	79	1980	152	1830	0.310	0.310	0.020	0.330	
13...	--	--	--	--	--	1470	120	1350	0.390	0.390	0.030	0.420
13...	--	--	--	--	--	1230	116	1110	0.380	0.380	0.030	0.410
13...	--	--	--	--	--	1360	112	1250	0.420	0.420	0.020	0.440
13...	--	--	--	--	--	408	68	340	0.460	0.460	0.020	0.480



08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

LOCATION.--Lat 30°12'28", long 97°38'15", Travis County, Hydrologic Unit 12090205, at bridge on Farm Road 973, 0.3 mi northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi downstream from gauging station at Austin.

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1975 to September 1986.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
NOV 08...	1005	640	8.0	24.0	8.1	98	0.9	240	380	230	44
JAN 18...	1356	686	8.1	17.0	10.1	106	0.7	42	39	240	68
FEB 27...	1032	633	7.6	18.5	7.9	86	0.6	26	47	240	64
APR 11...	1350	584	8.3	21.0	10.1	115	0.4	K16	K16	230	56
JUN 08...	1208	690	7.6	25.5	7.6	95	1.2	38	180	250	76
JUL 31...	1320	597	7.8	28.5	8.8	114	1.3	K7600	1200	210	60

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINIT WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)
NOV 08...	63	17	33	1	5.1	180	50	52	0.50	9.4	363
JAN 18...	68	18	41	1	4.8	180	59	66	0.60	7.3	393
FEB 27...	61	20	35	1	4.4	170	48	55	0.50	7.5	350
APR 11...	63	17	29	0.8	3.4	170	41	46	0.40	8.2	317
JUN 08...	63	23	42	1	4.8	180	56	70	0.80	9.6	386
JUL 31...	49	22	35	1	3.8	150	38	58	0.30	8.4	311

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV 08...	4.46	4.46	0.040	4.50	4.50	0.070	0.63	0.70	0.670	0.680	2.1
JAN 18...	4.38	4.38	0.020	4.40	4.40	0.070	0.93	1.0	0.680	0.710	2.2
FEB 27...	3.18	3.18	0.020	3.20	3.20	0.130	0.37	0.50	0.490	0.470	1.4
APR 11...	1.28	1.28	0.020	1.30	1.30	0.060	0.34	0.40	0.180	0.190	0.58
JUN 08...	2.30	--	<0.010	2.30	2.30	0.080	0.32	0.40	0.350	0.360	1.1
JUL 31...	0.910	0.910	0.020	0.930	0.930	0.020	0.28	0.30	0.130	0.120	0.37

[illegible]

[illegible]

## 08158700 ONION CREEK NEAR DRIFTWOOD, TX

LOCATION (REVISED).--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<sup>2</sup>.

PERIOD OF RECORD.--April 1958, November 1961 to June 1979 (periodic discharge measurements only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 878.13 ft above sea level.

REMARKS.--Records poor. Several observations of water temperature were made during the year. Rain gage at station. Satellite telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 25	0830	3,870	10.04	May 30	Unknown	Unknown	Unknown
Dec. 28	Unknown	e675	Unknown	June 1	Unknown	Unknown	Unknown
Apr. 5	Unknown	Unknown	Unknown				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	34	20	178	46	26	41	38	e2500	47	9.4	23
2	.01	32	20	161	44	25	39	35	e515	42	9.9	13
3	.01	30	22	151	42	25	39	34	374	40	10	9.8
4	.01	29	21	137	40	26	47	34	326	38	13	7.9
5	.01	95	20	124	39	26	e460	33	294	36	12	6.9
6	.01	67	20	123	36	25	e270	32	267	34	11	5.9
7	.32	49	21	106	36	27	e170	32	239	46	9.7	5.8
8	30	44	22	101	33	27	127	89	211	37	9.2	7.0
9	28	41	25	96	31	26	118	66	178	31	8.0	5.3
10	13	37	28	93	32	27	113	42	164	28	7.2	5.2
11	8.9	35	26	90	31	28	90	37	160	25	6.3	5.3
12	6.3	34	25	88	29	29	75	35	172	23	6.1	4.8
13	5.5	33	26	89	29	88	68	35	154	21	6.2	4.4
14	5.0	33	27	81	29	77	63	33	140	20	5.3	5.7
15	7.3	31	57	77	30	60	60	31	119	19	4.7	6.5
16	7.3	33	e209	76	30	61	60	29	109	18	4.7	5.9
17	5.7	33	138	75	28	59	59	28	100	17	4.0	5.6
18	8.3	31	114	72	26	57	58	34	96	16	3.6	3.8
19	16	32	101	68	26	56	58	29	95	15	3.4	3.7
20	12	31	93	66	24	54	58	25	88	14	3.1	5.4
21	11	29	84	62	24	52	59	23	79	13	2.7	5.7
22	10	27	76	62	24	51	58	22	71	13	2.8	5.3
23	9.3	26	70	59	24	49	53	22	65	12	2.6	3.5
24	8.7	25	68	58	22	47	50	23	60	11	2.6	3.7
25	792	25	63	59	22	48	48	24	55	10	2.8	3.8
26	e174	24	59	62	24	47	47	22	50	10	2.5	3.7
27	66	24	58	61	30	43	45	25	48	10	2.4	3.7
28	56	23	e370	55	28	41	43	29	45	9.6	2.9	4.0
29	47	21	313	50	---	42	42	73	52	8.8	2.6	3.4
30	40	21	235	48	---	41	40	e3400	57	8.3	2.2	3.1
31	37	---	207	47	---	40	---	e1400	---	9.9	13	---
TOTAL	1404.68	1029	2638	2675	859	1330	2558	5814	6883	682.6	185.9	180.8
MEAN	45.3	34.3	85.1	86.3	30.7	42.9	85.3	188	229	22.0	6.00	6.03
MAX	792	95	370	178	46	88	460	3400	2500	47	13	23
MIN	.01	21	20	47	22	25	39	22	45	8.3	2.2	3.1
AC-FT	2790	2040	5230	5310	1700	2640	5070	11530	13650	1350	369	359
CFSM	.37	.28	.69	.70	.25	.35	.69	1.51	1.85	.18	.05	.05
IN.	.42	.31	.79	.80	.26	.40	.77	1.74	2.06	.20	.06	.05

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1995, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	21.6	19.3	80.2	60.2	75.1	72.0	45.3	78.8	141	24.5	5.90	6.08					
MAX	109	85.9	548	316	506	356	170	202	792	97.5	22.0	34.6					
(WY)	1987	1986	1992	1992	1992	1992	1991	1992	1987	1987	1987	1991					
MIN	.22	.10	.10	.43	.87	2.29	3.12	2.67	2.98	.96	.10	.006					
(WY)	1990	1989	1989	1990	1990	1989	1984	1984	1988	1984	1984	1994					

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1979 - 1995

ANNUAL TOTAL	6395.61	26239.98	
ANNUAL MEAN	17.5	71.9	52.4
HIGHEST ANNUAL MEAN			196
LOWEST ANNUAL MEAN			4.05
HIGHEST DAILY MEAN	792	3400	5060
LOWEST DAILY MEAN	.00	.01	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.05	.00
INSTANTANEOUS PEAK FLOW		unknown	8990
INSTANTANEOUS PEAK STAGE		unknown	16.38
ANNUAL RUNOFF (AC-FT)	12690	52050	37940
ANNUAL RUNOFF (CFSM)	.14	.58	.42
ANNUAL RUNOFF (INCHES)	1.92	7.87	5.74
10 PERCENT EXCEEDS	33	116	119
50 PERCENT EXCEEDS	6.0	32	10
90 PERCENT EXCEEDS	.01	5.1	.50

e Estimated





COLORADO RIVER BASIN

147

08158800 ONION CREEK AT BUDA, TX

LOCATION.--Lat 30°05'09", long 97°50'52", Hays County, Hydrologic Unit 12090205, on left downstream side of bridge on Farm Road 967, 0.4 mi northwest of Buda.

DRAINAGE AREA.--166 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1961 to September 1973, January 1970 to July 1979, (periodic discharge measurements only), July 1979 to September 1983, January 1992 to September 30, 1995 (discontinued).  
Water quality records.--Chemical, biochemical, and pesticide analyses: January 1978 to September 1983.  
Radiochemical analyses: October 1979 to September 1980.

GAGE.--Water stage recorder. Datum of gage is 657.39 ft above sea level.

REMARKS.--Records fair. No known regulation or diversion in the vicinity of the gage. Recording rain gage at station. Several observations of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 28, 1929, reached a stage of about 36.2 ft, present datum (discharge, 53,200 ft<sup>3</sup>/s), from slope-area indirect measurement of peak flow. This is probably the highest flood since that date.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 25	1200	4440	9.86	Apr. 5	1800	1310	6.58
Dec. 15	2315	949	6.05	May 30	0545	7530	12.15
Dec. 28	1630	1290	6.55	June 1	0700	2960	8.47

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.00	.75	.27	.19	.30	.42	1400	.42	.00	.00
2	.00	.02	.00	.51	.27	.14	.28	.39	551	.41	.00	.00
3	e.00	.00	.00	.44	.27	.14	.25	.39	378	.39	.00	.00
4	e.00	.00	.00	.33	.27	.14	.48	.39	288	.37	.00	.00
5	e.00	.08	.00	.23	.25	.14	260	.39	225	.34	.00	.00
6	e.00	.12	.00	.23	.24	.15	138	.43	179	.33	.00	.00
7	e.00	.08	.00	.13	.23	.24	37	.45	142	.31	.00	.00
8	e.00	.05	.00	4.5	.19	.24	16	1.6	120	.28	.00	.00
9	.00	.02	.00	1.5	.18	.21	4.3	.84	96	.23	.00	.00
10	.00	.00	.00	.73	.17	.19	.95	.65	73	.18	.00	.00
11	.00	.00	.00	.58	.17	.19	.72	.54	158	.14	.00	.00
12	.00	.00	.00	.48	.17	.19	.68	.53	139	.10	.00	.00
13	.00	.00	.00	.59	.16	13	.67	.53	81	.08	.00	.00
14	.00	.00	.00	.45	.18	11	.63	.51	62	.06	.00	.00
15	.00	.00	64	.41	.20	.56	.61	.47	47	.04	.00	.00
16	.00	.00	251	.41	.20	.45	.61	.42	35	.02	.00	.00
17	.00	.00	26	.41	.19	.41	.57	.37	24	.01	.00	.00
18	.00	.00	2.7	.40	.17	.39	.80	.59	17	.00	.00	.00
19	.00	.00	.63	.38	.15	.37	.72	.51	13	.00	.00	.00
20	.00	.00	.46	.34	.14	.36	.79	.41	9.7	.00	.00	.00
21	.00	.00	.40	.34	.12	.35	.65	.38	3.2	.00	.00	.00
22	.00	.00	.36	.34	.12	.34	.65	.34	.81	.00	.00	.00
23	.00	.00	.34	.34	.12	.34	.68	.34	.55	.00	.00	.00
24	.00	.00	.32	.34	.12	.34	.60	.35	.47	.00	.00	.00
25	928	.00	.30	.34	.16	.32	.57	.36	.42	.00	.00	.00
26	87	.00	.22	.36	.27	.32	.52	.33	.38	.00	.00	.00
27	2.9	.00	.24	.37	.23	.31	.50	.34	.36	.00	.00	.00
28	.55	.00	e399	.33	.25	.28	.49	.36	.34	.00	.00	.00
29	.34	.00	395	.31	---	.28	.46	.52	.50	.00	.00	.00
30	.19	.00	168	.27	---	.28	.45	2290	.47	.00	.00	.00
31	.10	---	114	.27	---	.30	---	741	---	.00	.00	---
TOTAL	1019.08	0.42	1422.97	276.79	5.46	32.16	469.93	3045.15	4045.20	3.71	0.00	0.00
MEAN	32.9	.014	45.9	8.93	.19	1.04	15.7	98.2	135	.12	.000	.000
MAX	928	.12	399	75	.27	13	260	2290	1400	.42	.00	.00
MIN	.00	.00	.00	.27	.12	.14	.25	.33	.34	.00	.00	.00
AC-FT	2020	.8	2820	549	11	64	932	6040	8020	7.4	.00	.00
CFSM	.20	.00	.28	.05	.00	.01	.09	.59	.81	.00	.00	.00
IN.	.23	.00	.32	.06	.00	.01	.11	.68	.91	.00	.00	.00

## COLORADO RIVER BASIN

08158800 ONION CREEK AT BUDA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1995, BY WATER YEAR (WY)

MEAN	11.9	.025	6.75	38.2	70.2	62.1	11.8	73.8	183	6.64	.27	.22
MAX	47.4	.13	45.9	289	525	359	64.0	220	1019	41.3	2.42	1.89
(WY)	1982	1980	1995	1992	1992	1992	1992	1992	1981	1981	1979	1979
MIN	.000	.000	.000	.000	.000	.000	.000	.013	.000	.000	.000	.000
(WY)	1983	1982	1982	1983	1983	1994	1994	1994	1994	1980	1980	1980

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1979 - 1995	
ANNUAL TOTAL	2442.91		10320.87		22.7	
ANNUAL MEAN	6.69		28.3		97.2	
HIGHEST ANNUAL MEAN					.001	
LOWEST ANNUAL MEAN					1981	
HIGHEST DAILY MEAN	928	Oct 25	2290	May 30	5400	Jun 13 1981
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Sep 12 1979
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Sep 22 1979
INSTANTANEOUS PEAK FLOW			7530	May 30	17400	Jun 13 1981
INSTANTANEOUS PEAK STAGE			12.15	May 30	17.59	Jun 13 1981
ANNUAL RUNOFF (AC-FT)	4850		20470		16430	
ANNUAL RUNOFF (CFSM)	.040		.17		.14	
ANNUAL RUNOFF (INCHES)	.55		2.31		1.86	
10 PERCENT EXCEEDS	.02		23		34	
50 PERCENT EXCEEDS	.00		.23		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated

## 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<sup>2</sup>.

PERIOD OF RECORD.--March 1978 to July 1979 (periodic discharge measurements only), October 1978 to June 1979 (peak discharges above base only), July 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 860 ft above sea level from topographic map.

REMARKS.--Records good except those for estimated discharges, which are fair. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1939 (corrected), reached a stage of 16.2 ft; discharge, 14,200 ft<sup>3</sup>/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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0430	1,860	7.70				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e6.0	1.6	20	4.8	4.6	6.2	7.2	112	5.7	1.3	.19
2	.00	e5.3	1.9	18	4.4	4.6	6.1	6.5	52	5.2	1.1	.08
3	.00	e4.9	2.0	18	4.2	4.6	6.0	6.7	42	4.9	1.2	.06
4	.00	e3.3	1.7	16	3.8	4.6	11	6.7	36	4.6	.99	.06
5	.00	e21	1.6	15	3.8	4.8	57	6.3	32	4.4	.79	.05
6	.00	e9.3	1.5	15	3.8	5.9	20	6.2	28	4.3	.74	.05
7	.26	e5.6	1.5	13	3.7	9.1	18	5.9	25	4.2	.70	.16
8	e33	e5.3	1.5	13	3.5	6.5	16	22	23	3.9	.67	.31
9	e22	5.2	1.7	12	3.6	6.4	15	10	20	3.6	.64	.07
10	e5.2	4.7	1.3	11	3.7	6.5	14	8.6	18	3.3	.62	.05
11	e1.4	4.5	1.1	10	3.6	6.4	13	7.7	32	3.1	.59	.05
12	e.22	4.0	1.1	11	3.4	7.3	12	9.6	21	3.0	.60	.05
13	e.06	4.0	1.1	11	3.5	15	11	8.6	18	2.8	.66	.05
14	e.02	4.0	1.6	9.6	3.6	10	10	7.5	17	2.8	.63	.04
15	e.02	4.0	37	8.9	3.5	9.8	10	6.5	16	2.8	.63	.04
16	e.02	3.8	22	8.8	3.3	9.8	10	6.0	14	2.4	.60	.05
17	e.02	3.7	15	8.5	3.1	9.3	9.8	5.9	13	2.3	.48	.04
18	e10	3.8	14	7.9	3.0	9.1	10	7.1	12	2.0	.48	.03
19	e4.5	3.6	13	7.3	3.0	8.8	11	5.1	11	1.9	.43	.03
20	e3.3	3.2	12	6.9	2.8	8.5	20	5.0	10	1.8	.30	.05
21	e2.8	3.0	11	6.7	2.7	8.0	12	4.6	9.4	1.8	.24	.06
22	e2.2	3.0	10	6.6	2.6	7.7	12	4.6	8.4	1.6	.20	.06
23	e1.8	2.8	9.8	6.2	2.6	7.2	11	4.5	7.4	1.5	.13	.05
24	e1.7	2.6	9.3	5.9	4.9	7.1	10	4.5	6.5	1.4	.09	.04
25	e23	2.6	8.7	5.9	5.7	7.3	9.5	4.4	6.1	1.4	.12	.04
26	e18	2.4	8.1	6.0	5.7	7.4	9.2	4.1	5.7	1.3	.30	.03
27	e13	2.3	7.7	6.0	5.0	6.8	8.6	4.1	5.3	1.1	.09	.03
28	e9.8	2.2	48	5.4	4.7	6.6	8.1	3.9	5.2	1.0	.09	.03
29	e9.0	2.1	28	5.3	---	6.6	7.8	16	8.5	.98	.07	.03
30	e8.0	1.9	24	5.1	---	6.6	7.5	244	6.2	1.1	.06	.03
31	e6.8	---	22	5.1	---	6.1	---	56	---	1.6	.07	---
TOTAL	176.12	134.1	320.8	305.1	106.0	229.0	381.8	505.8	620.7	83.78	15.61	1.91
MEAN	5.68	4.47	10.3	9.84	3.79	7.39	12.7	16.3	20.7	2.70	.50	.064
MAX	33	21	48	20	5.7	15	57	244	112	5.7	1.3	.31
MIN	.00	1.9	1.1	5.1	2.6	4.6	6.0	3.9	5.2	.98	.06	.03
AC-FT	349	266	636	605	210	454	757	1000	1230	166	31	3.8
CFSM	.47	.37	.85	.81	.31	.61	1.04	1.34	1.70	.22	.04	.01
IN.	.54	.41	.98	.93	.32	.70	1.16	1.54	1.89	.26	.05	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1995, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	2.87	2.20	10.5	6.70	8.57	7.81	5.76	9.23	18.8	2.24	.77	.63					
MAX	22.5	11.6	91.8	33.3	49.4	32.3	26.2	23.7	144	7.31	3.59	2.71					
(WY)	1987	1987	1992	1992	1992	1992	1991	1992	1981	1981	1979	1991					
MIN	.000	.000	.000	.000	.017	.28	.18	.15	.001	.000	.000	.000					
(WY)	1989	1989	1989	1989	1990	1994	1994	1984	1984	1984	1984	1984					

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1979 - 1995

ANNUAL TOTAL	696.10	2880.72	
ANNUAL MEAN	1.91	7.89	
HIGHEST ANNUAL MEAN			6.30
LOWEST ANNUAL MEAN			22.3
HIGHEST DAILY MEAN	48	244	1000
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.03	.00
INSTANTANEOUS PEAK FLOW		1860	10200
INSTANTANEOUS PEAK STAGE		7.70	14.23
ANNUAL RUNOFF (AC-FT)	1380	5710	4570
ANNUAL RUNOFF (CFSM)	.16	.65	.52
ANNUAL RUNOFF (INCHES)	2.12	8.78	7.02
10 PERCENT EXCEEDS	5.0	16	13
50 PERCENT EXCEEDS	.09	4.9	1.4
90 PERCENT EXCEEDS	.00	.06	.00

e Estimated

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1978 to current year. Pesticide analyses: June 1978 to September 1986, January to September 1993. Radiochemical analyses: January 1980.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

COLORADO RIVER BASIN

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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<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft above sea level.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0215	1000	7.01	May 31	2300	1340	7.59
May 30	1315	699	6.38				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	6.7	2.0	21	2.8	3.0	4.3	3.9	256	13	.36	.00
2	.00	6.3	2.3	18	2.6	2.8	3.8	3.6	167	11	.35	.00
3	.00	5.4	2.7	16	2.6	2.8	3.7	3.6	106	9.8	.36	.00
4	.00	5.2	2.2	12	2.5	2.8	10	3.5	71	7.7	.25	.00
5	.00	7.0	2.0	11	2.7	2.8	45	3.3	57	6.9	.12	.00
6	.00	18	2.0	10	2.8	2.7	16	3.4	49	7.2	.09	.00
7	4.9	14	2.0	7.3	2.8	2.6	12	3.3	40	7.3	.07	.00
8	99	13	1.8	7.2	2.6	2.6	10	111	34	5.1	.03	.00
9	.01	10	2.0	6.4	2.6	2.6	9.1	17	27	3.5	.02	.00
10	.00	8.9	2.1	6.3	2.6	2.6	8.4	12	24	2.7	.00	.00
11	.00	7.9	2.0	6.0	2.6	2.6	7.9	10	108	2.1	.00	.00
12	.00	7.2	2.0	8.4	2.6	2.6	6.7	10	43	1.4	.00	.00
13	.00	7.2	2.1	8.0	2.5	45	6.4	9.8	34	1.0	.01	.00
14	.00	6.8	2.7	5.2	2.4	11	6.2	7.2	28	.87	.01	.00
15	.00	6.7	93	4.6	2.5	9.4	5.5	6.2	25	.89	.02	.00
16	.00	7.1	90	4.0	2.6	10	5.5	5.5	21	.78	.03	.00
17	.00	6.7	38	3.7	2.6	8.0	5.6	4.8	20	.69	.04	.00
18	11	6.5	24	3.5	2.6	7.3	6.4	5.9	18	.63	.04	.00
19	10	6.8	18	3.5	2.6	7.2	12	3.9	18	.68	.03	.00
20	6.3	6.1	15	3.6	e2.6	6.9	35	3.6	18	.72	.01	.00
21	4.2	4.5	11	3.3	e2.6	6.5	11	3.4	16	.60	.01	.00
22	3.5	4.0	7.9	3.0	e2.4	6.4	10	3.3	15	.56	.00	.00
23	2.5	4.0	6.8	3.0	e2.6	6.4	7.9	3.2	14	.45	.00	.00
24	2.2	4.0	6.2	3.0	e2.6	6.4	7.5	3.4	14	.38	.00	.00
25	135	3.8	4.8	2.8	e2.6	6.4	6.7	3.3	13	.31	.00	.00
26	35	3.6	4.4	2.9	e2.8	6.2	6.5	3.0	9.5	.21	.00	.00
27	23	2.9	4.4	3.0	e2.8	5.0	6.1	3.3	8.7	.15	.00	.00
28	20	2.6	127	2.9	3.0	4.5	5.3	3.0	8.7	.10	.00	.00
29	14	2.5	66	2.8	---	4.3	4.4	78	22	.08	.00	.00
30	9.3	2.1	41	2.8	---	4.3	4.0	400	15	.15	.00	.00
31	7.6	---	30	2.8	---	4.3	---	288	---	.36	.09	---
TOTAL	387.51	260.5	617.4	198.0	73.6	198.0	288.9	1023.4	1299.9	87.31	1.94	0.00
MEAN	12.5	8.68	19.9	6.39	2.63	6.39	9.63	33.0	43.3	2.82	.063	.000
MAX	135	70	127	21	3.0	45	45	400	256	13	.36	.00
MIN	.00	2.1	1.8	2.8	2.4	2.6	3.7	3.0	8.7	.08	.00	.00
AC-FT	769	517	1220	393	146	393	573	2030	2580	173	3.8	.00
CFSM	1.52	1.05	2.42	.78	.32	.78	1.17	4.01	5.26	.34	.01	.00
IN.	1.75	1.18	2.79	.89	.33	.89	1.30	4.62	5.87	.39	.01	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	3.70	2.73	10.2	5.72	6.42	5.76	4.43	11.2	16.0	1.10	.37	.50						
MAX	35.5	18.5	75.0	24.4	40.6	20.3	27.1	33.0	101	5.31	2.28	4.33						
(WY)	1987	1986	1992	1992	1992	1992	1979	1995	1981	1979	1983	1991						
MIN	.000	.000	.000	.000	.000	.000	.001	.021	.006	.000	.000	.000						
(WY)	1983	1989	1989	1990	1994	1989	1994	1984	1984	1984	1980	1984						

SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1978 - 1995
ANNUAL TOTAL	1271.31	4436.46	
ANNUAL MEAN	3.48	12.2	5.88
HIGHEST ANNUAL MEAN			17.9
LOWEST ANNUAL MEAN			.018
HIGHEST DAILY MEAN	135	400	901
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1340	6330
INSTANTANEOUS PEAK STAGE		7.59	10.79
ANNUAL RUNOFF (AC-FT)	2520	8800	4260
ANNUAL RUNOFF (CFSM)	.42	1.48	.71
ANNUAL RUNOFF (INCHES)	5.74	20.03	9.69
10 PERCENT EXCEEDS	6.7	21	11
50 PERCENT EXCEEDS	.00	3.5	.44
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated



## COLORADO RIVER BASIN

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1983 to current year. Pesticide analyses: June 1983 to September 1986.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BTO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)
OCT 08...	0720	198	--	7.6	19.0	84	35	--	--	3.3	20000
OCT 08...	1009	53	--	7.7	19.5	96	23	--	--	3.3	26000
NOV 08...	1247	13	834	7.5	22.0	--	--	8.9	105	0.9	110
DEC 05...	1114	2.0	880	7.1	19.0	8	0.50	8.9	99	0.4	34
JAN 18...	1303	3.6	865	7.8	16.0	5	0.40	9.4	99	0.2	K14
FEB 27...	1206	2.8	797	7.7	17.0	3	0.50	9.4	101	0.2	55
DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 08...	15000	--	--	--	--	--	--	--	62	--	--
OCT 08...	10000	--	--	--	--	--	--	--	70	--	--
NOV 08...	K24	380	110	110	26	29	0.6	1.3	270	86	57
DEC 05...	K7	390	92	110	27	32	0.7	0.80	290	89	66
JAN 18...	K10	390	110	110	28	32	0.7	0.70	280	100	59
FEB 27...	110	360	100	100	26	28	0.6	0.70	250	81	56
DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	
OCT 08...	--	--	--	66	22	44	0.200	0.200	0.020	0.220	
OCT 08...	--	--	--	47	18	29	0.250	0.250	0.020	0.270	
NOV 08...	0.20	6.8	482	--	--	--	0.160	--	<0.010	0.160	
DEC 05...	0.20	7.6	510	2	6	0	0.150	--	<0.010	0.150	
JAN 18...	0.20	6.0	504	6	6	0	0.200	0.200	0.010	0.210	
FEB 27...	0.20	6.9	451	4	6	0	0.070	--	<0.010	0.070	
DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
OCT 08...	0.220	<0.015	1.0	0.80	0.40	0.80	0.090	0.030	0.030	0.09	
OCT 08...	0.270	<0.015	0.97	0.70	0.40	0.70	0.060	0.030	0.030	0.09	
NOV 08...	0.160	<0.015	--	--	--	<0.20	<0.010	<0.010	<0.010	--	
DEC 05...	0.150	<0.015	--	--	--	<0.20	<0.010	<0.010	<0.010	--	
JAN 18...	0.210	<0.015	--	--	--	<0.20	<0.010	<0.010	<0.010	--	
FEB 27...	0.070	<0.015	--	--	--	<0.20	<0.010	<0.010	<0.010	--	

COLORADO RIVER BASIN

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08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 08...	12	--	--	--	--	--	--	--	--	--
OCT 08...	11	--	--	--	--	--	--	--	--	--
NOV 08...	--	<1	43	0.7	<1.0	<5	<3	<10	3	<10
DEC 05...	1.8	<1	43	<0.5	<1.0	<5	<3	<10	5	20
JAN 18...	2.1	<1	40	<0.5	<1.0	<5	<3	<10	<3	<10
FEB 27...	2.2	<1	40	<0.5	<1.0	<5	<3	<10	9	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 08...	--	--	--	--	--	--	--	--	--	--
OCT 08...	--	--	--	--	--	--	--	--	--	--
NOV 08...	<4	6	<0.1	<10	<10	<1	<1.0	290	<6	<3
DEC 05...	<4	12	<0.1	<10	<10	<1	<1.0	280	<6	<3
JAN 18...	6	10	<0.1	20	<10	<1	<1.0	280	<6	<3
FEB 27...	<4	7	<0.1	<10	<10	<1	<1.0	270	<6	<3

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<sup>2</sup>.

PERIOD OF RECORD.--March 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 740.25 ft above sea level, (levels from city of Austin benchmark).

REMARKS.--No estimated daily discharge. Records fair. Station is equipped with an automatic water-quality sampler.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 7	2345	1300	5.69	May 31	2400	761	4.91

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	101	.00	.01	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	6.1	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	1.4	.00	1.3	.00	.00	.00
5	.00	5.0	.00	.00	.00	.00	4.7	.00	.10	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	43	.00	.00	.00	.00	.05	.00	.00	.00	.00	.02	.02
8	73	.00	.00	.00	.00	.00	.00	26	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	12	.00	.00	.00
12	.00	.00	.00	2.9	.00	.00	.00	.00	.62	.00	.00	.00
13	.00	.00	.00	.42	.00	9.7	.00	.00	.00	.00	.03	.00
14	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.01	.00	24	.00	.00	.53	.00	.00	.00	.00	.00	.00
16	.01	.00	14	.00	.00	.44	.00	.00	.00	.00	.00	.00
17	.00	.00	1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	4.0	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.00
19	.01	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	3.1	.00	.00	.00	.00	.01
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00
25	33	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00	.00
26	.91	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	22	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	8.2	.00	---	.00	.00	33	.01	.00	.00	.00
30	.00	.00	3.2	.00	---	.00	.00	169	.00	.03	.00	.00
31	.00	---	1.5	.00	---	.00	---	46	---	.00	.02	---
TOTAL	153.94	5.00	73.92	3.32	0.20	10.72	9.35	274.01	139.13	0.03	0.08	0.04
MEAN	4.97	.17	2.38	.11	.007	.35	.31	8.84	4.64	.001	.003	.001
MAX	73	5.0	24	2.9	.16	9.7	4.7	169	101	.03	.03	.02
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	305	9.9	147	6.6	.4	21	19	543	276	.06	.2	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1995, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
MEAN	2.50	.084	1.19	.054	.033	.17	.11	3.00	1.58	.000	.18	.047
MAX	4.97	.17	2.38	.11	.058	.35	.31	8.84	4.64	.001	.55	.14
(WY)	1995	1995	1995	1995	1994	1995	1995	1995	1995	1995	1994	1994
MIN	.035	.001	.000	.000	.007	.001	.001	.040	.001	.000	.001	.000
(WY)	1994	1994	1994	1994	1995	1994	1994	1993	1994	1993	1993	1993

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1993 - 1995

ANNUAL TOTAL	259.25	669.74	
ANNUAL MEAN	.71	1.83	
HIGHEST ANNUAL MEAN			.96
LOWEST ANNUAL MEAN			1.83
HIGHEST DAILY MEAN	73	Oct 8	.075
LOWEST DAILY MEAN	.00	Jan 1	169
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			.00
ANNUAL RUNOFF (AC-FT)	514	1330	1300
10 PERCENT EXCEEDS	.00	.03	5.69
50 PERCENT EXCEEDS	.00	.00	692
90 PERCENT EXCEEDS	.00	.00	.00

08158922 WILLIAMSON CREEK AT BRUSH COUNTRY BOULEVARD, OAK HILL, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical and biochemical analyses: October 1993 to current year. Samples collected during storm events are collected by automatic sampler.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
OCT													
25...	0233	34	173	7.7	--	22	58	46	2.4	44000	88000	--	
25...	0810	40	414	8.1	--	25	7.5	18	1.7	8800	40000	--	
25...	0900	34	429	8.1	--	25	6.8	17	1.5	K18000	33000	--	
25...	1210	21	451	8.1	--	25	5.5	18	1.7	K7000	K14000	--	
25...	1830	7.5	505	8.2	--	30	2.6	16	0.9	K4000	K13000	--	
26...	0622	1.3	569	8.1	16.0	23	0.80	15	0.9	12000	11000	290	
DEC													
15...	1751	34	285	7.6	--	130	150	86	8.5	48000	170000	--	
15...	1806	198	144	7.4	--	200	--	80	8.2	K34000	160000	--	
15...	1821	195	--	7.4	--	--	--	--	--	--	--	62	
15...	1836	179	131	7.4	--	150	190	57	5.7	66000	410000	--	
15...	1851	174	134	7.4	--	150	180	49	8.2	40000	450000	--	
15...	1906	166	184	7.5	--	75	160	40	4.4	80000	510000	--	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT													
25...	--	--	--	--	--	--	--	72	--	--	--	--	--
25...	--	--	--	--	--	--	--	160	--	--	--	--	--
25...	--	--	--	--	--	--	--	180	--	--	--	--	--
25...	--	--	--	--	--	--	--	200	--	--	--	--	--
25...	--	--	--	--	--	--	--	220	--	--	--	--	--
26...	49	82	20	12	0.3	2.4	240	41	23	0.20	7.8	335	--
DEC													
15...	--	--	--	--	--	--	--	97	--	--	--	--	--
15...	--	--	--	--	--	--	--	53	--	--	--	--	--
15...	9	19	3.5	2.9	0.2	2.1	53	8.0	4.4	<0.10	2.9	75	--
15...	--	--	--	--	--	--	--	50	--	--	--	--	--
15...	--	--	--	--	--	--	--	56	--	--	--	--	--
15...	--	--	--	--	--	--	--	75	--	--	--	--	--
DATE		RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT													
25...	178	30	148	0.390	0.390	0.020	0.410	0.410	0.060	1.4	0.94	1.0	--
25...	11	7	4	0.390	--	<0.010	0.390	0.390	<0.015	0.69	0.30	0.30	--
25...	9	7	2	0.390	--	<0.010	0.390	0.390	<0.015	0.79	0.40	0.40	--
25...	6	2	4	0.490	--	<0.010	0.490	0.490	<0.015	0.89	0.40	0.40	--
25...	2	6	0	0.580	--	<0.010	0.580	0.580	<0.015	0.98	0.40	0.40	--
26...	<1	<1	--	0.730	--	<0.010	0.730	0.730	<0.015	1.1	0.40	0.40	--
DEC													
15...	344	64	280	0.110	--	<0.010	0.110	0.110	<0.015	1.6	1.5	1.5	--
15...	848	106	742	0.090	--	<0.010	0.090	0.090	<0.015	2.3	2.2	2.2	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	360	70	290	0.140	--	<0.010	0.140	0.140	0.020	2.0	1.9	1.9	--
15...	324	60	264	0.150	--	<0.010	0.150	0.150	0.020	1.6	1.4	1.4	--
15...	262	54	208	0.160	--	<0.010	0.160	0.160	<0.015	1.4	1.2	1.2	--
DATE		PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT													
25...	0.250	0.110	0.110	0.34	14	--	--	--	--	--	--	--	--
25...	0.050	0.050	0.030	0.09	7.3	--	--	--	--	--	--	--	--
25...	0.050	0.040	0.020	0.06	6.6	--	--	--	--	--	--	--	--
25...	0.040	0.020	0.030	0.09	7.5	--	--	--	--	--	--	--	--
25...	0.030	0.030	<0.010	--	8.4	--	--	--	--	--	--	--	--
26...	0.040	0.010	<0.010	--	6.9	1	35	<0.5	<1.0	<5	<3	<10	--
DEC													
15...	0.340	0.070	0.070	0.21	24	--	--	--	--	--	--	--	--
15...	0.500	0.080	0.080	0.25	23	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	4	10	<0.5	<1.0	<5	<3	<10	--
15...	0.420	0.120	0.120	0.37	18	--	--	--	--	--	--	--	--
15...	0.350	0.120	0.130	0.40	16	--	--	--	--	--	--	--	--
15...	0.300	0.110	0.110	0.34	14	--	--	--	--	--	--	--	--

08158922 WILLIAMSON CREEK AT BRUSH COUNTRY BOULEVARD, OAK HILL, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]



COLORADO RIVER BASIN

157

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<sup>2</sup>.

PERIOD OF RECORD.--May 1924 to March 1930, March 1976 to current year. In 1924-30 station was published as "near Del Valle".

Water-quality records.--Chemical and biochemical analyses: October 1976 to September 1988. Pesticide analyses: October 1976 to September 1986. Sediment analyses: October 1976 to September 1982. Radiochemical analyses: January 1980.

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.

REMARKS.--No estimated daily discharge. Records good. Flow is slightly regulated by several small ponds on main channel and tributaries above station. Two observations of water temperature were made during the year. One recording rain gage in the watershed. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about July 3, 1869, stage about 38 ft, from newspaper accounts, and Sept. 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	0500	6,700	16.59	May 30	1400	9,940	19.00
Dec. 15	2200	4,050	13.48	June 1	1330	2,850	11.68
Mar. 13	0600	6,180	16.06				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	5.5	3.1	90	11	20	22	15	1940	15	18	.13
2	.00	5.2	4.7	65	11	13	20	14	649	13	67	.10
3	.00	5.0	15	54	11	12	19	13	396	11	16	.10
4	.00	4.8	6.8	47	10	10	90	14	285	10	4.3	.10
5	.00	128	4.9	38	10	9.4	553	13	217	9.4	2.6	.10
6	.00	23	4.3	34	10	8.8	367	13	172	11	2.0	.10
7	.04	10	3.9	33	10	35	98	14	132	15	2.5	.17
8	1640	7.7	3.9	27	10	18	60	349	109	9.7	6.9	46
9	35	6.5	4.7	20	10	11	42	81	90	7.6	2.0	4.8
10	9.0	5.8	5.1	16	10	9.3	34	31	73	6.3	1.3	1.9
11	5.3	5.5	4.3	14	10	8.5	28	19	310	5.8	1.4	1.1
12	3.2	5.3	3.8	38	10	8.0	24	17	166	5.6	1.2	.39
13	2.2	5.2	3.7	74	11	1560	23	16	88	5.1	2.0	.12
14	1.8	5.0	13	29	14	126	22	14	63	5.8	3.3	.10
15	12	5.1	701	22	13	59	21	12	52	7.7	2.6	.10
16	18	7.4	794	19	12	90	21	11	42	7.1	1.8	.10
17	23	6.0	117	18	11	44	21	10	36	5.3	1.3	.10
18	121	5.4	51	17	10	36	44	20	30	3.6	.98	.10
19	75	5.4	31	16	9.1	32	27	19	26	3.5	.70	.10
20	13	4.5	23	15	6.7	29	99	12	23	2.9	.20	13
21	7.0	4.7	18	14	6.8	27	40	8.6	22	2.7	.14	8.6
22	5.3	4.8	15	13	6.4	26	32	7.1	19	2.2	.15	7.1
23	4.5	4.6	13	13	6.4	25	40	6.9	15	1.4	.33	3.4
24	4.2	4.5	12	12	31	24	26	9.5	14	.95	7.1	2.0
25	534	4.3	11	12	55	24	21	9.1	12	.70	1.8	1.3
26	212	4.3	10	14	42	23	19	6.6	11	.42	1.3	.81
27	43	3.7	10	16	16	22	18	6.1	11	.00	.38	.61
28	19	3.4	572	13	78	20	17	7.1	11	.00	.15	.35
29	9.5	3.3	534	12	---	21	16	318	28	.00	.15	.11
30	7.5	3.1	189	11	---	21	15	4800	24	.00	.15	.10
31	6.3	---	127	11	---	22	---	1230	---	16	.15	---
TOTAL	2810.84	297.0	3309.2	827	451.4	2394.0	1879	7116.0	5066	184.77	149.88	109.92
MEAN	90.7	9.90	107	26.7	16.1	77.2	62.6	230	169	5.96	4.83	3.66
MAX	1640	128	794	90	78	1560	553	4800	1940	16	67	46
MIN	.00	3.1	3.1	11	6.4	8.0	15	6.1	11	.00	.14	.10
AC-FT	5580	589	6560	1640	895	4750	3730	14110	10050	366	297	218
CFSM	.28	.03	.33	.08	.05	.24	.20	.72	.53	.02	.02	.01
IN.	.33	.03	.38	.10	.05	.28	.22	.82	.59	.02	.02	.01

08159000 UNION CREEK AT U.S. HIGHWAY 183, AUSTIN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995, BY WATER YEAR (WY)

MEAN	43.7	27.2	106	57.8	85.4	86.8	115	201	226	33.4	7.79	9.09
MAX	282	231	1526	487	908	576	847	1767	2305	133	47.6	48.0
(WY)	1926	1986	1992	1992	1992	1992	1926	1929	1981	1981	1983	1986
MIN	.000	.27	.000	.002	1.65	1.83	1.39	1.40	.010	.000	.000	.000
(WY)	1929	1994	1990	1990	1925	1925	1994	1984	1925	1925	1925	1988

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1924 - 1995
ANNUAL TOTAL	7968.88	24595.01	
ANNUAL MEAN	21.8	67.4	81.9
HIGHEST ANNUAL MEAN			379
LOWEST ANNUAL MEAN			1.49
HIGHEST DAILY MEAN	1640 Oct 8	4800 May 30	30500 May 28 1929
LOWEST DAILY MEAN	.00 Apr 18	.00 Oct 1	.00 Jun 3 1925
ANNUAL SEVEN-DAY MINIMUM	.00 Jun 23	.01 Oct 1	.00 Jun 3 1925
INSTANTANEOUS PEAK FLOW		9940 May 30	76000 May 28 1929
INSTANTANEOUS PEAK STAGE		19.00 May 30	30.50 Dec 21 1991
ANNUAL RUNOFF (AC-FT)	15810	48780	59360
ANNUAL RUNOFF (CFSM)	.068	.21	.26
ANNUAL RUNOFF (INCHES)	.92	2.85	3.47
10 PERCENT EXCEEDS	18	89	128
50 PERCENT EXCEEDS	1.2	11	6.6
90 PERCENT EXCEEDS	.00	.39	.00

## 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<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1973 to September 1975, daily discharges estimated by hydrographic comparison with streamflow stations 08158000 and 08159500. March 1960 to current year.

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 Sept. 30, 1973, and Oct. 1, 1975 to Oct. 28, 1986, at a site 400 ft upstream from present site and at same datum.

REMARKS.--No estimated daily discharge. Records good. There are many diversions above station for irrigation and for municipal supply. Regulation is the same as that for Colorado River at Austin (station 08158000). 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 pumping upstream from this station. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft July 7 or 8, 1869. Flood of June 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 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1400	534	363	966	426	747	682	1180	28500	4050	1730	1410
2	1580	553	398	834	590	528	714	1400	27500	3970	1980	1750
3	1210	529	449	743	548	491	694	1670	20700	3990	2470	1440
4	1000	757	516	1470	513	675	767	1630	19600	3480	1200	1430
5	1060	4280	486	2360	429	699	1640	1810	19200	2160	1460	1440
6	937	1960	461	2400	459	664	4700	1830	18200	1680	1600	1450
7	946	855	456	2380	469	659	1430	1810	9710	1990	1240	1430
8	5750	696	451	1120	457	837	809	3910	2560	1910	1490	1950
9	10100	597	441	752	464	736	665	5690	1700	1860	1340	2170
10	1960	531	421	575	496	626	593	2170	1740	1840	1310	1780
11	1510	506	405	490	524	610	634	1720	3230	1910	1290	1600
12	1270	477	402	1080	522	598	719	1510	6010	1840	1280	1550
13	872	488	400	4230	522	12000	714	1830	2630	1860	1650	1550
14	850	486	414	1840	522	8650	688	1790	1570	1840	1490	1530
15	728	484	2310	844	522	1430	691	2030	2160	1820	1140	1790
16	1190	478	18600	656	543	948	692	2070	2320	1810	1280	1620
17	5520	503	4270	573	532	886	700	1750	2300	1790	1250	1590
18	3020	487	1260	535	520	725	717	1940	2200	1840	1290	1560
19	3350	478	842	515	519	639	932	2120	2310	1830	1310	1560
20	1110	465	713	492	507	602	749	1960	2270	1910	1030	1690
21	818	445	626	470	509	563	1740	1920	2040	1760	1380	1930
22	710	431	601	452	508	550	1760	1810	2230	1670	1290	1390
23	665	419	573	443	494	526	2230	1890	2220	1430	1190	1230
24	658	411	543	440	551	518	2260	2050	2120	1440	1290	1220
25	3980	411	520	431	540	675	2200	2070	2140	1360	1280	1320
26	2870	405	496	462	805	757	1480	1990	2160	1430	1440	1070
27	1210	409	490	446	838	574	706	2290	2120	1560	1180	1150
28	888	407	3680	562	731	704	621	2250	2140	1490	1600	1150
29	737	410	9200	522	---	630	1090	6480	2850	1490	1410	1280
30	645	539	2400	470	---	1100	1090	17500	4360	1260	1510	1030
31	564	---	1260	440	---	765	---	24500	---	1280	1430	---
TOTAL	59108	20431	54447	29993	15060	41112	35107	106570	200790	61550	43830	45060
MEAN	1907	681	1756	968	538	1326	1170	3438	6693	1985	1414	1502
MAX	10100	4280	18600	4230	838	12000	4700	24500	28500	4050	2470	2170
MIN	564	405	363	431	426	491	593	1180	1570	1260	1030	1030
AC-FT	117200	40520	108000	59490	29870	81550	69630	211400	398300	122100	86940	89380

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995#, BY WATER YEAR (WY)

MEAN	1422	1295	1561	1817	2220	2105	2462	3477	4388	2394	1935	1774
MAX	6380	11330	14770	17490	29140	16910	11080	10420	23620	5506	3705	4930
(WY)	1974	1975	1992	1992	1992	1992	1977	1975	1987	1961	1961	1974
MIN	291	94.6	111	109	138	131	565	1471	1489	1302	1182	1048
(WY)	1965	1964	1964	1964	1964	1964	1962	1962	1993	1967	1964	1971

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1960 - 1995#
ANNUAL TOTAL	503735	713058	
ANNUAL MEAN	1380	1954	2235
HIGHEST ANNUAL MEAN			9073
LOWEST ANNUAL MEAN			828
HIGHEST DAILY MEAN	18600	Dec 16	65800
LOWEST DAILY MEAN	260	Mar 22	75
ANNUAL SEVEN-DAY MINIMUM	348	Mar 17	84
INSTANTANEOUS PEAK FLOW			33600
INSTANTANEOUS PEAK STAGE			22.70
ANNUAL RUNOFF (AC-FT)	999200	1414000	1619000
10 PERCENT EXCEEDS	2400	2720	4190
50 PERCENT EXCEEDS	1180	1220	1590
90 PERCENT EXCEEDS	413	470	238

# Period of regulated streamflow

## COLORADO RIVER MAIN STEM

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<sup>2</sup>, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--1979-82 (discharge measurements only), April 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 210.04 ft above sea level. Dec. 12, 1979 to Sept. 30, 1982, discharge measurements only were made at old State Highway 71 bridge, 1.0 mi downstream and at different datum.

REMARKS.--No estimated daily discharge. Records good. At times, low-flow releases from Lake Travis (station 08154500) are made for generation of electric power to fulfill downstream water contracts. There are many diversions above station for irrigation and for municipal supply. Regulation is the same as that for Colorado River at Austin (08158000), and Colorado River at Bastrop (08159200). One observation of water temperature was made during the year. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, about 56.7 ft on July 9, 1869 (from marble high-water marker in LaGrange). Stages of other floods are as follows: Dec. 5, 1913, 56.4 ft, from floodmark; June 17, 1935, 50.84 ft, from floodmarks (discharge 255,000 ft<sup>3</sup>/s from rating curve extended above 200,000 ft<sup>3</sup>/s); July 27, 1938, 42.95 ft (discharge, 200,000 ft<sup>3</sup>/s). This data was collected at a site 2.6 mi downstream at streamflow station Colorado River at LaGrange (discontinued) at different datum than at present site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1480	771	476	2450	593	2900	1120	1170	33000	4720	1270	1160
2	1440	671	448	1890	548	2440	760	1260	33000	4160	2040	1200
3	1630	615	416	1610	626	2050	855	1470	27900	4020	2080	1450
4	1310	593	527	1410	677	1400	1560	1750	20300	3980	2270	1250
5	1090	612	523	2050	640	910	4630	1730	18600	3350	1440	1230
6	1140	4080	511	2920	598	951	9020	1860	18200	2280	1510	1230
7	981	3050	460	2930	513	1040	9320	1860	16900	1870	1620	1250
8	1110	1420	446	2850	545	1310	8540	2360	9840	2060	1330	1230
9	6660	1030	425	1770	519	1320	6770	5790	3520	2000	1490	1700
10	7260	782	463	1330	573	1070	4930	4590	2640	1940	1490	1730
11	2250	714	472	1070	537	910	2140	2320	2800	1910	1380	1520
12	1690	617	427	940	582	844	765	1870	5100	1950	1400	1410
13	1380	580	401	3290	592	5010	873	1640	6090	1880	1360	1370
14	1070	541	431	5760	614	20100	830	1860	3100	1870	1670	1370
15	946	512	452	2610	616	12600	816	1810	2230	1840	1580	1410
16	2100	497	9900	1540	601	2960	788	1970	2570	1820	1240	1560
17	20200	488	21200	1200	621	2030	780	1950	2650	1800	1260	1420
18	33100	486	8440	1040	610	1690	816	1940	2600	1770	1170	1390
19	18000	480	2760	953	595	1350	777	2080	2490	1800	1160	1380
20	7860	473	1950	856	574	1130	1040	2050	2550	1780	1180	1410
21	3210	457	1570	789	558	1000	844	1910	2480	1830	942	1530
22	2020	434	1360	740	541	907	1710	1850	2290	1720	1230	1730
23	1580	414	1230	690	554	839	1890	1770	2410	1640	1160	1340
24	1300	411	1150	651	552	759	2330	1840	2390	1470	1070	1190
25	1180	406	1080	641	557	717	2350	1960	2290	1460	1080	1170
26	2640	408	1020	778	645	783	2340	1970	2280	1400	1070	1290
27	4310	398	961	1090	868	1030	1690	1920	2270	1460	1190	1050
28	2020	377	1700	835	2480	732	913	2210	2220	1580	1010	1130
29	1470	377	13000	714	---	860	652	2250	2540	1480	1270	1130
30	1180	367	12800	750	---	940	1020	12700	6420	1570	1150	1220
31	952	---	4350	662	---	1130	---	28000	---	1380	1220	---
TOTAL	134559	23061	91349	48809	18529	73712	72869	101710	243670	65790	42332	40450
MEAN	4341	769	2947	1574	662	2378	2429	3281	8122	2122	1366	1348
MAX	33100	4080	21200	5760	2480	20100	9320	28000	33000	4720	2270	1730
MIN	946	367	401	641	513	717	652	1170	2220	1380	942	1050
AC-FT	266900	45740	181200	96810	36750	146200	144500	201700	483300	130500	83970	80230

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1995#, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	1355	452	3178	4059	5378	3849	2778	3524	4271	2123	1787	1647	
MAX	4341	769	16350	18640	31160	18080	7047	8290	11980	2941	2096	1902	
(WY)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
MIN	725	244	248	247	356	403	987	1915	1989	1763	1366	1313	
(WY)	1991	1989	1990	1990	1990	1990	1990	1988	1993	1989	1995	1993	

## SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1988 - 1995#
ANNUAL TOTAL	656715	956840	
ANNUAL MEAN	1799	2621	2897
HIGHEST ANNUAL MEAN			9913
LOWEST ANNUAL MEAN			1157
HIGHEST DAILY MEAN	33100	Oct 18	84000
LOWEST DAILY MEAN	285	Mar 23	167
ANNUAL SEVEN-DAY MINIMUM	391	Mar 19	170
INSTANTANEOUS PEAK FLOW			37000
INSTANTANEOUS PEAK STAGE			28.26
ANNUAL RUNOFF (AC-FT)	1303000	1898000	43.32
10 PERCENT EXCEEDS	2630	4610	2099000
50 PERCENT EXCEEDS	1420	1380	4550
90 PERCENT EXCEEDS	434	543	1550

# Period of regulated streamflow.

## 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<sup>2</sup>.

PERIOD OF RECORD.--April 1962 to current year.

REVISED RECORDS.--WSP 2122: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 210.82 ft above sea level. Prior to Oct. 1, 1975, at datum 10.00 ft higher.

REMARKS.--No estimated daily discharge. Records fair. There are no known diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, about 33.4 ft in late June or early July 1940, from information by State Department of Highways and Public Transportation and local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peaks greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.4	1.4	2.7	2.2	2.1	2.2	1.1	56	.62	3.6	.03
2	1.3	1.4	3.4	2.4	2.1	1.4	2.3	1.1	3.6	.59	1.6	.01
3	1.3	1.4	3.6	2.2	2.0	1.4	2.2	1.1	1.9	.85	1.0	.02
4	1.2	1.6	1.8	2.2	1.9	1.4	19	1.1	1.3	1.7	.82	.04
5	1.2	3.2	1.6	1.8	1.9	1.4	31	1.1	1.1	2.0	.82	.06
6	1.1	1.6	1.5	1.8	1.9	1.4	11	1.2	.94	1.2	.97	.10
7	1.1	1.5	1.5	1.7	2.1	5.0	4.1	1.1	.76	.67	.89	.08
8	8.0	1.5	1.5	1.6	2.1	1.9	3.0	31	.74	.64	1.0	.07
9	1.8	1.4	1.5	1.6	1.1	1.3	2.4	4.7	.66	.59	.75	.04
10	1.6	1.3	2.3	1.6	1.1	1.2	2.1	2.8	.66	.65	.56	.03
11	1.5	1.3	1.7	1.6	1.0	1.1	1.9	2.5	2.1	.77	.66	.02
12	1.5	1.3	1.6	1.6	.93	1.1	1.8	2.9	.77	.59	.55	.31
13	1.5	1.3	1.6	2.1	.93	190	1.7	2.4	.68	.69	.58	.61
14	1.7	1.3	4.3	1.7	1.1	12	1.6	2.1	.67	.84	.82	.50
15	1.8	1.3	4.7	1.6	1.2	4.8	1.6	1.9	.69	.55	.83	.60
16	38	1.3	3.7	1.6	1.2	4.8	1.6	1.8	.82	.51	.60	.39
17	186	1.3	2.3	21	1.0	3.8	1.6	1.9	.63	.53	.39	.53
18	176	1.8	1.9	24	.99	3.1	1.6	2.2	.59	.59	.33	.24
19	19	2.2	1.7	4.9	.99	3.0	1.5	1.7	.66	.48	.39	.17
20	5.8	1.6	1.7	3.0	.97	2.5	1.5	1.6	.65	.43	.22	.33
21	3.6	1.5	1.7	2.4	.93	2.4	1.4	1.6	.63	.43	.24	.54
22	2.7	1.4	1.7	12	.93	2.2	1.3	1.6	.55	.42	.22	1.1
23	2.2	1.4	1.6	6.8	.93	2.0	1.3	1.6	.52	.39	.17	.84
24	1.9	1.4	1.6	3.3	.93	2.0	1.2	1.7	.50	.36	.17	.57
25	1.8	1.4	1.5	2.6	.95	2.1	1.2	1.6	.43	.36	.13	.51
26	1.6	1.4	1.5	19	1.3	2.0	1.2	1.6	.37	.41	.12	.48
27	1.5	1.4	1.5	14	1.3	2.4	1.2	2.0	.42	.36	.38	.40
28	1.5	1.4	25	4.6	13	2.2	1.2	1.8	1.9	.35	.22	.36
29	1.4	1.4	7.6	3.1	---	1.7	1.2	1.6	1.9	.35	.13	.39
30	1.4	1.4	3.4	2.6	---	1.8	1.2	35	.87	.68	.09	.16
31	1.4	---	2.8	2.3	---	2.2	---	14	---	.97	.07	---
TOTAL	473.8	45.1	95.2	155.4	48.98	267.7	108.1	131.4	84.01	20.57	19.32	9.53
MEAN	15.3	1.50	3.07	5.01	1.75	8.64	3.60	4.24	2.80	.66	.62	.32
MAX	186	3.2	25	24	13	190	31	35	56	2.0	3.6	1.1
MIN	1.1	1.3	1.4	1.6	.93	1.1	1.2	1.1	.37	.35	.07	.01
AC-FT	940	89	189	308	97	531	214	261	167	41	38	19
CFSM	.88	.09	.18	.29	.10	.50	.21	.25	.16	.04	.04	.02
IN.	1.02	.10	.20	.33	.11	.58	.23	.28	.18	.04	.04	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

	MEAN	4.96	2.41	4.83	6.86	7.62	6.32	7.61	13.0	10.3	1.08	1.30	3.35
MAX	49.0	17.8	25.4	31.9	67.5	38.1	39.9	55.5	83.4	4.44	17.4	38.5	
(WY)	1971	1986	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	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1962 - 1995

ANNUAL TOTAL	1363.02	1459.11	
ANNUAL MEAN	3.73	4.00	
HIGHEST ANNUAL MEAN			5.85
LOWEST ANNUAL MEAN			.82
HIGHEST DAILY MEAN	190	May 13	1180
LOWEST DAILY MEAN	.54	Aug 13	.00
ANNUAL SEVEN-DAY MINIMUM	.54	Aug 13	.00
INSTANTANEOUS PEAK FLOW			990
INSTANTANEOUS PEAK STAGE			16.44
ANNUAL RUNOFF (AC-FT)	2700	2890	4230
ANNUAL RUNOFF (CFSM)	.22	.23	.34
ANNUAL RUNOFF (INCHES)	2.93	3.14	4.59
10 PERCENT EXCEEDS	2.9	3.6	5.1
50 PERCENT EXCEEDS	1.6	1.4	.88
90 PERCENT EXCEEDS	.82	.39	.09



## COLORADO RIVER MAIN STEM

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<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--January 1903 to December 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 October 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 analyses: October 1967 to September 1971. Chemical and biochemical analyses: February 1968 to September 1981. Sediment records: March 1957 to September 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. Sept. 17, 1930 to June 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.

REMARKS.--Records good. Low-flow releases from Lake Travis, 251 mi upstream, are made for the generation of electric power to fulfill downstream water contracts. During the current year, the Lower Colorado River Authority also reported that no water was diverted from the river upstream to Cedar Creek Reservoir. Cedar Creek Reservoir is located 10 mi north of the Colorado River and 3.5 mi west of Fayetteville. 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<sup>2</sup> area in the Cummins Creek watershed. There are many other diversions above this station for irrigation and for municipal supply. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--20 years (water years 1917-36) 3,809 ft<sup>3</sup>/s (2,760,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1917-36).--Maximum discharge, 190,000 ft<sup>3</sup>/s June 18, 1935 (gage height, 48.5 ft), present site and datum, computed on basis of records for station near Eagle Lake; minimum, 93 ft<sup>3</sup>/s Sept. 1, 1918.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 51.6 ft, present datum, in July 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 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1560	1530	487	3530	725	3010	1300	1230	34500	5620	1290	1440
2	1380	1360	572	2460	658	2370	1180	1310	35400	4520	1360	1370
3	1340	1220	693	1940	609	1330	936	1380	32000	4310	1940	1400
4	1450	1150	610	1580	635	929	1350	1660	24000	4250	2340	1560
5	1240	1150	635	1360	682	803	6620	1830	19800	3920	2010	1390
6	1060	1460	626	2230	649	837	11400	1920	18800	3020	1240	1380
7	1070	4820	628	2780	617	946	10300	2010	18000	2240	1380	1380
8	1210	2750	602	2780	552	972	5590	2710	12200	2090	1440	1410
9	1300	1650	572	2540	568	1120	2930	3600	5680	2200	e1180	1390
10	8150	1220	565	1610	563	1080	2020	6830	3840	2080	e1330	1990
11	4350	1000	593	1230	576	911	1500	3700	3730	2040	1250	1820
12	2040	896	590	1030	551	791	1250	2500	4830	2040	1220	1680
13	1600	813	552	915	586	5950	1170	2130	7050	2030	1210	1540
14	1360	758	546	4360	609	13000	1220	1960	4730	1970	1270	1450
15	1070	712	724	4690	630	20000	1180	2050	3170	1940	1500	1370
16	970	688	1810	2240	622	6930	1130	2030	3000	1900	1410	1420
17	23300	671	15300	1490	606	3400	1110	2190	3260	1940	1130	1590
18	52100	671	16300	1290	619	2550	1090	2050	3240	1860	1190	1460
19	44800	665	4840	1050	615	2140	1110	2210	3150	1870	1180	1430
20	19900	654	2860	953	597	1740	1100	2250	3070	1850	1180	1400
21	8190	619	2100	854	579	1470	1230	2200	3100	1830	1190	1480
22	4910	598	1630	798	564	1310	1120	2050	2840	1860	1050	1630
23	3750	570	1320	905	559	1190	1880	1980	2910	1720	1260	1870
24	3190	551	1140	732	563	1090	2080	1920	2870	1590	1210	1390
25	2700	550	1030	685	571	990	2440	2010	2780	1420	1170	1230
26	2410	545	938	967	594	940	2440	2090	2710	1390	1220	1210
27	4330	545	874	3600	658	984	2410	2090	2710	1320	1220	1230
28	4070	520	982	1640	2510	1100	1770	2140	2680	1380	1330	1080
29	2640	507	6690	1030	---	908	1160	2380	2790	1480	1190	1110
30	2150	490	14400	843	---	1030	980	4890	5630	1400	1430	1100
31	1810	---	7460	807	---	1110	---	26200	---	1420	1360	---
TOTAL	211400	31333	88669	54919	18867	82931	72996	97500	274470	70500	41680	43200
MEAN	6819	1044	2860	1772	674	2675	2433	3145	9149	2274	1345	1440
MAX	52100	4820	16300	4690	2510	20000	11400	26200	35400	5620	2340	1990
MIN	970	490	487	685	551	791	936	1230	2680	1320	1050	1080
AC-FT	419300	62150	175900	108900	37420	164500	144800	193400	544400	139800	82670	85690

COLORADO RIVER MAIN STEM

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08161000 COLORADO RIVER AT COLUMBUS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995#, BY WATER YEAR (WY)

MEAN	2569	2157	2170	2426	2826	2440	3231	4517	5120	3297	2149	2173
MAX	25310	13360	16450	19800	33800	20220	14440	27680	28660	25710	10030	8859
(WY)	1937	1975	1992	1992	1992	1992	1977	1957	1987	1938	1938	1961
MIN	352	204	162	182	203	275	543	1257	1627	1191	756	498
(WY)	1957	1964	1964	1964	1967	1952	1951	1937	1942	1937	1937	1937

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995#	
ANNUAL TOTAL	743267		1088465		2921	
ANNUAL MEAN	2036		2982		10810	
HIGHEST ANNUAL MEAN					914	
LOWEST ANNUAL MEAN					161000	
HIGHEST DAILY MEAN	52100	Oct 18	52100	Oct 18	110	Jul 29 1938
LOWEST DAILY MEAN	389	Mar 24	487	Dec 1	119	Nov 5 1978
ANNUAL SEVEN-DAY MINIMUM	476	Mar 20	521	Nov 25	175000	Jan 5 1964
INSTANTANEOUS PEAK FLOW			56500	Oct 18	41.28	Jul 29 1938
INSTANTANEOUS PEAK STAGE			37.57	Oct 18	2116000	Jul 29 1938
ANNUAL RUNOFF (AC-FT)	1474000		2159000		5490	
10 PERCENT EXCEEDS	2770		4830		1730	
50 PERCENT EXCEEDS	1380		1410		420	
90 PERCENT EXCEEDS	547		616			

e Estimated

# Period of regulated streamflow.

## COLORADO RIVER MAIN STEM

08162000 COLORADO RIVER AT WHARTON, TX  
(National stream-quality accounting and radiochemical network)

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 Company bridge, 12 mi upstream from Jones Creek, and at mile 66.6.

DRAINAGE AREA.--42,003 mi<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--July 1916 to August 1918 (intermittent periods), March 1919 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to current year. June to November 1901 and May to September 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.

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 June 1, 1956, nonrecording gage 100 ft upstream at datum 13.00 ft higher. June 1, 1966 to Sept. 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.

REMARKS.--Records fair. There are many diversions above station for irrigation, municipal supply, cooling water for thermal-electric power plant, and for oil field operations. For statement regarding upstream regulation, see station 08161000. Radio telemeter at station.

AVERAGE DISCHARGE PRIOR TO REGULATION.--5 years (water years 1920-25) 3,680 ft<sup>3</sup>/s (2,666,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1920-25).--Maximum discharge observed, 39,600 ft<sup>3</sup>/s Oct. 15, 1919; no flow Aug. 6, 1925 (result of pumping).

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 July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 51.2 ft, present datum, furnished by National Weather Service (discharge, 159,000 ft<sup>3</sup>/s), from rating curve defined by current-meter measurements below 145,000 ft<sup>3</sup>/s. Flood of July 30, 1938, reached a stage of 50.4 ft, present datum, observed by U.S. Geological Survey personnel (discharge, 145,000 ft<sup>3</sup>/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	703	2800	812	7890	1200	2170	1200	336	26500	4220	1090	634
2	738	2470	927	4060	1100	3630	1200	293	32400	6090	1170	617
3	704	2240	2600	2900	1020	2940	1350	529	34800	4600	1080	639
4	596	2050	1240	2250	988	2040	1260	530	34100	4030	1600	566
5	698	1940	1030	1840	917	1530	2450	585	28400	3600	1750	654
6	847	1860	892	1600	986	1290	8590	801	22000	3350	1850	605
7	841	1860	838	2000	968	1360	12800	866	20200	2660	1280	565
8	850	4860	863	2790	896	2300	11200	1250	19200	1860	1150	683
9	1100	3690	820	2880	862	2200	6500	2590	14400	1410	1150	668
10	1420	2480	796	2750	789	1790	3720	3840	6750	1370	967	e700
11	7170	1930	785	2090	794	1740	2360	6860	4080	1280	960	e1200
12	5460	1680	809	1760	752	1560	1760	4350	3470	1180	975	e1000
13	2450	1490	804	3410	725	1930	1440	2760	3670	1120	908	e900
14	1740	1320	772	3200	719	9110	1260	2080	6100	1140	1020	e800
15	1470	1170	777	4580	741	16400	1220	1690	4630	1100	1110	e700
16	1390	1090	884	5260	773	18300	1190	1600	2590	1070	1390	e750
17	1760	1030	2250	3020	787	6960	1210	1330	1820	1060	1350	e800
18	32000	1010	15800	2180	768	3770	1130	1260	1890	1070	1040	e1000
19	47600	972	15200	1880	778	2970	1100	1160	1930	1100	900	e900
20	48400	979	5680	1620	783	2490	1030	1090	1850	1090	847	e850
21	31200	980	3380	1420	807	2080	992	1330	1830	1130	816	e900
22	12200	909	2520	1260	797	1790	963	1270	1880	1130	852	e1100
23	7640	878	2040	1200	747	1560	935	1140	1740	1160	848	e1600
24	5850	871	1710	1290	695	1390	1320	1010	1590	1110	847	e1500
25	4820	847	1470	1170	714	1300	1670	880	1640	1040	898	e1300
26	4010	827	1310	1130	719	1190	1910	901	1600	932	789	1040
27	3470	814	1180	1220	766	1100	1800	1070	1440	895	741	889
28	4990	810	1180	3590	1060	1070	1710	1210	1350	850	745	804
29	5210	796	1380	2480	---	1530	1240	1330	1870	932	723	627
30	3740	773	7000	1680	---	1350	702	2170	2880	1060	662	559
31	3210	---	14300	1350	---	1070	---	7420	---	1070	631	---
TOTAL	244277	47426	92049	77750	23651	101910	77212	55531	288600	55709	32139	25550
MEAN	7880	1581	2969	2508	845	3287	2574	1791	9620	1797	1037	852
MAX	48400	4860	15800	7890	1200	18300	12800	7420	34800	6090	1850	1600
MIN	596	773	772	1130	695	1070	702	293	1350	850	631	559
AC-FT	484500	94070	182600	154200	46910	202100	153100	110100	572400	110500	63750	50680

COLORADO RIVER MAIN STEM

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(National stream-quality accounting and radiochemical network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995#, BY WATER YEAR (WY)

MEAN	2166	2358	2306	2579	3044	2598	3072	4251	4723	2385	1390	1911
MAX	12350	13870	15060	21810	35520	21550	13730	27300	30910	12490	3916	9394
(WY)	1958	1975	1992	1992	1992	1992	1977	1957	1987	1940	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

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1939 - 1995#		
ANNUAL TOTAL	700665		1121804				
ANNUAL MEAN	1920		3073				
HIGHEST ANNUAL MEAN					2727		
LOWEST ANNUAL MEAN					11120		1992
HIGHEST DAILY MEAN	48400		48400		615		1964
LOWEST DAILY MEAN	385		293		90600		Jul 3 1940
ANNUAL SEVEN-DAY MINIMUM	473		539		42		Aug 22 1964
INSTANTANEOUS PEAK FLOW			49600		110		Dec 11 1956
INSTANTANEOUS PEAK STAGE			40.69		100000		Jul 3 1940
ANNUAL RUNOFF (AC-FT)	1390000		2225000		48.99		Jul 3 1940
10 PERCENT EXCEEDS	2950		5550		1975000		
50 PERCENT EXCEEDS	947		1260		5390		
90 PERCENT EXCEEDS	532		749		1340		
					468		

e Estimated

# Period of regulated streamflow.

08162000 COLORADO RIVER AT WHARTON, TX--Continued  
(National stream-quality accounting and radiochemical network)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1967 to June 1982. Sediment analyses: October 1974 to current year. Radiochemical analyses: December 1973 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1944 to September 1992.

WATER TEMPERATURE: October 1945 to September 1948, March 1950 to September 1992.

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 regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the U.S. Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 932 microsiemens Sept. 7, Nov. 16, 1990; minimum daily, 139 microsiemens Nov. 12, 1985.

WATER TEMPERATURE: Maximum daily, 35.0°C July 26, 1954; minimum daily, 0.0°C Dec. 26, 1983.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	
MAR 08...	1410	2440	448	7.3	12.0	86	9.1	83	2.3	4600	720	170	
MAY 02...	1048	303	712	8.2	21.0	6.2	8.8	99	2.0	44	60	270	
JUN 20...	1305	2000	545	7.9	27.0	32	9.0	114	5.3	44	68	190	
JUL 31...	1000	1030	637	7.8	27.0	20	6.6	84	1.5	48	84	240	
SEP 06...	1115	636	617	8.0	30.0	7.3	6.9	92	1.2	40	36	210	
DATE		HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
MAR 08...	45	52	10	24	0.8	4.9	0	154	126	39	36	0.30	
MAY 02...	46	75	19	40	1	3.9	0	268	220	42	64	0.40	
JUN 20...	38	51	16	28	0.9	4.0	0	190	156	41	46	0.30	
JUL 31...	68	58	23	38	1	4.1	0	209	172	43	66	0.40	
SEP 06...	52	50	21	37	1	4.3	0	195	160	41	64	0.40	
DATE		SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	
MAR 08...	11	281	260	1.27	1.27	0.030	1.30	1.30	0.100	2.3	0.90	1.0	
MAY 02...	9.8	412	389	0.690	0.690	0.010	0.700	0.700	<0.015	1.0	0.30	0.30	
JUN 20...	7.4	308	288	0.070	0.070	0.010	0.080	0.080	<0.015	1.2	1.1	1.1	
JUL 31...	12	375	350	0.560	0.560	0.030	0.590	0.590	0.050	1.2	0.55	0.60	
SEP 06...	11	347	328	0.560	0.560	0.010	0.570	0.570	<0.015	0.87	0.30	0.30	
DATE		PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)
MAR 08...	0.370	0.230	0.190	0.58	241	1590	75	50	95	<3	69	7	
MAY 02...	0.120	0.100	0.090	0.28	17	14	99	--	--	--	--	--	
JUN 20...	0.140	0.010	0.020	0.06	108	583	94	<10	85	<3	5	15	
JUL 31...	0.150	0.100	0.100	0.31	46	128	94	--	--	--	--	--	
SEP 06...	0.180	0.180	0.170	0.52	21	36	88	<10	89	<3	<3	13	



COLORADO RIVER MAIN STEM

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(National stream-quality accounting and radiochemical network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L)	RA-226 2 SIGMA WATER, DISS, (PCI/L)
MAR 08...	4	<10	2	<1	<1.0	320	<6	--	0.66	<1.0	--
MAY 02...	--	--	--	--	--	--	--	--	--	--	--
JUN 20...	1	<10	<1	<1	<1.0	420	6	--	--	--	--
JUL 31...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	8	20	1	<1	<1.0	460	<6	0.10	0.90	0.0	0.020

## 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<sup>2</sup>, approximately, of which 11,403 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--July 1940 (WSP 1046), April 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 and biochemical analyses: October 1974 to September 1975.

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

GAGE.--Water-stage recorder. Datum of gage is sea level. July 2-6, 1940, nonrecording gage at highway bridge, 6,300 ft upstream at datum 30.60 ft lower. On February 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.

REMARKS.--Records good. There are diversions above station for irrigation and for municipal supply. For statement regarding regulation by National Resource Conservation Service (formerly Soil Conservation Service) floodwater-retarding structures, see station 08161000. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since 1869, 56.1 ft Dec. 10, 1913. Flood in July 1869 probably reached about same elevation. Elevation of other floods are as follows: May 8, 1922, 55.4 ft; June 1929, 55.0 ft; June 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, July 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; no flow at times in 1951-53 and 1956.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456	2860	899	13300	1410	2370	1460	551	20900	4640	600	405
2	535	2600	918	6460	1270	3670	1380	203	34300	5540	696	349
3	499	2300	8460	4350	1170	3650	1430	147	37300	4430	818	354
4	438	2070	8910	3370	1070	2730	4260	238	37000	3620	829	353
5	374	1920	4020	2740	1000	1930	9430	237	32000	3270	1230	265
6	481	1790	1850	2250	969	1520	9900	298	22500	2940	1530	400
7	644	1720	1430	2010	1000	3090	12400	507	17800	2490	1300	424
8	807	2830	1280	2810	964	4270	12400	850	16500	1760	750	361
9	928	4520	1140	3230	963	3240	8690	2070	13800	1070	753	299
10	1240	3120	1090	3230	888	2210	5110	3320	7130	727	698	304
11	2520	2280	1000	2830	863	1830	3470	4780	3600	668	562	312
12	5860	1860	928	2170	829	1670	2350	5220	2610	743	611	636
13	3200	1660	931	4010	808	2900	1810	2980	2420	242	611	675
14	1910	1510	951	5310	803	7040	1360	2150	3590	203	643	549
15	1600	1350	923	3700	820	14200	1230	1550	4550	412	843	465
16	1500	1210	935	5880	847	22100	1190	1160	2630	389	1060	499
17	1400	1170	1100	4370	874	12200	1230	899	1390	393	1180	536
18	21900	1230	e8200	2980	882	5620	1130	703	958	549	1050	538
19	64700	1220	e19000	2660	870	4050	1050	757	1070	666	829	698
20	69800	1170	9190	2120	845	3140	649	802	1040	523	718	642
21	56900	1150	5210	1750	827	2570	617	961	904	474	643	663
22	24500	1170	3900	1620	831	2200	904	935	933	494	600	912
23	10600	1110	3040	1840	819	1910	939	720	926	529	624	1370
24	6790	1090	2490	1510	804	1710	900	549	756	562	540	1620
25	5540	1080	2080	1460	795	1480	1600	365	698	494	559	1660
26	4670	1040	1760	1510	803	1410	1770	269	687	430	564	1300
27	3930	1030	1550	3890	819	1350	1940	414	656	332	457	1070
28	3830	984	1600	3410	1190	1070	1790	638	653	286	425	792
29	5610	963	2370	3650	---	1360	1700	1500	551	247	431	671
30	4380	918	3120	2290	---	3080	1090	3420	2910	369	402	525
31	3620	---	13400	1690	---	2030	---	5720	---	607	370	---
TOTAL	311162	50925	113675	104400	26033	123600	95179	44913	272762	40099	22926	19647
MEAN	10040	1697	3667	3368	930	3987	3173	1449	9092	1294	740	655
MAX	69800	4520	19000	13300	1410	22100	12400	5720	37300	5540	1530	1660
MIN	374	918	899	1460	795	1070	617	147	551	203	370	265
AC-FT	617200	101000	225500	207100	51640	245200	188800	89080	541000	79540	45470	38970

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1995#, BY WATER YEAR (WY)

	MEAN	2285	2241	2289	2672	3363	2584	2786	4148	4626	1528	842	1747
MAX	12820	13470	16200	25780	42200	25780	13410	27750	30360	7675	2876	11160	
(WY)	1958	1975	1992	1992	1992	1992	1977	1957	1987	1961	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	

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1949 - 1995#	
ANNUAL TOTAL	758364		1225321		2584	
ANNUAL MEAN	2078		3357		14270	
HIGHEST ANNUAL MEAN					375	
LOWEST ANNUAL MEAN					1964	
HIGHEST DAILY MEAN	69800		69800		Oct 20 1994	
LOWEST DAILY MEAN	51		147		May 3	
ANNUAL SEVEN-DAY MINIMUM	137		312		May 1	
INSTANTANEOUS PEAK FLOW			71100		Oct 20	
INSTANTANEOUS PEAK STAGE			38.67		Oct 20	
ANNUAL RUNOFF (AC-FT)	1504000		2430000		1872000	
10 PERCENT EXCEEDS	3700		5780		5600	
50 PERCENT EXCEEDS	877		1230		903	
90 PERCENT EXCEEDS	314		457		240	

e Estimated

# Period of regulated streamflow.

## 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<sup>2</sup>.

PERIOD OF RECORD.--June 1970 to current year. Prior to October 1973, published as Tres Palacios Creek near Midfield. Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1968 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 5.38 ft above sea level. June 17, 1970, to Apr. 28, 1988, at same site and datum. Apr. 29, 1988, to Sept. 4, 1991, at right downstream end of bridge at same datum.

REMARKS.--No estimated daily discharges. Records good. There are ten known diversions above station, but amounts are unknown. An undetermined amount of water from irrigated ricefields 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 June 1960, and 35 ft in August 1945, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 19	1400	13,400	31.36	Mar. 13	2300	2,080	19.26
Dec. 3	2100	4,590	26.09	Apr. 5	0200	6,910	28.31
Jan. 1	0100	1,870	18.43	May 31	0200	6,340	27.83
Mar. 7	2000	2,920	22.22	June 30	2200	1,740	17.92

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	37	9.8	1230	37	80	33	20	1560	1300	18	16
2	18	32	13	382	30	68	22	22	597	567	25	15
3	16	27	2980	163	27	35	17	20	257	243	33	15
4	15	24	3020	105	23	23	2300	19	130	166	30	14
5	15	21	760	73	21	20	5850	19	71	180	25	22
6	14	20	318	52	19	19	1900	18	42	111	21	23
7	15	20	167	40	20	1530	572	19	33	65	20	16
8	158	18	105	32	19	1520	275	26	27	38	28	12
9	218	16	67	27	19	376	146	71	22	27	25	9.4
10	83	16	47	24	19	159	86	82	21	24	24	8.6
11	50	17	35	22	18	84	58	42	675	22	27	9.2
12	32	17	30	21	17	50	40	30	538	21	33	9.8
13	23	15	26	832	16	1060	32	22	198	18	40	23
14	20	14	24	509	17	1350	27	17	106	17	34	13
15	59	13	24	165	18	427	24	14	52	20	41	12
16	84	13	27	81	18	197	22	12	40	21	34	11
17	57	13	27	50	19	115	23	12	31	21	31	11
18	5360	14	28	100	18	68	23	48	35	27	27	11
19	12500	14	24	220	17	44	23	107	52	32	24	11
20	9510	13	22	107	16	32	22	49	39	26	21	13
21	6200	14	22	58	15	26	23	25	32	21	18	20
22	4090	12	20	41	15	25	24	18	29	21	14	53
23	1660	11	18	174	15	22	23	17	24	23	11	90
24	670	11	16	105	15	20	23	18	21	21	10	63
25	428	11	16	50	14	18	23	19	20	18	12	37
26	311	12	15	243	15	17	19	16	17	16	15	26
27	184	11	15	1150	16	16	18	42	18	19	20	16
28	124	11	91	461	17	15	22	85	18	16	19	11
29	87	10	332	185	---	16	25	430	26	14	15	8.4
30	62	9.8	190	94	---	20	19	3270	1090	15	15	8.0
31	48	---	711	54	---	50	---	4970	---	16	13	---
TOTAL	42131	486.8	9199.8	6850	530	7502	11714	9579	5821	3146	723	607.4
MEAN	1359	16.2	297	221	18.9	242	390	309	194	101	23.3	20.2
MAX	12500	37	3020	1230	37	1530	5850	4970	1560	1300	41	90
MIN	14	9.8	9.8	21	14	15	17	12	17	14	10	8.0
AC-FT	83570	966	18250	13590	1050	14880	23230	19000	11550	6240	1430	1200

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1995, BY WATER YEAR (WY)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	255	135	127	147	163	93.8	144	246	178	121	52.1	209														
MAX	1375	581	568	542	978	585	642	1080	681	623	163	1308														
(WY)	1985	1993	1992	1991	1992	1985	1991	1982	1973	1981	1974	1979														
MIN	10.2	9.53	5.87	4.83	6.66	8.09	10.4	19.7	10.4	21.7	16.9	14.5														
(WY)	1992	1991	1991	1971	1976	1981	1989	1978	1990	1986	1976	1990														

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1970 - 1995

	1994	1995	1970-1995
ANNUAL TOTAL	78252.7	98290.0	
ANNUAL MEAN	214	269	
HIGHEST ANNUAL MEAN			156
LOWEST ANNUAL MEAN			325
HIGHEST DAILY MEAN	12500	12500	12500
LOWEST DAILY MEAN	7.4	8.0	42.2
ANNUAL SEVEN-DAY MINIMUM	7.8	11	1.0
INSTANTANEOUS PEAK FLOW		13400	17000
INSTANTANEOUS PEAK STAGE		31.36	32.43
ANNUAL RUNOFF (AC-FT)	155200	195000	113100
10 PERCENT EXCEEDS	352	400	247
50 PERCENT EXCEEDS	21	24	24
90 PERCENT EXCEEDS	8.5	14	8.8

## LAVACA RIVER MAIN STEM

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<sup>2</sup>.

PERIOD OF RECORD.--July 1939 to April 1993 (continuous-record station), April 1993 to current year (peak discharges).

REVISED RECORDS.--WSP 1312: 1942(M), 1944(M). WSP 1732: 1952(M). WSP 2123: Drainage area.

GAGE.--Non-recording 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, and Apr. 20, 1960, to June 2, 1961, movable nonrecording gage at same site. June 3, 1961 to Apr. 7, 1993, water-stage recorder at site 75 ft downstream. All gages at same datum.

REMARKS.--Records good. There are no diversions above station. The Lavaca County Flood Control District No. 3 began channel rectification 1.6 mi downstream from gage in August 1983. This rectification project reached the gage on Jan. 26, 1984, and was completed in June 1984. The channel was previously rectified in 1959-60.

AVERAGE DISCHARGE.--53 years (water years 1940-92), 50.8 ft<sup>3</sup>/s (6.39 in/yr), 36,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft<sup>3</sup>/s Aug. 31, 1981 (gage height, 41.1 ft, from floodmark), from rating curve extended above 23,000 ft<sup>3</sup>/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 July 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	Unknown	11,200	a22.64	Mar. 14	Unknown	3,080	15.25

a From floodmark.

## LAVACA RIVER MAIN STEM

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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<sup>2</sup>.

PERIOD OF RECORD.--August 1938 to current year.

Water-quality records.--Chemical analyses: August 1945 to September 1977. Chemical and biochemical analyses: February 1971 to August 1993. Pesticide analyses: January 1968 to August 1981. Sediment analyses: November 1977 to August 1993.

REVISED RECORDS.--WSP 1923: 1955. WDR TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.10 ft above sea level. Prior to June 6, 1939, nonrecording gage (property of U.S. Army Corps of Engineers); June 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.

REMARKS.--No estimated daily discharge. Records good. 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<sup>3</sup>/s), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,100 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 19	1400	150,000	35.49	Apr. 6	1600	7,610	22.56
Jan. 14	1000	9,480	22.72	June 1	0800	4,800	19.02
Mar. 15	1300	5,220	19.50				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	201	94	390	113	580	243	78	4320	186	23	20
2	15	190	192	270	110	512	189	78	1270	136	28	20
3	14	185	1400	206	108	196	161	72	454	78	39	18
4	13	178	834	178	105	155	265	69	250	69	34	19
5	13	176	317	160	102	138	3530	64	182	56	30	18
6	12	171	215	148	100	130	7010	63	149	67	41	18
7	12	167	169	138	100	745	2970	62	127	202	38	16
8	105	166	145	129	97	1710	611	70	112	69	33	15
9	350	156	130	123	96	472	355	109	101	49	26	14
10	141	147	118	121	97	259	267	232	93	42	23	19
11	63	139	111	118	99	192	219	131	161	35	24	36
12	42	134	105	120	97	160	184	95	227	32	26	20
13	33	132	102	3860	95	659	164	80	173	30	25	15
14	28	129	104	7880	95	3860	150	72	117	29	34	14
15	28	127	175	1150	98	4570	135	66	89	33	27	13
16	26	124	357	427	98	674	127	58	76	31	26	13
17	26	122	251	311	98	358	121	55	68	30	27	12
18	13900	121	201	288	95	279	113	55	60	28	28	12
19	122000	137	154	233	95	234	111	57	59	25	32	12
20	57700	167	130	195	94	205	112	55	54	30	29	11
21	17800	128	120	169	91	186	108	50	51	28	26	24
22	4760	118	113	155	90	170	102	47	49	27	35	48
23	887	112	108	147	89	158	97	47	46	25	29	34
24	594	107	104	136	90	149	93	45	43	23	228	20
25	450	106	102	131	96	141	90	45	41	22	92	17
26	364	109	100	134	100	136	88	44	39	21	72	16
27	309	110	99	152	251	133	87	52	36	21	42	15
28	276	105	151	150	269	123	84	53	35	21	30	14
29	251	102	1520	138	---	212	81	68	38	21	25	13
30	230	98	1200	127	---	1140	80	527	614	21	23	12
31	215	---	451	120	---	410	---	2540	---	22	22	---
TOTAL	220673	4164	9372	18004	3068	19046	17947	5139	9134	1509	1217	548
MEAN	7118	139	302	581	110	614	598	166	304	48.7	39.3	18.3
MAX	122000	201	1520	7880	269	4570	7010	2540	4320	202	228	48
MIN	12	98	94	118	89	123	80	44	35	21	22	11
AC-FT	437700	8260	18590	35710	6090	37780	35600	10190	18120	2990	2410	1090
CFSM	8.71	.17	.37	.71	.13	.75	.73	.20	.37	.06	.05	.02
IN.	10.05	.19	.43	.82	.14	.87	.82	.23	.42	.07	.06	.02



## LAVACA RIVER MAIN STEM

08164000 LAVACA RIVER NEAR EDNA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

MEAN	385	285	249	282	395	236	444	674	624	220	82.1	319
MAX	7118	3431	2400	1564	5214	1341	2766	3239	5005	3999	713	2842
(WY)	1995	1941	1977	1979	1992	1941	1992	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

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1938 - 1995

ANNUAL TOTAL	297072		309821			
ANNUAL MEAN	814		849			
HIGHEST ANNUAL MEAN					349	1992
LOWEST ANNUAL MEAN					1385	1956
HIGHEST DAILY MEAN					6.12	
LOWEST DAILY MEAN	122000	Oct 19	122000	Oct 19	122000	Oct 19 1994
ANNUAL SEVEN-DAY MINIMUM	12	Oct 6	11	Sep 20	.00	Nov 10 1954
INSTANTANEOUS PEAK FLOW	14	Oct 1	12	Sep 14	.00	Jul 2 1956
INSTANTANEOUS PEAK STAGE			150000	Oct 19	150000	Oct 19 1994
ANNUAL RUNOFF (AC-FT)	589200		35.49	Oct 19	35.49	Oct 19 1994
ANNUAL RUNOFF (CFSM)	1.00		614500		252800	
ANNUAL RUNOFF (INCHES)	13.53		1.04		.43	
10 PERCENT EXCEEDS	312		436		5.80	
50 PERCENT EXCEEDS	44		102		404	
90 PERCENT EXCEEDS	20		21		52	
					9.0	

## 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<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 159.28 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft in June 1940; flood in July 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1400	22,400	30.83	Mar. 13	2000	4,120	22.10
Feb. 28	2100	3,530	21.34	Apr. 7	0100	3,020	20.51

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	46	23	57	31	1310	45	29	711	37	4.2	2.9
2	8.6	44	35	48	30	127	44	28	362	25	4.7	5.6
3	9.1	44	96	47	29	84	42	27	100	18	5.9	3.2
4	9.4	43	48	43	27	70	742	27	60	16	6.0	2.1
5	10	64	37	41	27	64	1300	26	45	15	4.0	1.5
6	11	53	30	41	27	59	2180	25	38	15	2.8	1.3
7	12	41	29	39	27	212	1220	25	34	15	2.2	1.3
8	76	37	29	37	28	81	151	470	30	13	2.4	1.4
9	53	35	26	36	28	59	102	358	27	12	2.2	1.3
10	31	34	26	37	28	51	81	72	25	11	1.8	1.3
11	25	32	27	36	29	48	68	46	61	10	1.5	1.3
12	23	32	26	43	28	46	59	39	126	9.6	2.1	1.3
13	23	31	26	72	28	2340	55	37	40	8.8	5.4	1.1
14	24	31	44	39	29	2330	52	34	28	8.2	6.9	.99
15	26	30	236	34	31	201	49	30	24	7.5	9.6	.91
16	41	29	168	33	32	118	48	28	21	7.1	8.7	.81
17	7460	28	78	33	30	91	46	26	20	6.7	6.1	.81
18	19400	33	51	36	29	78	45	25	19	6.1	4.9	.74
19	16300	32	41	33	29	70	43	23	19	5.7	4.6	.67
20	3040	29	38	31	28	65	42	22	17	4.9	3.5	.61
21	275	28	35	31	28	62	40	21	16	4.4	2.9	1.0
22	e187	27	33	32	27	58	39	21	15	4.1	2.6	2.6
23	e133	26	32	31	28	56	37	20	15	3.8	2.2	4.7
24	e99	25	31	30	28	53	35	20	14	3.2	3.3	3.2
25	e77	26	30	30	28	52	34	19	13	2.7	5.0	4.7
26	e65	26	29	32	44	50	34	18	13	2.7	4.4	2.4
27	e56	26	29	57	45	49	33	19	12	2.4	3.6	1.8
28	e52	25	233	53	1910	46	32	19	12	2.2	3.2	1.6
29	e49	24	647	38	---	45	32	18	194	2.1	3.1	1.3
30	e47	23	136	33	---	47	31	43	179	2.5	1.8	1.1
31	e47	---	72	32	---	47	---	1680	---	3.3	1.8	---
TOTAL	47677.0	1004	2421	1215	2713	8069	6761	3295	2290	285.0	123.4	55.54
MEAN	1538	33.5	78.1	39.2	96.9	260	225	106	76.3	9.19	3.98	1.85
MAX	19400	64	647	72	1910	2340	2180	1680	711	37	9.6	5.6
MIN	7.9	23	23	30	27	45	31	18	12	2.1	1.5	.61
AC-FT	94570	1990	4800	2410	5380	16000	13410	6540	4540	565	245	110
CFSM	4.63	.10	.24	.12	.29	.78	.68	.32	.23	.03	.01	.01
IN.	5.34	.11	.27	.14	.30	.90	.76	.37	.26	.03	.01	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	103	108	125	136	171	118	210	350	258	25.7	28.9	166																						
MAX	1538	932	943	691	1251	611	1158	1502	1792	91.6	332	1975																						
(WY)	1995	1966	1977	1968	1992	1992	1973	1972	1973	1973	1971	1974																						
MIN	.000	.035	.97	6.38	13.5	9.87	12.4	6.19	.68	.16	.014	.014																						
(WY)	1991	1991	1991	1990	1967	1991	1971	1963	1990	1990	1990	1990																						

## SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1962 - 1995
ANNUAL TOTAL	84484.6	75908.94	
ANNUAL MEAN	231	208	149
HIGHEST ANNUAL MEAN			508
LOWEST ANNUAL MEAN			11.5
HIGHEST DAILY MEAN	19400	Oct 18	30500
LOWEST DAILY MEAN	2.6	Jul 30	.00
ANNUAL SEVEN-DAY MINIMUM	3.0	Jul 27	.00
INSTANTANEOUS PEAK FLOW			53500
INSTANTANEOUS PEAK STAGE			36.05
ANNUAL RUNOFF (AC-FT)	167600	150600	108100
ANNUAL RUNOFF (CFSM)	.70	.63	.45
ANNUAL RUNOFF (INCHES)	9.47	8.51	6.11
10 PERCENT EXCEEDS	77	97	130
50 PERCENT EXCEEDS	20	29	22
90 PERCENT EXCEEDS	6.8	2.6	2.4

e Estimated

## 08164450 SANDY CREEK NEAR LOUISE, 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 9.1 mi northwest of Louise.

DRAINAGE AREA.--289 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair except those for discharges below 10 ft<sup>3</sup>/s, which are poor. Much of the low flow during the irrigation season (April to September) is drainage from rice fields irrigated by water originally diverted from the Colorado River. No known diversions above station.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 19	1500	24,900	a28.45	Mar. 14	1100	3,570	15.25
Dec. 3	2000	2,590	13.66	Apr. 5	1100	3,210	14.69
Jan. 13	2300	4,570	16.68	June 29	1600	1,980	12.34
Mar. 8	0100	2,500	13.50				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	74	3.5	287	48	734	121	2.9	459	1450	144	16
2	94	63	132	176	41	257	79	.28	358	1200	244	10
3	90	51	2360	120	35	117	59	1.5	175	710	222	15
4	79	44	1860	102	35	86	370	.65	52	509	137	14
5	89	44	862	88	29	70	2630	.01	9.1	442	86	15
6	101	45	456	72	22	63	1530	.00	.95	294	72	16
7	83	51	250	61	20	787	1080	.62	.00	194	52	10
8	167	36	153	53	19	1540	598	17	.00	134	48	8.9
9	791	27	101	47	17	782	238	312	.00	88	61	9.2
10	740	20	71	44	17	393	99	243	.00	61	48	10
11	502	14	54	40	16	170	49	91	77	47	25	14
12	333	13	39	68	15	101	26	30	206	56	19	29
13	214	13	28	3270	14	1040	14	9.6	197	47	46	34
14	165	12	24	3590	14	3060	.88	2.3	111	39	59	34
15	147	11	153	2150	16	1220	.00	.19	46	42	58	59
16	162	11	381	1210	19	805	.00	.00	23	57	53	55
17	398	11	278	626	17	433	.00	.00	11	78	42	47
18	8430	13	182	429	15	223	1.3	.00	11	89	33	49
19	22500	21	105	376	14	129	1.8	.00	13	117	33	94
20	15000	24	65	208	13	82	4.8	.00	13	136	29	81
21	5770	21	40	131	12	57	8.2	.00	12	153	23	108
22	3290	14	31	93	11	40	11	.00	12	153	13	202
23	2160	11	28	67	10	31	12	.00	15	155	9.8	188
24	1360	8.5	24	53	9.5	28	9.1	.00	8.1	152	34	147
25	802	6.9	20	46	12	26	3.8	.00	3.8	146	29	113
26	529	6.6	18	56	12	23	1.4	.00	2.8	165	23	95
27	357	6.2	16	139	18	23	2.0	.32	2.9	150	20	78
28	242	5.9	48	276	126	22	.00	5.0	1.3	121	18	67
29	204	5.4	654	154	---	178	.00	48	1100	110	17	57
30	144	4.4	587	86	---	509	.01	164	1440	101	12	57
31	96	---	353	59	---	279	---	363	---	87	9.0	---
TOTAL	65121	687.9	9376.5	14177	646.5	13308	6949.29	1291.37	4359.95	7283	1718.8	1732.1
MEAN	2101	22.9	302	457	23.1	429	232	41.7	145	235	55.4	57.7
MAX	22500	74	2360	3590	126	3060	2630	363	1440	1450	244	202
MIN	79	4.4	3.5	40	9.5	22	.00	.00	.00	39	9.0	8.9
AC-FT	129200	1360	18600	28120	1280	26400	13780	2560	8650	14450	3410	3440
CFSM	7.27	.08	1.05	1.58	.08	1.49	.80	.14	.50	.81	.19	.20
IN.	8.38	.09	1.21	1.82	.08	1.71	.89	.17	.56	.94	.22	.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

MEAN	229	149	132	294	292	121	193	325	372	139	28.8	237
MAX	2101	964	746	956	2331	429	1041	1150	1866	475	92.2	1364
(WY)	1995	1986	1992	1992	1992	1995	1992	1993	1993	1983	1994	1978
MIN	19.4	3.93	.008	1.36	.28	1.53	3.14	2.48	.030	58.8	3.21	11.8
(WY)	1980	1992	1991	1982	1988	1981	1980	1978	1990	1986	1991	1988

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1978 - 1995

ANNUAL TOTAL	113766.67	126651.41	
ANNUAL MEAN	312	347	
HIGHEST ANNUAL MEAN			208
LOWEST ANNUAL MEAN			606
HIGHEST DAILY MEAN	22500	Oct 19	22500
LOWEST DAILY MEAN	.08	May 28	.00
ANNUAL SEVEN-DAY MINIMUM	.59	Mar 1	.00
INSTANTANEOUS PEAK FLOW			24900
INSTANTANEOUS PEAK STAGE			a28.45
ANNUAL RUNOFF (AC-FT)	225700	251200	151000
ANNUAL RUNOFF (CFSM)	1.08	1.20	.72
ANNUAL RUNOFF (INCHES)	14.64	16.30	9.80
10 PERCENT EXCEEDS	463	591	439
50 PERCENT EXCEEDS	40	51	20
90 PERCENT EXCEEDS	.99	2.2	.06

a From floodmark.



08164450 SANDY CREEK NEAR LOUISE, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]



## 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<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 40.12 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Much of low flow during the irrigation season (April to September) 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 19	0900	20,000	a28.39	Jan. 14	0500	2,120	14.47
Dec. 4	0400	4,930	17.73	July 1	1800	1,760	13.89

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	47	1.1	485	16	129	112	35	974	1540	53	11
2	24	41	26	228	9.7	57	54	32	409	1240	138	10
3	18	37	2500	105	7.1	24	26	27	176	385	165	13
4	25	33	4360	89	6.0	14	77	34	85	224	123	15
5	36	34	1960	56	5.7	9.1	712	28	42	263	82	13
6	54	39	456	32	5.2	6.7	487	27	20	143	71	13
7	53	32	203	23	5.0	219	281	23	10	130	65	13
8	65	24	120	16	4.5	351	130	58	6.5	112	95	16
9	184	22	80	11	4.0	139	72	235	6.1	82	106	14
10	236	18	55	8.7	3.4	60	41	192	5.3	53	79	14
11	175	14	40	7.3	2.9	29	23	100	127	34	43	56
12	128	19	28	34	2.6	15	13	41	364	28	49	64
13	98	15	22	1460	2.5	445	9.0	23	163	29	66	47
14	70	9.2	19	2000	2.5	867	6.6	13	100	36	76	44
15	61	6.3	22	1210	2.4	300	6.3	6.5	65	33	120	48
16	102	5.4	44	391	7.7	115	7.5	4.9	39	46	94	45
17	215	4.9	44	139	5.8	68	10	5.4	26	62	60	37
18	6750	4.3	44	85	3.3	42	39	14	18	68	33	31
19	18700	3.9	32	63	2.3	22	37	14	17	60	25	26
20	11100	4.0	23	41	1.8	12	45	20	23	47	50	46
21	6110	3.5	17	27	1.4	8.3	84	19	26	45	47	69
22	3900	6.6	13	19	1.2	6.2	63	14	23	67	26	284
23	2430	9.1	10	15	1.2	4.9	56	10	21	60	22	313
24	1760	6.1	7.9	11	1.2	4.1	42	9.5	20	53	73	173
25	1000	5.1	6.4	8.7	1.1	3.5	53	11	21	37	122	101
26	285	3.0	5.4	14	1.1	2.9	31	11	22	32	94	65
27	172	2.3	4.8	183	1.1	2.6	24	12	20	43	64	41
28	119	1.8	16	116	91	2.8	18	126	13	53	38	24
29	95	1.5	226	68	---	22	15	99	78	45	29	16
30	82	1.3	236	36	---	703	24	383	482	41	24	21
31	64	---	154	25	---	340	---	1280	---	44	18	---
TOTAL	54137	453.3	10775.6	7006.7	199.7	4024.1	2598.4	2907.3	3401.9	5135	2150	1683
MEAN	1746	15.1	348	226	7.13	130	86.6	93.8	113	166	69.4	56.1
MAX	18700	47	4360	2000	91	867	712	1280	974	1540	165	313
MIN	18	1.3	1.1	7.3	1.1	2.6	6.3	4.9	5.3	28	18	10
AC-FT	107400	899	21370	13900	396	7980	5150	5770	6750	10190	4260	3340
CFSM	9.81	.08	1.95	1.27	.04	.73	.49	.53	.64	.93	.39	.32
IN.	11.31	.09	2.25	1.46	.04	.84	.54	.61	.71	1.07	.45	.35

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	222	121	112	204	177	77.7	140	229	211	117	42.7	184						
MAX	1746	399	587	881	1243	356	552	702	957	412	76.9	1063						
(WY)	1995	1986	1992	1980	1992	1985	1991	1993	1983	1983	1983	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						

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1978 - 1995
ANNUAL TOTAL	86681.66	94472.0	
ANNUAL MEAN	237	259	153
HIGHEST ANNUAL MEAN			309
LOWEST ANNUAL MEAN			45.2
HIGHEST DAILY MEAN	18700	Oct 19	18700
LOWEST DAILY MEAN	.53	Mar 4	.00
ANNUAL SEVEN-DAY MINIMUM	.55	Mar 2	.01
INSTANTANEOUS PEAK FLOW		20000	20000
INSTANTANEOUS PEAK STAGE		a28.39	a28.39
ANNUAL RUNOFF (AC-FT)	171900	187400	110700
ANNUAL RUNOFF (CFSM)	1.33	1.45	.86
ANNUAL RUNOFF (INCHES)	18.12	19.74	11.66
10 PERCENT EXCEEDS	236	284	291
50 PERCENT EXCEEDS	26	35	23
90 PERCENT EXCEEDS	1.1	4.9	1.5

a From floodmark.

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: November 1977 to July 1981. Sediment analyses: September 1978 to April 1979.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLO. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
NOV 03...	1155	38	235	7.4	21.0	7.0	78	2.0	78	2	23
JAN 24...	1355	10	274	7.2	11.5	9.5	85	7.4	89	13	27
MAR 15...	1158	279	139	7.4	19.0	7.6	81	5.2	37	7	11
MAY 24...	1138	6.3	981	7.5	25.0	6.8	82	1.6	250	94	78
JUN 14...	1235	97	381	8.1	24.0	7.0	82	6.1	120	33	36
AUG 23...	1220	20	572	7.4	27.0	5.8	72	K0.9	160	35	46

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 03...	5.0	15	0.7	4.5	76	5.6	26	0.20	22	148
JAN 24...	5.3	20	0.9	4.3	76	12	31	0.20	14	161
MAR 15...	2.3	9.5	0.7	3.7	30	8.3	11	0.10	11	83
MAY 24...	14	71	2	6.0	160	39	150	0.50	20	482
JUN 14...	7.0	29	1	3.5	86	16	52	0.20	16	215
AUG 23...	12	39	1	8.9	130	16	80	0.30	27	310

DATE	NITRO- GEN, NITRATE (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 03...	0.130	--	<0.010	0.130	0.130	0.020	0.48	0.50	0.130	0.110
JAN 24...	0.220	--	<0.010	0.220	0.220	0.040	0.46	0.50	0.030	0.060
MAR 15...	1.67	1.67	0.030	1.70	1.70	0.050	0.65	0.70	0.100	0.090
MAY 24...	1.77	1.77	0.030	1.80	1.80	0.050	0.55	0.60	0.090	0.080
JUN 14...	0.710	0.710	0.080	0.790	0.790	0.060	0.64	0.70	0.100	0.100
AUG 23...	0.640	0.640	0.030	0.670	0.670	0.070	0.73	0.80	0.140	0.110

[illegible]

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## LAVACA RIVER BASIN

08164525 LAKE TEXANA NEAR EDNA, TX

LOCATION.--Lat 28°53'30", long 96°34'00", Jackson County, Hydrologic Unit 12100102, 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.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1988 to current year.  
Pesticide analyses of bottom sediments May 1994.

285331096343501 - LAKE TEXANA SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB											
01...	0805	160000	1.00	154	7.4	13.5	0.15	160	86	9.0	86
01...	0807	--	10.0	154	7.4	13.5	--	--	--	9.0	86
01...	0809	--	20.0	155	7.4	13.5	--	--	--	9.0	86
01...	0811	--	30.0	154	7.4	13.5	--	--	--	9.0	86
01...	0813	--	40.0	155	7.4	13.5	--	--	--	9.0	86
01...	0815	--	50.0	155	7.4	13.5	--	--	--	8.9	85
01...	0817	--	60.0	155	7.4	13.5	--	220	88	9.0	86
APR											
18...	0800	159000	1.00	162	7.6	21.5	0.20	140	96	7.5	85
18...	0802	--	10.0	161	7.5	21.5	--	--	--	7.6	86
18...	0804	--	20.0	161	7.5	21.5	--	--	--	7.6	86
18...	0806	--	30.0	160	7.5	21.5	--	--	--	7.5	85
18...	0808	--	40.0	162	7.5	21.5	--	--	--	7.5	85
18...	0810	--	50.0	162	7.4	21.0	--	--	--	7.0	79
18...	0812	--	61.0	161	7.4	19.5	--	140	98	6.0	66
AUG											
08...	0830	162000	1.00	231	8.0	30.0	0.18	80	61	6.2	82
08...	0832	--	10.0	232	8.0	29.5	--	--	--	6.1	80
08...	0834	--	20.0	231	7.7	29.0	--	--	--	5.3	69
08...	0836	--	30.0	231	7.6	28.5	--	--	--	4.9	63
08...	0838	--	40.0	231	7.6	28.5	--	--	--	4.8	62
08...	0840	--	50.0	231	7.5	28.5	--	--	--	4.5	58
08...	0842	--	54.0	228	7.3	28.0	--	--	--	2.8	36
08...	0844	--	57.0	212	7.1	25.5	--	--	--	0.3	4
08...	0846	--	64.0	212	7.1	24.0	--	80	82	0	0

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB											
01...	52	6	17	2.2	7.8	0.5	3.5	46	4.8	12	0.10
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	49	3	16	2.2	7.8	0.5	3.5	46	4.2	11	0.10
APR											
18...	57	5	19	2.3	8.5	0.5	3.5	52	5.2	11	0.10
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	60	9	20	2.4	8.5	0.5	3.6	51	5.2	12	0.10
AUG											
08...	79	10	26	3.4	14	0.7	3.9	69	7.9	19	0.20
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	75	0	25	3.0	9.8	0.5	3.3	75	5.7	13	0.20

## LAVACA RIVER BASIN

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08164525 LAKE TEXANA NEAR EDNA, TX--Continued

285331096343501 - LAKE TEXANA SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BROMIDE DIS- SOLVED (MG/L AS BR)	IODIDE, DIS- SOLVED (MG/L AS I)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L)	RESIDUE FIXED NON- FILTER- ABLE (MG/L)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)
FEB										
01...	--	--	10	--	85	36	16	20	0.400	<0.100
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	9.8	--	82	32	8	24	--	--
APR										
18...	--	--	9.3	--	90	38	8	30	1.40	<0.100
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	<0.010	0.001	9.3	<1	62	42	2	40	--	--
AUG										
08...	--	--	13	--	129	8	<1	--	2.30	<0.100
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	15	--	122	48	14	34	--	--
DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
FEB										
01...	3	60	<0.5	--	<1.0	<5	<3	<10	44	<10
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	3	53	<0.5	--	<1.0	<5	3	<10	31	<10
APR										
18...	1	70	<0.5	--	<1.0	<5	<3	<10	62	20
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	50	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	1	69	<0.5	<10	<1.0	<5	<3	<10	28	<10
AUG										
08...	2	84	<0.5	--	<1.0	<5	<3	<10	34	<10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	150	--
08...	--	--	--	--	--	--	--	--	<10	--
08...	--	--	--	--	--	--	--	--	--	--
08...	12	100	<0.5	--	<1.0	<5	9	<10	740	<10



## LAVACA RIVER BASIN

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

285331096343501 - LAKE TEXANA SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB										
01...	<4	<1	<0.1	<10	<10	<1	<1.0	57	<6	4
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	<4	1	<0.1	<10	<10	<1	<1.0	60	<6	6
APR										
18...	4	1	<0.1	<10	<10	<1	<1.0	63	<6	4
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	<10	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	<4	13	<0.1	<10	<10	<1	<1.0	65	<6	3
AUG										
08...	<4	<1	<0.1	10	<10	<1	<1.0	96	<6	<3
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	330	--	--	--	--	--	--	--	--
08...	--	40	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	<4	1300	<0.1	10	<10	<1	<1.0	86	<6	5

285326096342101 - LAKE TEXANA SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
01...	0840	1.00	151	7.4	14.0	9.0	87
01...	0842	10.0	151	7.4	14.0	9.0	87
01...	0844	20.0	152	7.4	14.0	9.0	87
01...	0846	28.0	152	7.4	14.0	9.0	87
APR							
18...	0840	1.00	160	7.6	21.5	7.6	87
18...	0842	10.0	161	7.6	21.5	7.6	87
18...	0844	20.0	161	7.6	21.5	7.6	87
18...	0846	33.0	161	7.6	21.0	7.5	85
AUG							
08...	0920	1.00	231	8.0	30.0	6.2	82
08...	0922	10.0	230	8.0	29.0	6.1	79
08...	0924	20.0	231	7.8	29.0	5.7	74
08...	0926	32.0	230	7.7	29.0	5.4	70

285534096322301 - LAKE TEXANA SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
01...	0900	1.00	153	7.3	13.5	8.9	85
01...	0902	10.0	152	7.3	13.5	8.9	85
01...	0904	20.0	152	7.3	13.5	8.9	85
01...	0906	30.0	152	7.3	13.5	8.9	85
01...	0908	39.0	151	7.4	13.5	8.8	84
APR							
18...	0905	1.00	163	7.6	22.0	7.4	85
18...	0907	10.0	163	7.6	21.5	7.4	84
18...	0909	20.0	162	7.6	21.5	7.4	84
18...	0911	30.0	162	7.6	21.5	7.4	84
18...	0913	39.0	162	7.6	21.5	7.3	83
AUG							
08...	0936	1.00	233	7.9	29.5	6.1	80
08...	0938	10.0	233	7.9	29.5	6.0	78
08...	0940	20.0	233	7.8	29.0	5.6	73
08...	0942	30.0	233	7.6	29.0	4.9	64
08...	0944	38.0	234	7.6	29.0	4.7	61

## LAVACA RIVER BASIN

183

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

285816096320201 - LAKE TEXANA\*SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATURATION)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)
FEB											
01...	0920	1.00	110	7.0	13.5	0.09	8.4	80	37	6	12
01...	0922	10.0	108	7.0	13.5	--	8.3	79	--	--	--
01...	0924	20.0	109	7.0	13.5	--	8.3	79	--	--	--
01...	0926	30.0	109	7.0	13.5	--	8.2	78	--	--	--
01...	0928	37.0	109	7.1	13.5	--	8.3	79	34	3	11
APR											
18...	0940	1.00	157	7.5	22.0	--	6.9	79	56	6	19
18...	0942	10.0	158	7.6	22.0	--	7.0	80	--	--	--
18...	0944	20.0	159	7.6	22.0	--	6.9	79	--	--	--
18...	0946	30.0	160	7.6	22.0	--	7.0	80	--	--	--
18...	0948	37.0	161	7.6	22.0	--	7.0	80	56	4	19
AUG											
08...	0956	1.00	262	7.7	30.0	0.21	5.3	70	83	8	27
08...	0958	10.0	258	7.7	29.5	--	5.2	68	--	--	--
08...	1000	18.0	--	--	--	--	--	--	--	--	--
08...	1002	20.0	261	7.6	29.5	--	4.9	64	--	--	--
08...	1004	30.0	292	7.4	29.5	--	2.9	38	--	--	--
08...	1006	36.0	295	7.3	29.5	--	2.6	34	91	9	29
FEB											
01...	1.7	6.0	0.4	3.2	31	3.9	8.2	<0.10	7.2	61	0.200
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	1.6	5.8	0.4	3.0	31	3.8	7.9	<0.10	6.8	59	--
APR											
18...	2.0	7.7	0.4	3.6	50	4.9	10	0.20	9.3	87	2.00
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	2.1	7.9	0.5	3.5	52	5.2	12	0.20	9.2	90	--
AUG											
08...	3.9	17	0.8	3.8	75	8.8	25	0.20	13	144	3.20
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	4.6	20	0.9	3.7	82	9.7	30	0.20	14	160	--
FEB											
01...	<0.100	130	8	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	<0.01	--	<0.01	<0.01	--	<0.01	--	<0.01
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	68	4	<0.01	--	<0.02	<0.01	--	<0.01	--	<0.01
APR											
18...	<0.100	38	<1	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	50	<10	<0.01	--	<0.01	<0.01	--	<0.01	--	<0.01
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	34	2	<0.01	<0.2	<0.01	<0.01	<0.2	<0.01	<0.2	<0.01
AUG											
08...	0.200	<3	2	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	<0.01	--	<0.01	<0.01	--	<0.01	--	<0.01
08...	--	<10	<10	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	4	12	<0.01	--	<0.01	<0.01	--	<0.01	--	0.01

## LAVACA RIVER BASIN

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

285816096320201 - LAKE TEXANA SITE CC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
FEB										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
01...	--	--	--	--	--	--	--	--	--	--
01...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
APR										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
18...	--	--	--	--	--	--	--	--	--	--
18...	<0.2	<0.01	<0.2	<0.01	<0.01	<0.01	<0.2	<0.01	<0.01	<0.01
AUG										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	<0.01	--	<0.01	--	<0.01	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	<0.01	--	<0.01	--	<0.01	--	--	--	--

290042096331401 - LAKE TEXANA SITE DC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB												
01...	1010	1.00	203	7.3	14.0	0.18	8.3	80	71	6	24	
01...	1012	10.0	204	7.2	13.5	--	8.4	80	--	--	--	--
01...	1014	20.0	204	7.1	13.5	--	8.4	80	71	6	24	
APR												
18...	1100	1.00	213	7.6	23.0	0.20	6.4	75	81	3	29	
18...	1102	10.0	211	7.6	23.0	--	6.4	75	--	--	--	--
18...	1104	19.0	211	7.6	23.0	--	6.4	75	81	2	29	
AUG												
08...	1130	1.00	422	7.9	31.0	0.24	5.9	79	120	17	36	
08...	1132	10.0	413	7.7	30.0	--	4.5	59	--	--	--	--
08...	1134	19.0	442	7.5	30.0	--	3.3	44	120	16	36	

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)
FEB											
01...	2.8	12	0.6	3.5	66	4.5	15	0.10	9.1	110	1.10
01...	--	--	--	--	--	--	--	--	--	--	--
01...	2.8	12	0.6	3.5	66	4.5	16	0.10	9.3	112	--
APR											
18...	2.2	8.9	0.4	4.2	78	5.0	11	0.10	11	118	6.30
18...	--	--	--	--	--	--	--	--	--	--	--
18...	2.2	8.8	0.4	4.2	79	5.0	11	0.20	11	119	--
AUG											
08...	7.9	33	1	3.9	100	14	52	0.30	15	225	10.0
08...	--	--	--	--	--	--	--	--	--	--	--
08...	8.2	33	1	4.3	110	15	53	0.30	15	230	--

## LAVACA RIVER BASIN

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08164525 LAKE TEXANA NEAR EDNA, TX--Continued

290042096331401 - LAKE TEXANA SITE DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/KG)	DI- SYSTON TOTAL (UG/L)	ETHION, TOTAL (UG/L)	ETHION, TOTAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)
FEB											
01...	<0.100	86	8	--	--	--	--	--	--	--	--
01...	--	--	--	<0.01	--	<0.02	<0.01	--	<0.01	--	<0.01
01...	--	90	11	<0.01	--	<0.02	<0.01	--	<0.01	--	<0.01
APR											
18...	0.500	59	2	--	--	--	--	--	--	--	--
18...	--	40	<10	<0.01	--	<0.01	<0.01	--	<0.01	--	<0.01
18...	--	50	7	<0.01	<0.2	<0.01	<0.01	<0.2	<0.01	<0.2	<0.01
AUG											
08...	0.800	<3	3	--	--	--	--	--	--	--	--
08...	--	<10	10	<0.01	--	<0.01	<0.01	--	<0.01	--	0.01
08...	--	6	100	<0.01	--	<0.01	<0.01	--	<0.01	--	0.01

DATE	METHYL PARA- THION, TOT. IN BOTTOM MATT. (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/KG)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	TRI- THION, TOTAL (UG/KG)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
FEB										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
01...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
APR										
18...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
18...	--	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
18...	<0.2	<0.01	<0.2	<0.01	<0.01	<0.01	<0.2	<0.01	<0.01	<0.01
AUG										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	<0.01	--	<0.01	--	<0.01	--	--	--	--
08...	--	<0.01	--	<0.01	--	<0.01	--	--	--	--

285940096312101 - LAKE TEXANA SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	DI- AZINON, TOTAL (UG/L)
FEB									
01...	0945	1.00	97	6.8	14.0	7.7	74	--	--
01...	0948	14.0	--	--	--	--	--	--	<0.01
01...	0949	20.0	100	6.8	14.0	7.5	72	--	--
01...	0951	28.0	100	6.9	14.0	7.7	74	--	<0.01
APR									
18...	1130	1.00	130	7.3	22.5	6.7	78	--	--
18...	1132	10.0	130	7.3	22.5	6.6	76	--	--
18...	1134	15.0	128	7.3	22.5	6.6	76	--	<0.01
18...	1136	20.0	128	7.3	22.5	6.4	74	--	--
18...	1138	26.0	128	7.4	22.5	6.5	75	--	<0.01
AUG									
08...	1052	1.00	291	7.6	30.0	5.2	69	--	--
08...	1054	10.0	333	7.4	29.5	3.8	50	--	--
08...	1056	13.0	342	7.4	29.5	3.1	41	--	<0.01
08...	1058	20.0	387	7.2	29.5	1.8	24	--	--
08...	1100	26.0	445	7.2	29.5	0.9	12	110	<0.01

## LAVACA RIVER BASIN

08164525 LAKE TEXANA NEAR EDNA, TX--Continued

285940096312101 - LAKE TEXANA SITE EC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	DI-AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- SYSTON TOTAL (UG/L)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, TOTAL (UG/L)
FEB									
01...	--	--	--	--	--	--	--	--	--
01...	--	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.01
01...	--	--	--	--	--	--	--	--	--
01...	--	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.01
APR									
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.01
18...	--	--	--	--	--	--	--	--	--
18...	<0.2	<0.01	<0.01	<0.2	<0.01	<0.2	<0.01	<0.2	<0.01
AUG									
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	<0.01	<0.01	--	<0.01	--	0.01	--	<0.01
08...	--	--	--	--	--	--	--	--	--
08...	--	<0.01	<0.01	--	<0.01	--	0.01	--	<0.01

DATE	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
FEB								
01...	--	--	--	--	--	--	--	--
01...	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
01...	--	--	--	--	--	--	--	--
01...	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
APR								
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
18...	--	--	--	--	--	--	--	--
18...	<0.2	<0.01	<0.01	<0.01	<0.2	<0.01	<0.01	<0.01
AUG								
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	<0.01	--	<0.01	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	<0.01	--	<0.01	--	--	--	--



## GARCITAS CREEK MAIN STEM

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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<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: April 1965 to August 1988. Pesticide analyses: July 1970 to July 1981.

REVISED RECORDS.--WDR TX-94-3: 1992-93.

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft above sea level.

REMARKS.--No estimated daily discharge. Records good. No known diversion above station. 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 September 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<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 19	0300	18,900	a33.43				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	19	3.0	33	5.0	2.0	4.3	2.7	39	1.7	.35	4.6
2	.28	18	238	32	4.6	2.3	4.1	2.7	21	1.5	.41	1.8
3	.23	14	308	25	4.1	2.1	3.9	2.6	11	1.4	2.2	.72
4	.18	13	101	19	3.6	2.0	30	5.9	5.8	1.9	3.4	.36
5	.17	11	55	14	3.4	2.0	23	6.3	3.2	2.3	2.3	.27
6	.17	10	35	11	3.2	2.0	18	3.8	2.4	2.0	1.7	.30
7	.17	8.8	26	8.7	3.1	287	18	2.9	1.9	1.7	1.3	.25
8	15	7.3	19	6.7	3.0	401	13	4.0	1.7	1.3	3.6	.20
9	114	6.6	13	5.4	3.0	106	9.0	3.1	1.5	1.1	2.1	.17
10	54	6.4	9.2	4.6	3.0	59	6.8	2.6	1.3	1.2	.80	1.4
11	28	6.3	7.3	4.2	3.1	38	5.5	2.2	53	1.2	.47	9.6
12	14	5.7	6.1	3.7	2.6	28	4.5	2.2	93	1.8	.87	13
13	6.7	5.5	5.6	321	2.6	201	4.0	2.2	43	2.2	1.5	3.4
14	3.2	5.5	5.5	765	3.0	273	3.6	2.0	24	1.5	2.2	2.1
15	1.9	5.5	5.5	137	3.0	103	3.6	1.8	14	1.1	3.3	1.5
16	1.5	5.5	5.0	74	2.9	63	3.6	1.6	9.0	.73	2.1	1.0
17	1.6	5.2	4.5	48	2.6	44	3.6	1.6	6.4	.63	1.2	.67
18	4980	5.0	4.0	35	2.4	32	3.6	1.6	5.2	.58	.68	.51
19	13100	5.0	3.6	28	2.4	23	3.6	1.5	3.9	.50	.53	.45
20	2380	5.0	3.4	23	2.4	17	4.0	1.4	3.2	.44	.46	7.4
21	321	4.8	3.2	18	2.4	13	5.6	1.3	3.4	.41	.39	16
22	140	4.5	3.0	16	2.2	10	6.4	1.2	4.8	.38	.39	11
23	88	4.1	2.8	14	2.3	8.8	5.0	1.0	3.7	.32	.80	4.5
24	61	3.8	2.7	11	2.2	7.6	3.5	1.1	2.8	.76	2.0	2.0
25	43	3.8	2.6	8.8	2.3	6.6	3.1	1.0	2.9	1.5	2.7	1.2
26	34	3.8	2.6	9.8	2.7	6.2	2.9	.94	2.3	.68	3.1	.80
27	36	3.8	2.6	11	2.6	6.2	2.9	2.5	1.6	.37	2.1	.62
28	33	3.6	9.2	8.7	2.5	5.1	3.0	1.0	1.4	.34	1.5	.57
29	28	3.7	43	7.7	---	5.0	3.0	3.0	2.8	.32	1.6	.57
30	29	3.4	51	6.7	---	4.8	2.8	56	3.5	.39	1.2	.57
31	24	---	35	5.8	---	4.6	---	69	---	.38	2.8	---
TOTAL	21538.41	207.6	1015.4	1715.8	82.2	1765.3	207.9	192.74	372.7	32.63	50.05	87.53
MEAN	695	6.92	32.8	55.3	2.94	56.9	6.93	6.22	12.4	1.05	1.61	2.92
MAX	13100	19	308	765	5.0	401	30	69	93	2.3	3.6	16
MIN	.17	3.4	2.6	3.7	2.2	2.0	2.8	.94	1.3	.32	.35	.17
AC-FT	42720	412	2010	3400	163	3500	412	382	739	65	99	174
CFSM	7.58	.08	.36	.60	.03	.62	.08	.07	.14	.01	.02	.03
IN.	8.74	.08	.41	.70	.03	.72	.08	.08	.15	.01	.02	.04

## GARCITAS CREEK MAIN STEM

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1995, BY WATER YEAR (WY)

MEAN	59.1	29.3	41.4	43.9	58.2	27.0	73.8	121	130	23.8	4.66	65.9
MAX	695	291	263	220	558	203	658	503	745	218	39.1	789
(WY)	1995	1983	1977	1992	1992	1985	1991	1979	1981	1983	1972	1978
MIN	.000	.000	.006	.022	.14	.66	.51	.16	.000	.51	.056	.000
(WY)	1990	1990	1990	1990	1990	1989	1989	1971	1990	1989	1988	1988

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1970 - 1995
ANNUAL TOTAL	30688.73	27268.26	
ANNUAL MEAN	84.1	74.7	56.4
HIGHEST ANNUAL MEAN			144
LOWEST ANNUAL MEAN			2.65
HIGHEST DAILY MEAN	13100 Oct 19	13100 Oct 19	13100 Oct 19 1994
LOWEST DAILY MEAN	.09 Jul 27	.17 Oct 5	.00 May 22 1971
ANNUAL SEVEN-DAY MINIMUM	.13 Jul 22	.22 Oct 1	.00 May 26 1971
INSTANTANEOUS PEAK FLOW		18900 Oct 19	19700 Jun 12 1981
INSTANTANEOUS PEAK STAGE		a33.43 Oct 19	a33.43 Oct 19 1994
ANNUAL RUNOFF (AC-FT)	60870	54090	40870
ANNUAL RUNOFF (CFSM)	.92	.81	.62
ANNUAL RUNOFF (INCHES)	12.45	11.06	8.36
10 PERCENT EXCEEDS	46	38	54
50 PERCENT EXCEEDS	3.2	3.6	3.3
90 PERCENT EXCEEDS	.38	.60	.34

a From floodmark.

## PLACEDO CREEK MAIN STEM

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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<sup>2</sup>.

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

Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1968 to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft above sea level.

REMARKS.--No estimated daily discharge. Records good. No known diversion above station.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	2100	6,340	26.53	Apr. 4	1900	3,340	22.99

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	4.7	.29	8.5	.19	.37	1.4	.50	72	.90	.36	.47
2	.00	4.3	.23	4.5	.22	.20	1.3	.47	32	.71	.40	.33
3	.00	4.7	60	2.5	1.9	.18	1.0	.42	15	.66	1.3	.26
4	.01	4.6	46	1.8	1.6	.15	1120	.42	8.1	2.9	36	.22
5	.02	4.3	20	1.6	.66	.17	692	.47	4.4	2.3	11	.20
6	.03	3.7	11	1.6	.59	.18	89	.46	2.0	1.1	3.3	.23
7	.05	3.3	6.9	1.5	.65	713	38	.45	1.2	.75	1.0	.31
8	2.5	3.0	3.6	1.4	1.3	142	19	3.6	.99	.67	.73	.28
9	54	2.9	1.9	1.2	1.3	39	10	1.4	.81	1.8	.53	.27
10	19	2.5	1.3	1.2	1.1	20	5.7	.50	.68	.89	.34	.27
11	3.3	2.2	.90	1.3	.81	11	3.7	.34	776	.67	.27	.34
12	.35	2.2	.94	1.3	.56	6.6	2.7	.42	256	.59	.39	.26
13	.11	2.3	1.0	1.3	.45	322	2.3	.50	54	.52	3.3	.26
14	.06	2.2	1.1	.71	.57	129	1.8	.42	19	.51	10	.22
15	.25	2.1	1.1	1.9	.68	41	1.3	.36	7.2	.57	12	.22
16	.11	1.8	.96	1.2	.67	20	1.4	.25	2.6	.56	11	5.4
17	.09	1.7	.67	1.0	.55	12	1.4	.25	.65	7.6	7.3	7.0
18	3080	1.4	.47	2.3	.48	6.7	1.2	.32	2.7	3.0	2.2	1.7
19	2940	.75	.39	1.8	.40	3.9	1.3	.37	40	.73	.74	.56
20	629	.55	.27	.99	.34	2.6	1.5	.34	22	.45	.49	6.6
21	138	.36	.14	.66	.32	2.3	1.6	.25	8.6	.37	.34	141
22	59	.30	.11	5.1	.26	1.8	1.2	.23	3.4	.28	.39	380
23	33	.73	.11	5.3	.27	1.8	1.7	.22	1.7	.27	.45	165
24	20	4.5	.12	1.7	.28	1.8	.93	.20	1.1	.24	.68	52
25	14	2.0	.14	.95	.28	1.6	.72	.21	.94	.24	.79	21
26	9.5	1.9	.13	1.3	.37	1.5	.75	.20	.91	.26	19	9.4
27	7.3	1.8	3.2	2.1	.42	1.5	.72	7.8	.81	.26	36	4.0
28	6.5	1.4	4.3	1.0	.61	1.2	.68	4.2	.83	.26	15	1.6
29	5.5	1.0	6.3	.33	---	1.4	.61	.67	1.5	.28	4.7	.70
30	4.9	.68	15	.22	---	1.6	.55	317	2.6	.32	1.4	.42
31	4.9	---	9.6	.21	---	1.6	---	366	---	.35	.69	---
TOTAL	7031.48	69.87	198.17	58.47	17.83	1488.15	2005.46	709.24	1339.72	31.01	182.09	800.52
MEAN	227	2.33	6.39	1.89	.64	48.0	66.8	22.9	44.7	1.00	5.87	26.7
MAX	3080	4.7	60	8.5	1.9	713	1120	366	776	7.6	36	380
MIN	.00	.30	.11	.21	.19	.15	.55	.20	.65	.24	.27	.20
AC-FT	13950	139	393	116	35	2950	3980	1410	2660	62	361	1590

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1995, BY WATER YEAR (WY)

	70.3	58.8	46.7	46.7	62.3	33.1	62.8	103	99.7	68.3	13.4	119
MEAN	70.3	58.8	46.7	46.7	62.3	33.1	62.8	103	99.7	68.3	13.4	119
MAX	239	465	389	262	455	323	541	354	510	559	107	913
(WY)	1982	1982	1992	1991	1992	1985	1991	1972	1973	1990	1972	1978
MIN	.004	.021	.015	.052	.002	.086	.019	.43	.000	.031	.012	.013
(WY)	1990	1989	1990	1990	1994	1989	1989	1988	1989	1989	1988	1988

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1970 - 1995

ANNUAL TOTAL	12214.24	13932.01	65.1
ANNUAL MEAN	33.5	38.2	154
HIGHEST ANNUAL MEAN			1.20
LOWEST ANNUAL MEAN			11400
HIGHEST DAILY MEAN	3080	Oct 18	Nov 1 1981
LOWEST DAILY MEAN	.00	Jan 4	Aug 12 1981
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 20	Jul 27 1982
INSTANTANEOUS PEAK FLOW			18300
INSTANTANEOUS PEAK STAGE			30.80
ANNUAL RUNOFF (AC-FT)	24230	27630	47140
10 PERCENT EXCEEDS	21	20	49
50 PERCENT EXCEEDS	.69	1.2	1.8
90 PERCENT EXCEEDS	.00	.23	.12

## GUADALUPE RIVER BASIN

08165300 NORTH FORK GUADALUPE RIVER NEAR HUNT, TX

LOCATION.--Lat 30°03'50", long 99°23'12", Kerr County, Hydrologic Unit 12100201, on right bank, 1,000 ft upstream from Ranch Road 1340, 1.9 mi downstream from Bear Creek, 3.1 mi west of Hunt, and 3.5 mi upstream from Honey Creek.

DRAINAGE AREA.--169.0 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1967 to current year. Low-flow records not equivalent prior to June 7, 1989, because of undetermined channel flow loss between sites.

REVISED RECORDS.--WDR TX-74-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 1,800.10 ft above sea level. Prior to June 7, 1989, at site 0.58 mi upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges and those above 200 ft<sup>3</sup>/s, which are fair. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred July 1, 1932 (gage height, 37.3 ft, at site 0.58 mi upstream), discharge, 140,000 ft<sup>3</sup>/s, by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi upstream and Bear Creek 2 mi upstream from mouth, and adjusted for difference in drainage area.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	21	21	26	24	25	23	22	31	26	23	17
2	17	21	21	26	24	24	23	22	28	25	22	17
3	17	22	22	26	24	24	22	20	32	24	23	16
4	17	23	22	25	24	24	24	19	31	25	23	16
5	17	31	22	24	24	24	27	19	29	24	23	16
6	17	27	23	24	24	25	26	19	30	24	23	16
7	18	23	24	25	24	24	24	19	29	24	22	16
8	20	22	24	25	24	24	24	23	29	24	22	16
9	20	22	24	25	24	24	24	22	29	23	22	16
10	19	22	24	25	24	24	23	20	28	23	21	16
11	19	22	24	25	24	24	23	19	30	23	21	16
12	19	22	24	26	24	25	22	19	28	23	21	16
13	19	22	24	27	24	34	22	20	27	23	21	16
14	19	23	24	25	24	27	22	20	26	22	21	18
15	20	31	24	25	24	25	22	19	26	22	20	18
16	20	22	24	24	24	25	22	18	26	22	20	17
17	20	23	24	24	24	25	22	18	25	22	18	17
18	20	23	24	24	24	25	25	18	25	22	18	16
19	20	23	24	25	24	24	26	18	25	22	18	16
20	20	22	23	25	24	24	25	18	25	22	18	43
21	20	22	23	25	24	24	24	18	25	22	18	51
22	20	21	23	25	25	24	24	20	25	22	18	56
23	20	21	23	25	25	24	24	18	24	22	18	44
24	20	21	23	24	25	24	23	22	24	21	17	40
25	22	22	23	24	25	24	23	23	24	20	17	38
26	22	22	23	e24	25	23	23	21	24	20	18	36
27	21	21	23	e24	25	23	23	23	25	20	18	35
28	21	21	30	e24	25	22	23	23	24	20	18	33
29	21	21	31	e24	---	22	23	22	31	20	17	33
30	21	21	31	e24	---	22	22	121	27	22	17	32
31	21	---	29	e24	---	23	---	37	---	22	17	---
TOTAL	604	680	748	768	679	756	703	740	812	696	613	753
MEAN	19.5	22.7	24.1	24.8	24.2	24.4	23.4	23.9	27.1	22.5	19.8	25.1
MAX	22	31	31	27	25	34	27	121	32	26	23	56
MIN	17	21	21	24	24	22	22	18	24	20	17	16
AC-FT	1200	1350	1480	1520	1350	1500	1390	1470	1610	1380	1220	1490
CFSM	.12	.13	.14	.15	.14	.14	.14	.14	.16	.13	.12	.15
IN.	.13	.15	.16	.17	.15	.17	.15	.16	.18	.15	.13	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

	MEAN	65.0	30.8	44.2	32.0	29.9	29.1	41.7	45.2	42.9	41.4	54.6	40.7
MAX	529	54.4	296	113	108	144	351	149	278	465	452	198	198
(WY)	1986	1975	1985	1968	1992	1992	1977	1990	1981	1987	1978	1986	1986
MIN	12.5	14.8	16.2	15.2	13.3	13.6	13.6	11.8	10.7	11.0	10.6	10.8	10.8
(WY)	1984	1984	1990	1984	1971	1971	1971	1971	1971	1971	1984	1984	1984

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1967 - 1995

ANNUAL TOTAL	12126	8552	41.8
ANNUAL MEAN	33.2	23.4	103
HIGHEST ANNUAL MEAN			13.4
LOWEST ANNUAL MEAN			1987
HIGHEST DAILY MEAN	2850	May 13	14900
LOWEST DAILY MEAN	16	Sep 5	6.6
ANNUAL SEVEN-DAY MINIMUM	16	Sep 24	8.3
INSTANTANEOUS PEAK FLOW			57000
INSTANTANEOUS PEAK STAGE			29.81
ANNUAL RUNOFF (AC-FT)	24050	16960	30260
ANNUAL RUNOFF (CFSM)	.20	.14	.25
ANNUAL RUNOFF (INCHES)	2.67	1.88	3.36
10 PERCENT EXCEEDS	31	27	48
50 PERCENT EXCEEDS	22	23	24
90 PERCENT EXCEEDS	18	18	15

e Estimated

## GUADALUPE RIVER MAIN STEM

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08165500 GUADALUPE RIVER AT HUNT, TX

LOCATION.--Lat 30°04'11", long 99°19'17", Kerr County, Hydrologic Unit 12100201, on left bank, 56 ft upstream and 252 ft to left of left end of bridge on State Highway 39, 0.6 mi downstream from confluence of North and South Forks, 0.8 mi east of Hunt, and at mile 430.9.

DRAINAGE AREA.--288 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1941 to September 1949, discharge not computed above 600 ft<sup>3</sup>/s, and April 1965 to current year. Occasional discharge measurements made 1950-64.

Water-quality records.--Chemical analyses: March 1965 to April 1966.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,722.7 ft above sea level.

REMARKS.--No estimated daily discharge. Records good except those above 300 ft<sup>3</sup>/s, which are fair. There are numerous diversions for irrigation above station, but amounts are unknown. Several observations of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft July 2, 1932, from information by local resident (discharge, 206,000 ft<sup>3</sup>/s, determined by slope-area measurement 4.5 mi downstream from gage).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	1100	1,070	9.64	Sept. 21	1545	1,080	9.65

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	49	52	73	54	55	59	48	93	56	34	39
2	47	47	52	67	54	55	57	41	74	52	33	37
3	48	47	51	66	53	55	54	39	67	49	34	35
4	47	49	51	64	53	55	61	37	61	50	34	35
5	48	82	51	60	53	55	74	33	64	49	33	34
6	46	66	51	59	52	55	66	30	52	47	38	33
7	47	59	51	59	52	56	62	36	51	47	32	31
8	57	55	52	59	52	54	59	51	51	45	30	30
9	51	54	56	59	52	58	57	43	50	42	29	30
10	49	54	56	59	53	54	54	38	50	41	29	30
11	48	53	53	58	54	54	53	35	60	39	30	30
12	48	52	52	59	54	55	53	34	55	46	32	30
13	48	52	52	67	52	258	51	34	50	36	34	30
14	48	53	52	61	52	146	46	34	46	32	34	42
15	51	124	52	59	53	108	47	33	45	36	34	45
16	53	90	52	58	54	97	51	32	43	36	31	37
17	50	74	52	58	54	88	69	32	43	36	31	35
18	50	70	51	57	53	86	57	31	43	35	29	34
19	53	68	50	56	52	85	54	30	42	34	30	34
20	50	63	50	55	51	79	53	29	41	32	30	69
21	48	63	50	55	51	77	48	29	38	33	31	314
22	48	62	50	55	51	75	48	28	39	31	32	328
23	47	61	50	54	51	73	46	30	38	31	33	134
24	47	60	50	54	51	69	45	37	38	32	33	101
25	56	59	50	54	51	68	44	36	38	31	33	90
26	56	58	48	54	54	68	40	31	37	30	35	83
27	53	57	47	54	58	66	34	40	45	30	37	81
28	52	56	99	54	57	64	37	36	46	30	42	78
29	52	52	108	54	---	63	40	36	152	30	35	74
30	52	52	90	54	---	61	41	407	64	30	33	68
31	52	---	82	54	---	59	---	159	---	32	37	---
TOTAL	1547	1841	1763	1809	1481	2351	1560	1589	1616	1180	1022	2071
MEAN	49.9	61.4	56.9	58.4	52.9	75.8	52.0	51.3	53.9	38.1	33.0	69.0
MAX	57	124	108	73	58	258	74	407	152	56	42	328
MIN	45	47	47	54	51	54	34	28	37	30	29	30
AC-FT	3070	3650	3500	3590	2940	4660	3090	3150	3210	2340	2030	4110
CFSM	.17	.21	.20	.20	.18	.26	.18	.18	.19	.13	.11	.24
IN.	.20	.24	.23	.23	.19	.30	.20	.21	.21	.15	.13	.27



STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1965 - 1995	
ANNUAL TOTAL	25656		19830			
ANNUAL MEAN	70.3		54.3		78.8	
HIGHEST ANNUAL MEAN					223	
LOWEST ANNUAL MEAN					27.6	
HIGHEST DAILY MEAN	5480	May 13	407	May 30	22200	Jul 17 1987
LOWEST DAILY MEAN	33	Aug 4	28	May 22	8.2	Jul 17 1984
ANNUAL SEVEN-DAY MINIMUM	33	Aug 3	30	May 17	9.4	Jul 12 1984
INSTANTANEOUS PEAK FLOW			1080	Sep 21	108000	Jul 17 1987
INSTANTANEOUS PEAK STAGE			9.65	Sep 21	28.38	Jul 17 1987
ANNUAL RUNOFF (AC-FT)	50890		39330		57070	
ANNUAL RUNOFF (CFSM)	.24		.19		.27	
ANNUAL RUNOFF (INCHES)	3.31		2.56		3.72	
10 PERCENT EXCEEDS	75		69		98	
50 PERCENT EXCEEDS	49		51		48	
90 PERCENT EXCEEDS	38		32		29	

## 08166200 GUADALUPE RIVER AT KERRVILLE, TX

LOCATION.--Lat 30°03'11", long 99°09'47", Kerr County, Hydrologic Unit 12100201, on left bank 300 ft below left end of Kerrville Dam, 1.0 mi upstream from mouth of Town Creek, and 1.4 mi upstream from State Highway 16 on Guadalupe Street at Guadalupe Park in Kerrville, Texas.

DRAINAGE AREA.--510 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,601.00 ft above sea level. Prior to Apr. 4, 1989, at site 300 ft upstream, and on opposite bank at datum 1.0 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Numerous diversions for irrigation above station, amounts unknown. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum estimated discharge, 196,000 ft<sup>3</sup>/s July 2, 1932 (estimated gage height, 39 ft).

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0230	2,560	4.44	Sept. 21	2030	1,650	3.76
June 29	0200	3,240	4.88				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	72	87	161	90	83	105	82	291	148	e46	e42
2	59	69	86	145	92	90	102	95	207	128	e49	e40
3	59	69	92	136	87	90	103	85	177	124	e47	e38
4	59	71	94	129	85	90	118	82	156	124	e40	e38
5	58	132	91	124	85	90	157	78	148	120	e39	e37
6	55	120	92	122	83	90	145	70	138	113	e37	e36
7	60	99	94	115	83	90	125	67	123	109	e36	e36
8	73	89	95	114	83	88	117	135	120	105	e39	e32
9	75	83	196	112	83	86	112	115	113	102	e36	e31
10	64	74	107	112	84	94	110	94	109	98	e35	e31
11	59	72	94	110	84	91	98	81	202	90	e34	e31
12	59	72	87	126	85	95	100	77	144	90	e34	e31
13	59	72	83	128	86	502	98	78	120	86	e36	34
14	62	78	87	123	88	291	92	78	113	72	e36	86
15	78	182	90	114	90	195	85	75	105	69	e36	85
16	81	196	89	109	89	169	93	69	102	72	e33	67
17	77	146	86	109	83	151	105	67	98	69	e33	53
18	72	127	83	105	83	139	127	62	94	66	e32	47
19	73	120	80	102	82	133	109	59	94	62	e33	45
20	76	115	82	102	81	134	108	56	94	59	e33	74
21	70	104	78	102	79	127	96	56	94	56	e34	476
22	67	102	79	102	81	123	90	56	86	56	e35	763
23	63	102	78	95	83	118	86	61	83	56	e36	289
24	62	102	79	94	83	111	85	105	79	56	e36	201
25	159	100	79	94	83	112	84	98	76	53	e36	168
26	102	98	78	95	83	112	89	83	90	53	e38	150
27	88	97	84	98	86	108	80	120	94	e51	e40	141
28	77	87	219	92	89	105	72	98	98	e47	e45	132
29	76	85	316	89	---	104	79	86	887	e44	e38	125
30	74	84	216	93	---	105	86	1340	220	e39	e34	119
31	73	---	184	90	---	105	---	598	---	e44	e39	---
TOTAL	2228	3019	3385	3442	2373	4021	3056	4306	4555	2461	1155	3478
MEAN	71.9	101	109	111	84.7	130	102	139	152	79.4	37.3	116
MAX	159	196	316	161	92	502	157	1340	887	148	49	763
MIN	55	69	78	89	79	83	72	56	76	39	32	31
AC-FT	4420	5990	6710	6830	4710	7980	6060	8540	9030	4880	2290	6900
CFSM	.14	.20	.21	.22	.17	.25	.20	.27	.30	.16	.07	.23
IN.	.16	.22	.25	.25	.17	.29	.22	.31	.33	.18	.08	.25

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1995, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	111	111	166	133	157	164	126	197	219	274
MAX	252	180	572	282	555	547	329	313	1088	1572
(WY)	1987	1987	1992	1992	1992	1992	1992	1994	1987	1987
MIN	64.8	74.1	64.1	59.1	71.1	72.4	66.6	69.8	53.2	37.3
(WY)	1990	1994	1990	1990	1990	1991	1991	1991	1989	1989

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1986 - 1995

ANNUAL TOTAL	37217	37479	159
ANNUAL MEAN	102	103	399
HIGHEST ANNUAL MEAN			74.1
LOWEST ANNUAL MEAN			1987
HIGHEST DAILY MEAN	3900	May 13	36100
LOWEST DAILY MEAN	41	Jul 29	29
ANNUAL SEVEN-DAY MINIMUM	44	Aug 3	31
INSTANTANEOUS PEAK FLOW			141000
INSTANTANEOUS PEAK STAGE			37.72
ANNUAL RUNOFF (AC-FT)	73820	74340	115400
ANNUAL RUNOFF (CFSM)	.20	.20	.31
ANNUAL RUNOFF (INCHES)	2.71	2.73	4.24
10 PERCENT EXCEEDS	125	142	241
50 PERCENT EXCEEDS	79	87	93
90 PERCENT EXCEEDS	50	39	50

e Estimated

LOCATION.--Lat 29°58'10", long 98°53'33", Kendall County, Hydrologic Unit 12100201, on right bank at downstream side of southbound bridge on Interstate Highway 10 at Comfort, 0.5 mi downstream from Cypress Creek, and at mile 396.2.

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

REVISED RECORDS.--WSP 1632: 1958. WSP 1732: 1939(M). WSP 2123: Drainage area, 1944(M), 1952(M), 1957(M), 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 1,369.83 ft above sea level. Prior to Nov. 27, 1939, nonrecording gage. Nov. 27, 1939, to June 2, 1980, water-stage recorder at site 0.4 mi upstream at datum 2.22 ft higher. June 2, 1980, to Sept. 30, 1986, at present site at datum 2.00 ft higher.

REMARKS.--No estimated daily discharge. Records good. There are many small diversions above station for irrigation.  
Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 42.3 ft. present datum, from report by U.S. Army Corps of Engineers. Flood of July 1, 1932, reached a stage of 38.4 ft. from floodmark, and from information by State Department of Highways and Public Transportation. Flood of July 16, 1900, reached about the same stage as that of July 1, 1932, from information by local residents. All stages are at site and datum then in use. Maximum stage since at least 1848, that of Aug. 2, 1978.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 9	1000	3.110	8.47	June 29	1100	2.980	8.33

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	104	133	333	176	152	189	144	520	329	98	77
2	77	102	133	299	175	148	184	137	402	262	101	81
3	76	102	137	287	172	151	180	148	344	233	99	76
4	75	104	141	271	167	151	196	146	308	243	92	70
5	74	311	136	258	167	151	270	142	287	224	89	65
6	72	222	134	256	163	149	276	137	276	218	85	63
7	72	181	137	248	160	176	241	130	253	227	82	61
8	132	153	138	231	160	152	218	307	246	204	85	62
9	104	139	120	225	158	145	206	235	237	189	77	61
10	97	131	406	223	160	144	197	198	223	178	74	61
11	84	120	274	223	162	149	193	176	379	169	68	62
12	80	118	230	255	158	145	179	166	321	162	69	61
13	78	117	209	317	161	549	175	163	271	160	68	61
14	77	119	203	259	164	564	172	160	241	147	69	85
15	95	219	205	239	168	366	167	153	224	136	75	142
16	109	316	199	225	164	314	166	145	211	135	74	116
17	106	260	187	221	158	281	174	139	203	132	68	96
18	102	218	179	216	153	258	225	141	193	128	65	84
19	120	197	174	207	153	242	210	129	192	123	65	77
20	107	184	170	202	149	233	203	124	193	116	68	93
21	101	171	166	201	147	224	189	118	187	111	66	281
22	96	157	161	201	144	221	173	116	178	109	67	1040
23	92	153	159	196	147	214	167	122	169	106	65	512
24	88	158	158	188	146	203	162	185	163	102	65	325
25	236	155	156	189	146	200	158	200	159	100	67	260
26	205	150	155	196	152	200	155	178	158	97	68	226
27	143	148	161	199	154	195	154	268	223	95	85	205
28	126	142	416	192	155	188	150	229	194	91	80	191
29	115	136	591	184	---	184	139	192	1070	87	93	178
30	112	131	448	180	---	188	145	1180	509	82	79	167
31	107	---	376	176	---	189	---	1080	---	96	69	---
TOTAL	3236	4918	7592	7097	4439	6826	5613	7088	8534	4791	2375	4939
MEAN	104	164	245	229	159	220	187	229	284	155	76.6	165
MAX	236	316	1120	333	176	564	276	1180	1070	329	101	1040
MIN	72	102	133	176	144	144	139	116	158	82	65	61
AC-FT	6420	9750	15060	14080	8800	13540	11130	14060	16930	9500	4710	9801

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

MEAN	266	151	205	177	217	206	233	297	255	161	224	152
MAX	2417	518	2700	987	1728	1559	1598	1122	2820	1974	4782	575
(WY)	1986	1975	1992	1992	1992	1992	1977	1975	1987	1987	1978	1978
MIN	.000	3.63	10.5	16.8	24.4	16.6	13.2	14.9	.097	.000	.000	.000
(WY)	1957	1957	1957	1957	1957	1956	1955	1956	1956	1956	1954	1954

### SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	60471		67448				
ANNUAL MEAN	166		185			213	
HIGHEST ANNUAL MEAN						894	1992
LOWEST ANNUAL MEAN						14.5	1956
HIGHEST DAILY MEAN	5290	May 14	1180	May 30	74200		Aug 2 1978
LOWEST DAILY MEAN	55	Aug 8	61	Sep 7		.00	Aug 31 1952
ANNUAL SEVEN-DAY MINIMUM	58	Aug 31	61	Sep 7		.00	Aug 31 1952
INSTANTANEOUS PEAK FLOW			3110	Dec 9	240000		Aug 2 1978
INSTANTANEOUS PEAK STAGE			8.47	Dec 9	940.90		Aug 2 1978
ANNUAL RUNOFF (AC-FT)	119900		133800		154100		
10 PERCENT EXCEEDS	232		275		359		
50 PERCENT EXCEEDS	126		160		108		
90 PERCENT EXCEEDS	64		77		24		

q At site and datum then in use.

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX  
(Hydrologic index station)

LOCATION.--Lat 29°51'37", long 98°23'00", Comal County, Hydrologic Unit 12100201, at downstream side of bridge on Ranch Road 311, 1.9 mi southeast of Spring Branch Post Office, 7.5 mi downstream from Curry Creek, and at mile 334.4.

DRAINAGE AREA.--1,315 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1922 to current year.

REVISED RECORDS.--WSP 1562: 1923-24, 1926, 1927-28(M), 1929, 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 948.10 ft above sea level. Prior to Jan. 14, 1981, at site 220 ft downstream at same datum.

REMARKS.--No estimated daily discharge. Records good. Several small diversions above station for irrigation. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, about 53 ft in 1869; flood in July 1900 reached a stage of about 49 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0700	7,310	7.93				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	189	194	610	270	225	279	199	1560	645	124	126
2	94	184	196	544	269	223	275	197	968	465	136	94
3	93	182	205	505	264	223	268	192	754	380	152	95
4	94	175	202	476	256	223	286	194	633	345	141	97
5	95	245	206	449	256	225	476	192	562	341	132	92
6	94	409	204	442	250	222	428	188	516	319	123	84
7	105	325	201	424	249	234	404	184	480	305	121	82
8	1430	284	196	409	244	255	359	264	453	314	118	80
9	267	251	196	389	243	234	332	432	424	293	117	82
10	191	229	1280	379	245	218	313	306	400	273	114	81
11	155	217	478	371	248	213	293	255	434	256	106	79
12	140	208	347	368	245	216	283	231	588	244	101	77
13	129	207	296	407	245	314	267	218	492	232	99	78
14	124	202	273	460	246	815	258	210	423	223	98	77
15	127	201	276	399	252	687	257	200	386	211	94	93
16	129	256	309	376	251	507	252	188	355	202	94	131
17	143	377	283	361	245	447	251	178	331	193	96	139
18	223	338	263	349	239	405	269	175	314	185	93	123
19	252	301	250	336	233	377	302	171	303	178	91	110
20	189	275	245	328	230	358	304	158	296	172	89	121
21	172	257	233	319	225	345	286	148	290	162	85	162
22	159	248	229	317	220	336	275	144	276	154	90	532
23	149	231	224	308	220	328	252	142	263	149	88	1090
24	142	223	223	301	219	318	238	150	249	146	87	572
25	518	226	218	296	223	308	232	180	237	141	86	396
26	518	226	218	301	232	301	226	224	228	136	84	317
27	367	225	220	305	232	293	221	312	222	133	85	277
28	277	215	686	303	230	284	216	377	268	131	92	251
29	240	209	1030	291	---	276	213	287	285	126	105	232
30	216	201	892	278	---	276	201	3970	1360	122	108	217
31	203	---	715	273	---	280	---	2950	---	128	107	---
TOTAL	7128	7316	10988	11674	6781	9966	8516	13216	14350	7304	3256	5987
MEAN	230	244	354	377	242	321	284	426	478	236	105	200
MAX	1430	409	1280	610	270	815	476	3970	1560	645	152	1090
MIN	93	175	194	273	219	213	201	142	222	122	84	77
AC-FT	14140	14510	21790	23160	13450	19770	16890	26210	28460	14490	6460	11880

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 1995, BY WATER YEAR (WY)

	338	227	311	294	362	347	377	519	519	314	238	301
MEAN	338	227	311	294	362	347	377	519	519	314	238	301
MAX	1584	938	4927	1903	4164	3306	2417	2216	6329	3744	4980	4055
(WY)	1982	1975	1992	1992	1992	1992	1977	1992	1987	1932	1978	1936
MIN	5.91	11.1	6.48	10.9	29.3	16.8	6.11	19.3	.000	.000	.25	.29
(WY)	1952	1957	1957	1957	1956	1956	1956	1956	1956	1956	1954	1954

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1922 - 1995

ANNUAL TOTAL	93824	106482	
ANNUAL MEAN	257	292	
HIGHEST ANNUAL MEAN			346
LOWEST ANNUAL MEAN			1819
HIGHEST DAILY MEAN	5590	May 14	76500
LOWEST DAILY MEAN	75	Sep 6	.00
ANNUAL SEVEN-DAY MINIMUM	77	Sep 1	.00
INSTANTANEOUS PEAK FLOW			7310
INSTANTANEOUS PEAK STAGE			7.93
ANNUAL RUNOFF (AC-FT)	186100	211200	250700
10 PERCENT EXCEEDS	388	451	630
50 PERCENT EXCEEDS	188	238	149
90 PERCENT EXCEEDS	85	100	33

## GUADALUPE RIVER MAIN STEM

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX--Continued  
(Hydrologic index station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, October 1989 to August 1995  
(discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 25...	1020	226	493	8.2	15.0	5	4.0	9.6	97	<2.0	230	
JAN 20...	1005	330	524	7.9	12.5	8	1.8	10.1	96	0.2	250	
MAR 30...	1320	276	490	8.4	15.5	11	--	9.6	99	1.1	230	
MAY 23...	1530	142	479	8.1	24.0	3	9.6	8.6	106	0.4	230	
JUN 27...	1445	222	474	8.1	27.0	7	12	7.1	92	0.4	230	
AUG 16...	1510	95	462	8.1	29.5	10	12	7.8	105	1.5	210	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 25...	25	64	18	11	0.3	1.6	210	17	17	0.20	11	
JAN 20...	39	69	20	10	0.3	1.4	220	19	23	0.30	8.4	
MAR 30...	23	62	19	10	0.3	1.5	210	19	16	0.30	9.8	
MAY 23...	30	58	20	12	0.3	1.7	200	20	19	0.30	11	
JUN 27...	24	61	18	10	0.3	1.6	200	18	15	0.30	9.9	
AUG 16...	24	52	20	13	0.4	1.7	190	18	19	0.20	12	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)
NOV 25...	268	6	8	0	0.300	--	<0.010	0.300	0.300	<0.015	<0.20	
JAN 20...	283	3	5	0	0.460	--	<0.010	0.460	0.460	<0.015	<0.20	
MAR 30...	266	--	--	--	0.350	--	<0.010	0.350	0.350	<0.015	<0.20	
MAY 23...	261	17	6	11	0.240	--	<0.010	0.240	0.240	0.020	<0.20	
JUN 27...	257	14	4	10	0.170	0.170	0.020	0.190	0.190	0.020	<0.20	
AUG 16...	249	11	1	10	0.090	--	<0.010	0.090	0.090	0.020	<0.20	
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 25...	<0.010	<0.010	2.9	<1	37	<0.5	<1.0	<5	<3	<10	3	
JAN 20...	<0.010	<0.010	1.7	--	--	--	--	--	--	--	--	
MAR 30...	<0.010	<0.010	3.1	<1	38	<0.5	1.0	<5	<3	<10	7	
MAY 23...	0.010	<0.010	1.9	--	--	--	--	--	--	--	--	
JUN 27...	<0.010	<0.010	2.4	<1	39	<0.5	<1.0	<5	<3	<10	<3	
AUG 16...	<0.010	<0.010	2.6	--	--	--	--	--	--	--	--	



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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## 08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX

LOCATION.--Lat 29°52'07", long 98°11'55", Comal County, Hydrologic Unit 12100201, in intake structure of Canyon Dam on Guadalupe River, 12 mi northwest of New Braunfels, and at mile 303.0.

DRAINAGE AREA.--1,432 mi<sup>2</sup>.

## WATER-CONTENT RECORDS

PERIOD OF RECORD.--July 1962 to current year. Prior to October 1970, published as Canyon Reservoir.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by U.S. Army Corps of Engineers). Prior to Sept. 24, 1964, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 6,830 ft long, consisting of the main dam 4,410 ft long, an earthen dike 210 ft long, a 1,260-foot-long uncontrolled broad-crested-type spillway, and a 950-foot concrete and earthen nonoverflow section. Deliberate impoundment began June 16, 1964, and main part of dam was completed in August 1964. The flood-control outlet works consist of a 10.0-foot-diameter conduit controlled by two 5.7 by 10.0-foot hydraulically operated slide gates. The lake was built for water conservation and flood control. Capacity table beginning Oct. 1, 1974, is based on a sedimentation survey of August 1972. Small diversions above the lake for irrigation. Satellite telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	974.0	-
Crest of spillway.....	943.0	736,700
Top of conservation pool.....	909.0	382,000
Lowest gated outlet (invert).....	775.0	240

COOPERATION.--Records of elevations and 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, 732,600 acre-ft June 19, 1987 (elevation, 942.68 ft); minimum observed since conservation pool first reached in April 1968, 311,200 acre-ft Nov. 24, 1984 (elevation, 899.85 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 403,200 acre-ft June 11 (elevation, 911.52 ft); minimum, 373,800 acre-ft May 19 (elevation, 908.00 ft).

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

901.0	319,600	918.0	460,800	931.0	592,700
906.0	357,800	922.0	498,800	934.0	626,600
910.0	390,300	925.0	528,800	936.0	650,100
914.0	424,600	928.0	560,100	938.0	674,100

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	366900	379700	379100	386900	380400	379900	380700	380100	400300	395200	381400	377000
2	366800	379800	379000	386900	380400	380000	380300	379900	401500	395400	381300	376800
3	366600	379900	378900	387000	380300	379900	380400	379900	402000	395500	381100	376600
4	366600	380100	378800	386400	380200	379800	381600	379900	402400	395400	380900	376500
5	366400	380800	378600	385900	380100	379500	383100	379800	402600	394900	380700	376200
6	366200	381300	378500	384100	380100	379900	383400	379900	402600	394600	380400	376000
7	368200	381600	378300	383200	380000	379900	383700	380000	402600	394300	380100	376700
8	371300	381800	378200	382300	379900	379800	383800	381100	402600	393800	379900	376600
9	371400	381700	378200	382000	379800	379500	383900	381400	402300	393400	379600	376500
10	371500	381400	379600	381800	379900	379500	384200	381500	402100	392900	379500	376200
11	371400	381200	379900	381700	379800	379500	383700	381400	403000	392200	379100	375900
12	371400	381100	379900	381500	379800	379500	383600	381400	402900	391400	379100	375700
13	371300	380800	379800	381200	379900	380400	383400	381300	402800	390800	378900	375600
14	371600	380800	380200	381100	379900	381500	383200	381200	402300	390500	378600	375500
15	371800	380800	381300	380800	380000	382200	383000	381100	402100	390100	378600	375300
16	372400	380500	381600	380500	380000	382600	382700	381000	401500	389500	378500	375200
17	372600	380800	381800	380700	379900	382700	382900	380800	401000	389100	378100	375100
18	373700	380900	381700	380700	379800	382700	383200	381000	400400	388600	378100	375000
19	374200	381100	381600	380600	379900	382800	383200	380800	399800	388000	377900	375000
20	374600	381100	381600	380500	379800	382700	383200	380400	398900	387400	377800	375500
21	374800	380900	381500	380400	379700	382700	383000	380100	398200	386700	378000	375900
22	374900	380800	381400	380400	379600	382600	383200	379900	397600	386100	377800	375900
23	375000	380600	381300	380200	379600	382500	382600	379800	396900	385500	377700	377600
24	375000	380500	381100	380100	379600	382400	382200	379800	396300	384800	377500	378300
25	377500	380400	381000	380300	379800	382300	381800	379800	395700	384400	377300	378800
26	378300	380200	380800	380400	379900	382200	381400	379700	394900	383900	377100	379000
27	378900	380200	381000	380500	380100	381900	381200	380500	394100	383500	377000	379100
28	379200	379900	383500	380600	380200	381700	380800	380900	393300	383100	377400	379200
29	379500	379700	385100	380600	---	381300	380500	381300	393500	382400	377200	379200
30	379600	379500	386100	380400	---	381100	380300	392700	394700	382400	377000	379200
31	379800	---	386700	380400	---	380800	---	397800	---	381900	377100	---
MAX	379800	381800	386700	387000	380400	382800	384200	397800	403000	395500	381400	379200
MIN	366200	379500	378200	380100	379600	379500	380300	379700	393300	381900	377000	375000
(+)	908.73	908.70	909.57	908.81	908.78	908.85	908.79	910.89	910.52	908.99	908.40	908.66
(#)	+12800	-300	+7200	-6300	-200	+600	-500	+17500	-3100	-12800	-4800	+2100
CAL YR 1994	MAX 407400	MIN 365500	(+) +18900									
WTR YR 1995	MAX 403000	MIN 366200	(+) +12200									

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

GUADALUPE RIVER MAIN STEM

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1982. February 1990 to current year (discontinued).  
REVISED RECORDS.--TX-93-3 Phytoplankton.

295148098115201 - CANYON LAKE SITE AR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	0915	1.00	376	8.3	13.5	9.1	89
31...	0917	10.0	376	8.3	13.5	9.1	89
31...	0919	20.0	376	8.3	13.5	9.1	89
31...	0921	30.0	376	8.3	13.5	9.2	90
31...	0923	40.0	377	8.3	13.5	9.1	89
31...	0925	50.0	376	8.2	13.0	9.2	89
31...	0927	60.0	376	8.2	13.0	9.2	89
31...	0929	70.0	376	8.2	13.0	9.2	89
APR							
17...	0855	1.00	381	8.1	18.5	8.3	92
17...	0857	10.0	382	8.1	18.0	8.3	91
17...	0859	20.0	382	8.0	17.5	8.2	89
17...	0901	30.0	382	8.0	17.0	8.2	88
17...	0903	40.0	382	8.0	16.5	8.2	87
17...	0905	50.0	384	7.9	15.5	7.9	82
17...	0907	60.0	385	7.8	14.5	7.6	77
17...	0909	70.0	385	7.8	14.5	7.5	76
AUG							
07...	0955	1.00	357	8.3	28.5	7.0	93
07...	0957	10.0	357	8.3	28.5	7.0	93
07...	0959	20.0	358	8.3	28.5	6.9	92
07...	1001	30.0	358	8.2	28.5	6.4	85
07...	1003	40.0	375	7.7	27.0	2.9	38
07...	1005	50.0	381	7.5	25.5	1.4	18
07...	1007	60.0	389	7.5	21.5	1.4	16
07...	1009	70.0	396	7.5	20.5	2.0	23

GUADALUPE RIVER MAIN STEM  
08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 - CANYON LAKE SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
<b>JAN</b>										
31...	0950	380000	1.00	375	8.2	13.5	5.79	9.0	88	<2
31...	0952	--	10.0	376	8.2	13.5	--	8.9	87	--
31...	0954	--	20.0	376	8.2	13.5	--	9.0	88	--
31...	0956	--	30.0	376	8.2	13.5	--	8.9	87	--
31...	0958	--	40.0	376	8.2	13.5	--	8.9	87	--
31...	1000	--	50.0	376	8.2	13.5	--	8.9	87	--
31...	1002	--	60.0	377	8.2	13.5	--	8.8	86	--
31...	1004	--	70.0	377	8.2	13.5	--	8.7	85	--
31...	1006	--	80.0	377	8.2	13.5	--	8.6	85	--
31...	1008	--	90.0	379	8.1	13.5	--	8.1	80	--
31...	1010	--	100	380	8.0	13.5	--	7.6	75	--
31...	1012	--	110	395	7.9	12.5	--	6.6	63	--
31...	1014	--	120	419	7.8	12.5	--	5.3	51	--
31...	1016	--	130	429	7.8	12.5	--	5.3	51	--
31...	1018	--	140	432	7.8	12.5	--	5.3	51	--
31...	1020	--	150	430	7.8	12.5	--	5.2	50	--
<b>APR</b>										
17...	0920	383000	1.00	382	8.2	19.5	4.10	8.1	92	<1
17...	0922	--	10.0	381	8.2	19.0	--	8.3	93	--
17...	0924	--	20.0	380	8.2	17.5	--	8.5	92	--
17...	0926	--	30.0	381	8.2	17.0	--	8.3	89	--
17...	0928	--	40.0	382	8.1	16.0	--	8.1	85	--
17...	0930	--	50.0	384	8.1	16.0	--	8.2	86	--
17...	0932	--	60.0	384	8.0	14.5	--	7.7	78	--
17...	0934	--	70.0	383	8.0	14.5	--	7.6	77	--
17...	0936	--	80.0	381	8.0	14.0	--	7.5	76	--
17...	0938	--	90.0	381	8.0	14.0	--	7.6	77	--
17...	0940	--	100	382	8.0	14.0	--	7.6	77	--
17...	0942	--	110	381	8.0	13.5	--	7.6	76	--
17...	0944	--	120	383	7.9	13.5	--	7.2	72	--
17...	0946	--	130	384	7.8	13.5	--	6.0	60	--
17...	0948	--	140	386	7.8	13.5	--	5.5	55	--
17...	0950	--	148	389	7.8	13.5	--	6.1	61	--
<b>AUG</b>										
07...	1028	380000	1.00	359	8.4	29.0	4.14	7.0	94	K1
07...	1030	--	10.0	357	8.4	29.0	--	7.0	94	--
07...	1032	--	20.0	358	8.3	28.5	--	6.9	92	--
07...	1034	--	30.0	360	8.3	28.5	--	6.4	85	--
07...	1036	--	40.0	374	7.7	27.0	--	3.0	39	--
07...	1038	--	50.0	381	7.6	25.0	--	1.3	16	--
07...	1040	--	60.0	389	7.5	21.5	--	1.2	14	--
07...	1042	--	70.0	395	7.6	20.0	--	2.2	25	--
07...	1044	--	80.0	396	7.6	19.0	--	2.6	29	--
07...	1046	--	90.0	398	7.6	18.5	--	2.4	26	--
07...	1048	--	100	398	7.6	17.5	--	2.0	22	--
07...	1050	--	110	400	7.5	17.5	--	1.1	12	--
07...	1052	--	120	400	7.4	16.5	--	0.1	1	--
07...	1054	--	130	401	7.4	16.0	--	0.1	1	--
07...	1056	--	140	401	7.4	16.0	--	0.1	1	--
07...	1058	--	146	407	7.3	16.0	--	0.2	2	--

GUADALUPE RIVER MAIN STEM

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 - CANYON LAKE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
JAN									
31...	K1	180	18	43	17	10	0.3	1.9	160
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	210	26	56	17	9.6	0.3	1.8	180
APR									
17...	K2	180	20	44	17	10	0.3	1.8	160
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	180	6	46	17	10	0.3	1.8	180
AUG									
07...	<1	160	21	37	17	10	0.3	2.0	140
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	190	11	47	17	10	0.3	2.0	180



## GUADALUPE RIVER MAIN STEM

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 - CANYON LAKE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
JAN									
31...	16	17	0.20	10	211	0.070	--	<0.010	0.070
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	16	14	0.20	10	236	0.250	0.250	0.070	0.320
APR									
17...	18	16	0.20	8.6	212	0.070	--	<0.010	0.070
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	0.130	--	<0.010	0.130
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	18	16	0.20	9.4	227	0.200	--	<0.010	0.200
AUG									
07...	18	16	0.20	8.8	194	--	--	<0.010	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	0.150	--	<0.010	0.150
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	0.170	--	<0.010	0.170
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	14	16	0.20	13	226	--	--	<0.010	--

GUADALUPE RIVER MAIN STEM

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295206098115501 - CANYON LAKE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
31...	0.070	<0.015	--	<0.20	<0.010	<0.010	--	<3	<1
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	0.320	<0.015	--	<0.20	<0.010	<0.010	--	15	9
APR									
17...	0.070	<0.015	--	<0.20	<0.010	<0.010	--	<3	<1
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	0.130	<0.015	--	<0.20	<0.010	<0.010	--	<10	<10
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	0.200	0.020	--	<0.20	<0.010	<0.010	--	<3	36
AUG									
07...	<0.050	<0.015	--	<0.20	<0.010	<0.010	--	<3	<1
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	0.150	<0.015	--	<0.20	<0.010	<0.010	--	<10	<10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	0.170	<0.015	--	<0.20	<0.010	<0.010	--	10	<10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	<0.050	0.500	0.10	0.60	0.030	0.030	0.09	81	280

## GUADALUPE RIVER MAIN STEM

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295241098132101 - CANYON LAKE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1040	1.00	376	8.2	13.5	9.0	88
31...	1042	10.0	377	8.2	13.5	9.0	88
31...	1044	20.0	376	8.2	13.5	9.0	88
31...	1046	30.0	376	8.2	13.5	8.9	87
31...	1048	40.0	377	8.2	13.5	9.0	88
31...	1050	50.0	376	8.2	13.5	9.0	88
31...	1052	60.0	376	8.2	13.5	9.0	88
31...	1054	70.0	376	8.2	13.5	9.0	88
31...	1056	80.0	377	8.2	13.5	8.9	87
31...	1058	90.0	376	8.2	13.5	8.8	86
31...	1100	100	377	8.1	13.5	8.5	84
31...	1102	110	408	7.8	13.0	5.8	56
31...	1104	120	426	7.8	12.5	4.8	46
31...	1106	125	428	7.8	13.0	5.1	50
APR							
17...	1020	1.00	381	8.3	19.0	8.2	92
17...	1022	10.0	383	8.3	19.0	8.2	92
17...	1024	20.0	383	8.3	18.5	8.2	91
17...	1026	30.0	382	8.2	18.5	8.1	90
17...	1028	40.0	385	8.1	16.0	7.4	78
17...	1030	50.0	385	8.0	14.5	6.8	69
17...	1032	60.0	386	8.0	14.5	6.6	67
17...	1034	70.0	385	7.9	14.0	6.4	64
17...	1036	80.0	386	7.9	14.0	6.2	62
17...	1038	90.0	386	7.9	14.0	6.2	62
17...	1040	100	384	7.9	14.0	6.0	60
17...	1042	110	386	7.8	13.5	5.4	54
17...	1044	124	386	7.9	14.0	5.9	59
AUG							
07...	1135	1.00	360	8.3	29.5	6.8	92
07...	1137	10.0	358	8.4	29.0	6.9	93
07...	1139	20.0	358	8.4	29.0	6.8	91
07...	1141	30.0	359	8.3	28.5	6.4	85
07...	1143	40.0	378	7.7	27.0	2.0	26
07...	1145	50.0	383	7.5	24.5	0.5	6
07...	1147	60.0	386	7.5	20.5	0.3	3
07...	1149	70.0	398	7.4	20.5	0.1	1
07...	1151	80.0	401	7.4	19.0	0.1	1
07...	1153	90.0	404	7.4	18.5	0.1	1
07...	1155	100	405	7.4	17.5	0.1	1
07...	1157	110	407	7.4	17.0	0.1	1
07...	1159	120	408	7.4	16.5	0.2	2
07...	1201	129	411	7.3	16.5	0.2	2

295240098152001 - CANYON LAKE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1130	1.00	375	8.2	13.5	9.1	89
31...	1132	10.0	377	8.2	13.5	9.1	89
31...	1134	20.0	377	8.2	13.5	9.0	88
31...	1136	30.0	377	8.2	13.5	9.0	88
31...	1138	40.0	377	8.2	13.5	9.0	88
31...	1140	50.0	378	8.2	13.5	9.0	88
31...	1142	60.0	377	8.2	13.5	9.0	88
31...	1144	70.0	377	8.2	13.5	9.1	89
APR							
17...	1100	1.00	384	8.3	19.5	8.1	92
17...	1102	10.0	384	8.3	19.5	8.2	93
17...	1104	20.0	383	8.2	19.0	8.1	91
17...	1106	30.0	383	8.2	17.5	7.4	80
17...	1108	40.0	387	8.1	15.5	6.8	71
17...	1110	50.0	388	7.9	14.0	5.1	51
17...	1112	60.0	387	8.0	15.0	5.7	59
17...	1114	74.0	389	7.9	15.0	5.8	60
AUG							
07...	1223	1.00	360	8.3	30.5	6.7	92
07...	1225	10.0	358	8.3	30.0	6.8	93
07...	1227	20.0	358	8.3	29.5	6.5	88
07...	1229	30.0	363	8.1	28.5	5.0	67
07...	1231	40.0	378	7.6	27.0	1.8	23
07...	1233	50.0	387	7.5	24.5	0.1	1
07...	1235	60.0	395	7.4	22.0	0.1	1
07...	1237	70.0	402	7.4	20.0	0.2	2
07...	1239	80.0	406	7.4	19.5	0.2	2

## GUADALUPE RIVER MAIN STEM

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098143101 - CANYON LAKE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN												
31...	1200	1.00	377	8.2	13.5	2.29	8.9	88	<2	K1	180	26
31...	1202	10.0	377	8.2	13.5	--	8.9	88	--	--	--	--
31...	1204	20.0	376	8.2	13.5	--	8.8	87	--	--	--	--
31...	1206	30.0	377	8.2	13.5	--	8.8	87	--	--	--	--
31...	1208	40.0	377	8.2	13.5	--	8.8	87	--	--	--	--
31...	1210	50.0	377	8.2	13.5	--	8.8	87	--	--	--	--
31...	1212	60.0	377	8.2	13.5	--	8.8	87	--	--	--	--
31...	1214	70.0	376	8.2	13.5	--	8.7	86	--	--	--	--
31...	1216	80.0	377	8.1	13.5	--	8.6	85	--	--	--	--
31...	1218	87.0	377	8.2	13.5	--	8.4	83	--	--	180	30
APR												
17...	1125	1.00	384	8.3	20.0	1.90	8.0	91	<1	K6	180	19
17...	1127	10.0	386	8.3	20.0	--	8.0	91	--	--	--	--
17...	1129	20.0	384	8.3	19.5	--	8.0	91	--	--	--	--
17...	1131	30.0	383	8.3	19.5	--	8.0	91	--	--	--	--
17...	1133	40.0	390	8.0	16.0	--	6.4	67	--	--	--	--
17...	1135	50.0	390	8.0	15.5	--	6.1	63	--	--	--	--
17...	1137	60.0	390	8.0	14.5	--	6.0	61	--	--	--	--
17...	1139	70.0	388	7.9	14.0	--	5.0	50	--	--	--	--
17...	1141	80.0	388	7.9	14.5	--	5.5	56	--	--	--	--
17...	1143	88.0	390	7.9	14.5	--	5.7	58	--	--	180	24
AUG												
07...	1300	1.00	359	8.3	30.5	2.74	6.8	94	<1	<1	160	19
07...	1302	10.0	359	8.3	30.0	--	6.8	93	--	--	--	--
07...	1304	20.0	360	8.3	29.5	--	6.7	91	--	--	--	--
07...	1306	30.0	360	8.2	29.0	--	5.9	79	--	--	--	--
07...	1308	40.0	381	7.6	26.5	--	1.2	15	--	--	--	--
07...	1310	50.0	390	7.4	23.5	--	0	0	--	--	--	--
07...	1312	60.0	404	7.4	21.5	--	0	0	--	--	--	--
07...	1314	70.0	410	7.3	20.0	--	0	0	--	--	--	--
07...	1316	80.0	412	7.3	19.5	--	0.1	1	--	--	--	--
07...	1318	86.0	413	7.3	19.0	--	0	0	--	--	190	11

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNESIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN											
31...	43	17	10	0.3	2.0	150	16	16	0.20	9.9	205
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	44	17	10	0.3	1.8	150	16	17	0.20	10	206
APR											
17...	44	17	10	0.3	1.8	160	18	16	0.20	8.6	212
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	46	17	10	0.3	1.8	160	18	16	0.20	9.4	216
AUG											
07...	36	17	11	0.4	1.9	140	18	16	0.20	9.0	194
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	50	16	9.8	0.3	1.8	180	12	15	0.20	12	226

## GUADALUPE RIVER MAIN STEM

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098143101 - CANYON LAKE SITE DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
31...	0.080	<0.010	0.080	0.080	0.020	--	<0.20	<0.010	<0.010	<3	1
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	0.080	<0.010	0.080	0.080	0.040	--	<0.20	<0.010	<0.010	<3	12
APR											
17...	0.080	<0.010	0.080	0.080	<0.015	--	<0.20	<0.010	<0.010	<3	<1
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	0.170	<0.010	0.170	0.170	0.020	--	<0.20	<0.010	<0.010	<3	6
AUG											
07...	--	<0.010	--	<0.050	<0.015	--	<0.20	<0.010	<0.010	<3	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	<0.010	--	<0.050	<0.015	--	<0.20	<0.010	<0.010	<10	<10
07...	--	<0.010	--	<0.050	0.020	--	<0.20	<0.010	<0.010	<10	<10
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	<0.010	--	<0.050	0.360	0.14	0.50	<0.010	<0.010	260	230

295329098151001 - CANYON LAKE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1240	1.00	380	8.2	13.5	8.8	87
31...	1242	10.0	381	8.2	13.5	8.8	87
31...	1244	20.0	379	8.2	13.5	8.8	87
31...	1246	30.0	378	8.2	13.5	8.7	86
31...	1248	40.0	378	8.2	13.5	8.7	86
31...	1250	50.0	378	8.2	13.5	8.7	86
31...	1252	60.0	379	8.2	13.5	8.7	86
31...	1254	70.0	379	8.1	13.5	8.4	83
31...	1256	80.0	398	8.0	13.5	8.0	79
31...	1258	93.0	416	8.0	13.5	5.6	55
APR							
17...	1204	1.00	385	8.3	20.0	7.8	89
17...	1206	10.0	384	8.3	19.5	8.0	91
17...	1208	20.0	384	8.2	19.5	7.8	88
17...	1210	30.0	386	8.1	18.0	6.9	76
17...	1212	40.0	406	8.0	16.5	6.3	67
17...	1214	50.0	391	8.0	15.5	6.4	67
17...	1216	60.0	389	8.0	14.5	6.1	62
17...	1218	70.0	389	8.0	14.5	6.1	62
17...	1220	80.0	388	7.9	14.0	5.3	53
17...	1222	90.0	389	7.9	14.0	5.3	53
17...	1224	100	389	7.9	14.0	5.0	50
AUG							
07...	1345	1.00	365	8.3	30.5	6.6	91
07...	1347	10.0	361	8.3	30.0	6.8	93
07...	1349	20.0	361	8.3	29.5	6.6	90
07...	1351	30.0	370	8.2	29.0	5.3	71
07...	1353	40.0	386	7.6	27.0	1.0	13
07...	1355	50.0	390	7.4	24.5	0	0
07...	1357	60.0	405	7.4	22.0	0.1	1
07...	1359	70.0	419	7.3	20.5	0.1	1
07...	1401	80.0	420	7.3	19.0	0.1	1
07...	1403	90.0	420	7.3	18.5	0.2	2
07...	1405	101	417	7.3	18.0	0.2	2



GUADALUPE RIVER MAIN STEM

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 - CANYON LAKE SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLO. AS CAC03 (MG/L)
JAN												
31...	1310	1.00	412	8.1	13.5	0.91	8.6	85	<2	K1	200	31
31...	1312	10.0	414	8.1	13.5	--	8.6	85	--	--	--	--
31...	1314	20.0	413	8.1	13.5	--	8.6	85	--	--	--	--
31...	1316	30.0	412	8.1	13.5	--	8.6	85	--	--	--	--
31...	1318	40.0	415	8.1	13.5	--	8.5	84	--	--	--	--
31...	1320	50.0	417	8.1	13.5	--	8.4	83	--	--	--	--
31...	1322	64.0	439	8.0	13.5	--	7.9	78	--	--	220	29
APR												
17...	1245	1.00	412	8.2	21.0	1.50	7.8	91	K1	K2	200	27
17...	1247	10.0	411	8.2	21.0	--	7.8	91	--	--	--	--
17...	1249	20.0	410	8.2	21.0	--	7.6	89	--	--	--	--
17...	1251	30.0	416	8.1	19.5	--	7.1	80	--	--	--	--
17...	1253	40.0	454	7.7	18.0	--	4.1	45	--	--	--	--
17...	1255	50.0	442	7.6	16.5	--	2.4	26	--	--	--	--
17...	1257	63.0	408	7.7	15.0	--	3.3	34	--	--	190	23
AUG												
07...	1424	1.00	369	8.3	31.0	1.83	6.7	93	K2	51	170	23
07...	1426	10.0	366	8.3	30.5	--	6.5	90	--	--	--	--
07...	1428	20.0	383	8.1	30.0	--	5.4	74	--	--	--	--
07...	1430	30.0	388	7.9	29.0	--	3.6	48	--	--	--	--
07...	1432	40.0	421	7.4	28.0	--	0	0	--	--	--	--
07...	1434	50.0	463	7.2	24.5	--	0.1	1	--	--	--	--
07...	1436	62.0	514	7.0	22.0	--	0.2	2	--	--	250	13

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN											
31...	52	17	10	0.3	1.8	170	17	16	0.20	9.5	226
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	58	18	10	0.3	1.6	190	17	16	0.20	9.4	245
APR											
17...	49	18	10	0.3	1.7	170	18	16	0.20	8.6	224
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	50	17	9.8	0.3	1.7	170	18	16	0.20	9.5	226
AUG											
07...	38	18	11	0.4	2.0	150	18	17	0.30	9.7	202
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	77	15	8.3	0.2	1.5	240	11	12	0.30	13	284

## GUADALUPE RIVER MAIN STEM

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

295349098173701 - CANYON LAKE SITE FC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
31...	0.180	<0.010	0.180	0.180	0.020	--	<0.20	<0.010	<0.010	<3	<1
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	0.260	<0.010	0.260	0.260	0.050	--	<0.20	<0.010	<0.010	<3	2
APR											
17...	0.160	<0.010	0.160	0.160	<0.015	--	<0.20	<0.010	<0.010	<3	<1
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	0.160	<0.010	0.160	0.160	<0.015	--	<0.20	<0.010	<0.010	<10	<10
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	0.230	<0.010	0.230	0.230	<0.015	--	<0.20	<0.010	<0.010	3	11
AUG											
07...	--	<0.010	--	<0.050	<0.015	--	<0.20	<0.010	<0.010	<3	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	<0.010	--	<0.050	<0.015	--	<0.20	<0.010	<0.010	<10	<10
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	<0.010	--	<0.050	0.470	0.03	0.50	<0.010	<0.010	280	180

GUADALUPE RIVER BASIN

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX

Canyon Lake Site AC (295206098115501)

Phytoplankton Analyses October 1994 to September 1995

Date	1-31-95
Time	0950

TOTAL CELLS/mL	4,521
NUMBER OF SPECIES	4
DEPTH COLLECTED (ft.)	9.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Pennales	
<i>Fragilaria crotonensis</i>	852
<i>Navicula</i> sp.	41
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,569
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	59

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX

Canyon Lake Site FC (295349098173701)

Phytoplankton Analyses October 1994 to September 1995

Date	1-31-95
Time	1310

TOTAL CELLS/mL	2,945
NUMBER OF SPECIES	8
DEPTH COLLECTED (ft.)	1.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	59
Order Pennales	
<i>Diatoma hiemale</i>	40
<i>Navicula</i> sp.	20
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	30
<i>Chlamydomonas</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,677
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	59
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	30

## 08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

Canyon Lake Site AC (295206098115501)

Phytoplankton Analyses October 1994 to September 1995

Date	4-17-95
Time	0920

TOTAL CELLS/mL	4,997
NUMBER OF SPECIES	7
DEPTH COLLECTED (ft.)	6.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	30
Order Pennales	
<i>Synedra ulna</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	30
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	3,569
<i>Aphanocapsa delicatissima</i>	1,190
CHRYSPHYTA	
<i>Dinobryon sociale</i>	89
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	59



08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

Canyon Lake Site FC (295349098173701)

Phytoplankton Analyses October 1994 to September 1995

Date	4-17-95
Time	1245

TOTAL CELLS/mL	3,092
NUMBER OF SPECIES	6
DEPTH COLLECTED (ft.)	2.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Pennales	
<i>Fragilaria crotonensis</i>	178
CHLOROPHYTA	
<i>Cosmarium</i> sp.	30
<i>Scenedesmus opoliensis</i>	59
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,677
CHRYSOPHYTA	
<i>Dinobryon sociale</i>	89
PYRRHOPHYTA	
<i>Ceratium hirundinella</i>	59

## GUADALUPE RIVER BASIN

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08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

Canyon Lake Site AC (295206098115501)

Phytoplankton Analyses October 1994 to September 1995

Date	8-7-95
Time	1028

TOTAL CELLS/mL	23,079
NUMBER OF SPECIES	10
DEPTH COLLECTED (ft.)	6.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	89
Order Pennales	
<i>Fragilaria crotonensis</i> var. <i>crotonensis</i>	491
<i>Navicula</i> sp.	164
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	30
<i>Chlamydomonas</i> sp.	59
<i>Cosmarium</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	22,008
<i>Chroococcus limneticus</i>	119
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	59
PYRRHOPHYTA	
<i>Pendinium pusillum</i>	30

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX--Continued

Canyon Lake Site FC (295349098173701)

Phytoplankton Analyses October 1994 to September 1995

Date	8-7-95
Time	1424

TOTAL CELLS/mL	21,621
NUMBER OF SPECIES	7
DEPTH COLLECTED (ft.)	3.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Pennales	
<i>Asterionella formosa</i> var. <i>formosa</i>	506
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	1,695
<i>Chlamydomonas</i> sp.	89
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	19,034
<i>Merismopedia tenuissima</i>	119
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	89
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	89

## 08167800 GUADALUPE RIVER AT SATTTLER, TX

LOCATION.--Lat 29°51'32", long 98°10'47", Comal County, Hydrologic Unit 12100202, on right bank 200 ft upstream from Horseshoe Falls, 0.8 mi north of Sattler, 1.8 mi downstream from Canyon Dam, 2.3 mi upstream from Heiser Hollow, 11.2 mi north of New Braunfels, and at mile 301.2.

DRAINAGE AREA.--1,436 mi<sup>2</sup>, of which 1,432 mi<sup>2</sup> is above Canyon Dam.

PERIOD OF RECORD.--March 1960 to current year.

Water-quality records.--Water temperature: June 1984 to September 1987.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft above sea level (U.S. Army Corps of Engineers bench mark).

REMARKS.--No estimated daily discharge. Records good. Since July 21, 1962, flow completely regulated by Canyon Lake (station 08167700) 1.8 mi upstream. Small diversions above station for irrigation. Satellite telemeter at station. Water-quality samples are collected 1.4 mi upstream from gage.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1961-62).--Maximum discharge, 20,800 ft<sup>3</sup>/s Oct. 29, 1960 (gage height, 12.20 ft); no flow July 31 to Aug. 6, 1962 (result of closure of Canyon Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 (stage unknown) has not been exceeded since that date; flood in July 1900 (stage unknown) exceeded 39 ft; maximum stage since at least 1904, 39 ft in July 1932 and June 1935, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	162	280	568	283	247	395	273	587	390	283	110
2	97	162	280	568	283	247	395	205	587	390	231	108
3	98	162	283	568	283	247	340	213	583	390	183	108
4	99	162	283	803	283	247	314	215	581	415	181	108
5	97	165	283	967	283	247	308	215	581	581	181	107
6	130	164	283	973	283	247	304	220	581	563	181	103
7	107	210	283	978	283	252	338	221	581	530	178	104
8	113	275	283	873	283	251	387	224	581	502	154	104
9	101	283	283	581	283	251	390	236	584	482	136	104
10	100	283	283	581	261	251	390	275	587	531	136	104
11	99	283	283	581	244	251	390	275	594	583	136	105
12	99	283	283	581	241	251	390	277	587	581	135	104
13	100	283	283	575	241	257	387	272	587	460	134	104
14	104	291	283	574	241	257	385	271	625	386	136	104
15	108	292	232	574	242	316	385	256	504	385	130	104
16	109	292	268	495	244	388	385	215	666	385	122	104
17	111	292	268	390	244	393	385	209	587	385	117	104
18	115	292	272	389	244	395	385	207	593	385	101	106
19	116	292	279	385	247	395	385	206	696	385	101	108
20	116	292	283	385	251	395	385	206	699	390	101	108
21	116	290	283	385	251	395	385	206	662	386	102	109
22	116	283	248	385	251	395	384	205	583	385	103	108
23	116	283	277	385	251	395	380	205	581	378	102	112
24	114	283	279	349	251	395	379	209	581	381	100	116
25	116	283	279	300	251	395	380	209	581	321	104	110
26	111	283	279	298	251	395	380	209	581	292	104	124
27	119	283	279	289	251	395	380	209	581	289	107	176
28	150	283	287	287	251	395	380	209	581	292	110	152
29	157	283	445	287	---	395	380	209	566	292	110	163
30	157	283	561	283	---	395	380	266	564	292	108	185
31	159	---	564	283	---	395	---	445	---	290	109	---
TOTAL	3547	7757	9339	15920	7255	10130	11231	7272	17832	12697	4216	3466
MEAN	114	259	301	514	259	327	374	235	594	410	136	116
MAX	159	292	564	978	283	395	395	445	699	583	283	185
MIN	97	162	232	283	241	247	304	205	504	289	100	103
AC-FT	7040	15390	18520	31580	14390	20090	22280	14420	35370	25180	8360	6870

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995#, BY WATER YEAR (WY)

	MEAN	326	340	294	462	420	487	508	517	661	549	488	310
MAX	1317	1177	1138	4437	2089	3949	3705	2318	2783	4883	3854	1306	
(WY)	1987	1974	1987	1992	1992	1992	1992	1992	1992	1987	1978	1987	
MIN	43.1	66.2	41.4	60.4	13.4	71.7	45.6	47.1	36.1	22.1	10.1	10.5	
(WY)	1964	1976	1966	1964	1965	1988	1971	1971	1963	1963	1963	1963	

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1963 - 1995#
ANNUAL TOTAL	81495	110662	
ANNUAL MEAN	223	303	447
HIGHEST ANNUAL MEAN			1900
LOWEST ANNUAL MEAN			69.4
HIGHEST DAILY MEAN	957	May 24	5680
LOWEST DAILY MEAN	93	Aug 23	1.2
ANNUAL SEVEN-DAY MINIMUM	96	Aug 22	1.2
INSTANTANEOUS PEAK FLOW			5850
INSTANTANEOUS PEAK STAGE			8.31
ANNUAL RUNOFF (AC-FT)	161600	219500	323800
10 PERCENT EXCEEDS	518	581	791
50 PERCENT EXCEEDS	156	283	224
90 PERCENT EXCEEDS	101	108	69

# Period of regulated streamflow.

08167800 GUADALUPE RIVER AT SATTTLER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1962 to August 1982. January 1990 to August 1995 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1984 to September 1987.

INSTRUMENTATION.--From June 1984 to September 1987, water temperature was continuously recorded at this station.

REMARKS.--Samples for chemical and biochemical analyses are collected approximately 1.4 miles upstream from the streamgaging location.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 25.5°C on several days during September 1987; minimum, 9.5°C Mar. 8-10, 1985.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)
JAN 31...	1025	283	425	8.1	13.0	8	22	9.6	92	0.7	200
APR 17...	1045	385	411	8.1	16.0	5	13	7.6	79	0.4	200
AUG 07...	1030	179	393	8.0	20.0	6	15	7.5	84	0.9	190
DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS-FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
JAN 31...	20	56	15	10	0.3	1.6	180	15	15	0.20	11
APR 17...	25	54	15	10	0.3	1.6	170	16	16	0.20	10
AUG 07...	20	51	16	11	0.3	1.8	170	16	16	0.20	12
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON-FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)
JAN 31...	234	38	9	29	0.130	0.130	0.020	0.150	0.150	0.020	<0.20
APR 17...	227	46	5	41	0.120	--	<0.010	0.120	0.120	<0.015	<0.20
AUG 07...	229	28	7	21	0.080	--	<0.010	0.080	0.080	0.040	<0.20
DATE	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS Ba)	BERYLLIUM, DIS-SOLVED (UG/L AS Be)	CADMIUM, DIS-SOLVED (UG/L AS Cd)	CHROMIUM, DIS-SOLVED (UG/L AS Cr)	COBALT, DIS-SOLVED (UG/L AS Co)	COPPER, DIS-SOLVED (UG/L AS Cu)	IRON, DIS-SOLVED (UG/L AS Fe)
JAN 31...	<0.010	<0.010	3.4	<1	34	<0.5	<1.0	<5	3	<10	<3
APR 17...	<0.010	<0.010	4.5	<1	34	<0.5	<1.0	<5	<3	<10	8
AUG 07...	<0.010	<0.010	8.7	1	33	<0.5	1.0	<5	<3	<10	8
DATE	LEAD, DIS-SOLVED (UG/L AS Pb)	LITHIUM, DIS-SOLVED (UG/L AS Li)	MANGANESE, DIS-SOLVED (UG/L AS Mn)	MERCURY, DIS-SOLVED (UG/L AS Hg)	MOLYBDENUM, DIS-SOLVED (UG/L AS Mo)	NICKEL, DIS-SOLVED (UG/L AS Ni)	SELENIUM, DIS-SOLVED (UG/L AS Se)	SILVER, DIS-SOLVED (UG/L AS Ag)	STRONTIUM, DIS-SOLVED (UG/L AS Sr)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS Zn)
JAN 31...	<10	<4	3	<0.1	10	<10	<1	<1.0	360	<6	10
APR 17...	20	6	5	<0.1	10	<10	<1	<1.0	370	<6	4
AUG 07...	<10	<4	54	<0.1	<10	10	<2	<1.0	410	<6	9



GUADALUPE RIVER MAIN STEM

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08168500 GUADALUPE RIVER ABOVE COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'53", long 98°06'35", Comal County, Hydrologic Unit 12100202, on right bank at New Braunfels, 1.1 mi upstream from Comal River, 21.9 mi downstream from Canyon Lake, and at mile 281.1.

DRAINAGE AREA.--1,518 mi<sup>2</sup>, of which 1,432 mi<sup>2</sup> is above Canyon Dam.

PERIOD OF RECORD.--December 1927 to current year.

REVISED RECORDS.--WSP 898: 1935. WSP 1562: 1932. WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 586.65 ft above sea level.

REMARKS.--No estimated daily discharge. Records good. Small diversions for irrigation below station 08167800 and above this station. Since July 21, 1962, flow largely regulated by Canyon Lake (station 08167700) 21.9 mi upstream. Rain gage at station. Satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--34 years (water years 1929-62) prior to regulation by Canyon Lake, 372 ft<sup>3</sup>/s (269,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1929-62).--Maximum discharge, 101,000 ft<sup>3</sup>/s June 15, 1935 (gage height, 32.95 ft). Maximum discharge since closure of Canyon Dam on July 21, 1962, 92,600 ft<sup>3</sup>/s May 12, 1972 (gage height, 31.65 ft); no flow July 8, 9, and July 17 to Aug. 20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 38 ft July 8, 1869, and in December 1913, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	238	301	698	320	258	387	364	821	509	283	128
2	114	235	304	692	320	258	387	230	780	453	273	122
3	114	233	308	688	320	261	365	242	754	443	198	116
4	111	231	303	794	320	258	400	242	736	453	191	115
5	112	250	302	1060	318	257	423	241	720	589	187	116
6	112	232	302	1060	320	258	432	242	709	633	183	117
7	143	234	300	1060	320	265	417	241	701	590	180	119
8	284	333	303	1050	315	258	481	278	696	556	175	140
9	179	347	313	681	313	258	476	252	687	522	146	123
10	165	341	311	662	308	264	470	298	681	534	142	121
11	156	339	307	655	274	263	457	301	737	621	141	121
12	146	331	305	660	272	264	450	300	711	619	146	119
13	138	327	304	656	274	288	444	301	705	560	145	117
14	139	328	313	651	285	270	444	299	711	411	142	120
15	153	334	307	646	282	278	436	294	628	411	139	117
16	152	331	307	627	282	400	436	250	785	408	132	116
17	155	322	327	451	278	404	436	235	695	403	135	115
18	191	325	327	444	276	395	436	244	690	403	119	114
19	197	325	327	443	276	395	434	230	782	403	114	114
20	191	321	327	438	272	391	428	227	805	404	109	148
21	188	320	327	436	266	388	420	225	799	401	109	133
22	184	314	300	434	260	395	420	220	682	396	116	135
23	181	313	314	429	258	389	416	220	674	392	114	131
24	176	313	320	423	258	387	412	244	671	379	115	127
25	335	311	320	347	263	387	411	228	642	367	113	126
26	245	312	320	349	267	387	411	225	662	289	113	123
27	226	311	322	332	264	387	410	241	655	289	113	147
28	241	307	404	323	263	387	408	230	654	286	118	164
29	251	306	525	323	---	388	406	229	653	283	129	146
30	246	301	720	320	---	387	401	1320	652	282	119	161
31	241	---	709	320	---	387	---	679	---	285	117	---
TOTAL	5582	9065	10779	18152	8044	10212	12754	9372	21278	13574	4556	3811
MEAN	180	302	348	586	287	329	425	302	709	438	147	127
MAX	335	347	720	1060	320	404	481	1320	821	633	283	164
MIN	111	231	300	320	258	257	365	220	628	282	109	114
AC-FT	11070	17980	21380	36000	15960	20260	25300	18590	42200	26920	9040	7560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995#, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	396	411	377	548	517	578	592	647	782	629	553	372																					
MAX	1409	1307	1302	4704	2379	4254	3826	2450	2948	5136	3866	1484																					
(WY)	1987	1974	1987	1992	1992	1992	1992	1992	1992	1987	1978	1987																					
MIN	39.0	85.4	67.9	71.2	105	93.8	57.5	59.3	47.4	24.8	23.2	16.0																					
(WY)	1964	1964	1964	1963	1963	1963	1971	1971	1984	1984	1963	1963																					

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1963 - 1995#
ANNUAL TOTAL	94637	127179	
ANNUAL MEAN	259	348	534
HIGHEST ANNUAL MEAN			2057
LOWEST ANNUAL MEAN			84.9
HIGHEST DAILY MEAN	1080	May 19	13300
LOWEST DAILY MEAN	103	Aug 24	2.6
ANNUAL SEVEN-DAY MINIMUM	106	Aug 23	2.7
INSTANTANEOUS PEAK FLOW			92600
INSTANTANEOUS PEAK STAGE			31.65
ANNUAL RUNOFF (AC-FT)	187700	252300	386600
10 PERCENT EXCEEDS	578	666	970
50 PERCENT EXCEEDS	206	308	304
90 PERCENT EXCEEDS	116	123	93

# Period of regulated streamflow.

## GUADALUPE RIVER BASIN

08169000 COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'21", long 98°07'20", Comal County, Hydrologic Unit 12100202, on right bank 200 ft upstream from San Antonio Street viaduct in New Braunfels and 1.1 mi upstream from mouth.

DRAINAGE AREA.--130 mi<sup>2</sup>. Normal flow of river comes from springs; drainage area not applicable.

PERIOD OF RECORD.--1882 to September 1932 (discharge measurements and fragmentary daily discharge record), October 1932 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1955. Datum of gage is 582.80 ft above sea level.

REMARKS.--No estimated daily discharge. Records good. The flow from Comal Springs emerges from the Edwards and associated limestones in the Balcones Fault Zone. Except during periods of rainfall, flow of river is primarily from Comal Springs about 1.0 mi upstream. No flow from Comal Springs from June 13 to Nov. 3, 1956. Flow is affected at times by cleanup operations by the city of New Braunfels at Landa Park Lake and at times by discharge from the flood-detention pools of five floodwater-retarding structures with a combined detention capacity of 17,580 acre-ft. These structures control runoff from 74.6 mi<sup>2</sup> above station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with flood of July 8, 1869, which reached a stage of 36.91 ft, from painted and dated marks in old Remmert Brewery 0.5 mi downstream; the flood of Oct. 17, 1870, reached a stage of 37.65 ft at same site (probably some backwater from Guadalupe River).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	2100	2,680	8.26				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277	310	311	327	316	302	305	289	308	283	253	234
2	276	310	313	325	315	301	303	286	288	287	257	232
3	275	308	312	323	314	301	305	285	285	290	260	234
4	273	307	313	324	313	302	320	283	286	291	249	233
5	273	318	312	325	314	303	314	279	291	291	252	228
6	273	309	311	326	312	308	311	277	285	291	252	227
7	284	310	313	326	312	307	310	276	287	293	249	243
8	407	308	314	326	313	305	309	297	289	294	243	237
9	292	307	316	326	312	305	309	279	283	294	266	231
10	288	307	311	326	312	306	308	278	285	297	258	230
11	289	308	313	325	309	308	308	283	310	290	243	231
12	293	307	313	330	307	308	308	281	294	287	252	233
13	291	309	313	342	308	333	308	277	288	291	248	229
14	294	308	321	329	307	314	307	280	289	287	247	230
15	300	308	329	329	306	311	303	278	294	290	244	231
16	310	309	323	326	305	309	307	274	289	290	243	231
17	307	309	317	328	305	310	308	272	293	286	240	230
18	774	310	317	326	305	309	306	270	294	280	239	229
19	487	307	316	324	305	308	312	269	291	278	236	227
20	309	308	315	325	305	307	305	264	288	281	239	257
21	304	306	315	324	303	307	304	265	288	274	234	244
22	304	306	314	321	301	306	302	262	289	275	234	242
23	302	307	314	321	302	305	304	259	280	272	243	245
24	300	308	316	320	302	304	301	277	283	271	238	246
25	365	308	315	319	307	303	299	256	279	263	238	247
26	313	309	314	319	304	306	299	259	275	263	239	248
27	311	309	317	319	303	303	299	275	270	263	241	249
28	313	308	425	319	302	304	295	266	274	252	238	250
29	313	307	361	319	---	304	294	268	288	253	240	249
30	311	307	330	317	---	304	295	372	280	256	237	249
31	310	---	326	317	---	304	---	301	---	259	236	---
TOTAL	10018	9252	9950	10053	8619	9507	9158	8637	8623	8672	7588	7126
MEAN	323	308	321	324	308	307	305	279	287	280	245	238
MAX	774	318	425	342	316	333	320	372	310	297	266	257
MIN	273	306	311	317	301	301	294	256	270	252	234	227
AC-FT	19870	18350	19740	19940	17100	18860	18160	17130	17100	17200	15050	14130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 1995, BY WATER YEAR (WY)

	MEAN	284	291	302	307	308	304	308	327	303	276	258	278
MAX	490	486	437	499	527	536	531	939	520	466	466	663	
(WY)	1974	1975	1992	1968	1992	1977	1972	1987	1992	1992	1992	1952	
MIN	12.5	23.7	40.9	51.5	52.5	70.6	45.2	31.7	11.5	12.0	15.4	15.0	
(WY)	1957	1957	1957	1957	1957	1956	1956	1956	1956	1956	1956	1956	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1933 - 1995

ANNUAL TOTAL	117143	107203	295
ANNUAL MEAN	321	294	431
HIGHEST ANNUAL MEAN			50.9
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1570	774	14400
LOWEST DAILY MEAN	248	227	5.5
ANNUAL SEVEN-DAY MINIMUM	251	230	8.5
INSTANTANEOUS PEAK FLOW		2680	60800
INSTANTANEOUS PEAK STAGE		8.26	36.55
ANNUAL RUNOFF (AC-FT)	232400	212600	214000
10 PERCENT EXCEEDS	352	320	394
50 PERCENT EXCEEDS	316	303	305
90 PERCENT EXCEEDS	259	243	169

GUADALUPE RIVER MAIN STEM  
08169580 GUADALUPE RIVER BELOW NEW BRAUNFELS, TX

LOCATION.--Lat 29°40'00", long 98°04'14", Comal County, Hydrologic Unit 12100202, in Lake Dunlap, 8 mi southeast of New Braunfels, and 15 mi downstream from Interstate Highway 35 bridge.

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: June 1986 to June 1992.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CAC03)	HARDNESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)
NOV 22...	1226	493	7.9	20.0	8.0	88	1.1	230	24	67	16
JAN 19...	1300	500	8.0	17.0	9.6	100	0.6	230	28	65	16
MAR 30...	1110	503	8.1	16.5	9.4	97	3.0	230	20	63	17
MAY 23...	1345	530	7.9	24.0	9.3	113	0.9	270	19	67	25
JUN 27...	1310	456	8.0	22.0	9.2	107	1.0	220	22	61	16
AUG 16...	1310	512	7.5	28.0	6.7	87	2.1	230	23	66	16

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS-FIX END CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
NOV 22...	13	0.4	1.9	210	22	17	0.20	13	280	1.09
JAN 19...	14	0.4	1.7	200	23	19	0.30	9.9	273	0.890
MAR 30...	16	0.5	1.7	210	24	20	0.20	10	280	0.890
MAY 23...	18	0.5	1.7	250	28	22	0.30	12	333	1.76
JUN 27...	13	0.4	1.7	200	21	18	0.20	9.6	261	0.540
AUG 16...	16	0.5	1.7	210	24	19	0.20	12	285	1.08

DATE	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
NOV 22...	1.09	0.010	1.10	1.10	0.030	--	<0.20	0.020	0.020	0.06
JAN 19...	--	<0.010	0.890	0.890	0.030	--	<0.20	0.030	0.020	0.06
MAR 30...	0.890	0.010	0.900	0.900	0.070	0.13	0.20	0.020	0.030	0.09
MAY 23...	1.76	0.040	1.80	1.80	0.100	--	<0.20	0.020	0.030	0.09
JUN 27...	0.540	0.020	0.560	0.560	0.060	0.14	0.20	0.020	0.020	0.06
AUG 16...	1.08	0.020	1.10	1.10	0.080	--	<0.20	0.070	0.060	0.18

## 08170000 SAN MARCOS RIVER SPRINGFLOW AT SAN MARCOS, TX

LOCATION (REVISED).--Lat 29°53'20", long 97°56'02", Hays County, Hydrologic Unit 12100203, on left bank at downstream side of bridge on Aquarena Springs Drive (Loop 82), 500 ft downstream from Spring Lake, and 4.2 mi upstream from Blanco River.

DRAINAGE AREA.--Normal flow of river comes from springs; drainage area of stream not applicable.

PERIOD OF RECORD.--October 1956 to current year. June 1915 to January 1916, March 1916 to September 1921, and May to September 1956, published as San Marcos River at San Marcos; records include some surface runoff. Periodic measurements of springflow were made at this location outside period of record since Nov. 14, 1894, and are published as miscellaneous measurements. October 1956 to September 1988, at site 0.7 mi downstream from bridge on Interstate Highway 35 and 2.1 mi upstream from Blanco River; records include some surface runoff. October 1988 to September 1994, at site of ground-water well No. LR-67-09-110, 0.2 mi southwest of intersection of FM 2439 and McCarty Lane and 3.7 mi south of San Marcos. Water-level data and measurements of springflow were used to compute springflow.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 557.67 ft above sea level. June 10, 1915 to Jan. 19, 1916, nonrecording gage at site 0.5 mi upstream from Interstate Highway 35, and Mar. 13, 1916 to Sept. 7, 1921, water-stage recorder about 0.7 mi downstream from Interstate Highway 35; datum relations unknown. May 1956 to September 1988, water-stage recorder 0.7 mi downstream from Interstate Highway 35 and 2.1 mi upstream from Blanco River, datum 536.82 ft above sea level. October 1988 to September 1994, water-stage recorder at ground-water well No. LR-67-09-110, 0.2 mi southwest of intersection of FM 2439 and McCarty Lane and 3.7 mi south of San Marcos, datum 678.50 ft above sea level.

REMARKS.--No estimated daily discharge. Records fair. Entire flow of river is from San Marcos Springs, located about 1.1 mi upstream from Interstate Highway 35, except during periods of local runoff. San Marcos Springs emerge from the Edwards and associated limestones in the Balcones Fault Zone.

AVERAGE DISCHARGE.--7 years (water years 1989-95), 176 ft<sup>3</sup>/s (127,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Water years 1957-88 (includes some surface runoff): Maximum daily discharge, 427 ft<sup>3</sup>/s June 14, 1987; minimum daily discharge, 59 ft<sup>3</sup>/s Oct. 3, 1956. Water years 1989-95 (springflow only): Maximum daily spring discharge, 451 ft<sup>3</sup>/s Mar. 12, 1992; minimum daily spring discharge, 80 ft<sup>3</sup>/s Oct. 3, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge, 215 ft<sup>3</sup>/s June 2; minimum daily spring discharge, 122 ft<sup>3</sup>/s Oct. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	140	148	168	146	142	168	150	209	206	179	162
2	123	140	148	168	144	144	166	150	215	204	179	162
3	122	140	147	168	143	146	165	150	212	203	180	160
4	122	141	146	166	142	147	168	150	211	198	177	158
5	123	141	146	166	142	148	173	150	210	197	175	155
6	123	142	147	166	141	149	176	150	210	193	174	156
7	123	142	147	163	141	148	179	151	209	194	171	157
8	124	143	147	164	141	148	176	150	209	194	171	158
9	124	143	146	165	141	148	172	150	208	192	170	157
10	125	144	144	164	141	148	168	150	208	189	169	156
11	125	145	144	165	143	149	166	149	209	188	168	156
12	125	145	143	165	143	150	165	150	209	187	168	156
13	126	145	144	164	145	152	163	150	209	187	168	158
14	127	146	145	162	145	153	164	149	210	186	167	159
15	127	146	145	162	146	156	162	149	209	186	167	160
16	127	147	147	161	147	157	162	150	209	185	168	160
17	127	149	147	162	147	157	163	149	212	183	167	160
18	128	151	146	161	147	158	161	148	210	183	166	157
19	128	151	145	160	147	159	161	147	212	182	165	155
20	129	152	146	159	145	160	161	147	211	181	165	154
21	129	150	147	156	146	160	160	146	210	180	164	153
22	129	150	147	154	145	161	159	145	209	180	163	150
23	129	148	146	153	146	160	158	146	207	179	164	149
24	129	150	146	153	144	159	157	146	207	178	164	148
25	133	152	145	151	145	161	157	146	204	178	163	145
26	138	152	144	153	147	162	157	146	203	177	162	144
27	138	151	146	152	145	162	155	146	203	178	163	145
28	139	149	168	150	144	163	155	146	203	177	163	145
29	139	148	170	147	---	166	156	146	204	177	164	146
30	139	147	170	147	---	167	153	183	205	177	164	146
31	139	---	169	147	---	168	---	204	---	177	163	---
TOTAL	3982	4390	4616	4942	4039	4808	4906	4689	6256	5776	5211	4627
MEAN	128	146	149	159	144	155	164	151	209	186	168	154
MAX	139	152	170	168	147	168	179	204	215	206	180	162
MIN	122	140	143	147	141	142	153	145	203	177	162	144
AC-FT	7900	8710	9160	9800	8010	9540	9730	9300	12410	11460	10340	9180

WTR YR 1995 TOTAL 58242 MEAN 160 MAX 215 MIN 122 AC-FT 115500

## GUADALUPE RIVER BASIN

221

08171000 BLANCO RIVER AT WIMBERLEY, TX

LOCATION.--Lat 29°59'39", long 98°05'19", Hays County, Hydrologic Unit 12100203, on left bank at downstream side of highway, near left end of bridge on Ranch Road 12, 0.3 mi southeast of Wimberley, 2,200 ft downstream from Cypress Creek, and at mile 29.0.

DRAINAGE AREA.--355 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1924 to September 1926, June 1928 to current year.  
Water-quality records.--Chemical analyses: April 1962 to December 1973. Chemical, biochemical, and pesticide analyses: January 1974 to September 1979, February 1988 to September 1993. Sediment analyses: November 1965 to April 1966.

REVISED RECORDS.--WSP 1562: 1929, 1930-31(M), 1935-36(M), 1938(M), 1941-42(M), 1947(M), 1949(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 797.23 ft above sea level. Aug. 6, 1924 to Sept. 30, 1926, nonrecording gage at site 1,030 ft upstream at datum 5.00 ft higher. Recording gage from June 6, 1928 to June 12, 1975, at site 1,000 ft upstream at datum 5.00 ft higher.

REMARKS.--Records good. There are many small diversions above station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 reached a stage of 25 ft, from information by local residents. Maximum stage since at least 1869, that of May 28, 1929.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	0700	4,880	9.01	May 30	0930	11,300	12.55
Oct. 25	1100	2,790	7.43	June 1	1130	2,280	6.96

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	112	89	374	125	88	98	96	1760	123	66	48
2	27	110	90	339	123	87	97	93	974	121	65	46
3	27	109	87	321	122	86	98	91	756	118	66	46
4	26	115	87	303	117	85	110	91	642	115	64	46
5	26	e316	85	286	119	86	434	90	556	108	64	45
6	26	e210	85	286	116	87	292	91	489	107	64	44
7	39	162	85	268	115	93	231	89	438	107	63	49
8	1210	147	85	246	110	90	201	134	395	105	62	55
9	212	138	87	239	109	92	184	114	359	100	62	46
10	101	129	82	230	110	92	174	114	325	97	60	46
11	77	125	79	222	110	94	162	108	422	95	58	46
12	67	124	77	215	106	94	154	105	392	92	61	44
13	59	121	76	247	105	121	147	100	315	88	60	45
14	56	119	80	226	103	119	142	97	279	92	60	44
15	60	116	212	200	103	146	140	94	258	89	60	43
16	55	112	215	193	103	125	137	91	239	85	60	43
17	56	114	171	191	101	118	134	89	227	82	58	41
18	65	113	156	181	99	114	148	99	216	80	56	41
19	83	113	147	169	100	112	134	87	205	78	56	41
20	72	112	142	164	98	112	138	84	189	76	55	46
21	65	108	135	158	98	109	134	83	183	75	54	45
22	62	104	129	154	97	109	132	82	172	73	54	49
23	59	101	125	148	98	109	124	82	163	71	53	47
24	56	100	124	142	95	109	120	85	154	68	51	47
25	1140	100	120	141	97	106	116	86	149	69	47	46
26	455	98	119	144	96	e103	113	85	142	68	47	46
27	225	97	119	145	95	101	109	95	135	68	51	44
28	169	95	539	141	93	102	105	90	130	68	47	43
29	144	92	846	133	---	98	102	134	135	65	47	43
30	128	90	506	127	---	98	100	4290	126	67	47	41
31	120	---	433	125	---	99	---	1500	---	71	48	---
TOTAL	4995	3702	5412	6458	2963	3184	4510	8569	10925	2721	1766	1356
MEAN	161	123	175	208	106	103	150	276	364	87.8	57.0	45.2
MAX	1210	316	846	374	125	146	434	4290	1760	123	66	55
MIN	26	90	76	125	93	85	97	82	126	65	47	41
AC-FT	9910	7340	10730	12810	5880	6320	8950	17000	21670	5400	3500	2690



## GUADALUPE RIVER BASIN

08171000 BLANCO RIVER AT WIMBERLEY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995h, BY WATER YEAR (WY)

MEAN	103	83.5	119	125	165	150	175	223	211	101	49.4	90.0
MAX	872	509	1364	1134	1401	977	953	1470	1950	935	201	1413
(WY)	1974	1947	1992	1968	1992	1992	1957	1929	1987	1973	1973	1952
MIN	6.24	7.41	7.87	6.66	8.13	5.93	5.19	12.5	3.44	1.70	2.89	6.93
(WY)	1941	1956	1956	1956	1956	1956	1956	1956	1956	1956	1956	1928

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1924 - 1995h	
ANNUAL TOTAL	35724		56561		132	
ANNUAL MEAN	97.9		155		566	
HIGHEST ANNUAL MEAN					6.45	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	1210	Oct 8	4290	May 30	36900	Sep 11 1952
LOWEST DAILY MEAN	26	Oct 4	26	Oct 4	.70	Jul 17 1956
ANNUAL SEVEN-DAY MINIMUM	27	Sep 30	28	Oct 1	.79	Aug 12 1956
INSTANTANEOUS PEAK FLOW			11300	May 30	113000	May 28 1929
INSTANTANEOUS PEAK STAGE			a12.55	May 30	33.30	May 28 1929
ANNUAL RUNOFF (AC-FT)	70860		112200		95820	
10 PERCENT EXCEEDS	157		242		274	
50 PERCENT EXCEEDS	73		101		53	
90 PERCENT EXCEEDS	35		47		12	

e Estimated

a From floodmark.

h See PERIOD OF RECORD paragraph.

## GUADALUPE RIVER BASIN

223

08171300 BLANCO RIVER NEAR KYLE, TX

LOCATION.--Lat 29°58'45", long 97°54'35", Hays County, Hydrologic Unit 12100203, on left bank 800 ft downstream from Tarbutton Ranch House (Hatchett Ranch), 2.2 mi southwest of Kyle, 4.2 mi downstream from Halifax Creek, and 6.3 mi upstream from bridge on U.S. Highway 81.

DRAINAGE AREA.--412 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1923: 1957-58, 1960(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 620.12 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Small diversions above station for irrigation. Most of the low flow of the Blanco River enters the Edwards and associated limestones in the Balcones Fault Zone which crosses the basin upstream from this station and below the station at Wimberley. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 40 ft in May 1929, from information by local residents (discharge, 139,000 ft<sup>3</sup>/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (discharge, 115,000 ft<sup>3</sup>/s).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	1030	3,850	12.22	May 30	1300	8,890	16.34

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	e101	65	401	121	82	101	106	1940	137	61	36
2	6.3	99	70	362	120	80	97	101	1130	134	58	33
3	5.8	94	72	347	118	81	95	100	829	131	56	32
4	5.5	89	69	321	114	79	124	99	684	129	54	32
5	5.7	154	71	300	109	79	417	93	592	123	52	31
6	5.4	157	69	296	107	79	388	96	524	120	50	30
7	7.2	157	69	279	106	90	268	94	471	118	49	29
8	1130	134	69	256	103	83	220	148	427	114	49	49
9	e150	124	72	243	101	85	196	127	390	108	47	38
10	e80	117	67	234	102	86	185	121	359	104	46	31
11	54	114	65	225	101	87	170	115	465	99	44	30
12	43	112	65	223	97	86	158	114	430	97	45	30
13	36	110	65	229	101	143	151	108	362	94	51	30
14	32	106	69	239	99	120	144	102	317	90	47	35
15	41	102	156	207	99	137	140	95	289	100	45	31
16	34	97	423	196	95	138	138	90	266	89	45	29
17	30	97	222	191	92	121	137	89	249	84	42	28
18	33	97	187	184	88	117	158	113	243	82	41	26
19	50	97	171	173	87	113	155	89	231	81	40	25
20	50	94	157	165	86	110	157	84	210	78	38	30
21	41	90	148	160	85	109	145	81	199	75	36	35
22	37	87	139	158	83	106	143	78	185	72	35	37
23	34	86	134	150	81	106	139	78	175	70	35	35
24	33	79	131	145	81	102	130	81	167	67	34	35
25	e900	78	128	143	86	102	127	78	159	65	34	35
26	e350	77	124	146	93	103	124	77	151	62	33	34
27	e180	74	122	144	88	99	122	87	146	59	33	33
28	e140	71	411	140	92	99	118	88	142	58	40	31
29	e120	69	1040	133	---	100	115	170	152	55	35	29
30	e110	66	541	128	---	100	112	3940	143	55	33	28
31	e105	---	453	123	---	103	---	1920	---	67	33	---
TOTAL	3855.4	3029	5644	6641	2735	3125	4874	8762	12027	2817	1341	967
MEAN	124	101	182	214	97.7	101	162	283	401	90.9	43.3	32.2
MAX	1130	157	1040	401	121	143	417	3940	1940	137	61	49
MIN	5.4	66	65	123	81	79	95	77	142	55	33	25
AC-FT	7650	6010	11190	13170	5420	6200	9670	17380	23860	5590	2660	1920
CFSM	.30	.25	.44	.52	.24	.24	.39	.69	.97	.22	.10	.08
IN.	.35	.27	.51	.60	.25	.28	.44	.79	1.09	.25	.12	.09

## GUADALUPE RIVER BASIN

08171300 BLANCO RIVER NEAR KYLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1995, BY WATER YEAR (WY)

MEAN	130	104	161	162	209	173	184	255	289	107	44.2	56.2
MAX	1078	387	1775	1319	1511	1078	906	1148	2091	828	196	348
(WY)	1974	1958	1992	1968	1992	1992	1977	1958	1987	1973	1973	1986
MIN	.000	.000	.000	.000	.000	10.0	9.16	1.96	.000	.000	.000	.000
(WY)	1964	1964	1964	1957	1990	1967	1964	1964	1956	1956	1956	1956

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1956 - 1995	
ANNUAL TOTAL	28164.6		55817.4			
ANNUAL MEAN	77.2		153			
HIGHEST ANNUAL MEAN					157	
LOWEST ANNUAL MEAN					625	
HIGHEST DAILY MEAN	1130	Oct 8	3940	May 30	4.65	1992
LOWEST DAILY MEAN	4.9	Sep 6	5.4	Oct 6	19000	Dec 21 1991
ANNUAL SEVEN-DAY MINIMUM	6.0	Sep 30	6.1	Oct 1	.00	Jun 1 1956
INSTANTANEOUS PEAK FLOW			8890	May 30	.00	Jun 1 1956
INSTANTANEOUS PEAK STAGE			16.34	May 30	98000	May 2 1958
ANNUAL RUNOFF (AC-FT)	55860		110700		36.30	May 2 1958
ANNUAL RUNOFF (CFSM)	.19		.37		113600	
ANNUAL RUNOFF (INCHES)	2.54		5.04		.38	
10 PERCENT EXCEEDS	143		260		5.17	
50 PERCENT EXCEEDS	55		99		327	
90 PERCENT EXCEEDS	11		34		54	
					4.2	

e Estimated

LOCATION.--Lat 29°39'58", long 97°39'02", Caldwell County line, Hydrologic Unit 12100203, at downstream side of bridge on State Highway 80, 0.9 mi south of U.S. Post Office at Luling, and 9.5 mi upstream from Plum Creek.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder. Datum of gage is 322.05 ft above sea level. Prior to Oct. 21, 1988, at site 390 ft downstream at same datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft in 1869 or 1870, from information by State Department of Highways and Public Transportation. Flood of May 29, 1929, reached a stage of 37.1 ft and is the second highest known.

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 28	2200	5,400	22.07	May 31	1000	8,970	27.12
Mar. 13	1500	5,940	23.15				

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	294	165	871	320	308	245	270	2770	348	209	207
2	114	257	167	779	318	251	243	266	2430	339	227	192
3	106	243	179	717	313	252	237	258	1590	334	225	185
4	108	232	179	682	300	254	385	249	1250	343	211	175
5	107	327	167	641	294	252	608	245	1070	335	202	171
6	107	391	162	613	292	252	1500	239	949	320	199	169
7	108	312	161	598	289	255	940	238	856	308	201	173
8	390	302	161	576	285	276	703	324	785	303	199	185
9	1020	272	158	549	284	249	583	344	725	295	197	179
10	551	243	159	528	309	242	497	302	679	285	191	183
11	334	231	157	514	304	246	443	279	673	279	190	183
12	244	230	152	506	294	247	406	275	745	267	193	178
13	201	224	153	504	293	3860	380	270	692	263	206	178
14	190	220	168	496	294	1230	360	267	625	260	196	170
15	198	213	263	508	295	617	345	262	577	257	198	178
16	269	206	2430	466	288	530	340	251	548	257	197	180
17	412	206	971	456	282	455	336	235	523	253	193	172
18	279	204	575	444	278	375	325	234	505	243	189	167
19	976	204	449	429	274	333	333	243	505	240	184	166
20	362	204	375	416	271	304	336	233	495	235	182	312
21	253	195	330	401	264	294	343	222	468	225	182	470
22	218	192	295	395	264	281	332	217	442	226	184	233
23	200	186	271	383	261	273	323	215	421	228	179	203
24	180	184	260	368	264	265	315	251	407	220	180	199
25	1020	182	249	367	269	259	302	228	393	214	178	194
26	1690	179	238	371	323	257	302	211	378	212	171	189
27	1000	178	237	376	295	253	298	225	358	207	174	188
28	669	175	2690	364	397	251	287	237	351	205	181	182
29	521	173	2700	351	---	246	280	244	355	203	178	183
30	416	167	1430	338	---	248	279	3540	372	203	177	178
31	351	---	1020	331	---	247	---	7810	---	204	173	---
TOTAL	12705	6826	17071	15338	8214	13662	12606	18684	22937	8111	5946	5922
MEAN	410	228	551	495	293	441	420	603	765	262	192	197
MAX	1690	391	2700	871	397	3860	1500	7810	2770	348	227	470
MIN	106	167	152	331	261	242	237	211	351	203	171	166
AC-FT	25200	13540	33860	30420	16290	27100	25000	37060	45500	16090	11790	11750

MEAN	326	319	380	378	455	393	469	559	596	291	202	279
MAX	1941	1404	3520	2286	3358	2438	1853	2054	4850	1203	515	1577
(WY)	1974	1975	1992	1968	1992	1992	1977	1975	1987	1973	1992	1952
MIN	59.7	63.1	82.1	77.5	81.0	73.8	78.5	89.3	58.5	58.9	63.7	64.4
(WY)	1956	1956	1955	1957	1952	1956	1956	1984	1956	1956	1984	1984

ANNUAL TOTAL	93480		148022			
ANNUAL MEAN	256		406		388	
HIGHEST ANNUAL MEAN					1482	1992
LOWEST ANNUAL MEAN					75.3	1956
HIGHEST DAILY MEAN	2700	Dec 29	7810	May 31	34800	Dec 22 1991
LOWEST DAILY MEAN	101	Jul 30	106	Oct 3	43	Aug 12 1951
ANNUAL SEVEN-DAY MINIMUM	105	Jul 29	109	Oct 1	53	Jun 2 1956
INSTANTANEOUS PEAK FLOW			8970	May 31	57000	Sep 12 1952
INSTANTANEOUS PEAK STAGE			27.12	May 31	34.95	Sep 12 1952
ANNUAL RUNOFF (AC-FT)	185400		293600		281300	
10 PERCENT EXCEEDS	377		652		684	
50 PERCENT EXCEEDS	180		267		205	
90 PERCENT EXCEEDS	114		178		91	

08172000 SAN MARCOS RIVER AT LULING, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1944 to February 1959, September 1961 to April 1966, November 1968 to current year. Pesticide analyses: June 1986 to current year. Sediment analyses: October 1960 to April 1966.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
NOV 22...	1035	193	549	18.0	260	34	76	17	13	0.4	1.7	230
JAN 19...	1102	427	535	16.0	260	30	77	17	13	0.3	1.5	230
MAR 30...	0920	246	581	17.0	260	28	76	18	17	0.5	1.7	240
MAY 23...	1045	214	528	25.0	240	32	70	17	14	0.4	1.6	210
JUN 27...	1040	355	491	27.0	230	23	65	16	13	0.4	1.5	210
AUG 16...	1020	196	517	28.5	240	36	68	17	14	0.4	1.7	200

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DOD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
NOV 22...	26	21	0.20	10	300	--	--	--	--	--	--	--
JAN 19...	24	20	0.20	8.1	300	--	--	--	--	--	--	--
MAR 30...	28	26	0.20	8.9	317	--	--	--	--	--	--	--
MAY 23...	25	22	0.20	11	289	--	--	--	--	--	--	--
JUN 27...	23	19	0.20	7.5	268	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
AUG 16...	24	22	0.20	12	281	--	--	--	--	--	--	--

[illegible][illegible]



## 08172400 PLUM CREEK AT LOCKHART, TX

LOCATION.--Lat 29°55'22", long 97°40'44", Caldwell County, Hydrologic Unit 12100203, on right bank 548 ft upstream from bridge on U.S. Highway 183, 2.7 mi north of Lockhart, 3.7 mi upstream from Town Creek, 5.0 mi downstream from Brushy Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--112 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 431.19 ft above sea level. Apr. 30, 1959, to July 25, 1968, at site 548 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined capacity of 24,850 acre-ft. These structures control runoff from 67.8 mi<sup>2</sup> above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, 22 ft in June 1936 at present site; flood in 1951 reached a stage of 20 ft at present site, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 16	0230	3,530	15.53	Apr. 5	2100	2,670	15.07
Dec. 28	1630	2,540	14.98	May 30	1930	4,160	15.75
Mar. 13	0730	8,020	16.89				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.8	1.2	149	9.7	48	7.2	1.4	850	5.4	.00	.00
2	.00	2.6	1.1	97	9.2	33	7.1	1.1	e430	3.4	.00	.00
3	.00	2.1	1.0	65	8.9	29	6.7	.89	e310	2.5	.00	.00
4	.00	15	1.9	46	8.1	26	9.5	1.2	e220	2.1	.00	.00
5	.00	184	2.9	36	8.4	24	727	1.2	e160	1.6	.00	.00
6	.00	38	2.4	30	8.2	21	611	1.5	e120	1.2	.00	.00
7	1.6	21	2.7	26	8.1	39	313	1.2	e80	1.4	.00	.00
8	53	14	2.6	24	6.9	36	189	18	e50	.84	.00	.00
9	17	8.5	2.5	21	6.9	26	101	28	e37	.46	.00	.00
10	7.9	5.5	2.0	20	7.3	21	51	16	e30	.22	.00	.00
11	2.3	4.2	1.9	20	7.0	19	33	11	e100	.05	.00	.00
12	.38	3.0	1.9	21	6.7	17	23	7.3	e50	.04	.00	.00
13	.10	2.3	2.2	28	6.7	2810	19	5.9	e30	.00	.00	.00
14	.01	1.9	5.4	32	7.7	527	16	4.7	e20	.00	.00	.00
15	.01	2.2	321	26	8.4	425	14	3.2	e14	.00	.00	.00
16	1.2	1.5	1490	22	8.8	344	13	2.3	e9.0	.00	.00	.00
17	21	1.4	365	20	8.4	256	12	1.6	e7.0	.00	.00	.00
18	50	1.5	260	19	8.6	213	9.9	1.8	e6.0	.00	.00	.00
19	72	2.0	193	18	7.6	175	7.6	4.3	e4.5	.00	.00	.00
20	11	2.8	119	29	7.1	122	8.1	4.9	e3.7	.00	.00	.00
21	3.5	2.2	70	27	6.7	70	7.9	3.7	e3.0	.00	.00	.00
22	1.2	1.5	45	25	6.2	43	7.2	2.1	e2.4	.00	.00	.00
23	.41	1.0	32	22	6.2	30	6.0	1.2	e2.0	.00	.00	.00
24	.09	.60	26	13	6.2	22	6.0	1.2	e1.6	.00	.00	.00
25	151	.41	21	11	7.8	18	4.9	.59	e1.3	.00	.00	.00
26	51	.37	17	12	13	14	3.4	.35	1.0	.00	.00	.00
27	25	.57	15	14	16	11	2.8	5.2	.69	.00	.00	.00
28	15	.67	1340	13	160	9.3	2.5	14	.39	.00	.00	.00
29	10	.49	508	12	---	7.8	2.1	45	6.1	.00	.00	.00
30	6.4	.50	298	11	---	7.0	1.7	2160	11	.00	.00	.00
31	4.1	---	220	10	---	7.4	---	1300	---	.00	.00	---
TOTAL	505.20	324.61	5371.7	919	380.8	5450.5	2222.6	3650.83	2560.68	19.21	0.00	0.00
MEAN	16.3	10.8	173	29.6	13.6	176	74.1	118	85.4	.62	.000	.000
MAX	151	184	1490	149	160	2810	727	2160	850	5.4	.00	.00
MIN	.00	.37	1.0	10	6.2	7.0	1.7	.35	.39	.00	.00	.00
AC-FT	1000	644	10650	1820	755	10810	4410	7240	5080	38	.00	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY)

	MEAN	45.1	45.2	58.4	48.7	69.4	38.4	46.3	110	100	11.8	4.43	10.2
MAX	595	590	605	416	815	332	343	595	905	151	118	142	
(WY)	1961	1986	1992	1968	1992	1992	1976	1975	1981	1985	1974	1974	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1964	1964	1964	1964	1989	1964	1967	1971	1963	1963	1962	1959	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1959 - 1995

ANNUAL TOTAL	6444.41	21405.13	
ANNUAL MEAN	17.7	58.6	49.3
HIGHEST ANNUAL MEAN			238
LOWEST ANNUAL MEAN			.10
HIGHEST DAILY MEAN	1490	2810	10100
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		8020	27700
INSTANTANEOUS PEAK STAGE		16.89	20.89
ANNUAL RUNOFF (AC-FT)	12780	42460	35690
10 PERCENT EXCEEDS	14	98	59
50 PERCENT EXCEEDS	.00	5.4	.72
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

## GUADALUPE RIVER BASIN

08175000 SANDIES CREEK NEAR WESTHOFF, TX

LOCATION.--Lat 29°12'54", long 97°26'57", De Witt County, Hydrologic Unit 12100202, on left bank 100 ft downstream from bridge on county highway, 1.9 mi upstream from Birds Creek, 2.0 mi northeast of Westhoff, and 20.4 mi upstream from mouth.

DRAINAGE AREA.--549 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to November 1934, August 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.27 ft above sea level. Prior to Nov. 9, 1934, water-stage recorder at site 150 ft upstream at datum 0.86 ft higher. Aug. 10, 1959, to Feb. 2, 1960, nonrecording gage at present site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known diversion above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft<sup>3</sup>/s July 2, 1936 (gage height, 33.1 ft, from floodmarks), on basis of computation of peak flow, at present site and datum.  
Flood in October 1913 reached a stage of 26.0 ft, present site and datum, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 15	1000	2,900	19.48				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.0	e13	4.9	201	9.6	423	16	12	609	592	2.9	2.5
2	e10	e15	9.2	90	9.3	299	15	11	689	714	14	2.1
3	e8.0	e12	105	55	9.0	134	15	11	574	468	10	1.7
4	e9.0	e10	242	41	8.5	69	45	11	283	166	20	1.5
5	e10	e7.0	207	31	8.3	48	32	12	136	98	13	1.5
6	e9.0	e7.0	129	25	8.1	37	402	11	73	69	6.9	1.6
7	e8.0	e17	49	20	7.7	73	446	11	47	51	5.3	1.9
8	e8.0	e18	25	18	7.5	268	271	16	33	37	4.2	2.9
9	e20	e9.0	12	16	7.8	227	142	19	23	26	3.1	1.7
10	e150	e5.5	6.7	14	8.5	150	84	29	17	21	2.6	13
11	e100	e5.8	3.7	13	8.5	80	59	30	16	17	2.9	9.4
12	e20	e5.4	2.6	13	8.4	49	45	25	14	13	3.7	6.6
13	e10	e4.0	1.8	21	8.7	685	36	19	14	10	3.6	4.2
14	e5.0	e5.0	2.4	101	9.2	1580	30	15	15	8.3	3.6	3.3
15	e6.2	e6.0	6.1	154	9.7	2740	28	12	14	7.5	3.7	3.8
16	e5.4	e4.5	105	113	9.9	1770	24	11	13	7.3	3.5	6.2
17	e6.0	4.4	314	59	10	410	22	9.7	9.8	8.1	3.5	4.2
18	e300	4.3	288	41	10	146	20	9.0	8.6	7.8	3.1	3.2
19	e1000	4.8	145	27	10	89	19	8.1	7.9	6.3	3.1	2.8
20	e860	5.0	57	21	10	62	18	7.2	6.6	5.6	3.1	2.4
21	e600	5.1	30	17	9.6	48	18	6.7	6.5	4.8	2.8	2.5
22	e100	5.1	17	15	9.1	39	18	6.5	6.7	4.3	3.0	2.8
23	e25	5.2	10	13	8.7	32	17	6.7	6.4	4.0	3.2	3.2
24	e18	5.3	7.1	11	8.5	27	17	6.4	5.5	3.7	9.9	2.4
25	e14	5.1	6.2	11	12	24	15	6.0	4.8	3.3	27	2.3
26	e15	5.0	6.2	12	67	21	14	6.3	4.5	2.7	10	2.7
27	e80	5.0	6.7	12	180	19	14	7.8	4.3	2.7	8.6	3.3
28	e60	4.7	60	12	182	17	13	9.6	4.0	2.7	6.2	3.2
29	e40	4.5	358	11	---	17	13	9.3	4.1	2.4	4.5	2.8
30	e30	4.6	570	11	---	17	14	74	328	2.3	3.5	2.7
31	e20	---	484	10	---	16	---	346	---	2.6	2.7	---
TOTAL	3555.6	212.3	3270.6	1209	655.6	9616	1922	774.3	2977.7	2368.4	197.2	104.4
MEAN	115	7.08	106	39.0	23.4	310	64.1	25.0	99.3	76.4	6.36	3.48
MAX	1000	18	570	201	182	2740	446	346	689	714	27	13
MIN	5.0	4.0	1.8	10	7.5	16	13	6.0	4.0	2.3	2.6	1.5
AC-FT	7050	421	6490	2400	1300	19070	3810	1540	5910	4700	391	207
CFSM	.21	.01	.19	.07	.04	.57	.12	.05	.18	.14	.01	.01
IN.	.24	.01	.22	.08	.04	.65	.13	.05	.20	.16	.01	.01

GUADALUPE RIVER BASIN

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08175000 SANDIES CREEK NEAR WESTHOFF, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995<sup>h</sup>, BY WATER YEAR (WY)

MEAN	111	67.8	64.6	124	150	70.6	157	267	292	31.1	22.2	203
MAX	1719	470	969	778	1485	418	1361	2062	2820	139	248	4060
(WY)	1961	1961	1977	1974	1992	1969	1977	1972	1987	1961	1933	1967
MIN	.26	1.19	1.85	4.08	4.05	2.66	3.26	.88	.32	.23	.071	.26
(WY)	1964	1932	1989	1967	1967	1967	1963	1963	1934	1964	1962	1959

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1930 - 1995 <sup>h</sup>	
ANNUAL TOTAL	16918.6		26863.1		132	
ANNUAL MEAN	46.4		73.6		532	
HIGHEST ANNUAL MEAN					8.71	
LOWEST ANNUAL MEAN					67900	
HIGHEST DAILY MEAN	1000	May 14	2740	Mar 15		Sep 22 1967
LOWEST DAILY MEAN	1.8	Dec 13	1.5	Sep 4		Aug 11 1932
ANNUAL SEVEN-DAY MINIMUM	2.5	Jul 28	1.8	Sep 1		Aug 18 1959
INSTANTANEOUS PEAK FLOW			2900	Mar 15	c79700	Sep 22 1967
INSTANTANEOUS PEAK STAGE			19.48	Mar 15	32.34	Sep 22 1967
ANNUAL RUNOFF (AC-FT)	33560		53280		95570	
ANNUAL RUNOFF (CFSM)	.084		.13		.24	
ANNUAL RUNOFF (INCHES)	1.15		1.82		3.26	
10 PERCENT EXCEEDS	100		159		119	
50 PERCENT EXCEEDS	10		11		9.1	
90 PERCENT EXCEEDS	3.7		3.1		1.3	

e Estimated

c From rating curve extended above 21,000 ft<sup>3</sup>/s on basis of slope-area measurement of 92,700 ft<sup>3</sup>/s.

h See PERIOD OF RECORD paragraph.

08175000 SANDIES CREEK NEAR WESTHOFF, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1962 to current year. Sediment analyses: November 1965 to May 1966.  
Pesticide analyses October 1992 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIELD CACO3 (MG/L)
NOV 02...	1515	15	697	20.0	100	0	31	5.9	100	4	9.1	130
JAN 25...	1200	11	953	11.5	130	0	38	7.5	160	6	9.8	210
MAR 16...	1122	1840	181	18.5	37	0	11	2.4	18	1	8.2	48
MAY 25...	1140	6.7	1020	24.5	170	0	50	10	230	8	12	300
JUN 15...	1547	15	672	24.5	110	0	32	6.4	85	4	10	140
AUG 22...	1420	3.7	1760	28.0	130	0	38	7.5	320	12	13	370

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDO, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
NOV 02...	39	110	0.30	20	396	--	--	--	--	--	--	--
JAN 25...	52	150	0.50	17	561	--	--	--	--	--	--	--
MAR 16...	13	15	<0.10	12	108	--	--	--	--	--	--	--
MAY 25...	69	220	0.90	15	785	--	--	--	--	--	--	--
JUN 15...	38	86	0.30	18	360	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
AUG 22...	42	300	1.2	15	960	--	--	--	--	--	--	--

[illegible][illegible]

## GUADALUPE RIVER MAIN STEM

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## 08175800 GUADALUPE RIVER AT CUERO, TX

LOCATION.--Lat 29°03'57", long 97°19'16", De Witt County, Hydrologic Unit 12100204, on left bank at downstream side of bridge on U.S. Highways 77A, 87, and 183, 2.1 mi upstream from Gohlke Creek, 2.4 mi southwest of Cuero, 4.2 mi downstream from Sandies Creek, and at mile 100.6.

DRAINAGE AREA.--4,934 mi<sup>2</sup>, of which 1,432 mi<sup>2</sup> is above Canyon Dam.

PERIOD OF RECORD.--December 1902 to December 1906, August 1916 to December 1935, and January 1964 to current year. Published as "near Cuero" 1902-6, and as "below Cuero" 1916-35. Gage-height records collected at site 7.1 mi upstream from Sandies Creek from 1941 to 1966 (published in reports of the National Weather Service) and at present site since June 12, 1968.

Water-quality records.--Chemical analyses: March 1968 to September 1985.

REVISED RECORDS.--WDR TX-68-1, TX-69-1: Drainage areas at all sites.

GAGE.--Water-stage recorder. Datum of gage is 128.64 ft above sea level. From Dec. 26, 1902, to June 1903, nonrecording gage at site 7.1 mi upstream at different datum (gage heights adjusted to site 3.3 mi upstream from present site before computation); from July 1903 to December 1906, nonrecording gage 3.3 mi upstream at different datum; and Aug. 19, 1916, to Dec. 16, 1935, water-stage recorder at site 5.0 mi downstream at datum 3.19 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Since July 21, 1962, flow regulated by Canyon Lake (station 08167700) 202.4 mi upstream. Flow below New Braunfels is partly regulated by a series of small power dams, combined capacity of six largest dams 33,550 acre-ft. Flow is affected at times by discharge from the flood-detention pools of 53 floodwater-retarding structures with a combined detention capacity of 87,200 acre-ft. These structures control runoff from 302 mi<sup>2</sup> in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. Satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--20 years (water years 1904-6, 1917, 1918, 1921-35) prior to regulation by Canyon Lake, 1,303 ft<sup>3</sup>/s (944,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1904-6, 1917-18, 1921-35).--Maximum discharge, 101,000 ft<sup>3</sup>/s May 30, 1929 (gage height, 35.2 ft), from rating curve extended above 44,700 ft<sup>3</sup>/s; minimum daily, 165 ft<sup>3</sup>/s Nov. 4, 1917. The maximum stage since at least 1900 occurred on Mar. 1, 1903, at 43.0 ft (at different site and datum), but discharge was not determined. Other floods occurred on Oct. 20, 1919, 32.2 ft (site and datum then in use), and May 30, 1929, 35.2 ft (site and datum then in use), from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 probably occurred July 2, 1936, 44.33 ft, present site and datum, from information by State Department of Highways and Public Transportation. Other floods at this station occurred Oct. 4, 1913, 37.57 ft, at different site and datum; Dec. 6, 1913, 34.57 ft, at different site and datum; June 21, 1961, 37.0 ft, present site and datum; all from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	484	1440	952	5400	1230	1860	1040	1110	9220	1820	661	435
2	500	1310	971	3210	1170	2530	1220	1110	12000	2040	1180	490
3	442	1360	1060	2650	1090	1740	1100	1110	13500	2040	1200	719
4	482	1170	1250	2290	1090	1230	3510	944	10800	1550	945	418
5	524	1060	1300	2050	1170	1120	3800	979	4780	1260	761	521
6	489	1030	1330	2100	984	1090	5310	967	3270	1230	755	463
7	459	1570	1150	2140	1110	1190	5240	783	2840	1110	640	401
8	416	1710	916	2170	982	1250	6400	958	2580	1170	587	549
9	1290	1480	1030	2230	1050	1280	4120	978	2250	1320	636	481
10	3610	1320	1100	2280	1140	1160	2430	1630	2260	1230	544	661
11	2510	1400	1140	2220	943	1160	1920	1420	2010	1150	526	534
12	1280	1210	1040	2050	1150	1040	1600	1180	2040	1170	650	472
13	674	1020	990	1920	966	2390	1560	1050	2150	1300	586	603
14	631	1260	1080	1760	1000	7470	1440	1100	2110	1180	620	623
15	761	1470	1100	2030	974	11700	1470	945	2000	1110	708	473
16	703	950	1890	1960	1070	11700	1370	982	1840	1110	551	556
17	743	987	3180	1790	949	4890	1320	1040	1880	1030	702	615
18	7790	1190	6390	1770	1080	2660	1310	924	1700	928	604	529
19	14500	1020	4370	1670	1010	2000	1330	817	1740	988	566	439
20	13300	784	2430	1550	1040	1880	1300	816	1670	943	566	442
21	12200	1290	1860	1440	1020	1660	1300	817	1610	833	603	597
22	5160	1160	1690	1430	875	1520	1290	862	1720	942	550	667
23	2010	1100	1500	1410	975	1420	1240	870	1670	800	399	999
24	1610	1010	1380	1380	999	1340	1240	979	1610	857	580	615
25	1300	1090	1270	1320	1030	1320	1180	877	1490	863	468	479
26	1420	1060	1280	1320	1240	1250	1280	980	1480	823	477	511
27	4480	1070	1230	1310	1570	1200	1100	646	1360	792	452	674
28	3660	1060	1380	1300	1510	1190	1110	841	1340	883	426	556
29	2320	1240	2960	1230	---	2080	1220	939	1310	764	411	566
30	1740	1060	8840	1190	---	1820	1100	999	1420	556	458	614
31	1600	---	9900	1310	---	1310	---	3610	---	650	605	---
TOTAL	89088	35881	67959	59880	30417	77450	60850	33263	97650	34442	19417	16702
MEAN	2874	1196	2192	1932	1086	2498	2028	1073	3255	1111	626	557
MAX	14500	1710	9900	5400	1570	11700	6400	3610	13500	2040	1200	999
MIN	416	784	916	1190	875	1040	1040	646	1310	556	399	401
AC-FT	176700	71170	134800	118800	60330	153600	120700	65980	193700	68320	38510	33130



## GUADALUPE RIVER MAIN STEM

08175800 GUADALUPE RIVER AT CUERO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1995#, BY WATER YEAR (WY)

MEAN	1488	1593	1806	1966	2263	1865	2275	3246	3369	1458	1164	1740
MAX	9585	5023	10500	10830	16740	10370	11100	12270	21470	6342	4149	11210
(WY)	1974	1977	1992	1992	1992	1992	1977	1972	1987	1987	1987	1981
MIN	242	411	432	397	403	504	381	309	242	95.7	112	124
(WY)	1990	1990	1990	1990	1990	1967	1971	1984	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1964 - 1995#	
ANNUAL TOTAL	515681		622999			
ANNUAL MEAN	1413		1707			
HIGHEST ANNUAL MEAN					2053	
LOWEST ANNUAL MEAN					6885	1992
HIGHEST DAILY MEAN	14500		14500		435	1984
LOWEST DAILY MEAN	67	Oct 19	399	Oct 19	112000	Sep 1 1981
ANNUAL SEVEN-DAY MINIMUM	281	Jul 23	459	Aug 23	28	Jul 22 1984
INSTANTANEOUS PEAK FLOW		Jul 22	15400	Oct 19	45	Jul 18 1984
INSTANTANEOUS PEAK STAGE			21.01	Oct 19	132000	Sep 1 1981
ANNUAL RUNOFF (AC-FT)	1023000		1236000		41.83	Sep 1 1981
10 PERCENT EXCEEDS	2000		2610		1487000	
50 PERCENT EXCEEDS	916		1180		3560	
90 PERCENT EXCEEDS	487		556		1080	
					472	

# Period of regulated streamflow.

## GUADALUPE RIVER MAIN STEM

233

08176500 GUADALUPE RIVER AT VICTORIA, TX

LOCATION.--Lat 28°47'34", long 97°00'46", Victoria County, Hydrologic Unit 12100204, on left bank near left downstream corner of downstream bridge of two bridges on U.S. Highway 59 in Victoria, 1,200 ft upstream from Southern Pacific Railroad Co. bridge, 15 mi upstream from Coleta Creek, and at mile 50.7.

DRAINAGE AREA.--5,198 mi<sup>2</sup>, of which 1,432 mi<sup>2</sup> is above Canyon Dam.

PERIOD OF RECORD.--November 1934 to current year. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

Water-quality records.--Chemical analyses: August 1945 to August 1994. Chemical and biochemical analyses: January 1968 to August 1994. Pesticide analyses: February 1974 to August 1981. Sediment analyses: April 1959, August 1973 to August 1994. Specific conductance: October 1945 to September 1981. Water temperature: November 1950 to September 1981.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 29.15 ft above sea level. Nov. 1, 1934, to July 27, 1992, at site just upstream from pier of upstream bridge at same datum.

REMARKS.--Records good. Since July 21, 1962, flow partially regulated by Canyon Lake (station 08167700) 252.3 mi upstream. There are many diversions above station. Records provided by the city of Victoria show that during the current year about 7,640 acre-ft of sewage effluent was released into the river below this station. For statement regarding regulation by Soil Conservation Service flood-water-retarding structures, see station 08175000. Rain gage at station. Satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--27 years (water years 1936-62) prior to regulation by Canyon Lake, 1,626 ft<sup>3</sup>/s (1,178,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1936-62).--Maximum discharge, 179,000 ft<sup>3</sup>/s July 3, 1936 (gage height, 31.22 ft); minimum daily, 14 ft<sup>3</sup>/s Aug. 20, 1956. Maximum stage since at least 1833, that of July 3, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1929, reached a stage of 30.2 ft, present site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	550	1460	1040	8110	1200	1450	1310	1080	5020	1560	816	723
2	526	1350	1040	4370	1150	2030	1180	1080	8880	1880	969	559
3	536	1270	1120	2930	1160	2210	1210	1050	10300	2040	1270	592
4	475	1260	1120	2390	1110	1510	1420	1030	11200	1950	1240	780
5	514	1120	1300	1990	1100	1210	4710	1000	8260	1490	979	529
6	577	1110	1210	1920	1150	1140	4320	906	4320	1360	912	605
7	536	1050	1240	1930	1080	1980	5150	967	3250	1320	897	553
8	643	1490	1080	1960	1090	1580	5610	901	2800	1230	774	493
9	530	1480	979	1980	1050	1430	5660	911	2430	1330	740	633
10	1750	1290	1050	2030	1110	1360	3380	1110	2290	1360	779	582
11	3180	1260	1090	2050	1120	1200	2130	1420	2330	1290	674	715
12	1940	1230	1100	2050	1020	1170	1700	1260	2080	1240	739	618
13	1110	1130	1050	3720	1130	1630	1570	1100	2110	1300	858	550
14	727	1020	1020	2170	1040	4290	1400	1020	2170	1330	728	706
15	778	1180	1100	1870	1080	8200	1470	1020	2060	1270	779	685
16	854	1290	1210	1970	1030	9970	1370	892	1950	1200	808	556
17	879	923	1820	1820	1090	9330	1320	950	1850	1200	655	620
18	9290	1120	4190	1710	1010	e5190	1280	1050	1800	1130	790	656
19	31500	1260	5700	1610	1070	e2530	1270	874	1700	1070	703	590
20	16000	1100	3370	1520	1010	1970	1280	790	1710	1030	653	517
21	12600	959	1990	1440	1060	1810	1250	832	1650	1070	651	599
22	9680	1210	1640	1380	1030	1630	1250	853	1660	970	680	702
23	3860	1080	1480	1370	925	1530	1220	843	1710	1050	615	769
24	1920	1070	1370	1340	1030	1430	1200	910	1620	975	586	985
25	1530	1050	1290	1310	1120	1370	1190	899	1570	963	793	648
26	1320	1060	1170	1320	1190	1340	1160	863	1490	985	644	552
27	2080	1060	1210	1310	1400	1270	1200	937	1470	957	668	588
28	4420	1050	1270	1300	1500	1240	1070	695	1450	960	600	724
29	3010	1070	1470	1280	---	1330	1120	893	1430	1030	560	634
30	1930	1160	4500	1210	---	2380	1150	1100	1530	881	533	625
31	1560	---	8610	1130	---	1570	---	1460	---	745	590	---
TOTAL	116805	35162	58829	64490	31055	78280	60550	30696	94090	38166	23683	19088
MEAN	3768	1172	1898	2080	1109	2525	2018	990	3136	1231	764	636
MAX	31500	1490	8610	8110	1500	9970	5660	1460	11200	2040	1270	985
MIN	475	923	979	1130	925	1140	1070	695	1430	745	533	493
AC-FT	231700	69740	116700	127900	61600	155300	120100	60890	186600	75700	46980	37860

## GUADALUPE RIVER MAIN STEM

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

MEAN	1554	1593	1798	2016	2305	1940	2333	3293	3495	1560	1175	1800
MAX	10550	5101	9753	10650	17250	10600	10320	12230	23750	6759	4473	11340
(WY)	1974	1977	1992	1992	1992	1992	1977	1972	1987	1987	1987	1981
MIN	213	398	452	420	421	512	430	367	280	111	105	125
(WY)	1964	1990	1990	1990	1990	1967	1971	1971	1967	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995	
ANNUAL TOTAL	554472		650894			
ANNUAL MEAN	1519		1783		2067	
HIGHEST ANNUAL MEAN					6993	
LOWEST ANNUAL MEAN					479	
HIGHEST DAILY MEAN	31500	Oct 19	31500	Oct 19	86900	Sep 3 1981
LOWEST DAILY MEAN	410	Jul 31	475	Oct 4	42	Oct 7 1984
ANNUAL SEVEN-DAY MINIMUM	498	Aug 22	531	Oct 1	77	Oct 5 1984
INSTANTANEOUS PEAK FLOW			39600	Oct 19	105000	Sep 2 1981
INSTANTANEOUS PEAK STAGE			29.37	Oct 19	31.10	Sep 2 1981
ANNUAL RUNOFF (AC-FT)	1100000		1291000		1498000	
10 PERCENT EXCEEDS	1990		2850		3900	
50 PERCENT EXCEEDS	927		1200		1100	
90 PERCENT EXCEEDS	556		650		484	

e Estimated

GUADALUPE RIVER BASIN

235

08176550 FIFTEENMILE CREEK NEAR WESER, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 28°53'51", long 97°21'17", De Witt County, Hydrologic Unit 12100204, at DeWitt-Goliad County line, on left downstream end of bridge on U.S. Highway 183, and 2.4 mi northeast of Weser.

DRAINAGE AREA.--167 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1984 to September 1989 (continuous-record station), October 1989 to current year (peak discharges).

GAGE.--Water-stage recorder. Datum of gage is 158.40 ft above sea level.

REMARKS.--Records good. No known diversions above station. Satellite telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1985-89), 18.7 ft<sup>3</sup>/s (13,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,560 ft<sup>3</sup>/s Apr. 17, 1992 (gage height, 17.41 ft), from rating curve extended above 1,480 ft<sup>3</sup>/s; minimum daily, no flow for several days in 1989.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1800	5,850	16.93				

## 08176900 COLETO CREEK AT ARNOLD ROAD CROSSING NEAR SCHROEDER, TX

LOCATION.--Lat 28°51'41", long 97°13'34", Goliad County, Hydrologic Unit 12100204, on right bank at downstream side of Arnold Road Crossing, 0.7 mi downstream from confluence of Twelvemile and Fifteenmile Creeks, 3.2 mi north of Schroeder, 12.8 mi upstream from Coletto Creek Reservoir, and 26.0 mi upstream from mouth.

DRAINAGE AREA.--357 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to current year. Records equivalent for January 1930 to December 1933 and October 1952 to September 1979, published as "near Schroeder".

GAGE.--Water-stage recorder. Datum of gage is 100.43 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known diversions above station. Radio telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi downstream, 122,000 ft<sup>3</sup>/s Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft<sup>3</sup>/s Oct. 16, 1946, and 46,700 ft<sup>3</sup>/s in October 1925, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	0900	11,900	18.56	Oct. 18	2200	26,300	24.13

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.89	28	12	e11	14	18	27	6.2	89	1.7	.81	.94
2	.89	27	15	e10	14	16	23	6.1	20	1.5	2.2	.86
3	.89	25	22	e10	13	16	21	5.9	10	1.5	1.5	.74
4	.86	24	16	e10	12	15	39	5.9	7.0	1.6	1.3	.64
5	.78	24	15	e10	12	14	102	5.9	5.4	1.5	1.0	.58
6	.73	22	15	e10	12	14	116	5.7	4.6	1.3	.84	.54
7	.70	21	14	e10	12	113	53	5.5	4.0	1.3	.74	.52
8	2.3	21	14	e10	12	64	28	6.2	3.5	1.2	.72	.52
9	2.3	20	13	e10	12	29	20	6.3	3.0	1.1	.63	.46
10	2.7	19	12	e10	12	22	17	6.0	2.7	1.1	.55	.43
11	3.9	18	12	e10	12	19	14	5.7	5.2	1.0	.54	.37
12	3.0	17	12	e100	12	16	12	5.7	3.9	.94	.67	.35
13	2.4	17	12	e450	12	214	11	5.7	4.0	.86	1.1	.51
14	2.1	17	13	100	12	248	9.9	5.5	3.2	.87	1.2	.65
15	2.4	16	13	49	12	104	9.6	5.2	2.7	.90	1.2	.58
16	2.5	16	14	34	12	57	9.6	5.1	2.5	.82	1.2	.50
17	12	16	14	29	12	40	9.3	4.9	2.4	.78	1.0	.46
18	11700	16	14	26	12	33	8.9	4.9	2.3	.72	.95	.41
19	7020	16	13	22	12	29	8.7	4.8	2.2	.67	.92	.34
20	491	16	13	21	12	26	8.6	4.5	2.2	.59	.81	.27
21	212	15	12	19	12	24	8.1	4.5	2.1	.51	.80	.27
22	138	15	12	18	12	23	7.9	4.4	2.2	.45	.93	.46
23	107	14	12	17	12	21	7.6	4.4	2.1	.40	.95	.52
24	82	14	12	16	12	20	7.2	4.4	1.9	.35	2.0	.49
25	65	14	11	16	15	20	7.1	4.3	1.8	.30	3.1	.44
26	52	14	11	16	19	19	6.9	4.1	1.7	.26	1.9	.42
27	43	13	10	17	20	19	6.9	5.1	1.6	.22	1.5	.39
28	38	13	e20	16	19	18	6.9	5.3	1.5	.19	1.3	.33
29	35	12	e15	15	---	18	6.8	4.7	1.8	.17	1.2	.28
30	32	12	e13	15	---	18	6.5	7.7	1.8	.17	1.0	.23
31	30	---	e12	14	---	21	---	106	---	.16	.92	---
TOTAL	20086.34	532	418	1121	366	1328	619.5	266.6	198.3	25.13	35.48	14.50
MEAN	648	17.7	13.5	36.2	13.1	42.8	20.6	8.60	6.61	.81	1.14	.48
MAX	11700	28	22	450	20	248	116	106	89	1.7	3.1	.94
MIN	.70	12	10	10	12	14	6.5	4.1	1.5	.16	.54	.23
AC-FT	39840	1060	829	2220	726	2630	1230	529	393	50	70	29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1995, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	73.1	45.8	46.5	63.0	80.4	50.9	108	142	151	30.3	25.6	25.7					
MAX	648	357	301	400	486	153	765	608	765	114	309	183					
(WY)	1995	1983	1987	1979	1992	1984	1992	1979	1987	1990	1981	1981					
MIN	.046	.049	.94	2.62	4.78	4.12	3.82	4.30	.73	.14	.007	.000					
(WY)	1989	1990	1990	1990	1990	1991	1989	1989	1990	1989	1989	1989					

SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1979 - 1995
ANNUAL TOTAL	31752.33	25010.85	
ANNUAL MEAN	87.0	68.5	70.0
HIGHEST ANNUAL MEAN			172
LOWEST ANNUAL MEAN			2.47
HIGHEST DAILY MEAN	11700	11700	11700
LOWEST DAILY MEAN	.56	.16	.00
ANNUAL SEVEN-DAY MINIMUM	.74	.21	.00
INSTANTANEOUS PEAK FLOW		26300	32500
INSTANTANEOUS PEAK STAGE		24.13	24.13
ANNUAL RUNOFF (AC-FT)	62980	49610	50680
10 PERCENT EXCEEDS	34	28	62
50 PERCENT EXCEEDS	9.0	10	12
90 PERCENT EXCEEDS	1.6	.57	1.3

e Estimated



## GUADALUPE RIVER BASIN

237

08177300 PERDIDO CREEK AT FARM ROAD 622 NEAR FANNIN, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 28°45'05", long 97°19'01", Goliad County, Hydrologic Unit 12100204, at right downstream end of bridge on Farm Road 622, 1.2 mi downstream from Farmer Creek, 3.1 mi upstream from Kilgore Creek, and 6.1 mi northwest of Fannin.

DRAINAGE AREA.--28.0 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1978 to September 1991 (continuous-record station); October 1991 to current year (peak discharges).

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft above sea level.

REMARKS.--Records good. No known diversion above gage. Satellite telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1979-91), 5.05 ft<sup>3</sup>/s (2.45 in/yr), 3,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,100 ft<sup>3</sup>/s Oct. 18, 1994 (gage height, 16.37 ft), from rating curve extended above 2,300 ft<sup>3</sup>/s; no flow for many days in 1986, 1988, 1990, and 1991.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft, and flood of Sept. 15, 1967, reached a stage of 26.08 ft, from information by the State Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1800	20,100	16.37	Jan. 12	1730	2,760	9.70

## 08177400 COLETO CREEK RESERVOIR NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°09'53", Victoria County, Hydrologic Unit 12100204, on right bank 175 ft upstream from right end of spillway of dam on Coleta Creek, 1.6 mi upstream from U.S. Highway 59, 11.6 mi west of Victoria, and 12.8 mi upstream from mouth.

DRAINAGE AREA.--494 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 80.00 ft above sea level.

Supplementary gage (Turkey Creek Arm).--Water-stage recorder 2.7 mi upstream at datum 90.00 ft above sea level.

Coleta Creek Reservoir (Turkey Creek Arm) near Schroeder (station 08177240) is locally known as Dike No. 2.

Supplementary gage (Sulphur Creek Arm).--Water-stage recorder 2.8 mi upstream at datum 90.00 ft above sea level.

Coleta Creek Reservoir (Sulphur Creek Arm) near Fannin (station 08177380) is locally known as Dike No. 1.

REMARKS.--The reservoir system consists of the main reservoir (station 08177400), Turkey Creek Arm (station 08177240), and Sulphur Creek Arm (station 08177380). Figures shown below are the combined contents of the three stations. Cooling water is diverted from the main reservoir through the Central Power and Light coal-fired generating plant, through a canal to the Sulphur Creek Arm, and then through a canal to Turkey Creek Arm where it is released back into the main reservoir. The system was built for the Guadalupe-Blanco River Authority, and storage began in February 1980.

The main reservoir is formed by a compacted earthfill dam 20,800 ft long, including a 2,000-foot uncontrolled spillway and a 403-foot wide concrete outlet structure with seven 40- x 28-foot spillway gates. Low-flow releases are made through the dam by a controlled 8-inch pipe. Turkey Creek Arm is formed by a compacted earthfill dam 2,250 ft long, including a 186-foot wide concrete outlet structure with two 40- x 11-foot spillway gates. Sulphur Creek Arm is formed by a compacted earthfill dam 1,030 ft long, including a 186-foot wide concrete outlet structure with two 40- by 11-foot spillway gates. Data regarding the dams and reservoirs are given in the following table:

	Coleta Creek Reservoir		Turkey Creek Arm		Sulphur Creek Arm	
	Gage height	Contents	Gage height	Contents	Gage height	Contents
	(feet)	(acre-feet)	(feet)	(acre-feet)	(feet)	(acre-feet)
Top of dam.....	39.0	140,200	17.0	7,330	17.0	2,550
Spillway.....	27.3	63,560	--	--	--	--
Top of spillway gates...	19.0	34,000	12.9	4,950	12.9	1,640
Crest of spillway.....	-9.0	954	1.89	1,400	1.91	306

COOPERATION.--Elevations and capacity tables were provided by Forrest and Cotton Engineers, Consulting Engineers for the Guadalupe-Blanco River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 40,550 acre-ft May 5, 1993; minimum since reservoir was first filled in May 1980, 28,860 acre-ft Sept. 30, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 39,590 acre-ft Oct. 18; minimum daily, 28,860 acre-ft Sept. 30.

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31520	36570	36010	36220	36280	35940	35610	35480	34970	33900	31300	30040
2	31520	36640	36290	36210	36260	35920	35530	35390	35040	33820	31310	29930
3	31460	36700	36350	36230	36260	35900	35560	35370	34970	33700	31270	29870
4	31390	36680	36350	36160	36220	35890	34990	35340	34900	33920	31170	29810
5	31260	36770	36300	36150	36190	35770	35150	35290	34830	33770	31120	29690
6	31220	36790	36320	36150	36170	35490	35370	35210	34800	33710	31020	29600
7	31100	36710	36350	36120	36130	35030	35480	35240	34730	33590	30960	29560
8	31820	36740	36300	36130	36070	35170	35560	35340	34590	33510	30860	29430
9	31680	36760	36250	36130	36040	35170	35570	35370	34530	33470	30750	29330
10	31580	36660	36160	36200	36070	35240	35640	35310	34430	33360	30640	29350
11	31490	36620	36120	36220	36050	35290	35650	35210	35250	33260	30550	29330
12	31450	36540	36120	37390	35960	35330	35570	35200	35190	33170	30680	29300
13	31390	36550	36190	36770	35950	35760	35590	35150	35110	33070	30640	29310
14	31310	36570	36190	36730	35980	35330	35560	35120	34980	32950	30650	29310
15	31430	36540	36200	36780	36020	35510	35570	35040	34870	32890	30600	29180
16	31560	36510	36210	36870	36030	35620	35600	34850	34810	32780	30520	29170
17	32560	36510	36150	36890	35960	35270	35600	34820	34750	32680	30460	29130
18	39590	36480	36150	36620	35950	35320	35610	34750	34670	32570	30430	29010
19	36340	36480	36120	36630	35930	35320	35620	34590	34710	32490	30470	28930
20	36610	36480	36120	36610	35920	35460	35680	34490	34560	32370	30440	28960
21	36680	36480	36050	36590	35870	35470	35620	34370	34450	32240	30320	29410
22	36650	36460	36040	36600	35860	35490	35760	34260	34350	32090	30280	29290
23	36540	36380	35990	36530	35840	35500	35640	34200	34240	31980	30220	29210
24	36700	36240	35980	36430	35830	35540	35520	34100	34180	31870	30410	29170
25	36510	36260	35930	36510	35890	35540	35570	34030	34090	31770	30400	29180
26	36440	36260	35910	36360	35920	35600	35420	33940	34100	31600	30390	29130
27	36450	36290	35900	36420	35970	35530	35530	34090	33990	31540	30330	29010
28	36510	36200	36230	36400	36070	35520	35460	34030	33880	31470	30290	28980
29	36560	36140	36230	36340	---	35540	35480	34320	34110	31380	30240	28910
30	36570	36030	36200	36280	---	35510	35520	34740	33990	31280	30150	28860
31	36690	---	36280	36260	---	35550	---	34840	---	31190	30110	---
MAX	39590	36790	36350	37390	36280	35940	35760	35480	35250	33920	31310	30040
MIN	31100	36030	35900	36120	35830	35030	34990	33940	33880	31190	30110	28860
(@)	+5090	-660	+250	-20	-190	-520	-30	-680	-850	-2800	-1080	-1250

CAL YR 1994 MAX 39590 MIN 31100 (@) +4010  
WTR YR 1995 MAX 39590 MIN 28860 (@) -2740

(@) Change in contents, in acre-feet.

## 08177500 COLETO CREEK NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°08'18", Victoria County, Hydrologic Unit 12100204, on left bank at downstream side of westbound bridge on U.S. Highway 59, 1.6 mi downstream from Coletto Creek dam, 9.0 mi southwest of Victoria, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--514 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1939 to September 1954, June 1978 to current year.

REVISED RECORDS.--WSP 1562: 1939-40. WSP 1732: 1941.

GAGE.--Water-stage recorder. Datum of gage is 44.18 ft above sea level. Prior to Jan. 17, 1955, at datum 5.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Since Feb. 21, 1980, flow almost completely regulated by Coletto Creek Reservoir, 1.6 mi upstream. Beginning on Mar. 6, 1980, water is diverted from the Guadalupe River basin to the Coletto Creek basin upstream from Coletto Creek Reservoir. There are no other large diversions above station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--16 years (water years 1940-54, 1979) prior to regulation by Coletto Creek Reservoir, 92.7 ft<sup>3</sup>/s (67,160 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1940-54, 1979-80).--Maximum discharge, 89,000 ft<sup>3</sup>/s Oct. 16, 1946 (gage height, 36.64 ft, present datum, from floodmark), on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1875, 236,000 ft<sup>3</sup>/s Sept. 22, 1967 (gage height, 42.0 ft, from floodmark), present site and datum, on basis of slope-area measurement of peak flow. Flood of Apr. 20, 1976, reached a stage of 37.85 ft, at site 0.2 mi upstream at present datum. Flood of July 1, 1936, reached a stage of 32.2 ft, present site and datum, from information by railroad company.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	7.2	5.6	6.3	5.9	4.3	5.6	8.2	5.0	4.0	2.7	2.0
2	4.4	6.8	5.7	6.3	5.6	4.4	5.6	8.6	4.8	3.8	3.1	1.9
3	4.3	6.2	6.0	9.4	5.2	4.5	8.0	6.8	4.8	3.7	2.7	1.8
4	4.4	6.0	5.0	7.3	5.2	4.6	591	5.7	4.9	4.6	2.6	1.7
5	4.4	5.9	9.5	6.5	5.2	4.2	72	5.7	4.8	3.9	2.6	1.7
6	4.4	5.9	6.1	6.1	8.6	127	9.2	5.7	4.9	3.7	2.6	1.7
7	4.4	9.6	5.2	5.9	5.5	1030	7.6	5.8	4.9	3.7	2.6	1.7
8	9.3	6.3	4.8	6.0	5.4	20	7.0	6.8	4.9	3.7	2.5	1.7
9	6.2	5.2	5.3	5.7	5.3	11	6.4	6.0	4.9	3.7	2.3	1.7
10	9.4	5.5	5.7	5.6	4.7	8.8	6.3	5.6	5.0	3.7	2.3	1.7
11	5.8	6.5	5.7	5.6	4.7	7.6	6.5	5.9	7.6	3.8	2.3	2.0
12	5.1	6.4	5.6	6.2	5.3	6.8	6.4	5.9	5.6	3.8	3.1	2.0
13	5.2	6.0	5.4	1310	5.4	526	6.2	5.5	5.0	3.8	2.7	1.9
14	5.1	5.7	5.5	154	5.3	532	6.2	5.3	5.0	3.7	2.4	1.9
15	5.7	5.8	5.4	15	4.7	90	6.0	8.2	5.1	3.8	2.3	1.7
16	5.8	5.9	5.1	12	4.7	10	6.0	8.8	4.9	3.8	2.3	1.7
17	6.3	5.7	5.5	9.9	4.8	172	5.9	8.9	4.8	3.6	2.2	1.6
18	14700	5.4	5.4	143	4.8	17	5.7	8.8	4.7	3.6	2.3	1.5
19	16600	5.3	5.6	14	4.4	7.7	5.6	9.1	4.7	3.6	2.5	1.5
20	951	5.2	5.4	8.6	4.4	7.0	5.7	9.1	4.6	3.7	2.5	1.5
21	319	5.3	5.3	7.8	4.3	6.6	5.8	9.0	4.5	3.9	2.1	2.7
22	183	5.3	5.6	7.0	4.5	6.2	5.5	8.8	4.5	3.9	2.2	4.0
23	167	5.4	5.6	7.0	4.1	5.9	6.3	8.3	4.6	3.7	2.2	2.1
24	27	5.7	5.6	7.4	4.1	5.7	6.1	8.4	4.4	3.5	2.5	1.7
25	132	5.4	5.9	6.9	4.3	5.5	6.0	8.4	4.3	3.7	3.2	1.6
26	63	5.2	5.9	166	4.3	5.4	6.0	8.2	4.2	3.6	2.2	1.5
27	13	4.9	5.9	30	4.0	5.4	6.0	6.2	4.3	3.7	2.1	1.5
28	10	5.2	7.7	7.8	3.9	5.4	5.8	5.2	4.2	3.6	2.0	1.5
29	8.8	5.3	6.6	6.8	---	5.9	6.0	5.7	5.2	3.0	2.0	1.4
30	7.9	5.5	6.2	6.4	---	5.9	5.8	6.2	4.4	2.8	2.0	1.5
31	7.4	---	6.4	6.3	---	5.8	---	5.7	---	2.6	2.1	---
TOTAL	33283.7	175.7	180.2	2002.8	138.6	2658.6	838.2	220.5	145.5	113.7	75.2	54.4
MEAN	1074	5.86	5.81	64.6	4.95	85.8	27.9	7.11	4.85	3.67	2.43	1.81
MAX	16600	9.6	9.5	1310	8.6	1030	591	9.1	7.6	4.6	3.2	4.0
MIN	4.3	4.9	4.8	5.6	3.9	4.2	5.5	5.2	4.2	2.6	2.0	1.4
AC-FT	66020	349	357	3970	275	5270	1660	437	289	226	149	108

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1995#, BY WATER YEAR (WY)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	140	56.4	55.3	43.1	134	79.4	146	178	267	70.2	10.9	20.2			
MAX	1074	338	434	347	961	292	956	940	1426	397	89.3	245			
(WY)	1995	1983	1992	1992	1992	1985	1992	1993	1993	1990	1981	1981			
MIN	1.65	2.14	2.37	2.34	2.46	2.67	3.75	2.88	1.82	1.97	1.06	1.56			
(WY)	1990	1991	1990	1990	1990	1991	1989	1990	1990	1989	1989	1989			

## SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1981 - 1995#
ANNUAL TOTAL	46805.60	39887.1	
ANNUAL MEAN	128	109	99.5
HIGHEST ANNUAL MEAN			268
LOWEST ANNUAL MEAN			2.58
HIGHEST DAILY MEAN	16600	Oct 19	16600
LOWEST DAILY MEAN	.00	Mar 3	.00
ANNUAL SEVEN-DAY MINIMUM	.66	Mar 3	.66
INSTANTANEOUS PEAK FLOW			44700
INSTANTANEOUS PEAK STAGE			28.41
ANNUAL RUNOFF (AC-FT)	92840	79120	72110
10 PERCENT EXCEEDS	9.0	9.3	26
50 PERCENT EXCEEDS	5.3	5.4	5.1
90 PERCENT EXCEEDS	4.2	2.2	2.2

# Period of regulated streamflow.

## GUADALUPE RIVER BASIN

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°29'56", long 98°30'36", Bexar County, Hydrologic Unit 12100301, on right bank 30 ft downstream from low-water bridge on Dresden Drive at San Antonio, 0.15 mi west of intersection of Blanco Road and Dresden Drive, and 4.0 mi upstream from Olmos Dam.

DRAINAGE AREA.--21.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to September 1981 (continuous-record station), October 1982 to September 1995 (peak discharges) (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 726.10 ft above sea level.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--13 years (water years 1968-81), 4.34 ft<sup>3</sup>/s (2.78 in/yr), 3,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft<sup>3</sup>/s Apr. 5, 1991 (gage height, 14.38 ft, from floodmark); maximum gage height, 14.82 ft (from floodmark) Sept. 13, 1978; no flow at times.  
Maximum stage since 1935, that of Sept. 13, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in September and November 1947 reached a stage of 8.5 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	0045	3,900	7.65	May 30	1400	1,000	5.15
Oct. 18	1545	1,660	5.85	June 11	0445	2,250	6.38
Oct. 25	0430	4,170	7.82	June 29	0030	993	5.14
May 8	0430	1,030	5.19	June 29	0500	2,700	6.77
May 27	0500	1,010	5.16	Aug. 24	2345	1,330	5.53
May 30	0315	1,330	5.53	Sept. 20	0530	3,450	7.34

[illegible]



LOCATION.--Lat 29°28'24", long 98°28'26", Bexar County, Hydrologic Unit 12100301, in gate house near middle of dam on Olmos Drive, 0.8 mi upstream from Hildebrand Street, 1.5 mi upstream from Brackenridge Park Zoo, and 4.0 mi downstream from gauging station 08177700.

DRAINAGE AREA.--32.4 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1968 to September 1971, April 1976 to January 1989, October 1991 to September 1995 (maximum daily elevations only) (discontinued).

GAGE.--Water-stage recorder. Datum of gage is sea level.

REMARKS: --The dam is a concrete gravity-type structure with a maximum height of 50 ft, a total length of 1,941 ft, and a spillway crest length of 1,051 ft. The dam, spillway section, and gate house were rebuilt in 1980. The outlet structure consists of six vertical, silt-controlled concrete conduits with entrance dimensions of 5.75 ft wide by 7.83 ft high. Gates are maintained and operated by city of San Antonio Fire Department as required to control downstream flooding. Reservoir is empty except during flooding when it is used as a detention reservoir. The reservoir has a surface area of about 950 acres at top of dam. Dam is owned by city of San Antonio. Rain gage and gage-height telemeter at station. Prior to the 1983 water year, elevation published at 2400 hours. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Design flood (probably maximum flood).....	736.4	24,150
Floor of gate operating room.....	736.0	23,560
Top of dam (crest of spillway).....	728.0	14,240
Lowest gated outlet (invert).....	680.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 713.05 ft. from floodmark, May 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 702.65 ft Oct. 8.

FROM DCP  
ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MAXIMUM VALUES

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	683.01	683.90	683.00	683.97	683.45	683.77	684.00	683.02	684.07	683.95	684.28	683.01
2	683.01	683.86	685.96	683.86	683.93	684.40	683.71	683.02	683.87	683.77	684.72	683.01
3	683.01	684.21	684.47	684.18	683.89	684.45	683.41	683.02	683.77	688.44	683.92	683.01
4	683.01	684.03	683.90	683.91	683.68	683.92	686.43	683.02	683.59	689.06	683.32	683.02
5	683.01	686.45	683.76	683.83	683.47	683.80	684.88	683.02	683.44	683.94	683.02	683.01
6	683.01	684.06	683.74	683.96	683.22	683.74	684.03	683.02	683.00	684.95	683.02	683.01
7	693.39	683.91	683.72	683.89	683.00	685.09	683.77	683.02	683.00	684.53	683.03	686.96
8	702.65	683.90	683.77	683.83	683.00	683.97	683.67	690.48	683.01	683.86	683.02	686.97
9	696.92	684.06	684.16	683.85	683.00	683.88	683.54	684.10	683.02	683.63	683.02	683.92
10	684.18	684.06	684.02	683.85	683.00	683.90	683.90	683.79	683.02	683.20	683.02	683.58
11	683.94	683.81	683.75	683.98	683.00	683.75	683.92	683.45	694.15	683.02	683.02	683.14
12	683.79	683.85	683.46	683.98	683.00	683.65	683.70	683.00	684.39	683.01	684.99	683.02
13	683.53	683.81	683.19	683.86	684.03	690.01	683.31	683.00	683.92	683.02	684.26	683.02
14	685.42	683.79	685.11	683.78	684.03	684.11	683.02	683.00	683.72	683.02	683.77	683.02
15	685.93	683.94	685.63	683.75	683.86	684.18	683.02	683.01	683.54	683.01	683.28	683.02
16	684.19	683.93	684.71	683.74	683.82	683.90	683.02	683.01	683.15	683.02	683.01	683.02
17	684.07	683.75	683.99	683.78	683.73	683.79	683.02	683.01	683.01	683.01	683.01	683.02
18	695.72	683.90	688.98	683.78	683.63	683.72	684.61	683.01	683.01	683.01	683.01	683.02
19	693.28	683.90	683.76	683.69	683.75	683.65	683.94	683.01	689.22	683.02	683.01	683.02
20	684.15	683.78	683.75	683.71	683.66	683.59	683.63	683.02	684.33	683.02	683.00	696.12
21	683.98	683.63	683.73	683.66	683.41	683.44	683.24	683.01	683.90	683.02	683.01	685.36
22	683.90	683.37	683.68	683.61	683.14	683.23	683.02	683.01	683.60	683.02	683.01	685.29
23	683.86	684.29	683.66	683.57	683.00	683.01	683.02	683.01	683.13	683.02	685.13	684.05
24	683.82	684.12	683.82	683.47	684.26	683.01	683.02	689.92	683.02	683.02	688.49	683.84
25	698.99	683.84	683.74	683.35	688.63	683.02	683.03	683.98	683.01	683.02	688.70	683.70
26	692.65	683.77	683.63	684.30	685.15	683.01	683.02	683.63	683.02	683.02	683.94	683.42
27	684.29	683.75	686.14	684.06	683.98	683.01	683.02	689.72	683.01	683.02	683.66	683.13
28	684.11	683.70	690.16	683.83	683.88	683.01	683.02	684.17	684.88	683.02	684.65	683.02
29	683.98	683.50	684.69	683.71	---	683.02	683.02	684.63	694.53	683.02	684.22	683.01
30	683.94	683.26	684.07	683.62	---	683.01	683.02	691.74	684.51	683.60	683.70	683.01
31	683.92	---	684.06	683.59	---	684.04	---	689.28	---	684.38	683.32	---
MAX	702.65	686.45	690.16	684.30	688.63	690.01	686.43	691.74	694.53	689.06	688.70	696.12
WTR YR 1995	MAX 702.65											

## GUADALUPE RIVER BASIN

243

08177860 SAN ANTONIO RIVER AT WOODLAWN AVENUE, SAN ANTONIO, TX

LOCATION.--Lat 29°27'04", long 98°28'42", Bexar County, Hydrologic Unit 12100301, on left bank approximately 200 ft downstream from an abandoned low-water crossing, 2.6 mi downstream from Olmos Dam in San Antonio.

DRAINAGE AREA.--36.4 mi<sup>2</sup>. Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to September 1990 (periodic discharge measurements only), October 1990 to September 1995 (low flow only) (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 648.08 ft above sea level.

REMARKS.--Records fair. Discharges are not published for days when instantaneous discharge exceeds 52 ft<sup>3</sup>/s. Flood flow is regulated by Olmos flood-control reservoir (capacity, 14,240 acre-ft), about 2.6 mi upstream. Olmos Dam was completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. Satellite telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.17 ft Oct. 7 at 2400 hours; minimum daily discharge, 8.4 ft<sup>3</sup>/s Oct. 1, 2, 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	32	e21	38	29	19	20	12	12	14	11	9.8
2	8.4	32	---	38	27	19	20	12	12	14	---	9.8
3	8.6	31	27	39	26	25	19	13	11	---	11	10
4	8.9	31	22	38	25	19	---	13	9.7	---	11	10
5	8.4	---	21	38	25	17	---	12	10	16	10	10
6	8.4	33	21	41	23	17	26	12	9.8	---	10	10
7	---	31	21	41	22	---	26	12	9.7	21	9.8	---
8	---	31	21	41	21	21	25	---	9.6	14	10	---
9	---	30	21	40	21	21	25	10	8.9	13	10	10
10	15	30	22	40	21	21	25	13	8.7	13	10	10
11	16	30	21	40	20	21	26	13	---	13	11	10
12	16	29	20	40	20	22	26	13	14	12	14	9.8
13	16	30	20	40	21	---	25	12	11	11	11	10
14	---	29	---	39	21	25	25	12	12	11	11	10
15	---	28	---	39	21	26	25	12	8.8	11	11	11
16	20	28	---	39	20	25	25	11	11	11	11	10
17	19	27	24	37	20	23	26	11	11	11	11	10
18	---	27	24	37	20	24	29	11	11	10	11	10
19	---	27	24	35	21	23	25	10	---	10	11	10
20	26	28	24	35	20	23	24	10	12	11	11	---
21	27	26	23	34	18	21	19	9.6	10	11	11	---
22	27	25	22	35	18	21	17	9.6	9.0	11	11	---
23	27	25	22	33	17	18	18	9.6	8.6	11	---	11
24	27	26	23	31	---	18	16	---	8.6	11	---	11
25	---	27	25	29	---	19	17	8.5	11	10	---	9.9
26	---	26	26	33	---	20	17	9.7	11	9.9	10	9.2
27	38	26	---	31	19	20	16	---	10	9.9	10	9.5
28	35	24	---	31	19	20	14	11	---	9.9	10	9.8
29	33	22	---	31	---	20	13	8.9	---	10	10	9.8
30	33	21	36	30	---	20	13	---	16	11	9.6	9.8
31	32	---	38	29	---	20	---	---	---	11	9.8	---
TOTAL	---	---	---	1122	---	---	---	---	---	---	---	---
MEAN	---	---	---	36.2	---	---	---	---	---	---	---	---
MAX	---	---	---	41	---	---	---	---	---	---	---	---
MIN	---	---	---	29	---	---	---	---	---	---	---	---
AC-FT	---	---	---	2230	---	---	---	---	---	---	---	---
CFSM	---	---	---	.99	---	---	---	---	---	---	---	---
IN.	---	---	---	1.15	---	---	---	---	---	---	---	---

e Estimated

## GUADALUPE RIVER BASIN

08177860 SAN ANTONIO RIVER AT WOODLAWN AVENUE, SAN ANTONIO, TX--Continued

08177860 SAN ANTONIO RIVER AT WOODLAWN AVENUE, SAN ANTONIO, TX

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1989 to September 1995 (discontinued). Sediment analyses: April 1989 to September 1995 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
MAY 02...	0905	11	500	7.8	23.0	4	1.9	7.8	93	2.4	230	22	
JUL 27...	0900	8.6	500	7.1	27.0	5	3.9	7.1	91	0.9	240	36	
SEP 06...	0945	8.9	500	7.8	26.5	5	2.8	7.8	98	0.8	240	38	
06...	0950	8.9	500	7.8	26.5	7	2.6	7.8	98	0.8	240	33	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
MAY 02...	69	15	9.2	0.3	1.6	210	17	20	0.20	12	278	<1	
JUL 27...	70	16	10	0.3	1.5	210	16	18	0.20	13	275	12	
SEP 06...	72	15	9.1	0.3	1.4	200	18	19	0.20	12	276	3	
06...	70	15	9.2	0.3	1.5	200	18	19	0.20	12	274	1	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
MAY 02...	1	--	1.58	1.58	0.022	1.60	1.60	0.043	1.8	0.16	0.20	0.026	
JUL 27...	13	0	1.68	1.68	0.023	1.70	1.70	0.046	--	--	<0.20	0.028	
SEP 06...	6	0	1.58	1.58	0.021	1.60	1.60	0.038	1.8	0.16	0.20	0.024	
06...	2	0	1.58	1.58	0.020	1.60	1.60	0.038	1.9	0.26	0.30	0.022	
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
MAY 02...	0.014	0.04	2.7	<0.010	50	<1	2	<100	70	<1	2	*1	
JUL 27...	0.015	0.05	1.2	<0.010	90	<1	4	<100	1700	<1	<1	<1	
SEP 06...	0.015	0.05	9.3	<0.010	1400	<1	4	<100	130	<1	2	<1	
06...	0.015	0.05	9.8	<0.010	140	<1	3	<100	150	<1	2	<1	
DATE		CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, FM BOT-TOM MA-TERIAL (UG/G AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY FM BOT-TOM MA-TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
MAY 02...	20	1	30	70	1	260	<0.10	0.04	<1	<1	<1	<1	<10
JUL 27...	2	1	5	80	2	20	<0.10	0.03	<1	<1	<1	<1	<10
SEP 06...	20	<1	20	40	<1	140	<0.10	0.03	<1	<1	<1	<1	<10
06...	30	<1	20	40	<1	140	<0.10	0.04	<1	<1	<1	<1	<10

## GUADALUPE RIVER BASIN

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## 08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°24'34", long 98°29'41", Bexar County, Hydrologic Unit 12100301, on left bank 193 ft downstream from South Alamo Street Bridge in San Antonio, 2.1 mi upstream from San Pedro Creek, and 230.6 mi upstream from mouth.

DRAINAGE AREA.--41.8 mi<sup>2</sup>. Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

PERIOD OF RECORD.--December 1895 to June 1906 (periodic discharge measurements only), January 1915 to November 1929, February 1939 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).  
Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1964 to September 1992. Sediment analyses: October 1968 to September 1973.

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. WDR TX-72-1: 1971(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 605.26 ft above sea level. Jan. 26, 1915, to Feb. 27, 1916, nonrecording gage at site 1.3 mi upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, nonrecording gage at site 1.1 mi upstream at different datum. Apr. 8, 1920, to Nov. 16, 1929, and Feb. 15, 1939, to Apr. 25, 1967, water-stage recorder in vicinity of South Alamo Street Bridge at 7.00-foot higher datum. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. Flood flow is regulated by Olmos flood-control reservoir (capacity, 14,240 acre-ft), about 8.5 mi upstream. Olmos Dam was completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. No flow at times due to regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	40	25	43	30	24	33	12	17	11	8.6	11
2	15	40	43	91	28	29	33	11	28	16	33	10
3	15	39	33	53	28	34	33	11	8.9	42	9.8	11
4	16	38	28	50	27	26	118	11	10	79	9.5	11
5	15	115	27	43	26	21	56	11	11	20	9.6	11
6	14	39	26	28	25	22	18	11	10	44	9.1	11
7	117	36	26	25	24	104	33	11	11	30	9.2	36
8	1280	35	26	36	23	17	33	243	9.9	19	9.2	62
9	423	35	25	44	24	6.6	33	.41	9.5	15	8.9	2.4
10	1.7	35	26	43	23	21	41	11	9.3	16	9.1	10
11	16	34	26	44	22	26	33	12	469	17	8.9	11
12	22	33	26	44	22	27	33	13	8.8	13	23	11
13	22	36	25	43	27	239	33	13	13	6.4	14	12
14	34	75	32	43	26	37	30	12	13	10	9.6	11
15	86	24	84	43	26	40	29	12	11	10	9.5	13
16	28	32	43	43	25	43	29	11	11	10	9.1	10
17	26	25	29	76	25	41	31	11	13	10	9.5	10
18	454	19	29	20	24	39	30	15	13	10	9.1	11
19	253	31	29	39	24	39	28	11	119	10	9.5	10
20	11	31	30	38	22	37	26	13	22	10	9.5	866
21	31	30	30	38	21	36	23	13	.88	10	9.3	52
22	32	29	29	38	20	33	17	12	8.7	10	10	77
23	32	30	28	35	19	29	20	11	9.2	10	25	14
24	32	29	29	32	57	29	18	221	9.4	9.7	20	14
25	921	31	30	32	230	29	17	4.9	10	8.7	87	27
26	198	30	31	38	46	31	17	.64	12	9.1	9.7	7.2
27	46	30	73	33	16	32	15	291	11	9.1	10	14
28	43	29	343	33	24	35	15	9.8	42	9.2	10	14
29	43	26	50	33	---	31	13	2.3	867	9.6	11	13
30	41	26	42	32	---	33	13	638	13	11	11	12
31	41	---	44	31	---	34	---	100	---	19	10	---
TOTAL	4323.7	1082	1367	1264	934	1224.6	901	1759.05	1800.58	513.8	440.7	1384.6
MEAN	139	36.1	44.1	40.8	33.4	39.5	30.0	56.7	60.0	16.6	14.2	46.2
MAX	1280	115	343	91	230	239	118	638	867	79	87	866
MIN	1.7	19	25	20	16	6.6	13	.41	.88	6.4	8.6	2.4
AC-FT	8580	2150	2710	2510	1850	2430	1790	3490	3570	1020	874	2750
CFSM	3.34	.86	1.05	.98	.80	.95	.72	1.36	1.44	.40	.34	1.10
IN.	3.85	.96	1.22	1.12	.83	1.09	.80	1.57	1.60	.46	.39	1.23

## GUADALUPE RIVER BASIN

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 1995h, BY WATER YEAR (WY)

MEAN	59.0	55.5	56.7	57.7	59.9	56.6	62.0	77.5	66.8	47.7	42.1	57.2
MAX	295	233	208	258	252	272	251	358	350	206	222	278
(WY)	1920	1920	1920	1920	1992	1992	1977	1993	1992	1992	1915	1973
MIN	7.49	9.52	8.28	7.63	8.06	7.07	6.93	12.2	7.67	7.29	8.28	8.65
(WY)	1956	1919	1956	1956	1984	1956	1956	1967	1956	1984	1957	1955

## SUMMARY STATISTICS FOR 1994 CALENDAR YEAR FOR 1995 WATER YEAR WATER YEARS 1915 - 1995h

ANNUAL TOTAL	20043.12	16995.03	
ANNUAL MEAN	54.9	46.6	57.6
HIGHEST ANNUAL MEAN			200
LOWEST ANNUAL MEAN			9.23
HIGHEST DAILY MEAN	1280 Oct 8	1280 Oct 8	3190 Sep 10 1921
LOWEST DAILY MEAN	.38 Apr 27	.41 May 9	.06 May 23 1971
ANNUAL SEVEN-DAY MINIMUM	10 Jul 22	8.7 Jun 21	4.1 Feb 10 1957
INSTANTANEOUS PEAK FLOW		5230 Oct 8	c15300 Sep 10 1921
INSTANTANEOUS PEAK STAGE		15.11 Oct 8	d20.14 Sep 10 1921
ANNUAL RUNOFF (AC-FT)	39760	33710	41760
ANNUAL RUNOFF (CFSM)	1.31	1.11	1.38
ANNUAL RUNOFF (INCHES)	17.84	15.12	18.74
10 PERCENT EXCEEDS	77	51	131
50 PERCENT EXCEEDS	33	25	28
90 PERCENT EXCEEDS	12	9.6	11

c At former site and datum, from rating curve extended above 2,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

d Maximum stage since at least 1819.

h See PERIOD OF RECORD paragraph.



08178050 SAN ANTONIO RIVER AT MITCHELL ST., SAN ANTONIO, TX

LOCATION.--Lat 29°23'34", long 98°29'40", Bexar County, Hydrologic Unit 12100301, on left bank 15 ft upstream from Mitchell Street Bridge in San Antonio, 0.2 mi upstream from San Pedro Creek, and 228.7 mi upstream from mouth.

DRAINAGE AREA.--Not determined. Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1992 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 585.07 ft above sea level.

REMARKS.--Records fair. Flood flow is regulated by Olmos flood-control reservoir (capacity, 14,240 acre-ft), about 10.6 mi upstream. Olmos Dam was completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. No flow at times due to regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	46	28	46	33	20	e35	13	17	7.9	11	17
2	15	45	46	92	29	24	e35	13	34	14	45	13
3	15	42	35	59	30	30	e35	14	7.1	42	12	13
4	16	43	27	61	28	22	128	13	9.7	106	11	14
5	16	148	27	51	30	18	55	12	11	18	11	15
6	15	47	25	33	27	19	15	11	12	46	11	14
7	111	44	25	32	26	107	28	11	12	30	12	49
8	1320	40	26	36	26	22	29	310	11	20	11	90
9	582	40	27	47	25	8.2	30	2.8	10	17	11	2.9
10	7.7	43	31	45	23	19	49	10	9.7	17	11	12
11	16	40	31	45	23	25	36	14	562	18	11	13
12	24	36	28	47	24	23	32	14	10	16	24	13
13	23	35	24	45	28	326	32	13	13	8.8	16	15
14	41	81	31	45	25	e40	33	12	14	14	12	12
15	119	26	86	44	24	e44	32	12	12	14	12	15
16	32	35	44	44	24	e45	31	12	12	13	12	13
17	27	28	30	71	23	e44	32	11	14	13	12	12
18	493	18	31	22	24	e41	33	20	14	13	12	13
19	325	30	31	39	24	e41	30	12	157	12	12	13
20	13	30	30	38	21	e40	29	15	43	13	11	863
21	34	32	31	38	21	e38	26	14	3.0	12	11	78
22	36	30	30	36	20	e36	18	13	12	12	12	96
23	35	34	30	36	18	e34	22	11	12	12	26	17
24	33	33	29	39	70	e31	21	267	11	12	30	14
25	983	33	31	40	300	e31	19	10	12	11	e105	35
26	275	30	34	44	55	e32	20	3.8	13	11	e12	5.9
27	58	29	68	36	14	e35	18	352	14	11	e13	13
28	51	31	499	35	20	e35	16	14	36	11	e13	13
29	49	29	57	37	---	e33	16	3.1	885	11	13	12
30	47	28	44	37	---	e35	14	757	27	15	14	11
31	45	---	45	35	---	e35	---	154	---	19	15	---
TOTAL	4871.7	1206	1561	1355	1035	1333.2	949	2143.7	2009.5	589.7	544	1516.8
MEAN	157	40.2	50.4	43.7	37.0	43.0	31.6	69.2	67.0	19.0	17.5	50.6
MAX	1320	148	499	92	300	326	128	757	885	106	105	863
MIN	7.7	18	24	22	14	8.2	14	2.8	3.0	7.9	11	2.9
AC-FT	9660	2390	3100	2690	2050	2640	1880	4250	3990	1170	1080	3010

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1995, BY WATER YEAR (WY)

	1993	1994	1995	1993	1994	1995	1993	1994	1995	1993	1994	1995
MEAN	128	102	107	96.2	98.0	105	81.4	196	108	49.2	23.6	47.6
MAX	157	203	209	185	209	172	149	369	228	115	29.6	58.5
(WY)	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1994
MIN	68.2	40.2	50.4	43.7	37.0	43.0	31.6	69.2	28.3	13.9	17.5	33.7
(WY)	1994	1995	1995	1995	1995	1995	1995	1995	1994	1994	1995	1993

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1993 - 1995

ANNUAL TOTAL	24260.9	19114.6	95.2
ANNUAL MEAN	66.5	52.4	172
HIGHEST ANNUAL MEAN			52.4
LOWEST ANNUAL MEAN			1993
HIGHEST DAILY MEAN	1320	Oct 8	1900
LOWEST DAILY MEAN	3.0	Apr 27	2.8
ANNUAL SEVEN-DAY MINIMUM	13	10	10
INSTANTANEOUS PEAK FLOW		5090	5090
INSTANTANEOUS PEAK STAGE		7.98	7.98
ANNUAL RUNOFF (AC-FT)	48120	37910	68960
10 PERCENT EXCEEDS	91	58	188
50 PERCENT EXCEEDS	38	26	46
90 PERCENT EXCEEDS	14	11	13

e Estimated

08178050 SAN ANTONIO RIVER AT MITCHELL ST., SAN ANTONIO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: December 1991 to current year. Bacteria analyses: December 1991 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
DEC 28...	1105	630	188	7.9	12.0	35	56	9.6	90	5.6	K8600	
FEB 14...	1030	28	580	7.9	14.5	9	1.0	9.6	97	1.0	590000	
MAY 30...	1345	996	127	7.3	23.0	350	98	9.4	109	9.0	K3000	
AUG 25...	1135	41	447	8.0	27.0	43	19	8.4	108	8.4	30000	
DATE	TIME	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	
DEC 28...	K100000	86	24	30	2.6	4.8	0.2	2.9	62	12	15	
FEB 14...	K17000	250	50	73	17	20	0.5	1.9	200	26	31	
MAY 30...	>10000	52	8	18	1.6	3.5	0.2	2.7	44	6.3	3.9	
AUG 25...	K12000	170	38	52	10	15	0.5	3.1	130	28	20	
DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
DEC 28...	0.10	4.1	112	102	20	82	0.570	--	<0.010	0.570	0.570	
FEB 14...	0.30	13	311	3	3	0	1.69	1.69	0.010	1.70	1.70	
MAY 30...	0.10	3.8	69	210	34	176	0.400	0.400	0.020	0.420	0.420	
AUG 25...	0.30	9.9	226	31	10	21	1.46	1.46	0.040	1.50	1.50	
DATE	TIME	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)
DEC 28...	0.070	0.23	0.30	0.100	0.100	0.31	9.1	2	22	<0.5	<1.0	
FEB 14...	0.070	--	<0.20	0.030	0.040	0.12	1.8	--	--	--	--	
MAY 30...	0.180	0.32	0.50	0.100	0.100	0.31	24	--	--	--	--	
AUG 25...	0.080	0.52	0.60	0.070	0.050	0.15	3.6	1	53	<0.5	<1.0	
DATE	TIME	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
DEC 28...	<5	<3	<10	58	20	<4	9	<0.1	<10	<10	<1	
FEB 14...	--	--	--	--	--	--	--	--	--	--	--	
MAY 30...	--	--	--	--	--	--	--	--	--	--	--	
AUG 25...	<5	<3	<10	9	<10	7	9	<0.1	<10	<10	<1	

GUADALUPE RIVER BASIN

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08178050 SAN ANTONIO RIVER AT MITCHELL ST., SAN ANTONIO, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
DEC 28...	<1.0	180	<6	11	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<1.0	650	<6	4	0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
DATE	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAM, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)
DEC 28...	0.12	<0.010	<0.02	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	0.03	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.01	<0.01
DATE	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC 28...	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01

## GUADALUPE RIVER BASIN

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'19", long 98°27'00", Bexar County, Hydrologic Unit 12100301, on right bank between westbound bridges on Interstate Highway 410 in San Antonio, 4.5 mi upstream from Salado Creek, and 222.3 mi upstream from mouth.

DRAINAGE AREA.--125 mi<sup>2</sup>. Flow of river comes from intermittent springflow and from artesian wells; drainage area of streams not applicable.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 488.11 ft above sea level. Dec. 20, 1986, to Aug. 15, 1989, at site 0.2 mi downstream at Camino Coahuilteca crossing at same datum.

REMARKS.--No estimated daily discharges. Records good. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	72	35	70	52	43	32	22	48	23	34	19
2	25	75	92	66	59	55	29	18	60	29	88	15
3	25	67	98	113	52	94	29	18	16	27	31	15
4	26	66	46	83	50	54	99	20	26	293	17	14
5	25	298	44	67	51	43	133	20	25	41	17	13
6	24	91	44	55	50	41	36	40	24	57	16	15
7	24	68	44	59	54	186	50	28	24	53	18	17
8	2750	64	44	40	46	94	52	471	24	31	17	226
9	447	59	49	68	46	22	50	57	21	26	16	19
10	40	59	49	68	46	25	52	29	19	25	14	12
11	18	59	44	71	43	45	110	30	674	28	13	17
12	30	58	43	72	38	46	53	22	54	27	27	18
13	28	61	42	73	56	412	50	20	29	17	48	23
14	29	113	56	67	51	54	48	17	27	18	29	30
15	279	34	221	66	46	67	46	16	25	22	17	20
16	71	56	190	65	43	50	46	15	20	30	17	19
17	46	55	71	66	39	47	47	15	23	31	14	21
18	479	28	58	63	36	45	46	56	24	33	13	25
19	340	51	55	58	36	44	50	17	197	25	13	24
20	40	52	54	59	34	46	42	16	105	16	13	1350
21	41	50	54	57	31	48	39	18	17	16	15	201
22	44	48	52	58	45	46	31	19	14	14	31	283
23	43	59	50	56	28	61	32	17	19	14	61	59
24	51	56	54	53	101	49	30	546	19	14	114	43
25	1300	52	54	53	472	39	28	55	19	12	129	64
26	321	49	54	78	212	39	28	15	20	11	42	18
27	97	39	57	63	63	37	26	862	27	11	20	29
28	95	43	793	58	44	33	25	85	19	12	16	32
29	81	39	133	55	---	43	25	30	2860	14	16	35
30	76	36	77	55	---	39	24	1380	121	21	16	35
31	77	---	74	59	---	40	---	263	---	34	17	---
TOTAL	6997	1957	2831	1994	1924	1987	1388	4237	4600	1025	949	2711
MEAN	226	65.2	91.3	64.3	68.7	64.1	46.3	137	153	33.1	30.6	90.4
MAX	2750	298	793	113	472	412	133	1380	2860	293	129	1350
MIN	18	28	35	40	28	22	24	15	14	11	13	12
AC-FT	13880	3880	5620	3960	3820	3940	2750	8400	9120	2030	1880	5380

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1995, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	120	104	180	134	173	156	145	306	230	178	80.3	102	*	
MAX	232	294	479	263	483	420	345	937	622	692	263	262		
(WY)	1987	1993	1992	1993	1992	1992	1992	1992	1987	1990	1992	1992		
MIN	23.2	21.7	19.6	25.1	30.4	35.7	46.3	27.6	31.4	19.6	18.0	25.6		
(WY)	1989	1992	1991	1990	1989	1989	1995	1989	1990	1994	1989	1989		

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1987 - 1995
ANNUAL TOTAL	38816	32600	159
ANNUAL MEAN	106	89.3	353
HIGHEST ANNUAL MEAN			37.2
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	2750	2860	12100
LOWEST DAILY MEAN	13	11	6.3
ANNUAL SEVEN-DAY MINIMUM	17	13	8.5
INSTANTANEOUS PEAK FLOW		18200	c64300
INSTANTANEOUS PEAK STAGE		22.45	a32.20
ANNUAL RUNOFF (AC-FT)	76990	64660	115200
10 PERCENT EXCEEDS	192	107	277
50 PERCENT EXCEEDS	57	43	58
90 PERCENT EXCEEDS	21	17	17

a From floodmark.

c From rating curve extended above 8,400 ft<sup>3</sup>/s.

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1987 to current year. Pesticide analyses: December 1992 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1986 to August 1988. March 1993 to current year.

pH: December 1986 to August 1988. March 1993 to current year.

WATER TEMPERATURE: December 1986 to August 1988. March 1993 to current year.

DISSOLVED OXYGEN: December 1986 to August 1988. March 1993 to current year.

INSTRUMENTATION.--From December 1986 to August 1988, and from March 1993 to current year, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments or probe fouling. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 980 microsiemens April 22, 1987; minimum, 107 microsiemens June 29, 1995.

pH: Maximum, 8.8 units March 9, and Sept. 20, 1995; minimum, 7.0 units Jun. 30 and July 1, 1995.

WATER TEMPERATURE: Maximum, 36.0°C Aug. 6, 9, 10, 1988, July 28, 1995; minimum, 8.5°C Feb. 2, 1994.

DISSOLVED OXYGEN: Maximum, 19.5 mg/L Feb. 2, 1994; minimum, 0.5 mg/L May 21, July 21, 1988.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 847 microsiemens April 4; minimum, 107 microsiemens June 29.

pH: Maximum, 8.8 units March 9, Sept. 20, 1995; minimum, 7.0 units Jun 30, July 1.

WATER TEMPERATURE: Maximum, 36.0°C July 28; minimum, 10.5°C March 3.

DISSOLVED OXYGEN: Maximum, 18.3 mg/L March 10; minimum, 2.2 mg/L Sept. 10.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	
NOV 01...	1110	84	601	8.1	20.0	10.4	116	--	1.8	--	--	
DEC 06...	1310	40	592	8.0	21.0	9.6	109	--	1.2	--	--	
DEC 28-28	0045	1160	353	7.8	--	--	--	59	8.7	--	--	
FEB 21...	1015	11	611	8.2	16.5	8.6	88	<10	1.3	K20	K14	
FEB 28...	1445	46	494	8.0	19.0	9.0	98	--	1.5	--	--	
MAY 22...	1145	20	580	8.2	26.0	8.5	106	--	1.5	--	--	
JUN 11-11	0416	1420	420	7.7	--	--	--	60	11	--	--	
JUN 26...	1145	21	587	8.1	30.5	10.0	136	--	2.0	--	--	
AUG 15...	1510	17	478	8.1	32.0	9.8	137	--	1.9	--	--	
DATE		HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 01...	260	66	76	17	27	0.7	2.6	190	48	34	0.30	
DEC 06...	240	44	70	15	29	0.8	2.7	190	49	36	0.30	
DEC 28-28	130	24	41	7.9	15	0.6	2.9	110	25	20	--	
FEB 21...	240	47	67	18	31	0.9	2.2	190	47	45	--	
FEB 28...	170	37	55	9.1	29	1	3.4	140	47	33	0.30	
MAY 22...	190	40	50	17	41	1	3.3	150	54	53	0.40	
JUN 11-11	140	53	41	9.3	27	1	3.0	88	53	38	--	
JUN 26...	190	51	53	14	41	1	2.9	140	61	53	0.30	
AUG 15...	170	48	48	12	28	0.9	3.3	120	39	35	0.30	

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
NOV 01...	13	--	343	--	1.90	--	<0.010	1.90	1.90	0.020	--
DEC 06...	11	--	335	--	1.49	1.49	0.010	1.50	1.50	0.020	--
DEC 28-28	--	203	193	310	1.20	--	--	1.20	1.20	0.070	2.5
FEB 21...	--	336	329	2	1.30	--	--	1.30	1.30	<0.015	--
28...	8.7	--	273	--	1.08	1.08	0.020	1.10	1.10	0.080	--
MAY 22...	8.9	--	322	--	0.350	0.350	0.020	0.370	0.370	0.050	--
JUN 11-11	--	252	244	436	0.470	--	--	0.470	0.470	<0.015	2.3
26...	9.2	--	321	--	0.630	0.630	0.030	0.660	0.660	0.080	--
AUG 15...	10	--	250	--	0.460	0.460	0.020	0.480	0.480	0.030	--

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)
NOV 01...	--	--	<0.20	--	--	0.030	0.040	0.12	--	--	--
DEC 06...	--	0.18	0.20	--	--	0.030	0.030	0.09	--	--	--
DEC 28-28	1.2	0.14	0.21	1.3	0.350	0.060	--	--	16	<0.010	6
FEB 21...	--	--	<0.20	<0.20	0.020	<0.010	--	--	2.4	<0.010	<1
FEB 28...	--	0.32	0.40	--	--	0.050	0.050	0.15	--	--	--
MAY 22...	--	0.25	0.30	--	--	<0.010	0.010	0.03	--	--	--
JUN 11-11	1.8	--	0.41	1.8	0.440	0.050	--	--	20	<0.010	<1
JUN 26...	--	0.22	0.30	--	--	0.040	0.020	0.06	--	--	--
AUG 15...	--	0.27	0.30	--	--	0.010	0.020	0.06	--	--	--

[illegible][illegible]



WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible][illegible][illegible]

## GUADALUPE RIVER BASIN

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

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. 1994	6997	391	217	4110	22	411	31	588	170
NOV. 1994	1957	608	339	1790	45	240	52	276	230
DEC. 1994	2831	509	284	2170	34	259	42	323	210
JAN. 1995	1994	576	321	1730	41	220	49	262	230
FEB. 1995	1924	526	293	1520	36	188	44	229	210
MAR. 1995	1987	492	274	1470	33	176	41	219	200
APR. 1995	1388	598	333	1250	44	164	51	191	230
MAY 1995	4237	360	200	2290	19	220	28	326	160
JUNE 1995	4600	311	173	2150	16	197	24	302	140
JULY 1995	1025	519	289	801	36	99	44	121	210
AUG. 1995	949	552	308	789	39	99	47	119	220
SEPT 1995	2711	450	250	1830	27	198	37	267	190
TOTAL	32600	**	**	21900	**	2470	**	3220	**
WTD.AVG.	89	447	249	**	28	**	37	**	180

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	e618	609	590	601	657	611	631	606	582	592
2	---	---	e625	609	594	603	639	616	626	658	590	607
3	---	---	e634	621	574	598	639	484	531	649	589	608
4	---	---	e644	661	588	620	602	566	587	616	585	601
5	668	639	656	710	414	474	624	597	613	616	590	601
6	664	647	655	554	448	509	622	588	604	603	564	580
7	680	545	660	561	528	549	613	594	601	603	566	577
8	545	269	339	598	560	575	631	611	626	624	563	600
9	414	360	372	626	598	609	644	631	636	617	553	589
10	574	414	502	635	587	614	648	631	638	581	530	566
11	574	536	559	653	616	631	632	611	623	586	549	571
12	674	555	622	660	638	651	635	612	625	586	561	577
13	660	577	623	669	645	659	633	601	620	593	536	568
14	677	566	593	705	659	674	644	628	633	567	532	553
15	752	395	471	737	683	717	639	402	579	588	507	553
16	544	406	470	752	721	732	478	402	458	565	512	541
17	571	515	559	721	641	665	474	464	468	548	515	535
18	607	251	496	684	655	672	499	474	487	588	540	563
19	323	263	291	701	660	679	551	499	518	591	558	576
20	454	323	399	673	650	664	597	551	571	592	546	574
21	531	453	490	666	635	650	609	596	603	590	544	570
22	605	528	546	649	625	640	614	595	607	601	540	577
23	630	587	612	742	644	675	616	595	609	588	521	558
24	661	587	602	726	638	664	621	597	612	560	517	542
25	661	230	361	662	645	654	621	588	606	581	551	564
26	401	249	323	661	632	649	606	583	597	644	581	617
27	500	401	462	648	619	638	610	593	602	624	540	591
28	505	443	462	640	615	629	600	286	375	595	528	568
29	580	505	549	643	617	631	473	382	423	575	517	549
30	602	580	590	655	631	643	532	473	503	583	539	567
31	610	596	604	---	---	---	587	525	554	574	539	559
MONTH	752	230	529	752	414	632	657	286	573	658	507	574

e Estimated

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	573	533	557	538	506	518	703	661	685	685	652	665
2	575	535	558	665	538	568	691	634	668	685	623	652
3	586	540	562	665	568	594	676	661	669	675	648	662
4	589	543	568	593	568	576	847	617	697	685	665	675
5	590	548	573	616	573	595	617	506	576	686	653	672
6	599	536	578	632	598	616	506	482	491	691	677	683
7	628	573	596	---	---	e325	569	503	543	684	668	676
8	633	593	616	---	---	e375	569	544	558	808	224	400
9	652	605	627	---	---	e475	584	552	569	413	331	367
10	660	607	639	639	545	585	604	584	592	479	410	449
11	654	582	626	678	583	635	738	434	512	567	479	522
12	640	604	623	628	558	602	538	467	500	597	567	586
13	749	626	677	615	247	320	575	538	562	630	595	607
14	734	670	690	441	308	353	592	554	576	637	585	617
15	677	651	666	481	441	455	595	573	583	633	560	602
16	670	619	650	534	477	490	630	579	618	640	573	602
17	649	603	629	583	534	548	642	605	628	633	536	592
18	633	598	619	599	547	579	632	589	612	787	552	601
19	640	602	624	611	534	583	624	589	615	585	498	547
20	633	572	610	608	527	579	638	593	619	595	434	558
21	613	565	589	601	545	580	612	578	598	607	579	597
22	604	580	593	607	539	582	632	591	620	621	591	601
23	616	591	606	603	551	584	636	625	631	657	583	616
24	613	489	582	608	564	579	628	606	617	663	249	360
25	562	172	458	646	608	624	652	607	627	377	325	352
26	350	186	286	709	646	660	651	631	640	401	377	387
27	455	350	406	745	683	713	650	618	635	---	---	e300
28	506	453	475	695	648	675	657	647	652	---	---	e370
29	---	---	---	698	652	671	687	633	660	---	---	e400
30	---	---	---	686	650	667	685	642	660	---	---	e300
31	---	---	---	695	668	680	---	---	---	---	---	e350
MONTH	749	172	582	745	247	561	847	434	607	808	224	528

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	e350	436	326	390	781	635	679	729	592	642
2	534	452	501	536	410	482	658	475	604	605	547	577
3	---	---	e525	695	532	566	480	448	464	607	567	586
4	604	490	544	767	219	349	510	454	480	614	566	594
5	651	496	589	445	371	404	575	505	543	619	580	600
6	593	565	582	484	445	468	601	558	580	629	576	604
7	620	588	601	486	460	475	613	581	600	629	579	604
8	622	583	605	542	486	517	623	592	605	697	306	441
9	629	590	607	578	530	555	647	598	623	484	446	470
10	664	626	639	594	548	573	642	594	618	477	452	464
11	630	353	408	608	561	587	649	603	624	501	448	470
12	---	---	e435	633	585	609	787	613	642	570	481	534
13	508	439	451	666	605	634	795	641	682	580	524	551
14	586	457	552	676	622	644	736	537	597	572	534	561
15	484	448	470	681	624	656	546	466	499	534	449	486
16	550	480	522	685	633	659	573	513	550	585	515	549
17	565	514	540	675	634	654	592	551	573	601	558	578
18	598	556	574	684	631	655	636	580	609	618	568	589
19	672	332	529	689	632	659	635	594	614	644	585	619
20	444	332	411	677	623	651	646	608	625	610	372	453
21	446	402	426	695	641	666	652	618	632	456	311	378
22	473	425	450	708	647	674	706	629	666	405	301	323
23	591	469	534	713	665	685	728	613	680	377	314	343
24	632	583	599	719	644	672	613	349	419	456	365	410
25	609	564	589	689	631	659	539	423	481	530	438	486
26	623	576	595	698	645	671	472	430	449	537	517	529
27	637	577	605	706	642	674	483	456	471	536	500	518
28	659	590	621	726	653	688	480	454	468	594	536	566
29	629	107	223	698	652	677	492	462	476	590	558	577
30	330	182	269	729	657	694	503	462	485	604	576	589
31	---	---	---	844	699	770	761	496	537	---	---	---
MONTH	672	107	512	844	219	604	795	349	567	729	301	523
YEAR	847	107	566									

e Estimated

## GUADALUPE RIVER BASIN

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	8.1	7.9	8.0	8.3	8.0	8.1	8.2	7.9	8.1
2	---	---	---	8.0	7.9	7.9	8.2	8.0	8.1	8.2	8.1	8.1
3	---	---	---	8.0	7.8	7.9	8.0	7.7	7.9	8.2	8.0	8.1
4	---	---	---	8.0	7.8	7.9	8.2	7.8	8.0	8.3	8.0	8.2
5	7.9	7.6	7.7	7.9	7.5	7.7	8.2	7.9	8.0	8.3	8.1	8.2
6	7.9	7.6	7.7	7.9	7.5	7.7	8.2	7.9	8.0	8.3	8.1	8.2
7	7.8	7.6	7.7	8.0	7.7	7.8	8.3	7.9	8.1	8.4	8.0	8.2
8	8.2	7.6	7.8	8.1	7.7	7.9	8.3	8.0	8.1	8.5	8.0	8.2
9	7.7	7.4	7.6	8.1	7.8	7.9	8.2	8.0	8.1	8.5	8.1	8.2
10	7.4	7.4	7.4	8.1	7.9	8.0	8.3	8.1	8.2	8.4	8.0	8.2
11	7.6	7.4	7.5	8.2	7.9	8.0	8.4	8.1	8.2	8.4	8.0	8.1
12	7.8	7.6	7.7	8.3	7.9	8.1	8.4	8.1	8.2	8.4	8.0	8.1
13	7.8	7.7	7.8	8.2	8.0	8.1	8.2	8.0	8.1	8.5	8.0	8.2
14	7.9	7.7	7.8	8.0	7.9	8.0	8.1	7.9	8.0	8.5	8.0	8.2
15	7.9	7.6	7.7	8.1	7.8	8.0	7.9	7.7	7.8	8.5	8.0	8.2
16	7.7	7.6	7.6	8.1	7.9	8.0	7.8	7.7	7.7	8.5	8.0	8.2
17	7.9	7.6	7.7	8.2	7.9	8.0	7.8	7.7	7.7	8.3	7.9	8.1
18	7.8	7.2	7.6	8.1	7.9	8.0	8.0	7.7	7.8	8.3	7.9	8.1
19	7.7	7.3	7.5	8.1	7.9	8.0	8.1	7.7	7.9	8.4	8.0	8.1
20	7.5	7.3	7.4	8.2	8.0	8.0	8.2	7.8	8.0	8.4	8.0	8.1
21	7.6	7.4	7.5	8.2	7.9	8.0	8.2	7.9	8.0	8.4	8.0	8.1
22	7.8	7.6	7.7	8.2	8.0	8.1	8.3	7.9	8.1	8.4	8.0	8.1
23	7.9	7.6	7.7	8.1	8.0	8.0	8.3	8.0	8.1	8.5	8.0	8.2
24	8.0	7.8	7.9	8.1	8.0	8.0	8.3	8.0	8.1	8.4	8.0	8.1
25	8.0	7.6	7.8	8.2	7.9	8.0	8.3	8.0	8.1	8.3	8.0	8.1
26	7.7	7.5	7.6	8.2	7.9	8.1	8.3	8.0	8.1	8.3	8.0	8.1
27	7.8	7.5	7.6	8.2	8.0	8.1	8.2	8.0	8.0	8.5	8.0	8.2
28	7.9	7.7	7.8	8.2	8.0	8.1	8.0	7.7	7.8	8.5	8.0	8.2
29	8.0	7.8	7.9	8.2	8.0	8.1	7.8	7.7	7.7	8.5	8.0	8.2
30	8.0	7.8	7.9	8.2	8.0	8.1	7.9	7.7	7.8	8.5	7.9	8.2
31	8.1	7.9	8.0	---	---	---	8.1	7.8	7.9	8.4	7.9	8.1
MONTH	8.2	7.2	7.7	8.3	7.5	8.0	8.4	7.7	8.0	8.5	7.9	8.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.4	7.9	8.1	8.3	8.1	8.2	8.3	8.1	8.2	8.2	7.8	8.0
2	8.4	7.9	8.1	8.3	8.1	8.2	8.3	8.0	8.1	8.3	7.9	8.1
3	8.4	7.9	8.1	8.4	8.2	8.3	8.2	8.0	8.1	8.3	7.9	8.1
4	8.4	7.9	8.1	8.5	8.2	8.3	8.2	8.0	8.1	8.3	7.9	8.0
5	8.4	7.9	8.1	8.7	8.2	8.4	8.2	8.0	8.1	8.3	7.9	8.1
6	8.4	7.9	8.1	8.7	8.1	8.3	8.2	7.9	8.0	8.2	7.9	8.1
7	8.2	7.8	8.0	8.5	8.1	8.3	8.3	7.9	8.1	8.2	8.0	8.1
8	8.5	8.0	8.2	8.6	8.1	8.3	8.4	8.0	8.2	8.4	7.7	8.0
9	8.6	8.1	8.3	8.8	8.0	8.3	8.4	8.1	8.2	7.8	7.6	7.7
10	8.5	8.0	8.2	8.3	7.9	8.1	8.3	8.1	8.2	7.9	7.6	7.7
11	8.5	8.0	8.2	8.4	7.9	8.1	8.2	8.0	8.1	7.9	7.7	7.8
12	8.4	8.0	8.2	8.6	7.9	8.2	8.4	7.9	8.1	8.1	7.8	7.9
13	8.3	8.0	8.2	8.0	7.7	7.9	8.4	8.1	8.2	8.1	7.7	7.9
14	8.3	8.0	8.1	8.2	7.6	7.9	8.4	8.1	8.2	8.2	7.7	7.9
15	8.3	8.0	8.1	8.4	7.9	8.1	8.4	8.1	8.2	8.3	7.7	7.9
16	8.3	7.9	8.1	8.5	7.9	8.2	8.4	8.1	8.2	8.3	7.7	7.9
17	8.4	8.0	8.2	8.6	8.0	8.2	8.4	8.1	8.3	8.2	7.7	7.9
18	8.4	8.0	8.2	8.6	8.0	8.2	8.4	8.2	8.3	8.3	7.8	8.0
19	8.4	8.0	8.1	8.6	7.9	8.2	8.4	8.2	8.3	8.3	7.7	7.9
20	8.4	8.0	8.2	8.6	7.9	8.2	8.4	8.1	8.3	8.3	7.6	7.9
21	8.5	8.0	8.2	8.5	7.9	8.1	8.3	8.0	8.2	8.3	7.7	8.0
22	8.5	8.1	8.2	8.5	7.9	8.1	8.1	7.8	8.0	8.2	7.8	8.0
23	8.4	8.1	8.2	8.4	7.9	8.0	8.2	7.9	8.0	8.3	7.8	8.0
24	8.4	8.0	8.2	8.3	7.9	8.0	8.2	7.9	8.1	8.5	7.7	7.9
25	8.0	7.8	8.0	8.3	7.9	8.0	8.2	7.9	8.0	7.8	7.6	7.6
26	8.0	7.9	8.0	8.1	7.9	8.0	8.2	7.9	8.0	8.1	7.5	7.7
27	8.1	7.9	8.0	8.3	7.9	8.1	8.1	7.8	8.0	---	---	---
28	8.2	8.0	8.1	8.2	7.9	8.0	8.2	7.8	8.0	---	---	---
29	---	---	---	8.2	8.0	8.1	8.2	7.8	8.0	---	---	---
30	---	---	---	8.2	8.0	8.1	8.2	7.8	7.9	---	---	---
31	---	---	---	8.2	7.9	8.1	---	---	---	---	---	---
MONTH	8.6	7.8	8.1	8.8	7.6	8.1	8.4	7.8	8.1	8.5	7.5	7.9

## GUADALUPE RIVER BASIN

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08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	7.4	7.0	7.2	7.9	7.5	7.7	8.0	7.6	7.7
2	7.9	7.5	7.7	7.9	7.2	7.5	7.8	7.3	7.5	7.9	7.5	7.7
3	8.1	7.7	7.9	8.1	7.5	7.7	7.7	7.3	7.4	7.9	7.5	7.7
4	8.3	7.7	8.0	7.9	7.3	7.6	8.0	7.3	7.6	7.9	7.5	7.7
5	8.4	7.8	8.0	8.0	7.4	7.7	8.0	7.4	7.6	8.0	7.5	7.7
6	8.4	7.6	7.9	7.8	7.2	7.5	8.0	7.5	7.7	8.0	7.6	7.8
7	7.9	7.5	7.7	7.7	7.1	7.3	8.0	7.6	7.7	8.1	7.7	7.9
8	8.2	7.7	7.9	7.7	7.2	7.4	8.0	7.6	7.8	7.8	7.4	7.6
9	8.2	7.7	7.9	7.7	7.3	7.5	8.1	7.6	7.8	7.9	7.5	7.7
10	8.2	7.7	7.9	7.7	7.3	7.5	8.1	7.7	7.9	8.0	7.5	7.7
11	---	---	---	7.8	7.3	7.5	8.1	7.7	7.9	8.1	7.4	7.7
12	---	---	---	7.8	7.3	7.5	8.1	7.7	7.9	8.0	7.5	7.7
13	8.2	8.0	8.0	7.9	7.4	7.6	8.0	7.7	7.8	8.1	7.6	7.8
14	8.3	7.9	8.0	7.8	7.4	7.5	8.0	7.7	7.8	8.0	7.7	7.8
15	8.4	7.9	8.1	7.7	7.3	7.5	8.1	7.6	7.8	8.2	7.5	7.8
16	8.3	7.8	8.1	7.7	7.4	7.5	8.1	7.6	7.8	8.2	7.7	7.9
17	8.3	7.6	7.9	7.7	7.4	7.5	8.0	7.5	7.7	8.2	7.7	8.0
18	8.2	7.6	7.9	7.7	7.4	7.5	7.9	7.4	7.6	8.2	7.8	8.0
19	8.0	7.6	7.8	7.7	7.4	7.6	7.9	7.4	7.7	8.2	7.9	8.0
20	8.0	7.6	7.7	7.7	7.4	7.5	7.9	7.5	7.7	8.8	7.9	8.2
21	8.2	7.5	7.8	7.8	7.4	7.6	7.9	7.5	7.7	7.9	7.6	7.7
22	8.3	7.5	7.9	7.8	7.4	7.6	7.9	7.6	7.7	7.7	7.3	7.6
23	8.3	7.6	7.9	7.8	7.4	7.6	7.9	7.6	7.7	7.7	7.5	7.6
24	8.3	7.7	7.9	7.8	7.5	7.6	8.1	7.3	7.6	7.8	7.5	7.6
25	8.2	7.7	7.9	7.8	7.4	7.6	8.0	7.4	7.7	8.2	7.6	7.9
26	8.2	7.7	7.9	7.8	7.4	7.6	8.3	7.5	7.8	8.4	8.0	8.2
27	8.2	7.6	7.8	7.8	7.5	7.6	8.1	7.5	7.7	8.6	7.9	8.2
28	8.2	7.7	7.9	7.8	7.5	7.6	8.1	7.5	7.7	8.5	8.1	8.3
29	8.5	7.2	7.7	7.9	7.5	7.7	8.2	7.5	7.8	8.3	7.8	8.1
30	7.2	7.0	7.1	7.9	7.6	7.7	8.1	7.6	7.8	8.3	7.9	8.1
31	---	---	---	7.9	7.5	7.7	7.9	7.5	7.7	---	---	---
MONTH	8.5	7.0	7.9	8.1	7.0	7.5	8.3	7.3	7.7	8.8	7.3	7.8
YEAR	8.8	7.0	7.9									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	22.5	19.5	20.5	17.0	14.0	15.5	16.0	13.5	14.5
2	---	---	---	22.5	19.5	21.0	17.5	15.5	16.0	14.0	12.5	13.0
3	---	---	---	24.5	22.5	23.5	20.0	17.5	18.5	14.0	12.5	13.5
4	---	---	---	25.0	23.5	24.0	21.0	18.5	19.5	14.0	12.0	13.0
5	29.0	24.5	26.5	24.0	20.5	21.5	21.5	19.0	20.0	12.0	11.0	11.5
6	28.5	24.5	26.5	22.5	19.5	20.5	22.0	20.0	21.0	15.0	11.0	12.5
7	27.0	25.5	26.0	22.0	19.0	20.5	23.5	21.5	22.0	15.5	12.0	13.5
8	26.0	21.0	22.0	24.5	21.5	23.0	24.5	21.5	22.5	16.5	12.0	14.5
9	21.5	20.0	20.5	25.0	21.0	23.0	22.5	16.5	19.5	18.0	14.5	16.0
10	23.0	18.5	20.5	21.5	18.5	20.0	16.5	13.5	15.5	20.0	17.0	18.5
11	23.5	17.5	20.0	20.0	17.5	18.5	14.0	12.5	13.0	21.0	19.0	20.0
12	23.5	18.5	20.5	20.0	18.5	19.0	15.0	11.5	13.5	21.5	20.0	20.5
13	23.5	19.0	21.0	22.0	19.5	20.5	15.5	14.0	14.5	20.0	16.5	18.5
14	21.5	20.0	20.5	22.5	21.0	22.0	16.5	15.0	16.0	18.0	15.0	16.5
15	21.0	19.5	20.0	22.0	19.0	20.5	19.0	16.5	18.0	17.5	14.5	16.0
16	24.0	21.0	22.5	19.0	18.0	18.5	20.0	18.5	19.0	19.0	15.0	17.0
17	27.5	24.0	25.0	20.0	18.0	19.0	18.5	17.0	18.0	18.5	17.5	18.0
18	26.0	23.0	25.0	21.0	19.0	20.0	17.5	16.0	16.5	18.5	15.0	17.0
19	25.5	23.0	24.0	23.0	21.0	22.0	17.5	14.5	16.0	16.5	14.0	15.0
20	27.5	24.5	26.0	23.0	20.0	22.0	19.0	16.5	17.5	16.5	14.5	15.0
21	28.0	25.5	26.5	21.5	18.0	19.5	19.5	16.0	17.5	16.5	13.5	15.0
22	27.5	25.5	26.5	21.5	18.5	19.5	17.5	15.0	16.0	18.5	15.0	16.0
23	27.5	25.0	26.0	20.0	16.5	18.0	16.5	14.0	15.0	16.0	13.0	14.5
24	28.0	25.0	26.5	16.5	15.5	15.5	15.5	14.0	15.0	14.0	12.0	13.5
25	26.5	20.0	22.0	19.0	15.5	17.0	16.0	12.5	14.0	14.5	13.5	14.0
26	20.5	19.0	19.5	21.5	17.5	19.5	16.0	12.0	14.0	17.0	14.5	16.0
27	19.5	18.5	19.0	23.0	19.5	21.0	15.0	14.5	14.5	20.0	16.5	18.0
28	21.0	18.5	19.5	19.5	17.5	18.5	14.5	12.0	12.5	19.5	16.0	17.5
29	23.0	19.5	21.0	19.0	16.0	17.5	14.5	11.5	13.0	17.5	14.0	16.0
30	23.5	21.0	22.0	17.5	14.5	16.0	14.0	13.0	13.5	16.0	12.5	14.0
31	24.0	21.0	22.5	---	---	---	15.5	13.5	14.5	16.5	12.5	14.0
MONTH	29.0	17.5	23.0	25.0	14.5	20.0	24.5	11.5	16.5	21.5	11.0	15.5



08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	17.5	12.5	15.0	16.5	13.5	15.0	20.5	15.0	17.5	28.5	24.5	26.0
2	18.5	13.5	16.0	13.5	11.5	12.0	22.0	16.0	18.5	25.5	21.5	23.5
3	18.5	15.0	16.0	12.0	10.5	11.5	19.5	19.0	19.0	27.0	22.5	24.5
4	18.0	13.5	15.5	13.5	11.5	12.5	20.0	19.0	19.5	29.0	23.5	26.0
5	18.0	13.0	15.5	18.5	13.0	15.5	22.5	19.5	20.5	28.5	24.5	26.0
6	18.0	13.5	15.5	20.0	16.0	18.0	25.5	19.0	21.5	28.5	25.0	26.0
7	17.0	14.5	15.5	19.0	14.0	17.0	26.0	21.0	23.0	26.0	24.5	25.0
8	14.5	12.5	13.5	17.0	12.5	14.5	27.0	21.5	24.0	25.0	20.5	23.0
9	15.0	12.5	13.5	15.5	12.0	13.5	27.5	22.5	24.5	28.0	21.5	24.5
10	17.5	13.0	15.0	17.5	13.0	15.0	26.5	23.5	24.5	31.0	24.0	27.5
11	19.0	15.0	16.5	18.5	14.5	16.5	24.0	19.0	21.5	27.0	23.5	24.5
12	15.0	12.0	13.0	20.0	17.0	18.0	24.5	18.5	21.0	27.0	23.0	24.5
13	12.0	11.0	11.5	20.5	17.0	18.5	26.0	20.0	22.5	30.5	24.5	27.0
14	12.5	11.0	11.5	22.0	17.5	19.5	26.0	20.5	23.0	32.5	26.5	29.0
15	15.5	12.5	13.5	21.5	18.0	19.5	25.0	22.5	23.5	32.0	27.5	29.5
16	18.0	15.0	16.0	21.5	18.0	19.5	25.0	23.0	24.0	31.0	27.0	28.5
17	17.5	13.5	15.5	22.5	17.5	19.5	28.0	23.0	25.0	30.5	26.0	28.0
18	16.0	13.5	15.0	24.0	18.0	21.0	28.0	23.0	25.0	30.5	26.5	28.0
19	19.5	14.0	16.5	25.0	19.0	21.5	28.0	24.0	25.5	30.5	23.5	26.5
20	20.5	14.5	17.0	26.0	20.0	22.5	27.5	23.5	25.0	30.5	23.5	26.5
21	20.5	15.5	18.0	26.5	22.0	24.0	28.0	21.5	24.5	30.5	24.5	27.0
22	19.0	16.0	17.5	27.0	22.5	24.5	27.5	22.0	25.5	27.0	25.0	26.0
23	22.5	16.5	19.0	28.0	23.5	25.5	23.5	19.0	21.0	27.5	24.5	25.5
24	21.5	19.0	20.0	25.5	24.0	25.0	23.5	17.5	20.5	25.5	22.5	24.5
25	20.0	16.5	18.5	24.5	22.5	23.5	25.0	18.5	21.0	28.0	24.5	26.0
26	18.0	16.5	17.5	23.0	21.5	22.5	25.5	20.0	22.5	30.0	24.0	26.5
27	19.5	17.5	18.5	21.5	19.5	20.5	24.5	22.0	22.5	---	---	---
28	19.5	16.5	18.5	19.5	16.5	18.0	27.0	21.0	23.5	---	---	---
29	---	---	---	16.5	15.0	15.5	28.0	22.5	25.0	---	---	---
30	---	---	---	16.5	14.5	15.5	30.0	23.5	26.0	---	---	---
31	---	---	---	16.0	15.5	15.5	---	---	---	---	---	---
MONTH	22.5	11.0	16.0	28.0	10.5	18.5	30.0	15.0	22.5	32.5	20.5	26.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	31.5	25.5	28.0	33.5	28.5	30.5	32.0	27.0	29.0
2	32.0	27.0	29.0	32.0	27.0	29.5	31.0	28.5	29.5	33.0	26.5	29.5
3	31.0	26.5	28.5	33.0	28.5	30.0	33.5	28.5	30.5	34.0	27.5	30.5
4	31.5	27.0	28.5	29.5	25.5	27.5	35.0	28.5	31.5	34.0	27.5	30.5
5	32.5	27.0	29.5	32.0	27.5	29.5	35.0	29.0	31.5	34.0	28.0	30.5
6	32.5	27.5	29.5	33.0	28.5	30.5	34.0	29.0	31.0	34.0	28.0	30.5
7	30.5	28.0	29.0	31.5	28.5	30.0	33.5	29.5	31.0	33.5	28.0	30.5
8	32.5	27.5	29.5	32.5	28.0	30.0	34.0	29.0	30.5	30.5	27.0	29.0
9	33.0	28.0	30.0	34.0	28.0	30.5	33.0	28.0	30.5	33.0	26.5	29.5
10	32.5	28.5	30.0	34.5	28.5	31.0	33.5	28.0	30.5	32.0	27.0	29.5
11	---	---	---	34.5	29.0	31.5	33.0	27.5	30.0	32.5	27.0	29.5
12	---	---	---	35.0	29.0	31.5	31.5	28.5	29.5	33.0	27.0	29.5
13	30.0	18.5	24.5	35.0	29.0	32.0	32.5	28.5	30.0	33.0	27.5	30.0
14	30.5	24.5	27.0	34.0	29.0	31.5	33.0	28.5	30.0	30.0	28.0	29.0
15	30.5	25.0	27.5	34.0	28.5	31.0	32.5	28.5	30.0	31.5	27.0	29.0
16	30.0	25.5	27.5	34.0	29.0	31.5	33.0	28.0	30.0	32.5	27.0	29.5
17	30.0	25.0	27.5	34.5	29.5	31.5	33.0	27.5	30.0	33.0	28.0	30.5
18	30.5	26.0	28.0	35.0	29.5	32.0	33.0	28.0	30.0	33.0	28.0	30.0
19	28.5	26.5	27.5	35.0	29.5	32.0	33.0	27.5	30.0	33.5	28.5	30.5
20	30.5	25.0	27.5	35.0	29.0	31.5	34.0	27.5	30.5	30.0	24.0	26.0
21	33.0	25.5	29.0	33.5	29.0	31.0	34.0	28.5	31.0	26.5	24.0	25.0
22	33.0	25.0	29.0	34.5	28.5	31.0	33.5	29.0	31.0	24.5	19.5	21.0
23	34.0	26.5	30.0	34.0	28.5	31.0	32.5	29.5	30.5	24.0	18.5	20.5
24	34.0	27.5	30.5	33.5	28.0	30.5	32.5	28.0	30.0	26.0	20.0	22.5
25	34.0	28.0	30.5	34.0	28.0	30.5	31.5	28.5	30.0	27.5	21.5	24.0
26	34.0	28.0	30.5	35.0	28.5	31.5	33.5	28.5	30.5	29.5	22.5	25.5
27	34.0	28.0	30.5	35.5	28.0	31.5	33.5	28.5	31.0	30.0	24.0	27.0
28	34.0	26.5	30.5	36.0	28.5	32.0	34.0	28.5	31.0	31.0	26.5	28.0
29	26.5	22.5	24.0	34.0	28.5	31.0	33.5	28.5	31.0	30.5	26.0	28.0
30	28.5	24.0	26.0	32.0	28.5	30.0	33.5	28.5	30.5	30.5	25.5	28.0
31	---	---	---	32.0	27.5	29.5	30.5	28.0	29.0	---	---	---
MONTH	34.0	18.5	28.5	36.0	25.5	30.5	35.0	27.5	30.5	34.0	18.5	28.0
YEAR	36.0	10.5	23.0									



## GUADALUPE RIVER BASIN

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08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	11.1	7.8	9.2	12.2	8.1	9.6	10.6	8.2	9.7
2	---	---	---	11.1	7.4	9.0	10.1	8.7	9.2	11.3	9.2	10.1
3	---	---	---	11.7	7.3	8.8	8.9	7.6	8.1	10.7	8.7	9.9
4	---	---	---	10.3	7.0	8.2	10.3	7.5	8.2	11.5	9.5	10.5
5	11.3	6.2	8.1	9.5	7.5	8.2	11.0	6.7	8.3	11.4	9.6	10.4
6	11.2	6.3	8.0	9.9	7.6	8.5	9.9	6.9	8.0	13.7	9.9	11.2
7	10.0	6.3	7.6	10.8	7.5	8.8	10.8	6.5	8.0	14.1	9.4	11.1
8	8.9	7.3	8.3	11.1	7.2	8.6	10.8	6.8	8.1	15.8	9.3	11.3
9	8.7	8.1	8.4	11.1	7.2	8.5	8.7	6.5	7.6	15.3	8.3	10.8
10	8.2	7.6	8.0	12.2	7.3	9.3	10.9	6.8	9.1	14.2	8.3	10.0
11	8.3	7.7	8.0	12.6	7.9	9.6	11.0	8.2	9.6	14.0	8.1	9.8
12	8.7	7.7	8.1	12.2	8.0	9.4	12.7	8.6	10.0	13.6	8.1	9.7
13	9.1	7.6	8.2	11.8	7.6	9.1	10.9	8.1	9.4	15.5	8.2	10.4
14	9.3	7.6	8.1	10.1	7.2	8.3	10.7	8.3	9.3	16.1	8.4	10.9
15	8.5	7.5	8.1	10.5	7.1	8.4	9.0	8.3	8.7	16.1	8.8	10.9
16	8.3	7.0	7.6	11.0	8.2	9.2	8.7	7.8	8.3	15.8	8.3	10.4
17	8.9	6.5	7.4	11.5	8.1	9.3	8.7	6.6	8.0	10.3	7.8	8.6
18	8.0	6.5	7.1	11.3	7.5	8.8	9.7	8.0	8.7	12.5	6.9	9.4
19	7.9	5.6	7.0	10.9	7.4	8.7	11.5	8.6	9.2	12.6	8.5	9.8
20	6.1	4.8	5.5	11.4	7.2	8.5	12.1	8.3	9.4	15.0	8.6	9.9
21	5.8	4.9	5.4	11.9	7.5	9.1	13.3	8.3	9.9	15.7	8.8	9.9
22	6.4	5.0	5.7	11.7	7.4	9.1	12.1	8.5	9.7	15.5	8.4	10.3
23	7.8	5.9	6.6	9.8	7.6	8.5	13.1	8.9	10.0	16.3	8.7	11.4
24	9.9	5.4	7.4	9.7	7.6	8.8	11.6	8.7	9.6	11.0	9.2	9.8
25	---	---	---	11.7	8.0	9.5	14.1	9.2	10.6	11.0	8.8	9.4
26	---	---	---	11.6	7.5	8.9	15.1	9.1	10.5	11.2	7.9	9.2
27	---	---	---	11.2	6.9	8.5	13.2	8.9	9.6	14.1	7.0	9.5
28	9.7	7.5	8.8	10.7	7.3	8.6	11.0	9.6	10.6	14.8	7.0	9.6
29	9.6	8.0	8.8	11.7	8.2	9.4	10.4	9.4	10.1	13.1	7.3	9.4
30	9.2	8.1	8.7	12.1	8.4	9.7	10.1	8.9	9.6	16.0	8.7	11.0
31	10.2	8.3	8.7	---	---	---	10.8	8.5	9.6	15.8	8.7	10.6
MONTH	11.3	4.8	7.6	12.6	6.9	8.9	15.1	6.5	9.2	16.3	6.9	10.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	15.5	8.5	10.9	10.0	8.0	9.1	14.3	8.5	11.2	12.3	6.1	9.0
2	14.2	8.2	10.6	11.9	9.5	10.6	13.9	7.6	10.6	12.4	6.6	9.6
3	15.2	7.9	10.1	11.6	10.2	10.8	11.8	7.4	9.1	12.7	6.8	9.7
4	15.2	8.3	10.2	12.5	8.5	10.7	10.5	6.7	8.7	12.5	6.7	9.3
5	14.8	8.5	10.2	14.9	8.5	10.6	10.1	7.0	8.3	11.9	6.5	9.0
6	14.8	7.6	10.1	15.6	7.7	10.6	10.8	6.3	8.0	10.9	6.7	8.9
7	9.4	6.4	8.0	18.3	8.0	10.4	10.6	6.3	8.1	11.0	7.5	9.1
8	9.5	4.2	7.9	12.5	6.9	10.2	10.6	6.1	8.1	10.4	7.5	8.8
9	---	---	---	15.4	7.0	11.4	11.1	6.0	8.0	9.1	7.0	8.0
10	---	---	---	18.3	8.1	12.4	10.1	6.0	7.6	9.4	6.4	7.8
11	---	---	---	18.0	9.3	12.9	10.7	6.6	8.3	9.4	6.2	7.7
12	---	---	---	16.3	8.4	11.9	12.0	6.8	9.0	11.5	6.9	8.7
13	12.0	7.1	10.1	10.3	7.9	9.0	11.3	6.8	9.0	11.9	5.7	8.4
14	13.1	9.9	11.0	9.9	7.9	8.6	11.5	6.6	8.8	11.5	5.1	7.9
15	13.8	9.0	10.9	11.2	7.6	9.1	10.7	6.5	8.3	10.7	4.6	7.4
16	13.7	7.5	10.1	12.7	7.4	9.6	10.3	6.4	7.8	10.2	4.9	7.2
17	15.6	6.2	10.3	14.7	7.6	10.4	10.7	6.1	8.1	10.4	4.9	7.3
18	12.0	6.1	9.4	16.0	7.4	11.0	10.6	6.1	8.2	9.3	5.4	7.0
19	15.5	8.4	10.8	16.2	6.9	10.7	10.5	5.9	7.9	10.2	5.0	7.2
20	15.2	8.1	10.1	15.3	6.7	10.2	10.6	5.8	8.1	9.2	5.0	6.9
21	14.8	6.8	10.3	13.7	6.0	8.8	12.0	6.6	8.8	9.7	4.7	7.0
22	12.7	7.0	9.4	13.2	5.6	8.3	10.9	6.8	8.5	8.9	4.8	6.9
23	14.4	6.9	10.1	12.1	5.1	7.7	13.3	7.4	10.3	8.2	5.0	6.8
24	12.6	6.5	8.6	10.8	5.2	7.2	13.3	8.9	10.8	8.5	5.8	7.4
25	10.4	6.2	8.4	10.9	5.6	7.7	13.3	8.7	10.7	7.5	6.1	6.8
26	9.5	8.0	8.5	8.9	5.7	7.1	13.0	8.2	10.3	9.3	5.5	7.3
27	8.7	7.6	8.1	13.3	6.5	9.4	12.7	7.9	9.9	---	---	---
28	9.3	7.5	8.3	13.2	7.4	9.9	12.7	8.0	10.0	---	---	---
29	---	---	---	14.6	8.7	11.5	12.8	7.4	9.7	---	---	---
30	---	---	---	14.9	9.2	11.9	12.6	7.0	9.3	---	---	---
31	---	---	---	13.9	9.0	11.2	---	---	---	---	---	---
MONTH	15.6	4.2	9.7	18.3	5.1	10.0	14.3	5.8	9.0	12.7	4.6	8.0



## 08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX

LOCATION.--Lat 29°30'57", long 98°25'51", Bexar County, Hydrologic Unit 12100301, on right bank at downstream side of eastbound bridge on Interstate Highway 410 in San Antonio, 1.0 mi west of Northeast School, 1.1 mi upstream from Perrin-Beitel Creek, and 2.7 mi east of San Antonio International Airport.

DRAINAGE AREA.--137 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1960 to current year.

GAGE.--Water-stage recorder with concrete control. Datum of gage is 684.60 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. There are some diversions for irrigation upstream from gage. Flow is affected at times by discharge from the flood-detention pools of eleven floodwater-retarding structures with a combined detention capacity of 26,770 acre-ft. These structures control runoff from 74.6 mi<sup>2</sup> above this station. Recording rain gage at station with two additional recording rain gages in the watershed.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, 23 to 24 ft in October 1913. Flood in September 1921 reached a stage of 18 ft, and flood of Sept. 27, 1946, reached a stage of 18.2 ft, and are the second and third highest since 1899.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.15	.19	4.4	.00	.10	.00	.00	10	7.8	.00	.00
2	.00	.18	1.0	3.0	1.8	.13	.00	.00	8.3	7.1	.05	.00
3	.00	.18	4.0	3.1	3.2	.47	.00	.00	1.3	6.7	.00	.00
4	.00	.27	.62	4.4	.83	.44	2.7	.00	.37	6.4	.00	.00
5	.00	3.5	.28	4.5	.12	.21	1.7	.00	.15	.96	.00	.00
6	.00	4.4	3.2	3.7	.04	.09	1.0	.00	.07	.51	.00	.00
7	24	3.1	3.6	.86	.00	1.6	.42	.00	.03	.42	.00	.07
8	826	.64	3.6	.39	.00	.58	.10	18	.00	.18	.00	.00
9	17	.26	3.0	.26	.00	.17	.01	1.0	.00	.10	.00	.00
10	8.6	2.7	.54	.16	.00	.10	.03	.15	.00	.11	.00	.00
11	13	3.6	.12	.14	.00	.07	.00	.01	216	.06	.00	.00
12	2.0	.91	.07	.12	.00	.00	.00	.00	19	.00	.19	.04
13	.60	.31	.01	.10	.02	18	.00	.01	9.8	.00	.00	.00
14	.54	.18	.34	.06	.00	1.4	.00	.00	8.7	.00	.00	.00
15	6.2	.10	2.4	.00	.00	.27	.00	.02	8.9	.00	.00	.00
16	1.5	.04	2.5	.01	.01	.14	.00	.03	8.5	.00	.00	.00
17	.67	.07	.57	.00	.00	.08	.00	.00	1.7	.00	.00	.00
18	146	.05	.21	.00	.00	.07	.10	.00	.35	.00	.00	.00
19	45	.04	.15	.00	.00	.07	.00	.00	.33	.00	.00	.00
20	13	.04	.13	.00	.00	.01	.00	.00	.36	.00	.00	514
21	11	.02	.06	.00	.00	.00	.00	.00	.14	.00	.00	27
22	2.3	2.5	.00	.00	.00	.00	.00	.00	.03	.00	.00	12
23	.70	3.4	1.9	.00	.01	.00	.00	.00	.01	.00	.24	1.7
24	.44	.96	3.8	.00	.03	.00	.00	6.9	.01	.00	.80	.63
25	113	.28	.97	.05	7.5	.00	.00	.79	.00	.00	24	.38
26	15	.11	.26	.02	6.9	.01	.00	.08	.21	.00	.58	.20
27	4.9	.09	.45	.00	.51	.00	.00	11	.00	.00	.06	.14
28	4.5	.01	59	.00	.18	.00	.00	2.2	.37	.00	1.6	.10
29	4.0	2.3	19	.00	---	.00	.00	.59	69	.06	7.7	.07
30	1.3	1.1	5.3	.00	---	.00	.00	56	28	.03	.56	.06
31	.36	---	4.9	.00	---	.02	---	49	---	.00	.10	---
TOTAL	1261.61	31.49	122.17	25.27	21.15	24.03	6.06	145.78	391.63	30.43	35.88	556.39
MEAN	40.7	1.05	3.94	.82	.76	.78	.20	4.70	13.1	.98	1.16	18.5
MAX	826	4.4	59	4.5	7.5	18	2.7	56	216	7.8	24	514
MIN	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	2500	62	242	50	42	48	12	289	777	60	71	1100

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

	7.43	5.89	8.97	8.31	5.73	5.51	10.0	41.4	21.2	9.14	2.77	12.5
MEAN	7.43	5.89	8.97	8.31	5.73	5.51	10.0	41.4	21.2	9.14	2.77	12.5
MAX	40.7	74.7	155	173	71.0	93.7	116	576	151	153	36.6	187
(WY)	1995	1978	1992	1968	1992	1992	1991	1993	1987	1973	1974	1973
MIN	.001	.008	.000	.061	.031	.000	.000	.000	.006	.000	.000	.000
(WY)	1992	1992	1962	1962	1989	1962	1984	1961	1984	1984	1986	1960

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1960 - 1995

ANNUAL TOTAL	2998.83	2651.89	
ANNUAL MEAN	8.22	7.27	
HIGHEST ANNUAL MEAN			11.6
LOWEST ANNUAL MEAN			57.1
HIGHEST DAILY MEAN			.27
LOWEST DAILY MEAN	826	Oct 8	8680
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 2	.00
INSTANTANEOUS PEAK FLOW	.00	Jan 2	.00
INSTANTANEOUS PEAK STAGE			4080
ANNUAL RUNOFF (AC-FT)	5950		8.63
10 PERCENT EXCEEDS	12		7.0
50 PERCENT EXCEEDS	.26		.07
90 PERCENT EXCEEDS	.00		.00

## GUADALUPE RIVER BASIN

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: November 1971 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: May 1976 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
OCT 18...	1620	214	342	6.9	22.5	22	59	5.8	69	--	K20000	
DEC 28...	0950	52	286	7.5	11.0	25	60	9.8	90	4.0	2400	
MAY 30...	1020	35	177	8.1	22.5	550	320	6.3	75	6.0	K20000	
JUN 29...	1015	96	160	8.3	23.0	570	47	7.1	84	5.0	42000	
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY, WAT DIS FIX END FIELD CAC03 (MG/L)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	
OCT 18...	K15000	--	--	--	--	--	--	--	5.2	120	41	
DEC 28...	--	100	22	37	2.9	10	0.4	6.0	82	32	11	
MAY 30...	K15000	69	14	25	1.6	5.6	0.3	4.5	55	13	5.7	
JUN 29...	50000	63	5	23	1.3	5.3	0.3	4.3	58	10	6.6	
DATE		FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 18...	0.30	--	--	105	14	91	--	--	--	--	--	--
DEC 28...	0.30	5.7	157	76	16	60	0.540	--	<0.010	0.540	0.540	0.540
MAY 30...	0.30	5.8	97	346	38	308	0.480	0.480	0.020	0.500	0.500	0.500
JUN 29...	0.20	5.8	93	344	30	314	0.320	0.320	0.020	0.340	0.340	0.340
DATE		NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 18...	--	--	--	--	--	--	--	12	2	--	--	--
DEC 28...	0.040	0.26	0.30	0.080	0.070	0.21	7.8	--	--	--	--	--
MAY 30...	0.070	0.33	0.40	0.080	0.080	0.25	19	--	--	--	--	--
JUN 29...	0.030	0.27	0.30	0.100	0.110	0.34	12	2	21	<0.5	<1.0	<1.0
DATE		CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
OCT 18...	--	--	--	--	--	--	--	--	<0.1	--	--	<1
DEC 28...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 29...	<5	<3	<10	<3	<10	23	<1	<0.1	<10	<10	<10	<1

GUADALUPE RIVER BASIN

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08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)
OCT 18...	--	--	--	--	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
DEC 28...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
JUN 29...	<1.0	100	<6	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010
DATE	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAM, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)
OCT 18...	0.03	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.01	<0.01
DEC 28...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
JUN 29...	0.26	<0.010	<0.02	<0.010	<0.010	<0.02	<0.010	<0.010	<0.010	0.06	<0.01
DATE	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT 18...	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01
DEC 28...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
JUN 29...	<0.02	<0.01	<0.02	<0.1	<0.02	<0.01	<1	<0.02	0.09	<0.01	<0.01

## 08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX

LOCATION.--Lat 29°21'25", Long 98°24'45", Bexar County, Hydrologic Unit 12100301, on right bank at upstream side of bridge on Loop 13 at San Antonio, 1.4 mi east of Brooks Air Force Base, and 3.3 mi upstream from Rosillo Creek.

DRAINAGE AREA.--189 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 526.95 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Several small diversions above station. A recording rain gage is located in watershed above station. Most of low flow comes from artesian wells and springs within the city of San Antonio. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Sept. 27, 1946, and Aug. 15, 1960, were about equal magnitude. Flood of Aug. 15, 1960, reached a stage of 26.8 ft, from floodmarks. Maximum stage since at least 1941, that of Sept. 27, 1973.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	9.0	8.3	15	8.2	10	9.1	7.6	57	47	8.6	5.5
2	4.3	8.4	8.7	13	8.3	9.4	8.9	6.8	31	25	9.0	5.3
3	4.3	7.9	15	13	8.1	13	8.9	6.8	21	21	19	4.5
4	4.0	8.1	16	12	8.1	13	11	7.3	15	71	8.0	3.8
5	4.2	40	12	12	8.3	10	35	6.9	11	30	5.9	3.5
6	4.0	19	10	13	8.9	9.2	27	7.0	9.5	18	5.5	3.5
7	4.5	11	9.5	12	8.3	15	13	6.8	8.9	22	5.7	4.8
8	2290	10	11	11	8.3	16	10	172	8.7	13	7.0	20
9	167	8.0	13	10	8.0	11	8.7	46	8.4	11	6.5	9.8
10	44	7.1	12	9.2	7.8	8.9	8.0	11	8.4	10	5.4	6.3
11	29	7.0	12	9.2	7.8	8.1	15	7.0	628	10	4.7	4.3
12	27	9.0	10	10	7.6	8.1	9.8	5.8	181	9.0	5.6	4.7
13	19	8.7	9.3	12	8.7	234	8.0	5.7	36	8.4	12	5.0
14	15	7.7	9.6	10	10	42	7.6	5.2	23	8.2	9.6	15
15	71	6.7	24	8.9	10	17	7.6	4.9	20	8.3	6.0	16
16	41	6.9	45	8.5	9.2	13	7.7	4.5	18	7.9	5.6	8.1
17	20	7.0	17	8.5	8.6	11	7.8	4.6	17	7.8	5.1	6.1
18	180	7.6	10	8.6	8.2	11	7.6	6.0	14	7.4	5.4	4.6
19	764	8.0	8.3	8.1	7.5	10	8.6	6.2	17	7.4	5.8	4.7
20	49	8.1	7.9	7.8	7.3	9.5	10	4.2	30	6.9	5.8	1040
21	27	7.5	7.0	8.3	7.5	8.8	7.8	3.6	14	7.0	5.0	252
22	22	7.8	6.7	8.4	7.5	8.9	7.5	3.3	9.7	7.0	5.2	95
23	15	8.3	7.4	7.9	7.6	8.9	7.3	3.7	8.3	6.7	10	31
24	11	11	7.3	7.5	12	8.8	7.6	142	7.4	6.3	12	14
25	756	12	7.3	8.2	73	9.2	6.9	35	7.3	5.7	38	9.4
26	102	9.9	8.7	10	179	9.1	7.3	10	6.6	5.8	24	6.9
27	24	9.3	8.5	12	22	9.6	7.6	270	6.4	5.8	9.1	6.2
28	19	8.8	288	9.9	13	9.1	7.4	59	7.1	5.7	5.2	5.7
29	15	8.8	115	9.0	---	8.9	7.4	15	1410	5.6	6.0	5.6
30	13	7.9	28	8.6	---	9.2	7.5	711	245	5.9	17	5.7
31	11	---	17	8.2	---	9.3	---	509	---	7.3	8.1	---
TOTAL	4760.6	296.5	769.5	309.8	488.8	579.0	303.6	2093.9	2884.7	418.1	285.8	1607.0
MEAN	154	9.88	24.8	9.99	17.5	18.7	10.1	67.5	96.2	13.5	9.22	53.6
MAX	2290	40	288	15	179	234	35	711	1410	71	38	1040
MIN	4.0	6.7	6.7	7.5	7.3	8.1	6.9	3.3	6.4	5.6	4.7	3.5
AC-FT	9440	588	1530	614	970	1150	602	4150	5720	829	567	3190

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

	MEAN	40.8	39.1	43.4	43.8	43.0	35.2	43.2	85.3	69.3	36.2	25.5	45.2
MAX	154	146	376	379	285	206	188	358	349	234	176	400	
(WY)	1995	1978	1992	1968	1992	1992	1977	1972	1987	1973	1974	1973	
MIN	8.52	6.35	9.53	9.50	9.85	10.6	7.80	5.08	1.64	2.07	1.87	5.65	
(WY)	1992	1992	1964	1967	1967	1971	1984	1967	1967	1984	1963	1963	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1960 - 1995

ANNUAL TOTAL	16699.2	14797.3	45.8	
ANNUAL MEAN	45.8	40.5		
HIGHEST ANNUAL MEAN			149	1992
LOWEST ANNUAL MEAN			12.7	1967
HIGHEST DAILY MEAN	2290	Oct 8	8080	Sep 27 1973
LOWEST DAILY MEAN	2.1	Aug 18	.00	Aug 13 1967
ANNUAL SEVEN-DAY MINIMUM	2.6	Aug 15	.20	Aug 10 1967
INSTANTANEOUS PEAK FLOW			4420	Sep 27 1973
INSTANTANEOUS PEAK STAGE			20.16	Sep 27 1973
ANNUAL RUNOFF (AC-FT)	33120	29350	33190	
10 PERCENT EXCEEDS	74	37	59	
50 PERCENT EXCEEDS	11	8.9	20	
90 PERCENT EXCEEDS	4.2	5.6	7.7	



## 08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1968 to September 1973. Biological analyses May 1989 to September 1995 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1987 to current year.

pH: January 1987 to current year.

WATER TEMPERATURE: January 1987 to current year.

DISSOLVED OXYGEN: January 1987 to current year.

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument or probe fouling and these days were deleted from the record. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1290 microsiemens Aug. 23, 1994; minimum, 39 microsiemens Nov. 9, 1990.

pH: Maximum, 8.7 units on Dec. 29, 1991; minimum, 7.3 units on several days during 1988, 1990, 1992, and 1994.

WATER TEMPERATURE: Maximum, 31.0°C July 17-20, 1988, July 30, 1993; minimum, 0.0°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 16.7 mg/L Jan. 27, 1988; minimum, 0.8 mg/L Oct. 28, 1991.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1220 microsiemens Feb. 14; minimum, 110 microsiemens Oct. 25.

pH: Maximum, 8.2 units May 24; minimum, 7.4 units Jun. 1.

WATER TEMPERATURE: Maximum, 29.0°C July 23; minimum, 9.0°C on Jan. 5, 6.

DISSOLVED OXYGEN: Maximum, 12.3 mg/L Mar. 10; minimum, 3.0 mg/L Aug. 18.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 18-19	2040	1520	220	7.7	--	--	--	--	--	70	5.5	--
NOV 01...	1415	8.9	813	7.8	18.0	14	7.3	7.2	77	--	2.8	270
DEC 06...	1425	10	1040	7.8	18.0	20	3.7	6.8	73	--	1.0	97
DEC 28-28	0943	461	457	7.6	--	--	--	--	--	35	4.7	--
FEB 21...	1220	7.4	1050	7.8	14.5	--	--	9.1	90	17	1.0	100
22...	0930	7.5	1050	7.8	14.5	13	4.3	9.0	90	--	1.1	120
MAY 05...	0920	5.6	1090	8.1	23.0	3	7.3	7.0	83	--	6.1	--
JUN 01...	0928	54	388	7.7	24.0	160	52	7.0	85	--	3.9	1500
JUN 11-11	0802	930	390	7.9	--	--	--	--	--	45	6.9	--
28...	1045	9.7	903	8.0	26.5	37	11	5.6	72	--	1.6	220
JUL 28...	0930	2.7	1050	7.8	27.0	13	5.7	4.7	59	--	1.1	--
AUG 08...	0801	--	--	--	--	--	--	--	--	--	--	--
15...	1050	5.4	875	7.9	28.0	20	5.0	3.3	43	--	1.3	180
SEP 07...	0945	2.2	930	7.9	26.5	12	4.2	5.4	68	--	1.1	--
07...	0950	2.2	930	7.9	26.5	13	4.1	5.4	68	--	1.1	--

## GUADALUPE RIVER BASIN

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 18-19	--	87	11	30	2.9	7.6	0.4	5.0	76	17	8.2	--
NOV 01...	500	290	52	93	13	53	1	4.6	240	76	71	0.20
DEC 06...	120	350	33	110	19	74	2	4.7	320	89	88	0.30
DEC 28-28	--	170	23	55	8.1	23	0.8	3.9	150	36	26	--
FEB 21...	48	350	65	110	19	86	2	3.5	290	99	110	--
FEB 22...	91	350	64	110	19	90	2	3.4	290	100	110	0.30
MAY 05...	--	370	20	120	17	88	2	3.6	350	87	110	0.30
JUN 01...	3500	130	23	45	4.5	17	0.6	5.6	110	28	19	0.20
JUN 11-11	--	150	25	49	6.2	21	0.8	3.8	120	30	23	--
JUN 28...	650	300	51	100	13	67	2	2.9	250	79	84	0.30
JUL 28...	--	340	55	110	16	92	2	4.0	290	84	110	0.30
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	390	290	56	93	13	71	2	4.2	230	64	77	0.30
SEP 07...	--	290	50	94	13	78	2	3.7	240	80	110	0.30
SEP 07...	--	300	59	98	13	78	2	3.8	240	80	100	0.30
DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	RESIDUE VOLATILE, SUS- PENDED (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
OCT 18-19	--	145	131	564	--	--	0.480	--	--	0.480	0.480	0.030
NOV 01...	14	--	470	11	8	3	0.670	0.670	0.020	0.690	0.690	0.040
DEC 06...	17	--	596	11	14	0	0.370	--	<0.010	0.370	0.370	<0.015
DEC 28-28	--	258	247	226	--	--	0.530	--	--	0.530	0.530	0.040
FEB 21...	--	606	594	12	--	--	0.340	--	--	0.340	0.340	<0.015
FEB 22...	6.0	--	613	7	3	4	0.280	--	<0.010	0.280	0.280	0.030
MAY 05...	18	--	657	6	<1	--	0.653	0.653	0.007	0.660	0.660	0.070
JUN 01...	10	--	197	79	7	72	0.480	0.480	0.020	0.500	0.500	0.090
JUN 11-11	--	212	213	314	--	--	0.440	--	--	0.440	0.440	0.170
JUN 28...	15	--	516	22	4	18	0.380	--	<0.010	0.380	0.380	0.040
JUL 28...	19	--	609	10	13	0	0.406	0.406	0.004	0.410	0.410	0.041
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	16	--	478	6	<1	--	0.270	--	<0.010	0.270	0.270	0.060
SEP 07...	15	--	538	2	5	0	0.336	0.336	0.004	0.340	0.340	0.030
SEP 07...	15	--	533	8	10	0	0.327	0.327	0.003	0.330	0.330	0.028

GUADALUPE RIVER BASIN

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08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)
OCT 18-19	2.0	1.5	0.35	0.38	1.5	0.580	0.100	--	--	22	<0.010	<1
NOV 01...	--	--	0.26	0.30	--	--	0.050	0.050	0.15	4.4	--	--
DEC 06...	--	--	--	0.20	--	--	0.020	0.030	0.09	5.2	--	--
DEC 28-28	1.3	0.76	0.17	0.21	0.80	0.270	0.060	--	--	12	<0.010	1
FEB 21...	0.54	0.20	--	0.21	0.20	0.020	<0.010	--	--	5.1	<0.010	3
FEB 22...	--	--	--	<0.20	--	--	<0.010	<0.010	--	3.3	--	--
MAY 05...	0.96	0.23	--	--	0.30	0.073	--	0.060	0.18	4.9	<0.010	--
JUN 01...	--	--	0.41	0.50	--	--	0.110	0.100	0.31	7.8	--	--
JUN 11-11	1.7	1.1	0.26	0.43	1.3	0.390	0.100	--	--	15	<0.010	<1
JUN 28...	--	--	--	<0.20	--	--	0.040	0.050	0.15	4.7	--	--
JUL 28...	0.71	0.26	--	--	0.30	0.049	--	0.032	0.10	3.4	<0.010	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	<0.20	--	--	0.040	0.040	0.12	7.3	--	--
SEP 07...	0.64	0.27	--	--	0.30	0.040	--	0.028	0.09	13	<0.010	--
SEP 07...	0.63	0.27	--	--	0.30	0.041	--	0.028	0.09	9.6	<0.010	--
DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, FM BOT- TOM MA- TERIAL (UG/G AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 18-19	--	6	--	--	--	--	--	<10	--	<1	--	--
NOV 01...	--	--	2	--	--	92	--	--	<0.5	--	<1.0	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 28-28	--	3	--	--	--	--	--	<10	--	<1	--	--
FEB 21...	--	<1	--	--	--	--	--	<10	--	<1	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	230	2	--	6	100	--	80	--	--	<1	--	1
JUN 01...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-11	--	4	--	--	--	--	--	<10	--	<1	--	--
JUN 28...	--	--	2	--	--	97	--	--	<0.5	--	<1.0	--
JUL 28...	150	2	--	7	<100	--	1200	--	--	<1	--	1
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 07...	30	2	--	6	100	--	100	--	--	<1	--	<1
SEP 07...	<10	2	--	6	100	--	50	--	--	<1	--	<1

## GUADALUPE RIVER BASIN

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	CHROMIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)
OCT 18-19	11	--	--	--	11	--	--	--	--	36	--	--
NOV 01...	--	<5	--	<3	--	<10	--	--	13	--	<10	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 28-28	6	--	--	--	7	--	--	--	--	15	--	--
FEB 21...	<1	--	--	--	1	--	--	--	--	<1	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	<1	--	7	--	<1	--	20	280	--	<1	--	20
JUN 01...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-11	6	--	--	--	8	--	--	--	--	17	--	--
JUN 28...	--	<5	--	<3	--	<10	--	--	<3	--	<10	--
JUL 28...	<1	--	6	--	1	--	10	160	--	<1	--	80
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 07...	<1	--	10	--	<1	--	10	<10	--	<1	--	20
SEP 07...	<1	--	10	--	<1	--	10	<10	--	<1	--	20

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)
OCT 18-19	--	--	0.40	--	--	--	11	--	<1	--	<1	--
NOV 01...	36	40	--	<0.1	--	<10	--	<10	--	<1	--	<1.0
DEC 06...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 28-28	--	--	<0.10	--	--	--	6	--	<1	--	<1	--
FEB 21...	--	--	<0.10	--	--	--	<1	--	<1	--	<1	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	--	--	<0.10	--	0.02	--	2	--	<1	--	<1	--
JUN 01...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-11	--	--	<0.10	--	--	--	6	--	<1	--	<1	--
JUN 28...	52	16	--	<0.1	--	<10	--	<10	--	<1	--	<1.0
JUL 28...	--	--	<0.10	--	0.02	--	<1	--	<1	--	<1	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 07...	--	--	<0.10	--	0.03	--	1	--	<1	--	<1	--
SEP 07...	--	--	<0.10	--	0.02	--	1	--	<1	--	<1	--

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]



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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## GUADALUPE RIVER BASIN

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

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. 1994	4760.6	279	158	2030	15	193	19	241	120
NOV. 1994	296.5	891	506	405	83	66	79	63	320
DEC. 1994	769.5	658	374	776	55	115	55	114	240
JAN. 1995	309.8	931	529	443	90	76	84	70	320
FEB. 1995	488.8	725	412	543	66	88	63	84	260
MAR. 1995	579.0	585	332	519	44	69	46	72	220
APR. 1995	303.6	935	532	436	89	73	84	69	330
MAY 1995	2093.9	370	209	1180	23	131	27	150	150
JUNE 1995	2884.7	361	204	1590	21	161	25	194	150
JULY 1995	418.1	675	383	433	56	63	56	63	250
AUG. 1995	285.8	917	521	402	87	67	82	63	320
SEPT 1995	1607.0	390	221	959	23	101	27	119	160
TOTAL	14797.3	**	**	9700	**	1200	**	1300	**
WTD.AVG.	41	429	243	**	30	**	33	**	170

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	844	830	838	815	766	793	1080	1060	1070	581	538	561
2	861	844	851	864	815	845	1080	1050	1080	627	581	603
3	877	861	868	914	864	890	1160	1050	1090	675	627	653
4	887	877	883	926	905	916	1050	989	1000	720	675	700
5	899	885	894	926	598	765	1020	996	1010	765	720	746
6	920	897	912	756	623	706	1060	1020	1040	778	764	769
7	926	905	921	797	621	698	1090	1060	1070	811	778	792
8	905	112	187	814	797	809	1100	1080	1090	853	811	834
9	---	---	e300	821	805	810	1090	1010	1050	903	853	878
10	---	---	e400	888	821	856	1020	1010	1010	942	903	921
11	---	---	e500	918	887	908	1030	984	1020	980	940	959
12	---	---	e600	911	860	887	1040	1020	1030	1040	828	999
13	---	---	e675	860	831	840	1070	1040	1050	1050	989	1030
14	---	---	e700	881	836	860	1080	1070	1070	1070	875	1000
15	701	525	605	907	881	896	1120	880	1050	1140	907	1020
16	615	490	563	931	907	917	880	740	808	1200	999	1130
17	673	615	637	943	931	939	761	708	725	1050	1010	1020
18	737	214	640	944	933	938	836	761	803	1070	1050	1070
19	301	142	216	955	943	947	874	836	856	1080	1070	1070
20	432	301	377	960	949	954	903	874	889	1090	1070	1080
21	513	432	479	980	960	971	924	901	910	1090	1070	1080
22	577	513	543	1020	972	988	948	924	937	1090	1070	1080
23	668	577	619	1000	992	996	946	940	943	1090	1070	1080
24	727	668	700	1070	996	1030	945	929	936	1090	1080	1080
25	741	110	331	1020	994	1010	940	938	939	1110	1080	1100
26	406	268	341	1030	1020	1030	938	930	933	1160	1100	1120
27	525	406	472	1040	1030	1040	935	923	929	1120	1050	1080
28	572	525	549	1060	1040	1050	923	234	508	1060	1040	1050
29	641	569	601	1060	1050	1060	327	220	273	1070	1060	1060
30	725	641	677	1070	1060	1060	465	327	403	1070	1050	1060
31	766	725	742	---	---	---	538	465	505	1070	1050	1060
MONTH	926	110	601	1070	598	914	1160	220	904	1200	538	958

e Estimated

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	1080	1060	1070	489	448	469	1030	1020	1020	1060	1060	1060
2	1080	1070	1070	530	489	510	1050	1030	1040	1060	1060	1060
3	1080	1060	1070	615	511	551	1070	1050	1050	1080	1060	1070
4	1070	1050	1060	560	494	524	1140	1060	1080	1090	1080	1080
5	1060	1050	1060	610	559	576	1140	840	938	1100	1080	1090
6	1060	1050	1060	663	610	637	869	844	854	1100	1100	1100
7	1060	1050	1050	695	650	673	877	846	860	1110	1100	1100
8	1070	1050	1060	667	605	616	883	866	871	1110	368	689
9	1080	1070	1070	664	618	642	911	883	899	456	351	373
10	1080	1070	1080	705	664	686	917	909	914	473	383	429
11	1080	1070	1080	732	705	720	910	751	854	565	473	523
12	1080	1070	1070	742	722	731	752	723	738	656	565	611
13	1070	1070	1070	740	218	417	840	752	790	739	656	704
14	1220	1070	1130	432	375	398	892	840	869	764	739	755
15	1090	1050	1070	539	432	487	903	892	897	791	763	777
16	1070	1050	1060	624	539	582	919	903	910	829	791	812
17	1070	1050	1060	675	624	654	939	919	930	869	829	848
18	1070	1060	1060	749	671	711	947	939	944	984	866	900
19	1070	1060	1070	800	749	777	955	946	950	984	900	908
20	1070	1060	1060	828	799	813	966	931	957	911	849	875
21	1060	1060	1060	888	828	859	931	885	900	894	848	863
22	1100	1060	1080	924	888	907	959	907	935	962	894	938
23	1110	1100	1100	964	924	946	993	959	979	998	961	984
24	1120	1100	1100	994	963	979	1010	993	1000	1000	324	576
25	1100	445	873	1010	994	1000	1020	1010	1020	511	395	473
26	593	240	340	1010	987	997	1030	1020	1020	516	490	498
27	391	322	355	1060	1000	1030	1040	1030	1040	552	163	368
28	448	391	418	1030	1010	1020	1040	1020	1030	394	250	345
29	---	---	---	1020	1010	1020	1040	1040	1040	488	394	444
30	---	---	---	1040	1020	1030	1060	1040	1050	498	173	254
31	---	---	---	1030	1020	1030	---	---	---	306	181	234
MONTH	1220	240	989	1060	218	742	1140	723	946	1110	163	734
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	382	306	355	---	---	400	1060	1050	1060	714	628	664
2	465	382	424	---	---	440	1060	1010	1040	741	696	721
3	531	465	492	---	---	490	1040	763	883	781	741	

## GUADALUPE RIVER BASIN

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.8	7.7	7.7	7.8	7.8	7.8	7.9	7.8	7.8	7.6	7.5	7.6
2	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.6	7.5	7.5
3	7.8	7.7	7.8	7.9	7.8	7.9	7.8	7.7	7.8	7.6	7.6	7.6
4	7.8	7.6	7.7	7.9	7.9	7.9	7.8	7.8	7.8	7.7	7.6	7.6
5	7.8	7.6	7.7	7.9	7.7	7.8	7.8	7.8	7.8	7.7	7.6	7.7
6	7.8	7.7	7.8	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.7	7.7
7	7.8	7.7	7.8	7.8	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.7
8	8.1	7.6	7.9	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.7
9	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7
10	---	---	---	7.9	7.8	7.8	7.9	7.8	7.8	7.8	7.7	7.7
11	---	---	---	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.7	7.7
12	---	---	---	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.7	7.8
13	---	---	---	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.7	7.8
14	---	---	---	7.8	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.8
15	7.9	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.8
16	7.8	7.6	7.7	7.8	7.8	7.8	7.8	7.7	7.8	7.9	7.8	7.9
17	7.7	7.6	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.9	7.7	7.8
18	7.9	7.7	7.7	7.8	7.7	7.8	7.8	7.7	7.8	8.0	7.8	7.9
19	7.9	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7	8.1	7.9	8.0
20	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7	8.1	8.0	8.0
21	7.7	7.6	7.6	7.8	7.7	7.8	7.7	7.7	7.7	8.1	8.0	8.0
22	7.7	7.7	7.7	7.8	7.7	7.8	7.8	7.7	7.8	8.1	7.9	8.0
23	7.7	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	8.1	8.0	8.0
24	7.8	7.7	7.7	7.9	7.8	7.8	7.8	7.8	7.8	8.1	8.0	8.0
25	8.1	7.7	7.8	7.9	7.9	7.9	7.8	7.8	7.8	8.0	8.0	8.0
26	7.7	7.6	7.7	7.9	7.8	7.8	7.9	7.8	7.9	8.0	7.9	8.0
27	7.7	7.6	7.6	7.9	7.8	7.8	7.9	7.7	7.8	8.1	7.9	8.0
28	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.6	7.7	8.0	7.9	7.9
29	7.7	7.7	7.7	7.9	7.8	7.9	7.6	7.6	7.6	8.0	7.9	7.9
30	7.8	7.7	7.7	7.9	7.9	7.9	7.6	7.5	7.5	8.0	7.9	7.9
31	7.8	7.8	7.8	---	---	---	7.6	7.5	7.5	8.0	7.9	7.9
MONTH	8.1	7.6	7.7	7.9	7.6	7.8	7.9	7.5	7.8	8.1	7.5	7.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.0	7.9	7.9	7.6	7.6	7.6	7.9	7.9	7.9	8.0	8.0	8.0
2	8.0	7.9	7.9	7.7	7.6	7.7	7.9	7.9	7.9	8.0	8.0	8.0
3	8.0	7.9	7.9	7.8	7.7	7.7	7.9	7.9	7.9	8.0	8.0	8.0
4	8.0	7.9	7.9	7.8	7.7	7.7	7.9	7.8	7.9	8.0	8.0	8.0
5	8.0	7.9	7.9	7.8	7.7	7.7	8.0	7.9	7.9	8.0	8.0	8.0
6	8.1	7.9	8.0	7.8	7.7	7.8	7.9	7.9	7.9	8.0	8.0	8.0
7	8.1	8.0	8.0	8.0	7.7	7.8	7.9	7.9	7.9	8.0	8.0	8.0
8	8.1	8.0	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.2	7.6	7.9
9	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.9	7.9	7.7	7.6	7.6
10	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.6	7.6	7.6
11	8.0	7.9	8.0	8.0	7.8	7.9	7.9	7.8	7.9	7.6	7.6	7.6
12	8.0	7.9	8.0	7.9	7.8	7.8	7.9	7.8	7.8	7.7	7.6	7.7
13	8.0	8.0	8.0	8.1	7.8	7.9	7.9	7.8	7.8	7.8	7.7	7.7
14	8.0	7.9	8.0	7.8	7.5	7.6	7.9	7.9	7.9	7.8	7.8	7.8
15	7.9	7.9	7.9	7.6	7.5	7.5	7.9	7.9	7.9	7.8	7.8	7.8
16	8.0	7.9	7.9	7.6	7.5	7.6	7.9	7.9	7.9	7.9	7.8	7.9
17	8.0	7.9	7.9	7.7	7.6	7.6	7.9	7.9	7.9	7.9	7.9	7.9
18	8.0	7.9	7.9	7.7	7.6	7.7	7.9	7.8	7.9	8.0	7.7	7.9
19	8.0	7.8	7.9	7.8	7.6	7.7	7.9	7.8	7.9	7.9	7.8	7.9
20	7.9	7.8	7.8	7.8	7.7	7.8	7.9	7.9	7.9	8.0	7.9	8.0
21	7.9	7.8	7.8	7.9	7.7	7.8	8.0	8.0	8.0	8.0	7.9	7.9
22	8.0	7.8	7.8	7.8	7.7	7.8	7.9	7.9	7.9	8.0	7.9	8.0
23	8.0	7.9	7.9	7.8	7.6	7.7	8.0	7.9	8.0	8.0	7.9	8.0
24	8.1	7.9	7.9	7.8	7.6	7.7	8.0	8.0	8.0	8.2	7.7	7.9
25	8.1	7.9	8.0	7.7	7.7	7.7	8.1	8.0	8.1	7.8	7.7	7.7
26	7.9	7.8	7.9	7.7	7.7	7.7	8.1	8.0	8.1	7.7	7.7	7.7
27	7.8	7.7	7.7	7.8	7.7	7.7	8.1	8.0	8.1	8.1	7.6	7.8
28	7.7	7.5	7.6	7.8	7.8	7.8	8.1	8.0	8.1	7.8	7.6	7.7
29	---	---	---	---	---	---	8.1	8.0	8.1	7.6	7.6	7.6
30	---	---	---	8.0	7.8	7.8	8.0	8.0	8.0	8.1	7.6	7.9
31	---	---	---	7.9	7.9	7.9	---	---	---	8.0	7.8	7.9
MONTH	8.1	7.5	7.9	8.1	7.5	7.7	8.1	7.8	7.9	8.2	7.6	7.9

GUADALUPE RIVER BASIN

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08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.4	7.6	---	---	---	7.8	7.7	7.8	8.0	7.8	7.9
2	7.5	7.5	7.5	---	---	---	7.9	7.7	7.8	8.0	7.8	7.9
3	7.6	7.5	7.6	---	---	---	8.0	7.6	7.7	7.9	7.8	7.9
4	7.6	7.6	7.6	---	---	---	7.7	7.6	7.6	8.0	7.7	7.9
5	7.7	7.6	7.6	---	---	---	7.8	7.6	7.7	8.0	7.7	7.9
6	7.7	7.7	7.7	7.8	7.7	7.7	7.8	7.6	7.7	8.0	7.7	7.9
7	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.8	8.0	7.7	7.9
8	7.8	7.7	7.8	7.8	7.7	7.7	7.8	7.7	7.8	8.0	7.6	7.9
9	7.8	7.8	7.8	7.8	7.7	7.8	7.9	7.7	7.8	7.9	7.7	7.8
10	7.9	7.8	7.8	7.9	7.7	7.8	7.9	7.7	7.8	7.8	7.7	7.7
11	8.0	7.6	7.8	7.9	7.7	7.8	8.0	7.7	7.8	7.9	7.7	7.8
12	7.8	7.6	7.7	7.9	7.7	7.8	7.9	7.8	7.8	7.8	7.6	7.7
13	7.7	7.6	7.6	7.9	7.6	7.8	7.9	7.8	7.9	7.9	7.7	7.8
14	7.7	7.6	7.7	7.8	7.6	7.7	7.9	7.8	7.9	8.0	7.8	7.9
15	7.8	7.7	7.7	7.9	7.7	7.8	7.9	7.8	7.9	7.9	7.7	7.8
16	7.9	7.8	7.8	7.9	7.7	7.8	7.9	7.7	7.9	7.9	7.7	7.8
17	8.0	7.9	7.9	7.9	7.7	7.8	8.0	7.7	7.9	7.8	7.7	7.8
18	7.9	7.9	7.9	7.9	7.7	7.8	8.0	7.8	7.9	7.9	7.7	7.8
19	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.8	7.9	7.9	7.7	7.8
20	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.8	7.9	8.0	7.7	7.9
21	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7
22	8.0	7.9	8.0	7.8	7.6	7.7	8.0	7.6	7.9	7.8	7.7	7.8
23	7.8	7.4	7.7	7.8	7.6	7.7	7.9	7.7	7.8	7.8	7.8	7.8
24	7.9	7.7	7.8	7.8	7.6	7.8	7.9	7.8	7.9	7.9	7.8	7.8
25	8.0	7.8	7.9	7.8	7.7	7.8	8.0	7.8	7.9	7.9	7.5	7.8
26	8.0	7.8	7.9	7.8	7.6	7.7	7.9	7.8	7.8	7.8	7.7	7.8
27	8.0	7.8	7.9	7.7	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7
28	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.8	7.9	7.6	7.6	7.6
29	---	---	---	7.8	7.6	7.7	8.0	7.8	7.9	7.7	7.6	7.7
30	---	---	---	7.8	7.7	7.8	8.0	7.9	8.0	7.8	7.6	7.7
31	---	---	---	7.8	7.7	7.8	8.0	7.9	7.9	---	---	---
MONTH	8.0	7.4	7.8	7.9	7.6	7.7	8.0	7.6	7.8	8.0	7.5	7.8
YEAR	8.2	7.4	7.8									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.0	21.5	22.0	20.0	18.0	18.5	13.5	13.0	13.5	13.0	11.5	12.0
2	23.5	21.5	22.5	19.0	17.5	18.0	14.5	13.5	14.0	11.5	10.0	10.5
3	24.0	22.0	23.0	21.5	19.0	20.5	17.0	14.5	15.5	10.5	10.0	10.5
4	24.5	23.0	23.5	22.5	21.5	22.0	17.0	16.5	17.0	10.5	10.0	10.0
5	24.0	23.0	23.5	22.5	19.5	20.5	17.5	16.5	17.0	10.5	9.0	9.5
6	24.0	23.0	23.5	19.5	18.5	19.0	19.0	17.5	18.0	11.0	9.0	10.0
7	24.5	23.5	24.0	19.5	17.5	18.5	20.0	18.5	19.5	11.0	10.0	10.5
8	24.0	20.5	21.0	21.5	19.5	20.0	20.5	19.5	20.0	11.5	10.0	10.5
9	---	---	---	21.5	20.5	21.0	21.0	16.5	19.0	12.5	11.0	11.5
10	---	---	---	20.5	17.5	19.0	16.5	14.0	15.0	15.0	12.5	14.0
11	---	---	---	17.5	16.0	17.0	14.0	12.0	13.0	16.5	15.0	16.0
12	---	---	---	18.0	16.5	17.0	12.5	11.5	12.0	17.5	16.5	17.0
13	---	---	---	20.0	18.0	18.5	13.5	12.0	13.0	17.5	15.5	16.0
14	---	---	---	20.5	20.0	20.0	15.0	13.5	14.0	15.5	13.5	14.0
15	19.0	18.0	18.5	20.5	18.5	19.5	17.0	15.0	16.0	13.5	12.5	13.0
16	21.0	19.0	20.0	18.5	17.5	17.5	17.0	16.0	16.5	14.5	12.5	13.5
17	22.5	21.0	21.5	18.0	17.5	17.5	16.5	16.0	16.0	16.0	14.5	15.5
18	22.5	22.0	22.5	19.0	18.0	18.5	16.0	15.0	15.5	16.0	14.5	15.5
19	23.0	22.5	22.5	20.5	19.0	20.0	15.0	14.0	14.5	14.5	13.0	13.5
20	23.5	22.5	23.0	21.0	19.5	20.5	16.5	14.5	15.5	13.5	12.5	13.0
21	24.0	23.0	23.5	19.5	17.0	18.0	16.0	14.5	15.5	13.0	12.0	12.5
22	24.0	23.5	23.5	17.5	17.0	17.0	14.5	13.5	14.0	14.5	13.0	14.0
23	24.0	23.0	23.5	18.0	16.0	17.0	13.5	12.5	13.0	14.0	12.5	13.0
24	24.0	23.5	24.0	16.0	14.5	15.0	13.5	13.0	13.0	12.5	11.0	11.5
25	24.0	19.0	21.5	16.0	14.5	15.0	13.0	11.5	12.0	12.5	11.0	11.5
26	21.0	19.5	20.0	17.5	16.0	16.5	12.0	11.0	11.5	14.5	12.5	13.5
27	19.5	18.5	18.5	19.5	17.5	18.5	13.0	12.0	12.5	16.0	14.5	15.0
28	19.0	18.0	18.5	18.5	16.5	17.5	12.5	11.0	12.0	15.5	14.0	14.5
29	19.5	18.0	18.5	16.5	15.5	16.0	12.0	11.0	11.5	14.5	13.0	14.0
30	20.0	18.5	19.0	15.5	13.5	14.5	12.0	11.0	11.5	13.0	12.0	12.5
31	20.0	19.0	19.5	---	---	---	13.0	12.0	12.5	12.5	11.0	11.5
MONTH	24.5	18.0	21.5	22.5	13.5	18.5	21.0	11.0	14.5	17.5	9.0	13.0

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13.0	11.0	11.5	17.0	14.0	15.5	17.0	15.5	16.0	23.5	23.0	23.5
2	14.0	12.0	12.5	14.0	11.5	12.5	17.5	16.0	16.5	23.0	21.5	22.0
3	14.5	13.0	13.5	12.0	11.0	11.5	18.0	17.0	18.0	22.0	21.0	21.5
4	14.0	12.5	13.0	12.5	11.5	12.0	18.5	18.0	18.0	23.0	22.0	22.5
5	13.5	12.0	12.5	15.5	12.5	13.5	19.0	18.0	18.5	24.0	22.5	23.5
6	14.0	12.5	13.0	17.0	15.5	16.5	19.5	17.5	18.5	24.5	23.5	24.0
7	14.0	13.0	13.5	17.5	15.5	16.5	20.5	18.5	19.5	24.5	24.0	24.0
8	13.5	12.0	12.5	15.5	12.5	13.5	21.5	20.0	21.0	24.0	20.0	22.0
9	12.5	12.0	12.0	13.5	12.0	12.5	22.0	21.0	21.5	22.0	20.0	21.0
10	14.0	12.0	12.5	14.5	12.5	13.5	22.5	22.0	22.5	23.5	21.5	22.5
11	15.5	14.0	14.5	16.5	14.0	15.0	22.0	19.5	20.5	24.0	21.5	23.0
12	14.5	12.0	13.0	18.0	16.0	17.0	20.0	17.5	18.5	22.5	21.5	22.0
13	12.0	10.5	11.0	18.5	16.0	17.5	19.5	18.5	19.0	24.0	22.5	23.0
14	11.0	10.0	10.5	18.5	16.5	17.5	20.0	18.5	19.0	26.0	24.0	25.0
15	13.5	11.0	12.0	19.0	17.5	18.0	21.0	19.5	20.5	26.5	25.5	26.0
16	15.0	13.5	14.5	19.0	17.5	18.5	22.0	21.0	21.5	26.5	26.0	26.0
17	15.0	14.0	14.5	19.0	17.5	18.5	23.5	22.0	22.5	26.5	25.5	26.0
18	14.0	13.5	13.5	20.0	18.0	19.0	23.0	22.0	22.5	26.0	25.0	25.5
19	15.5	13.0	14.0	20.5	18.0	19.5	23.0	22.0	22.5	25.0	23.5	24.0
20	16.0	14.0	15.0	21.5	19.5	20.5	23.5	22.0	22.5	23.5	22.0	23.0
21	16.5	14.5	15.0	22.5	21.0	21.5	22.0	21.0	21.5	24.0	22.5	23.0
22	16.0	15.0	15.5	23.5	22.0	22.5	23.0	21.5	22.5	24.0	23.0	23.5
23	18.0	15.5	16.5	24.5	23.0	23.5	22.0	19.0	20.5	24.0	23.5	23.5
24	18.5	17.0	17.5	24.0	23.0	23.5	19.0	18.0	18.5	24.0	22.0	23.5
25	18.5	16.0	17.0	23.0	22.5	22.5	18.5	17.0	18.0	24.5	23.0	23.5
26	17.0	16.5	17.0	22.5	21.5	22.5	19.0	17.5	18.5	24.5	23.0	23.5
27	18.0	17.0	17.5	21.5	19.5	20.5	20.0	19.0	20.0	24.5	21.0	23.5
28	18.0	17.0	18.0	19.5	17.5	18.5	21.0	19.5	20.0	25.0	23.0	24.0
29	---	---	---	17.5	15.5	16.5	22.5	20.5	21.5	25.5	24.0	24.5
30	---	---	---	16.0	15.5	15.5	23.5	22.0	22.5	25.5	22.0	23.0
31	---	---	---	16.0	15.5	16.0	---	---	---	23.0	22.0	22.5
MONTH	18.5	10.0	14.0	24.5	11.0	17.5	23.5	15.5	20.0	26.5	20.0	23.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	24.0	22.5	23.0	---	---	---	27.5	26.0	27.0	26.5	26.0	26.0
2	25.5	24.0	24.5	---	---	---	27.5	26.5	27.0	27.0	25.5	26.0
3	26.0	24.5	25.0	---	---	---	28.0	26.5	27.5	27.0	26.0	26.5
4	26.0	25.0	25.5	---	---	---	28.5	28.0	28.0	27.0	26.0	26.5
5	26.0	25.0	25.5	---	---	---	28.5	27.0	27.5	27.0	26.5	26.5
6	26.5	26.0	26.0	27.5	26.5	26.5	28.0	27.0	27.5	27.0	26.5	27.0
7	27.0	26.0	26.5	27.5	26.0	27.0	28.0	27.5	27.5	27.0	26.5	27.0
8	27.0	26.5	26.5	27.5	26.5	27.0	28.0	27.0	27.5	27.0	26.0	26.0
9	27.5	27.0	27.5	27.0	26.0	26.5	28.0	27.0	27.5	26.5	26.0	26.5
10	27.5	27.5	27.5	27.0	26.0	26.5	28.0	27.0	27.5	26.5	25.5	26.0
11	27.5	22.5	24.5	27.0	26.5	27.0	27.5	27.0	27.0	26.5	26.0	26.0
12	24.0	22.5	23.0	27.0	26.5	27.0	27.5	27.0	27.0	27.0	26.0	26.0
13	24.5	22.5	23.5	27.5	27.0	27.0	27.5	26.5	27.0	26.5	26.0	26.5
14	24.5	22.5	23.5	27.5	27.0	27.0	28.0	27.5	27.5	26.5	26.0	26.0
15	25.0	23.0	24.0	27.0	26.5	27.0	28.0	27.5	27.5	26.5	26.0	26.5
16	25.0	23.5	24.0	27.5	26.5	27.0	28.0	27.5	28.0	27.0	26.5	26.5
17	25.0	23.5	24.0	27.5	27.0	27.0	28.0	27.0	27.5	28.0	26.5	27.0
18	25.5	23.5	24.5	28.0	26.5	27.0	28.0	27.5	27.5	27.5	27.0	27.0
19	26.0	24.5	25.0	28.0	27.0	27.5	27.5	27.0	27.0	27.5	27.0	27.5
20	26.0	24.0	25.0	28.0	27.0	27.5	27.5	27.0	27.0	27.5	23.0	25.0
21	25.5	24.0	25.0	28.5	27.5	28.0	27.5	27.0	27.0	25.0	24.0	24.5
22	25.5	24.5	25.0	28.5	27.5	28.0	27.5	26.5	27.0	24.0	21.0	22.5
23	---	---	---	29.0	28.0	28.5	28.0	27.0	27.5	21.5	20.0	20.5
24	---	---	---	28.5	27.5	28.0	28.0	26.5	27.5	21.5	20.0	20.5
25	---	---	---	28.5	27.5	28.0	28.0	27.0	27.5	21.5	20.5	21.0
26	---	---	---	28.5	27.5	28.0	28.0	27.0	27.5	22.0	21.5	22.0
27	---	---	---	28.5	27.5	28.0	28.0	27.0	27.5	23.5	22.0	23.0
28	---	---	---	28.5	27.5	28.0	28.0	27.0	27.5	24.5	23.0	24.0
29	---	---	---	28.0	27.0	27.5	27.5	27.0	27.5	25.0	24.5	24.5
30	---	---	---	28.0	27.0	27.5	28.0	26.0	27.0	24.5	24.0	24.5
31	---	---	---	27.5	26.5	27.0	27.5	26.5	27.0	---	---	---
MONTH	27.5	22.5	25.0	29.0	26.0	27.5	28.5	26.0	27.5	28.0	20.0	25.0
YEAR	29.0	9.0	20.5									



## GUADALUPE RIVER BASIN

277

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.2	6.4	6.8	7.3	7.0	7.2	9.1	8.1	8.6	9.0	8.5	8.8
2	7.1	6.3	6.7	7.2	6.8	7.1	8.8	8.0	8.4	9.7	8.9	9.4
3	7.0	6.2	6.6	6.8	6.2	6.4	8.3	7.3	7.8	9.7	9.4	9.6
4	6.9	6.0	6.4	6.2	5.7	5.9	8.0	7.4	7.6	9.9	9.5	9.7
5	6.9	5.7	6.4	7.7	6.0	7.2	8.2	7.3	7.7	10.2	9.7	10.0
6	7.0	5.6	6.3	7.7	6.8	7.3	7.4	6.4	6.9	10.1	9.7	10.0
7	6.5	5.7	6.1	7.1	6.7	6.9	6.6	5.7	6.3	10.1	9.4	9.8
8	8.3	6.2	6.9	7.0	6.2	6.7	6.5	5.5	5.9	10.4	9.6	9.9
9	---	---	---	6.2	5.8	6.0	6.6	5.7	6.1	10.2	9.3	9.7
10	---	---	---	7.0	6.0	6.4	8.3	6.6	7.5	9.7	8.6	9.1
11	---	---	---	7.6	6.8	7.2	9.4	8.2	8.7	9.3	8.0	8.6
12	---	---	---	7.8	7.2	7.5	9.7	8.9	9.2	9.3	7.2	8.5
13	---	---	---	7.3	6.5	6.8	9.2	8.5	8.9	9.6	7.8	8.8
14	---	---	---	6.6	6.1	6.2	8.5	7.4	8.0	10.4	8.3	9.2
15	8.3	7.2	7.9	6.3	5.9	6.1	7.7	6.9	7.4	10.7	8.4	9.5
16	8.0	7.1	7.5	6.8	6.2	6.6	7.9	7.6	7.7	10.6	8.5	9.5
17	7.1	6.5	6.7	6.9	6.5	6.7	7.8	7.4	7.7	9.3	7.2	8.1
18	6.8	6.0	6.4	6.7	6.0	6.3	8.2	7.6	7.8	9.7	7.5	8.3
19	7.6	6.6	7.1	6.1	5.7	5.9	8.3	7.6	7.9	11.2	8.2	9.4
20	7.4	6.9	7.1	5.8	5.4	5.7	8.1	7.6	7.8	11.3	8.6	9.8
21	7.1	6.7	6.9	6.5	5.7	6.2	8.0	7.2	7.6	11.3	8.7	9.9
22	6.9	6.7	6.8	7.3	5.8	6.9	8.7	7.7	8.1	11.0	8.3	9.5
23	6.7	6.4	6.6	7.2	6.6	6.8	9.4	8.3	8.8	11.7	8.4	9.7
24	6.5	6.3	6.4	7.9	6.8	7.4	9.1	8.2	8.7	12.0	9.3	10.4
25	7.9	6.2	7.1	8.1	7.8	7.9	9.7	8.6	9.1	10.6	9.2	9.8
26	7.9	7.3	7.7	7.9	7.1	7.4	10.2	9.1	9.7	9.4	8.2	8.8
27	7.7	7.5	7.5	7.1	6.3	6.6	10.1	8.3	9.0	9.9	7.6	8.5
28	7.7	7.5	7.6	7.0	6.3	6.6	9.4	8.2	8.7	10.8	7.7	8.9
29	7.6	7.3	7.5	7.9	6.8	7.4	9.6	9.2	9.4	11.4	8.2	9.5
30	7.5	7.1	7.3	8.4	7.5	7.9	9.3	8.7	8.9	11.9	8.8	10.0
31	7.2	7.0	7.1	---	---	---	8.7	8.5	8.6	12.1	9.2	10.4
MONTH	8.3	5.6	6.9	8.4	5.4	6.8	10.2	5.5	8.1	12.1	7.2	9.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	12.2	9.3	10.5	8.2	7.2	7.6	7.9	7.3	7.5	6.8	6.5	6.6
2	11.9	9.0	10.2	9.5	8.2	8.8	8.1	7.4	7.7	7.2	6.5	6.9
3	11.6	8.7	9.8	10.2	9.4	9.8	7.7	6.8	7.2	7.4	7.0	7.2
4	11.7	8.7	9.9	9.9	9.4	9.6	6.9	6.3	6.7	7.3	7.0	7.2
5	12.0	9.0	10.1	9.6	8.9	9.2	7.6	6.6	7.2	7.2	6.9	7.0
6	11.1	8.4	9.7	9.0	7.9	8.3	7.6	7.2	7.4	7.0	6.6	6.8
7	9.2	7.9	8.7	9.7	7.4	8.4	7.4	7.1	7.2	6.6	6.0	6.3
8	10.9	8.0	9.1	11.0	9.0	10.0	7.1	6.4	6.6	8.8	5.8	6.8
9	11.1	8.8	9.7	12.1	9.7	10.9	6.6	5.1	6.2	7.2	5.1	6.3
10	11.5	8.8	9.9	12.3	9.9	11.3	---	---	---	5.2	4.5	4.9
11	10.8	8.1	9.3	11.7	9.2	10.8	---	---	---	5.1	4.4	4.7
12	9.6	8.3	8.9	10.7	8.5	9.9	---	---	---	5.6	5.1	5.4
13	10.0	9.0	9.4	9.8	8.4	8.9	8.1	7.6	7.9	5.6	5.2	5.4
14	10.6	9.4	9.9	8.7	7.6	8.2	8.1	7.6	7.8	5.3	5.0	5.2
15	10.4	9.0	9.7	8.0	7.0	7.5	7.8	6.8	7.2	5.1	4.7	4.9
16	10.9	8.3	9.5	8.0	6.9	7.5	7.0	6.3	6.6	4.7	4.2	4.5
17	11.8	8.5	9.8	8.5	7.0	7.8	6.5	6.1	6.3	5.1	4.2	4.8
18	11.4	8.8	10.0	8.7	7.1	7.9	6.2	5.8	6.1	5.3	4.0	4.8
19	12.2	9.1	10.3	8.7	7.1	8.1	6.4	5.8	6.1	5.7	4.6	5.6
20	12.1	8.9	10.1	8.7	6.8	7.8	6.5	6.0	6.2	6.1	5.3	5.9
21	11.3	8.9	9.8	8.6	6.3	7.5	6.4	6.1	6.3	6.2	5.3	5.9
22	11.3	8.1	9.5	8.0	6.1	7.1	6.5	5.8	6.2	5.8	5.2	5.5
23	11.5	8.5	9.6	7.6	5.7	6.8	7.0	5.8	6.5	5.5	4.8	5.2
24	9.9	7.9	8.7	7.2	5.4	6.1	7.6	7.0	7.4	7.7	5.3	6.5
25	9.2	7.6	8.3	6.2	5.8	6.0	8.0	7.6	7.8	7.1	5.7	6.5
26	8.6	7.4	8.2	6.1	5.5	5.8	8.1	7.7	7.9	5.7	5.6	5.6
27	8.0	7.3	7.6	7.1	5.7	6.4	7.9	7.3	7.6	7.6	5.2	6.0
28	7.3	6.9	7.1	8.3	6.1	6.9	7.7	7.0	7.4	6.9	5.2	6.3
29	---	---	---	7.2	6.5	6.8	7.4	7.1	7.3	5.5	5.2	5.4
30	---	---	---	7.7	7.2	7.5	7.1	6.7	6.9	7.6	5.3	6.3
31	---	---	---	7.6	7.3	7.4	---	---	---	7.2	6.3	6.8
MONTH	12.2	6.9	9.4	12.3	5.4	8.1	8.1	5.1	7.0	8.8	4.0	5.9



## GUADALUPE RIVER BASIN

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08178880 MEDINA RIVER AT BANDERA, TX

LOCATION.--Lat 29°43'25", long 99°04'11", Bandera County, Hydrologic Unit 12100302, on left bank, 40 ft downstream from centerline of State Highway 173 at Bandera, 1.9 mi upstream from Bandera Creek, and 5.6 mi downstream from Indian Creek.

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

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

Water-quality records.--Chemical, biochemical, and pesticide analyses: January 1983 to September 1993.

GAGE.--Water-stage recorder. Datum of gage is 1,189.46 ft above sea level.

REMARKS.--Records fair. There are several small diversions upstream from station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1880, 46.62 ft Aug. 2, 1978.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 29	0600	1,510	8.54	Sept. 21	2400	3,110	10.50

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	42	46	163	62	59	e70	48	151	129	43	21
2	21	38	46	153	69	54	e69	41	124	112	51	7.7
3	20	39	43	147	64	54	e68	45	109	107	49	5.5
4	20	43	43	139	64	54	e80	48	102	110	44	5.2
5	18	107	41	135	64	62	e100	44	99	111	39	4.6
6	17	126	50	136	61	69	e100	47	95	104	37	5.1
7	28	110	54	133	57	80	e90	41	89	97	32	6.5
8	37	97	54	126	53	80	e84	99	86	95	29	5.6
9	74	83	53	123	55	70	e80	78	84	92	24	6.6
10	67	66	126	120	54	61	e78	75	81	87	24	7.8
11	36	53	115	115	57	69	e77	54	102	81	20	7.6
12	27	48	99	114	51	59	e72	47	105	74	19	6.8
13	22	45	86	113	52	e200	e70	46	104	69	28	9.4
14	20	41	81	110	54	e160	e69	47	95	62	27	14
15	34	64	79	104	59	e130	e67	38	89	66	29	55
16	38	132	72	101	71	e110	e65	34	85	69	32	61
17	43	145	55	106	69	e100	e68	31	80	73	29	55
18	43	133	49	99	64	e96	e80	29	75	71	20	37
19	82	124	43	105	62	e93	e78	26	77	68	13	16
20	79	116	41	100	59	e90	e75	24	76	64	6.5	105
21	51	107	37	100	54	e86	e70	21	69	68	11	331
22	49	101	33	98	53	e82	e68	16	65	66	6.6	1280
23	36	94	29	89	56	e80	e66	17	60	63	5.2	295
24	34	91	30	77	54	e78	e64	31	55	59	3.1	193
25	38	88	28	79	53	e75	e62	41	52	57	2.6	168
26	47	84	26	84	54	e75	60	46	61	56	2.8	147
27	73	83	42	82	68	e75	e58	57	107	52	3.7	133
28	77	72	157	80	69	e72	e54	73	100	49	4.4	121
29	62	60	282	73	---	e70	e52	69	445	46	6.1	114
30	49	52	205	72	---	e70	e50	231	152	43	5.3	109
31	44	---	179	64	---	e70	---	266	---	37	13	---
TOTAL	1309	2484	2324	3340	1662	2583	2144	1810	3074	2337	659.3	3333.4
MEAN	42.2	82.8	75.0	108	59.4	83.3	71.5	58.4	102	75.4	21.3	111
MAX	82	145	282	163	71	200	100	266	445	129	51	1280
MIN	17	38	26	64	51	54	50	16	52	37	2.6	4.6
AC-FT	2600	4930	4610	6620	3300	5120	4250	3590	6100	4640	1310	6610

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1995, BY WATER YEAR (WY)

	100	88.2	192	152	153	171	121	193	349	135	52.5	77.5
MEAN	100	88.2	192	152	153	171	121	193	349	135	52.5	77.5
MAX	630	373	1278	638	922	985	547	696	2785	440	156	249
(WY)	1987	1987	1992	1992	1992	1992	1987	1987	1987	1988	1987	1986
MIN	25.7	27.3	27.0	28.4	41.9	43.2	31.1	18.5	16.3	6.25	3.77	6.80
(WY)	1985	1994	1994	1990	1990	1984	1984	1984	1984	1984	1984	1984

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1983 - 1995

ANNUAL TOTAL	21956	27059.7	
ANNUAL MEAN	60.2	74.1	
HIGHEST ANNUAL MEAN			148
LOWEST ANNUAL MEAN			35.5
HIGHEST DAILY MEAN	757	May 14	15600
LOWEST DAILY MEAN	17	Oct 6	2.2
ANNUAL SEVEN-DAY MINIMUM	20	Sep 30	2.6
INSTANTANEOUS PEAK FLOW			55800
INSTANTANEOUS PEAK STAGE			24.90
INSTANTANEOUS LOW FLOW			2.2
ANNUAL RUNOFF (AC-FT)	43550	53670	107600
10 PERCENT EXCEEDS	91	122	282
50 PERCENT EXCEEDS	53	64	63
90 PERCENT EXCEEDS	25	20	22

e Estimated

## GUADALUPE RIVER BASIN

08180640 MEDINA RIVER AT LA COSTE, TX

LOCATION.--Lat 29°19'26", long 98°48'46", Medina County, Hydrologic Unit 12100302, at downstream side of bridge on Farm Road 471, 1.0 mi north of La Coste, 5.0 mi upstream from Sherer Creek, and 27.4 mi upstream from mouth.

DRAINAGE AREA.--805 mi<sup>2</sup>, of which 634 mi<sup>2</sup> is above dam forming Medina Lake.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 667.15 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Medina Lake and by Medina Diversion Lake. A large part of the streamflow is lost into the Edwards and associated limestones where the Balcones Fault crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	45	43	42	40	30	27	30	40	65	33	28
2	36	45	43	41	39	30	27	28	36	55	33	28
3	36	45	43	40	39	30	27	28	35	51	32	26
4	36	45	43	40	38	30	28	30	34	61	31	25
5	36	49	43	39	37	31	77	30	33	51	29	25
6	36	48	43	39	37	30	56	31	33	50	28	25
7	36	47	43	39	37	34	41	32	33	54	27	25
8	107	47	43	39	35	31	39	52	36	46	28	33
9	48	47	42	39	35	29	37	47	35	45	27	32
10	41	47	41	39	35	29	37	42	35	43	27	28
11	40	47	40	39	35	29	38	38	54	43	26	28
12	40	47	39	39	33	29	36	37	47	43	27	27
13	40	47	39	40	33	53	35	36	38	42	29	27
14	40	47	39	40	33	47	35	34	37	42	30	27
15	44	47	41	40	33	34	35	33	37	42	30	29
16	44	47	42	40	33	32	35	32	35	41	28	29
17	43	47	40	40	33	30	35	32	35	41	27	28
18	49	47	40	40	32	29	34	32	36	40	27	27
19	48	47	38	40	32	28	33	31	37	39	27	27
20	44	47	38	40	32	28	33	30	37	37	28	122
21	43	46	38	40	31	28	31	31	36	36	28	84
22	43	46	38	40	31	28	31	31	35	34	29	57
23	43	46	38	40	31	28	33	32	33	32	29	50
24	43	46	38	40	31	27	32	60	32	32	28	43
25	44	46	38	40	35	27	32	39	33	32	27	40
26	50	46	38	41	37	27	32	34	36	33	28	40
27	47	45	39	42	34	27	33	47	48	33	27	39
28	47	44	49	42	31	26	34	45	36	32	27	40
29	47	43	49	41	---	25	33	34	489	32	27	41
30	47	43	44	40	---	25	32	63	120	32	28	42
31	47	---	43	40	---	26	---	51	---	33	27	---
TOTAL	1381	1386	1275	1241	962	937	1068	1152	1641	1292	879	1122
MEAN	44.5	46.2	41.1	40.0	34.4	30.2	35.6	37.2	54.7	41.7	28.4	37.4
MAX	107	49	49	42	40	53	77	63	489	65	33	122
MIN	36	43	38	39	31	25	27	28	32	32	26	25
AC-FT	2740	2750	2530	2460	1910	1860	2120	2280	3250	2560	1740	2230

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1995, BY WATER YEAR (WY)

	MEAN	46.1	54.4	89.0	182	332	299	178	337	767	160	69.4	51.7
MAX	84.8	138	319	647	2256	1943	1052	1335	4718	702	213	125	
(WY)	1988	1993	1992	1992	1992	1992	1992	1992	1987	1987	1987	1987	
MIN	23.5	21.4	21.6	27.4	24.9	24.3	27.6	25.5	17.7	22.7	21.9	18.8	
(WY)	1992	1990	1990	1991	1991	1990	1989	1990	1990	1989	1989	1989	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1987 - 1995

ANNUAL TOTAL	17559	14336	148
ANNUAL MEAN	48.1	39.3	836
HIGHEST ANNUAL MEAN			29.1
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	270	489	18900
LOWEST DAILY MEAN	32	25	12
ANNUAL SEVEN-DAY MINIMUM	34	26	13
INSTANTANEOUS PEAK FLOW		1300	24600
INSTANTANEOUS PEAK STAGE		10.97	24.05
ANNUAL RUNOFF (AC-FT)	34830	28440	107500
10 PERCENT EXCEEDS	58	47	420
50 PERCENT EXCEEDS	43	37	42
90 PERCENT EXCEEDS	37	28	24

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1987 to August 1995 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1987 to September 30, 1995 (discontinued).

pH: January 1987 to September 30, 1995 (discontinued).

WATER TEMPERATURE: January 1987 to September 30, 1995 (discontinued).

DISSOLVED OXYGEN: January 1987 to September 30, 1995 (discontinued).

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument or probe fouling, and these days were deleted from the record. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 720 microsiemens Sept. 3, 4, 1987; minimum, 135 microsiemens May 6, 1993.

pH: Maximum, 8.7 units June 17, 1989; minimum, 6.8 units Aug. 4, 5, 1988.

WATER TEMPERATURE: Maximum, 30.5°C June 24, 26, 27, 1990; minimum, 2.5°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 13.1 mg/L Jan. 10, 11, 1988; minimum, 3.7 mg/L May 23, 1992.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 567 microsiemens on Mar. 22; minimum, 197 microsiemens June 29, 30.

pH: Maximum, 8.3 units Jun. 20; minimum, 7.6 units on Nov. 20.

WATER TEMPERATURE: Maximum, 29.5°C several days in July; minimum, 10.0°C Jan. 5, 6, 7, 8.

DISSOLVED OXYGEN: Maximum, 11.9 mg/L Jan. 5, 6, 7, 8 minimum, 5.7 mg/L Sept. 6, 7.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONATE FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)
NOV 09...	1400	47	525	8.0	20.5	7.4	84	0.8	240	56	70
DEC 05...	1500	43	532	7.8	16.5	8.5	89	0.4	240	46	70
FEB 27...	1120	34	542	8.1	17.0	9.1	96	0.7	240	51	69
APR 26...	1210	32	520	8.2	19.0	8.2	90	1.6	240	42	68
JUN 20...	1225	37	478	8.2	26.0	8.0	100	<2.0	220	44	63
AUG 15...	1050	31	512	7.6	27.5	6.8	88	1.5	240	30	69

DATE	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS-FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
NOV 09...	17	17	0.5	2.1	190	45	17	0.20	11	304
DEC 05...	17	16	0.4	1.9	200	46	16	0.20	12	311
FEB 27...	16	17	0.5	1.9	190	48	18	0.20	11	307
APR 26...	16	15	0.4	2.0	190	47	16	0.20	9.9	299
JUN 20...	15	14	0.4	1.9	170	45	15	0.30	10	277
AUG 15...	16	14	0.4	2.0	210	44	15	0.20	12	306

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
NOV 09...	2.60	--	<0.010	2.60	2.60	<0.015	<0.20	<0.010	<0.010	--
DEC 05...	2.80	--	<0.010	2.80	2.80	<0.015	<0.20	0.020	<0.010	--
FEB 27...	2.99	2.99	0.010	3.00	3.00	0.030	<0.20	<0.010	<0.010	--
APR 26...	2.00	--	<0.010	2.00	2.00	<0.015	<0.20	<0.010	<0.010	--
JUN 20...	1.70	--	<0.010	1.70	1.70	0.020	<0.20	0.020	<0.010	--
AUG 15...	2.10	--	<0.010	2.10	2.10	0.030	<0.20	<0.010	0.010	0.03

## GUADALUPE RIVER BASIN

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TUNS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1994	1381	504	282	1050	18	67	48	181	230
NOV. 1994	1386	522	291	1090	19	70	49	184	240
DEC. 1994	1275	533	297	1020	19	67	50	171	240
JAN. 1995	1241	525	293	982	19	63	49	166	240
FEB. 1995	962	524	293	760	19	49	49	128	240
MAR. 1995	937	541	301	761	20	50	50	126	240
APR. 1995	1068	519	290	836	19	54	49	142	230
MAY 1995	1152	494	277	862	17	54	48	149	230
JUNE 1995	1641	423	240	1060	14	63	44	194	200
JULY 1995	1292	441	249	868	15	53	45	155	210
AUG. 1995	879	514	287	682	18	44	49	116	230
SEPT 1995	1122	468	264	799	16	49	47	142	220
TOTAL	14336	**	**	10800	**	682	**	1850	**
WTD.AVG.	39	497	278	**	18	**	48	**	230

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	528	523	526	518	513	515	530	526	528	528	523	525
2	528	522	526	513	509	511	531	527	529	534	528	530
3	527	522	525	515	509	512	534	530	532	538	532	534
4	527	521	525	519	514	516	534	532	533	541	536	538
5	527	522	525	519	513	514	534	531	533	541	538	540
6	527	522	525	517	505	514	535	533	534	539	534	536
7	527	485	524	519	506	516	537	535	536	535	531	533
8	497	301	419	522	517	519	541	536	538	534	530	532
9	496	406	454	524	520	522	536	534	535	534	530	533
10	498	454	476	524	521	522	536	533	535	539	534	536
11	468	452	456	522	519	520	536	534	534	540	536	538
12	504	468	481	522	518	520	536	533	534	540	536	538
13	514	504	510	523	520	522	536	534	535	538	532	535
14	517	511	514	524	522	523	537	535	536	532	522	526
15	517	515	516	525	523	524	536	532	535	525	520	523
16	516	508	513	524	522	523	534	532	533	526	523	525
17	516	508	511	526	523	524	534	532	533	526	523	525
18	518	515	517	529	524	526	535	533	534	526	522	524
19	517	480	497	529	527	528	536	534	535	524	518	521
20	513	475	495	530	527	528	537	535	536	522	517	520
21	518	513	516	529	519	525	538	534	536	521	519	520
22	522	516	518	525	522	524	537	534	536	521	518	520
23	523	519	521	525	522	524	538	535	537	520	516	518
24	524	519	522	525	523	524	539	536	538	518	513	515
25	523	516	520	527	523	525	539	537	538	515	512	514
26	523	520	522	529	525	527	539	536	538	514	512	513
27	524	519	521	531	527	529	539	531	537	516	513	515
28	525	522	523	531	529	530	531	520	525	516	513	515
29	526	522	524	530	527	529	526	506	519	516	512	514
30	525	521	522	530	526	528	526	506	518	516	512	514
31	521	516	519	---	---	---	526	523	525	516	513	515
MONTH	528	301	508	531	505	522	541	506	533	541	512	525



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SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	517	513	515	544	541	543	552	550	551	523	518	521
2	518	515	516	543	541	542	553	551	552	523	517	520
3	518	515	517	543	541	542	555	552	554	521	518	520
4	519	517	518	546	543	545	556	554	555	520	517	519
5	520	517	518	552	546	548	556	535	549	518	514	517
6	519	516	517	557	552	554	540	535	537	517	512	515
7	519	517	518	556	551	554	540	536	538	517	512	515
8	520	517	518	551	534	542	538	534	537	517	492	501
9	520	517	518	539	524	534	537	530	533	505	465	495
10	521	518	519	537	523	531	537	528	533	506	464	486
11	522	519	521	541	536	539	528	478	507	507	500	503
12	523	520	522	541	538	540	478	446	464	507	504	505
13	525	523	525	538	499	520	450	432	439	510	507	509
14	528	525	526	524	481	503	470	450	459	510	505	508
15	530	527	528	526	501	518	493	470	481	512	502	506
16	530	527	529	528	522	525	510	493	502	508	503	506
17	530	527	529	532	528	530	517	510	514	507	502	505
18	531	527	529	543	531	537	519	516	517	504	500	502
19	533	530	532	553	543	549	519	516	518	505	500	503
20	533	530	532	562	553	558	521	517	519	505	501	504
21	534	531	533	566	561	564	520	516	518	506	501	503
22	535	532	534	567	558	562	522	519	521	508	505	506
23	537	534	535	559	552	555	522	516	518	509	506	508
24	537	535	536	553	547	550	519	515	516	507	436	471
25	538	526	533	549	543	547	520	517	519	476	448	465
26	528	514	521	546	542	545	521	510	516	483	435	457
27	540	522	531	547	543	545	521	515	518	486	473	479
28	542	519	528	547	545	546	522	521	521	482	473	478
29	---	---	---	546	544	545	523	520	522	483	466	472
30	---	---	---	557	543	547	522	518	521	483	444	469
31	---	---	---	550	547	549	---	---	---	455	432	444
MONTH	542	513	525	567	481	542	556	432	518	523	432	497
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	474	440	462	258	231	245	520	515	517	508	503	506
2	477	474	475	298	258	279	521	515	519	508	502	506
3	476	469	473	305	297	302	520	513	516	510	506	508
4	487	476	480	299	291	295	519	512	516	511	506	509
5	494	487	492	332	299	312	518	511	515	511	507	509
6	496	491	494	369	332	352	518	511	515	511	507	509
7	496	491	494	421	366	394	518	511	515	511	506	509
8	494	490	492	441	420	429	518	512	516	510	473	493
9	493	488	491	480	441	463	519	515	517	476	470	474
10	493	488	491	489	479	483	521	516	519	478	469	472
11	492	468	477	504	489	494	521	516	519	514	477	496
12	478	439	465	510	502	505	522	514	520	515	511	513
13	482	438	464	510	504	507	523	520	521	515	511	513
14	482	474	478	509	502	505	525	521	523	515	511	513
15	482	476	479	507	500	504	527	507	517	515	511	513
16	484	478	481	504	498	501	513	508	510	512	509	511
17	485	482	484	502	495	498	513	508	511	512	508	510
18	486	480	483	500	493	496	515	507	512	514	510	512
19	484	479	482	498	491	495	512	507	510	515	495	504
20	484	475	479	506	494	500	512	507	510	499	380	454
21	481	473	477	507	500	504	512	505	509	468	434	456
22	484	476	480	508	501	505	512	508	510	458	428	439
23	486	479	483	508	502	506	514	509	512	462	446	454
24	487	480	484	509	502	506	512	505	509	446	433	442
25	487	479	484	509	503	507	509	504	507	433	379	404
26	486	467	481	510	503	507	509	503	507	399	376	382
27	475	457	466	510	503	507	512	507	509	415	399	408
28	471	447	461	512	505	509	514	508	511	425	415	420
29	453	197	357	514	507	511	514	507	511	441	422	428
30	231	197	213	516	509	513	511	507	509	475	441	455
31	---	---	---	516	511	514	509	504	507	---	---	---
MONTH	496	197	467	516	231	456	527	503	514	515	376	477
YEAR	567	197	507									

## GUADALUPE RIVER BASIN

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.8	7.9	8.0	7.9	7.9
2	8.0	7.9	7.9	8.0	7.9	8.0	7.9	7.8	7.9	8.0	7.9	7.9
3	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.8	7.8	8.0	7.9	8.0
4	8.0	7.9	8.0	8.0	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0
5	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0
6	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0
7	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.8	7.8	8.0	7.9	7.9
8	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.8	7.8	8.0	7.9	7.9
9	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.8	7.8	8.0	7.9	7.9
10	8.0	7.9	8.0	8.1	8.0	8.0	7.9	7.8	7.9	7.9	7.8	7.9
11	7.9	7.9	7.9	8.1	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.9
12	8.0	7.9	7.9	8.1	7.9	8.0	7.9	7.8	7.8	7.9	7.8	7.9
13	8.0	7.9	7.9	8.0	7.9	8.0	7.9	7.8	7.8	8.0	7.8	7.9
14	8.0	7.9	8.0	7.9	7.9	7.9	7.8	7.8	7.8	7.9	7.8	7.8
15	8.0	7.9	7.9	7.9	7.8	7.9	7.8	7.8	7.8	7.9	7.8	7.9
16	8.0	7.9	7.9	7.9	7.8	7.9	7.8	7.8	7.8	7.9	7.8	7.9
17	8.0	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.9
18	8.0	7.9	8.0	7.9	7.7	7.8	7.9	7.8	7.9	7.9	7.8	7.9
19	8.0	7.9	7.9	7.7	7.7	7.7	7.9	7.8	7.9	7.9	7.9	7.9
20	7.9	7.9	7.9	7.8	7.6	7.7	7.9	7.9	7.9	7.9	7.9	7.9
21	8.0	7.9	7.9	7.8	7.7	7.7	7.9	7.9	7.9	7.9	7.9	7.9
22	8.0	7.9	7.9	7.8	7.7	7.8	8.0	7.9	7.9	7.9	7.9	7.9
23	8.0	7.9	8.0	7.8	7.7	7.8	8.0	7.9	7.9	8.0	7.9	7.9
24	8.0	7.9	8.0	7.8	7.7	7.8	8.0	7.9	8.0	8.0	7.9	7.9
25	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.9	8.0	7.9	7.9
26	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9
27	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9
28	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.9	7.9	8.0	7.9	7.9
29	8.0	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	7.9	8.0
30	8.1	7.9	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	7.9	8.0
31	8.0	7.9	7.9	---	---	---	7.9	7.9	7.9	8.0	8.0	8.0
MONTH	8.1	7.9	8.0	8.1	7.6	7.9	8.0	7.8	7.9	8.0	7.8	7.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.0	8.0	8.0	8.2	8.0	8.1	8.0	8.0	8.0	8.1	8.0	8.0
2	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.0	8.1
3	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.1
4	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0	8.1
5	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.2	8.0	8.1
6	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	8.0
7	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0
8	8.0	8.0	8.0	8.1	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0
9	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	8.1	8.1	7.9	8.0
10	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	8.0	8.1	7.9	8.0
11	8.1	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.0	8.1
12	8.1	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0	8.0	7.9	8.0
13	8.1	8.0	8.0	8.1	8.0	8.0	8.0	7.9	8.0	8.1	8.0	8.0
14	8.1	8.0	8.0	8.1	8.0	8.0	8.0	7.9	7.9	8.1	8.0	8.0
15	8.1	8.0	8.0	8.1	8.0	8.1	8.0	7.9	8.0	8.0	7.8	7.9
16	8.1	8.0	8.0	8.1	8.0	8.0	8.0	7.9	8.0	7.9	7.8	7.9
17	8.1	8.0	8.1	8.1	8.0	8.0	8.0	7.9	8.0	8.0	7.9	7.9
18	8.1	8.0	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0	7.9	8.0
19	8.1	8.0	8.1	8.0	7.9	8.0	8.1	8.0	8.0	8.2	8.0	8.1
20	8.1	8.0	8.1	8.0	7.9	8.0	8.1	8.0	8.0	8.1	8.0	8.1
21	8.1	8.0	8.1	8.0	7.9	7.9	8.1	8.0	8.0	8.1	8.0	8.1
22	8.1	8.0	8.1	8.0	7.9	7.9	8.0	7.9	8.0	8.1	8.0	8.1
23	8.1	8.0	8.1	8.0	7.9	7.9	8.0	7.9	8.0	8.1	8.0	8.1
24	8.1	8.0	8.1	7.9	7.8	7.9	8.0	7.9	8.0	8.1	8.0	8.0
25	8.1	8.0	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.1	7.9	8.0
26	8.0	8.0	8.0	7.9	7.9	7.9	8.2	8.0	8.0	8.1	7.9	8.0
27	8.2	8.0	8.1	7.9	7.9	7.9	8.1	8.0	8.0	8.1	8.0	8.1
28	8.1	8.0	8.1	8.0	7.9	7.9	8.1	8.0	8.1	8.1	7.9	8.1
29	---	---	---	8.0	7.9	8.0	8.1	8.0	8.0	8.0	7.9	8.0
30	---	---	---	8.1	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.0
31	---	---	---	8.1	7.9	8.0	---	---	---	8.0	7.9	8.0
MONTH	8.2	8.0	8.0	8.2	7.8	8.0	8.2	7.9	8.0	8.2	7.8	8.0

## GUADALUPE RIVER BASIN

285

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.0	7.9	8.0	7.8	7.8	7.8	8.1	8.0	8.1	8.1	8.0	8.0
2	8.1	8.0	8.0	7.8	7.8	7.8	8.1	8.0	8.0	8.1	8.0	8.0
3	8.1	8.0	8.0	7.8	7.8	7.8	8.1	8.0	8.0	8.0	7.9	8.0
4	8.1	8.0	8.1	7.8	7.8	7.8	8.1	8.0	8.0	8.0	7.9	7.9
5	8.2	8.0	8.1	7.8	7.7	7.8	8.1	8.0	8.0	8.0	7.9	8.0
6	8.2	8.0	8.1	7.8	7.7	7.8	8.1	8.0	8.0	8.0	7.9	8.0
7	8.1	8.0	8.0	7.9	7.8	7.9	8.1	8.0	8.0	7.9	7.8	7.9
8	8.1	8.0	8.0	7.9	7.9	7.9	8.1	8.0	8.0	7.9	7.8	7.9
9	8.1	8.0	8.1	8.0	7.9	8.0	8.1	8.0	8.1	8.0	7.9	8.0
10	8.1	8.0	8.1	8.1	8.0	8.0	8.2	8.0	8.1	8.0	7.8	7.9
11	8.1	8.0	8.1	8.1	8.0	8.0	8.1	7.9	8.0	8.0	7.9	8.0
12	8.1	8.0	8.1	8.0	8.0	8.0	8.1	7.9	8.0	8.1	8.0	8.0
13	8.2	8.0	8.1	8.1	8.0	8.0	8.1	7.9	8.0	8.0	7.9	8.0
14	8.2	8.1	8.1	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0
15	8.2	8.0	8.1	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0
16	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.0	7.9	8.0
17	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.0	7.9	8.0
18	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.0	8.0	8.0	7.9	7.9
19	8.1	8.0	8.1	8.1	8.0	8.0	8.2	8.0	8.1	8.1	7.9	8.0
20	8.3	7.9	8.0	8.0	8.0	8.0	8.2	8.0	8.1	8.0	8.0	8.0
21	8.1	7.9	8.0	8.0	7.9	8.0	8.2	8.0	8.1	8.0	8.0	8.0
22	8.1	8.0	8.0	8.0	7.9	8.0	8.2	8.0	8.1	8.1	8.0	8.0
23	8.1	8.0	8.0	8.1	7.9	8.0	8.2	8.1	8.1	8.1	8.0	8.1
24	8.1	8.0	8.0	8.1	7.9	8.0	8.1	8.0	8.1	8.0	7.9	8.0
25	8.1	8.0	8.0	8.0	7.9	7.9	8.2	8.1	8.1	8.0	7.9	7.9
26	8.1	8.0	8.1	8.0	7.9	8.0	8.2	8.1	8.1	8.0	7.9	7.9
27	8.1	8.0	8.1	8.1	7.9	8.0	8.2	8.0	8.1	8.0	7.9	8.0
28	8.1	8.0	8.1	8.1	7.9	8.0	8.1	8.0	8.1	8.0	8.0	8.0
29	8.1	7.8	7.9	8.1	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0
30	7.9	7.8	7.8	8.1	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.1
31	---	---	---	8.1	8.0	8.0	8.1	8.0	8.0	---	---	---
MONTH	8.3	7.8	8.0	8.1	7.7	8.0	8.2	7.9	8.1	8.1	7.8	8.0
YEAR	8.3	7.6	8.0									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.0	21.5	22.5	19.5	18.0	19.0	15.0	14.0	14.5	13.0	12.0	12.5
2	23.5	22.0	22.5	19.0	18.0	18.5	15.0	14.0	14.5	12.0	11.5	11.5
3	24.0	22.0	23.0	20.5	19.0	20.0	16.0	14.5	15.5	11.5	11.0	11.5
4	24.5	23.0	23.5	21.0	20.5	21.0	16.5	15.5	16.0	11.5	11.0	11.0
5	24.0	23.0	23.5	21.0	19.5	20.5	16.5	16.0	16.5	11.0	10.0	10.5
6	24.0	23.0	23.5	19.5	19.0	19.5	17.5	16.5	17.0	11.0	10.0	10.5
7	24.5	23.5	24.0	19.0	19.0	19.0	18.5	17.5	18.0	11.5	10.0	11.0
8	23.5	22.0	22.5	20.5	19.0	20.0	19.0	18.0	18.5	11.5	10.0	11.0
9	22.5	21.5	22.0	21.0	20.0	20.5	19.0	17.5	18.5	12.5	10.5	11.5
10	21.5	20.5	21.0	20.0	18.5	19.0	17.5	16.0	16.5	13.5	12.0	13.0
11	20.5	19.5	20.0	18.5	17.5	18.0	16.0	13.5	14.5	14.5	13.0	14.0
12	20.5	19.0	19.5	18.0	17.5	18.0	14.0	13.5	14.0	15.0	14.0	14.5
13	20.0	19.0	19.5	19.0	18.0	19.0	14.5	13.5	14.0	15.0	14.0	14.5
14	19.5	18.5	19.0	19.5	19.0	19.5	15.5	14.5	15.0	14.5	13.5	13.5
15	19.0	18.5	19.0	19.5	18.5	19.0	16.0	15.5	15.5	14.0	12.5	13.0
16	20.5	19.0	20.0	18.5	18.0	18.0	16.5	15.5	16.0	14.5	12.5	13.5
17	21.5	20.5	21.0	18.5	18.0	18.0	16.0	15.0	15.5	15.0	14.0	14.5
18	22.0	21.5	21.5	19.0	18.0	18.5	15.5	15.0	15.5	15.0	14.0	14.5
19	22.0	21.5	22.0	20.0	19.0	19.5	15.0	14.5	15.0	14.0	13.0	13.5
20	23.0	22.0	22.5	20.0	19.0	20.0	16.0	14.5	15.5	14.0	13.0	13.5
21	23.5	23.0	23.0	19.0	18.0	18.5	15.5	14.5	15.0	13.0	12.5	13.0
22	24.0	23.5	23.5	18.5	17.5	18.0	15.0	14.0	14.5	14.5	13.0	13.5
23	24.0	23.0	23.5	18.5	17.0	18.0	14.5	13.5	14.0	13.5	12.5	13.0
24	24.0	23.5	24.0	17.0	16.0	16.5	14.0	13.5	13.5	12.5	11.5	12.0
25	23.5	22.5	23.5	16.5	16.0	16.5	13.5	12.5	13.0	12.5	11.5	12.0
26	22.5	21.0	21.5	17.5	16.5	17.0	13.0	12.0	12.5	13.5	12.5	13.0
27	21.0	19.5	20.5	18.5	17.0	17.5	13.5	12.5	13.0	14.5	13.0	14.0
28	20.0	19.5	19.5	17.5	16.0	17.0	13.0	12.5	12.5	14.5	13.5	14.0
29	20.0	19.5	19.5	16.5	15.5	16.0	13.0	12.5	12.5	14.0	12.5	13.5
30	20.0	19.5	20.0	15.5	14.5	15.0	12.5	12.0	12.5	13.0	12.0	12.5
31	20.5	19.5	20.0	---	---	---	13.5	12.0	13.0	13.0	11.5	12.0
MONTH	24.5	18.5	21.5	21.0	14.5	18.5	19.0	12.0	15.0	15.0	10.0	12.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	13.0	11.0	12.0	17.0	15.0	16.0	17.5	16.0	17.0	23.5	22.0	23.0
2	14.0	12.0	12.5	15.0	13.5	14.0	18.5	16.5	17.5	23.0	21.5	22.0
3	14.0	12.5	13.0	13.5	12.5	13.0	18.0	17.0	17.5	22.5	21.0	22.0
4	13.5	12.0	13.0	13.0	12.5	12.5	18.0	18.0	18.0	23.5	22.0	23.0
5	13.5	11.5	12.5	15.0	12.5	14.0	18.5	18.0	18.0	24.0	23.0	23.5
6	13.5	11.5	12.5	16.0	14.5	15.5	18.5	17.5	18.5	24.5	23.0	24.0
7	13.5	12.0	13.0	16.5	15.0	15.5	20.0	18.5	19.0	24.5	23.5	24.5
8	12.5	12.0	12.0	15.0	13.5	14.5	21.5	19.0	20.0	24.0	23.0	23.5
9	12.5	11.5	12.0	14.0	12.5	13.5	22.5	20.5	21.0	24.0	22.5	23.5
10	13.5	12.0	12.5	14.5	12.5	13.5	23.0	21.5	22.0	25.0	22.5	24.0
11	14.5	12.5	13.5	15.5	13.5	14.5	22.0	20.5	21.5	24.0	23.0	23.5
12	13.5	12.0	12.5	16.5	15.0	15.5	21.0	19.0	20.0	23.5	22.5	23.0
13	12.0	11.5	11.5	17.5	16.0	16.5	21.0	19.0	20.0	25.0	23.0	24.0
14	11.5	11.0	11.5	17.5	16.5	17.0	21.5	19.0	20.0	26.5	24.0	25.0
15	13.0	11.5	12.0	19.0	17.0	17.5	22.0	20.0	21.0	26.5	25.0	26.0
16	14.0	13.0	13.5	18.5	17.0	18.0	22.0	21.0	21.5	26.5	25.5	26.0
17	14.5	13.0	14.0	19.0	17.0	18.0	23.5	21.5	22.5	26.5	25.5	26.0
18	14.0	12.5	13.5	19.5	17.0	18.5	23.5	22.0	22.5	27.0	25.5	26.0
19	14.5	12.5	13.5	20.0	17.5	19.0	23.5	22.0	22.5	26.0	24.5	25.0
20	15.5	13.0	14.5	21.0	18.5	20.0	23.5	22.0	23.0	25.0	23.5	24.5
21	15.5	13.5	14.5	22.0	19.5	20.5	23.0	21.0	22.0	25.5	23.5	24.5
22	15.5	14.5	15.0	22.5	20.5	21.5	23.0	22.0	22.5	25.0	24.0	24.5
23	17.0	14.5	15.5	23.5	21.5	22.5	22.5	20.5	21.5	24.5	24.0	24.0
24	17.5	16.0	16.5	23.0	22.0	22.5	20.5	19.0	20.0	24.5	23.5	24.0
25	17.0	16.5	16.5	22.5	22.0	22.5	20.5	18.5	19.5	25.0	24.0	24.0
26	17.0	16.5	16.5	22.5	22.0	22.5	21.0	18.5	20.0	25.5	23.5	24.5
27	17.5	17.0	17.0	22.0	20.5	21.0	21.0	20.0	20.5	24.5	24.0	24.5
28	17.5	17.0	17.5	20.5	18.5	19.5	21.5	20.0	20.5	25.5	24.0	24.5
29	---	---	---	18.5	17.5	18.0	22.5	20.5	21.5	25.5	24.0	25.0
30	---	---	---	17.5	16.5	17.0	23.5	21.5	22.5	25.0	23.5	24.5
31	---	---	---	17.0	16.5	16.5	---	---	---	24.0	23.0	23.5
MONTH	17.5	11.0	13.5	23.5	12.5	17.5	23.5	16.0	20.5	27.0	21.0	24.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN
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## GUADALUPE RIVER BASIN

287

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.5	7.8	8.0	8.7	8.2	8.4	9.7	9.3	9.4	10.9	10.1	10.5
2	8.4	7.7	7.9	8.6	8.3	8.5	9.5	9.1	9.3	11.3	10.6	10.9
3	8.3	7.5	7.8	8.4	8.0	8.2	9.2	8.8	9.1	11.6	10.8	11.1
4	8.1	7.4	7.6	8.1	7.6	7.9	9.0	8.7	8.9	11.7	10.9	11.2
5	8.1	7.3	7.5	7.8	7.4	7.6	9.0	8.6	8.8	11.9	11.1	11.4
6	7.9	7.3	7.5	7.9	7.6	7.7	8.6	8.1	8.4	11.9	11.2	11.5
7	7.6	7.1	7.3	8.0	7.7	7.9	8.2	7.8	8.0	11.9	11.2	11.5
8	7.6	6.8	7.2	8.0	7.6	7.8	8.0	7.5	7.8	11.9	11.1	11.5
9	7.4	6.8	7.1	7.8	7.3	7.5	7.6	7.4	7.5	11.6	10.9	11.2
10	7.7	7.3	7.5	8.1	7.5	7.9	8.3	7.6	8.0	11.1	10.2	10.7
11	8.0	7.5	7.7	8.5	8.1	8.3	9.0	8.3	8.7	10.4	9.8	10.1
12	8.2	7.7	7.9	8.6	8.1	8.3	9.5	9.0	9.2	10.0	9.5	9.8
13	8.4	7.9	8.1	8.3	8.0	8.1	9.4	9.0	9.2	10.0	9.5	9.7
14	8.3	7.8	8.0	8.1	7.8	7.9	9.1	8.6	8.9	10.3	9.7	10.0
15	8.0	7.8	7.9	8.0	7.9	7.9	8.6	8.4	8.5	10.5	9.9	10.2
16	8.2	7.7	7.9	8.3	8.0	8.2	8.7	8.4	8.5	10.5	9.8	10.2
17	8.1	7.6	7.8	8.5	8.1	8.3	9.0	8.5	8.7	9.8	9.4	9.6
18	7.8	7.4	7.6	8.3	7.9	8.1	9.2	8.7	8.9	9.9	9.4	9.6
19	7.5	7.1	7.3	8.0	7.7	7.9	9.4	8.8	9.1	10.3	9.5	9.9
20	7.3	6.9	7.1	7.8	7.5	7.7	9.4	8.8	9.1	10.3	10.0	10.1
21	7.4	6.9	7.1	8.3	7.7	8.0	9.5	8.9	9.1	10.6	10.1	10.3
22	7.1	6.7	6.9	8.4	8.1	8.2	9.8	9.2	9.4	10.2	9.9	10.1
23	7.2	6.8	7.0	8.3	8.0	8.1	10.1	9.4	9.7	10.5	10.0	10.2
24	7.2	6.8	7.0	8.5	8.1	8.3	10.0	9.5	9.7	10.9	10.4	10.6
25	7.3	6.9	7.0	8.8	8.5	8.6	10.5	9.6	10.1	10.7	10.3	10.6
26	7.8	7.0	7.4	8.8	8.3	8.6	10.8	10.2	10.4	10.3	9.9	10.2
27	7.9	7.6	7.7	8.5	8.1	8.3	10.5	9.8	10.2	10.2	9.9	10.0
28	8.2	7.7	7.9	8.6	8.2	8.4	10.2	9.9	10.1	10.2	9.9	10.0
29	8.2	8.0	8.1	9.0	8.6	8.8	10.3	10.0	10.2	10.4	10.0	10.2
30	8.1	7.9	8.0	9.4	8.9	9.2	10.4	10.1	10.2	10.8	10.2	10.5
31	8.3	8.0	8.1	---	---	---	10.5	10.0	10.3	11.0	10.6	10.8
MONTH	8.5	6.7	7.6	9.4	7.3	8.2	10.8	7.4	9.1	11.9	9.4	10.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	10.5	10.8	9.3	8.7	9.0	9.5	8.9	9.1	8.8	7.6	8.0
2	10.8	10.2	10.5	9.7	9.2	9.4	9.7	9.0	9.3	8.7	7.6	8.0
3	10.6	10.2	10.4	10.3	9.6	9.9	9.2	8.6	8.9	8.7	7.7	8.0
4	10.7	10.3	10.5	10.5	9.9	10.2	8.8	8.4	8.5	8.6	7.5	7.9
5	10.9	10.4	10.6	10.5	9.6	10.0	---	---	---	8.6	7.5	7.8
6	11.0	10.4	10.6	9.8	8.8	9.4	---	---	---	8.4	7.3	7.6
7	10.6	10.1	10.4	9.6	8.8	9.1	---	---	---	7.8	7.1	7.3
8	10.9	10.1	10.5	10.9	9.0	9.9	---	---	---	7.7	7.0	7.3
9	11.1	10.5	10.8	11.4	10.4	10.8	---	---	---	7.9	6.8	7.3
10	11.0	10.4	10.6	11.4	10.4	10.8	8.0	6.1	7.0	8.0	6.8	7.2
11	10.6	9.9	10.3	11.2	10.2	10.6	8.0	7.3	7.6	7.4	6.9	7.1
12	10.5	10.0	10.2	10.7	9.7	10.1	8.3	7.6	7.8	7.5	6.9	7.1
13	10.6	10.1	10.4	9.8	9.1	9.5	8.4	7.7	7.9	7.9	6.9	7.2
14	10.9	10.4	10.6	9.4	9.0	9.2	8.5	7.8	8.0	8.0	6.9	7.3
15	10.8	10.2	10.5	9.8	8.7	9.2	8.1	7.5	7.8	7.7	6.8	7.1
16	10.5	10.0	10.2	10.0	8.7	9.1	7.8	7.3	7.5	7.9	6.6	7.0
17	10.7	9.9	10.2	9.9	8.6	9.1	8.0	7.2	7.5	7.6	6.6	7.0
18	10.7	10.0	10.3	10.1	8.7	9.1	8.0	7.2	7.5	7.8	6.6	7.0
19	10.8	10.0	10.3	9.9	8.5	9.0	8.0	7.2	7.5	8.1	6.7	7.2
20	10.7	9.9	10.2	9.4	8.2	8.7	8.0	7.1	7.4	8.3	7.2	7.5
21	10.7	9.8	10.1	8.9	7.7	8.2	8.2	7.2	7.5	8.4	7.2	7.5
22	10.3	9.5	9.8	8.4	7.4	7.8	7.7	6.9	7.2	7.8	6.9	7.3
23	10.0	9.3	9.6	8.1	7.1	7.5	8.1	6.9	7.4	7.6	6.9	7.2
24	9.7	8.9	9.3	7.7	6.9	7.2	8.6	7.5	8.0	7.3	6.7	7.1
25	9.0	8.5	8.9	7.4	6.7	7.0	8.8	7.8	8.1	7.2	6.4	6.8
26	8.7	8.4	8.5	7.2	6.7	6.9	9.4	8.0	8.5	7.3	6.4	6.7
27	9.4	8.4	8.7	7.7	6.8	7.2	9.1	8.0	8.4	7.1	6.7	6.8
28	9.2	8.5	8.8	7.9	7.4	7.6	9.1	8.0	8.4	7.2	6.6	6.8
29	---	---	---	8.3	7.7	8.0	9.0	7.9	8.2	7.4	6.7	6.9
30	---	---	---	9.0	8.1	8.5	8.9	7.7	8.1	7.1	6.7	6.9
31	---	---	---	9.1	8.7	8.9	---	---	---	7.2	6.8	6.9
MONTH	11.1	8.4	10.1	11.4	6.7	8.9	9.7	6.1	8.0	8.8	6.4	7.3







## GUADALUPE RIVER BASIN

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08180700 MEDINA RIVER NEAR MACDONA, TX

LOCATION.--Lat 29°20'05", long 98°41'22", Bexar County, Hydrologic Unit 12100302, at downstream side of Loop 1604 bridge, 0.1 mi downstream from Polecat Creek, 0.7 mi north of Macdonna, 2.2 mi downstream from Potranca Creek, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--885 mi<sup>2</sup>, of which 634 mi<sup>2</sup> is above dam forming Medina Lake.

PERIOD OF RECORD.--January 1981 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 589.86 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Medina Lake and by Medina Diversion Lake (capacity, 4,500 acre-ft) 41 mi upstream. A large part of streamflow above this station is lost into the Edwards and associated limestones where the Balcones Fault crosses the basin between the upstream end of Medina Lake and a point about 5 mi downstream from Medina Dam, or 0.9 mi downstream from diversion dam. There are several small diversions below Medina Diversion Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	60	55	53	49	42	38	45	69	118	41	34
2	43	60	55	51	49	42	38	41	56	79	39	37
3	42	60	56	51	48	42	38	40	54	68	37	36
4	41	60	56	50	47	42	39	40	50	73	37	35
5	41	62	56	49	47	42	57	41	49	68	37	34
6	41	60	55	49	46	41	111	40	48	62	36	33
7	41	61	55	49	46	48	60	41	46	66	35	32
8	249	61	55	49	45	44	59	68	46	60	34	34
9	95	61	54	49	45	42	57	66	46	57	32	40
10	60	60	53	49	45	41	55	56	46	55	32	38
11	57	60	52	49	45	41	54	52	83	53	33	37
12	60	60	52	49	43	41	47	45	79	53	34	36
13	57	60	52	49	43	54	47	45	58	53	35	34
14	57	60	52	49	43	64	47	47	50	48	37	36
15	59	60	54	49	43	52	47	47	48	50	37	34
16	61	61	56	49	43	47	50	44	46	50	36	35
17	60	61	53	49	43	45	51	40	45	50	35	34
18	59	61	52	49	42	44	46	40	45	49	31	33
19	68	61	51	49	42	43	45	35	44	47	33	33
20	63	61	51	49	42	43	42	35	45	43	34	334
21	60	59	50	49	41	42	38	34	43	44	35	194
22	59	57	50	49	41	41	38	35	44	41	36	82
23	59	57	50	50	41	39	40	38	41	41	36	70
24	58	57	50	49	41	39	38	78	41	41	34	57
25	62	57	50	49	43	38	38	57	39	40	33	52
26	63	57	50	49	49	37	38	48	39	37	36	51
27	62	57	48	51	47	37	37	61	49	39	37	50
28	61	57	59	52	44	35	38	63	39	38	37	50
29	61	58	62	50	---	35	43	53	1020	34	36	50
30	61	57	58	49	---	35	44	97	546	36	36	51
31	61	---	54	49	---	37	---	129	---	38	34	---
TOTAL	1964	1783	1656	1535	1243	1315	1420	1601	2954	1631	1095	1706
MEAN	63.4	59.4	53.4	49.5	44.4	42.4	47.3	51.6	98.5	52.6	35.3	56.9
MAX	249	62	62	53	49	64	111	129	1020	118	41	334
MIN	41	57	48	49	41	35	37	34	39	34	31	32
AC-FT	3900	3540	3280	3040	2470	2610	2820	3180	5860	3240	2170	3380

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1995, BY WATER YEAR (WY)

	MEAN	105	72.2	111	145	235	222	152	275	722	179	75.5	60.5
MAX	485	178	432	698	2333	2097	1302	1636	5726	765	280	165	
(WY)	1982	1993	1992	1992	1992	1992	1992	1992	1987	1987	1992	1992	
MIN	32.3	25.7	18.0	22.1	34.2	39.0	34.1	29.6	25.1	27.4	25.1	27.8	
(WY)	1992	1985	1985	1985	1985	1990	1986	1989	1990	1989	1989	1989	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1981 - 1995

ANNUAL TOTAL	24125	19903	188
ANNUAL MEAN	66.1	54.5	954
HIGHEST ANNUAL MEAN			38.1
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	450	May 15	1020
LOWEST DAILY MEAN	41	Oct 4	31
ANNUAL SEVEN-DAY MINIMUM	42	Oct 1	34
INSTANTANEOUS PEAK FLOW			1750
INSTANTANEOUS PEAK STAGE			9.48
ANNUAL RUNOFF (AC-FT)	47850	39480	136200
10 PERCENT EXCEEDS	84	61	285
50 PERCENT EXCEEDS	58	48	50
90 PERCENT EXCEEDS	47	36	31

## GUADALUPE RIVER BASIN

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'40", long 98°38'19", Bexar County, Hydrologic Unit 12100302, on right bank 37 ft downstream from centerline of Pearsall Road and 31 ft shoreward from right abutment of culvert, 1.2 mi southwest of Loop 410, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--47.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 596.52 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	5.0	5.3	6.3	5.7	5.2	5.9	6.1	9.5	10	5.2	5.3
2	5.7	5.3	5.4	5.9	5.8	5.1	6.8	5.3	7.2	11	5.4	5.0
3	5.8	5.5	5.5	6.0	6.0	5.8	7.0	5.2	6.5	8.4	5.5	5.4
4	5.3	5.3	6.5	5.3	5.7	5.4	6.3	5.3	6.1	15	5.2	5.4
5	5.4	8.4	6.6	5.0	6.4	5.9	6.4	5.1	6.2	9.4	4.7	6.3
6	5.3	6.7	5.9	5.1	7.1	6.6	6.5	5.0	6.0	7.1	5.3	5.7
7	5.4	6.3	5.7	4.8	6.5	16	6.4	5.5	6.3	7.6	5.2	5.5
8	232	5.4	5.6	5.4	6.0	7.2	6.0	20	6.2	7.5	5.4	5.8
9	16	5.3	5.3	5.9	5.9	5.7	6.5	8.0	5.9	7.0	5.1	5.8
10	7.2	4.7	4.8	5.3	5.7	5.6	6.8	5.7	5.8	7.0	5.1	6.4
11	6.2	4.7	5.3	5.5	5.3	5.4	7.7	4.9	87	6.5	4.9	7.3
12	5.2	5.2	5.9	5.6	5.9	6.1	6.1	5.1	15	6.2	5.3	12
13	4.9	5.5	5.2	5.3	6.2	33	5.5	4.9	8.4	6.1	5.7	5.8
14	5.0	6.1	4.9	4.8	5.7	11	5.2	5.6	6.5	6.2	6.5	5.5
15	8.4	5.4	8.2	5.5	5.5	7.5	5.3	5.7	6.1	5.8	5.8	6.5
16	7.4	5.5	10	5.4	5.8	6.9	6.1	5.1	5.7	6.4	5.5	5.8
17	6.9	5.4	6.0	6.0	5.7	6.9	6.2	4.9	5.8	6.1	5.5	5.9
18	8.2	5.4	6.2	5.1	5.4	6.6	6.1	5.3	6.0	5.7	5.5	6.0
19	14	5.6	6.0	4.9	6.0	6.9	6.0	4.7	5.9	5.6	5.3	5.5
20	6.4	6.1	5.7	4.9	5.9	6.9	5.8	4.5	6.2	5.3	5.4	38
21	5.5	6.2	5.5	4.4	6.4	6.5	5.5	5.1	5.7	5.5	6.2	14
22	5.0	5.3	5.3	5.4	5.5	6.6	5.4	5.3	5.3	5.3	5.4	19
23	5.7	5.2	5.3	5.6	5.7	6.5	5.5	4.8	5.3	5.3	5.4	8.1
24	6.2	6.0	5.5	4.9	5.6	6.4	5.9	22	5.2	5.1	5.8	7.1
25	59	6.3	5.9	5.0	9.0	6.4	5.5	7.8	5.5	5.1	5.8	7.3
26	11	6.1	5.3	5.3	16	6.7	5.4	5.5	5.7	5.3	5.1	6.2
27	6.6	6.2	6.0	5.5	7.9	6.8	5.3	25	5.4	5.2	5.7	5.9
28	6.2	6.2	37	5.0	6.1	6.2	5.1	12	5.4	4.9	6.1	6.0
29	5.5	5.5	12	6.0	---	5.9	5.3	6.8	194	4.8	5.3	5.9
30	6.0	5.3	7.0	6.4	---	5.9	5.5	64	19	5.2	6.3	5.5
31	6.1	---	6.3	5.7	---	6.0	---	28	---	5.4	5.6	---
TOTAL	488.4	171.1	221.1	167.2	180.4	235.6	179.0	308.2	474.8	207.0	170.2	239.9
MEAN	15.8	5.70	7.13	5.39	6.44	7.60	5.97	9.94	15.8	6.68	5.49	8.00
MAX	232	8.4	37	6.4	16	33	7.7	64	194	15	6.5	38
MIN	4.9	4.7	4.8	4.4	5.3	5.1	5.1	4.5	5.2	4.8	4.7	5.0
AC-FT	969	339	439	332	358	467	355	611	942	411	338	476

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1995, BY WATER YEAR (WY)

	6.77	6.38	14.6	10.5	14.4	11.0	9.00	23.9	24.1	9.80	4.99	7.02
MEAN	6.77	6.38	14.6	10.5	14.4	11.0	9.00	23.9	24.1	9.80	4.99	7.02
MAX	15.8	12.8	75.4	37.4	59.1	36.5	16.4	71.2	109	37.3	7.29	16.9
(WY)	1995	1993	1992	1992	1992	1992	1992	1992	1987	1990	1992	1988
MIN	4.08	4.86	5.05	5.33	5.44	5.64	5.00	4.43	4.23	4.47	3.96	4.26
(WY)	1988	1989	1989	1988	1994	1991	1988	1988	1990	1994	1987	1989

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1987 - 1995

ANNUAL TOTAL	3256.7	3042.9	10.8
ANNUAL MEAN	8.92	8.34	30.7
HIGHEST ANNUAL MEAN			6.38
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	232	Oct 8	1240
LOWEST DAILY MEAN	3.6	Jul 28	2.2
ANNUAL SEVEN-DAY MINIMUM	3.8	Jul 27	3.4
INSTANTANEOUS PEAK FLOW			2510
INSTANTANEOUS PEAK STAGE			10.59
ANNUAL RUNOFF (AC-FT)	6460	6040	7820
10 PERCENT EXCEEDS	8.9	8.3	12
50 PERCENT EXCEEDS	5.7	5.8	5.5
90 PERCENT EXCEEDS	4.6	5.1	4.2

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1987 to August 1995 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1987 to September 1995 (discontinued).

pH: January 1987 to September 1995 (discontinued).

WATER TEMPERATURE: January 1987 to September 1995 (discontinued).

DISSOLVED OXYGEN: January 1987 to September 1995 (discontinued).

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. There is a problem at this site with one or more probes being at least partially out of the water during periods of extreme low flow. This is due to the nature of the site and installation. No data was lost this year as a result of this problem.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,160 microsiemens Mar. 5-8, 1987; minimum, 140 microsiemens May 13, 1994.

pH: Maximum, 8.8 units Jan. 30, Feb. 15, 1988, Mar. 9, 1989; minimum, 7.0 units on several days during period of record.

WATER TEMPERATURE: Maximum, 31.0°C Jul. 23; minimum, 1.0°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 17.1 mg/L Mar. 11, 1989; minimum, 3.2 mg/L Apr. 13, 1987.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1010 microsiemens Mar. 28, Apr. 11, 16, 17, 18; minimum, 190 microsiemens June 29.

pH: Maximum, 8.7 units Feb. 6, 10, 11; minimum, 7.4 units May 10, Jun 29, 30, Jul 1.

WATER TEMPERATURE: Maximum, 30.0°C several days in July; minimum, 9.5°C Jan. 5, 6, 7.

DISSOLVED OXYGEN: Maximum, 15.2 mg/L Feb. 9, 19, 20; minimum, 3.7 mg/L May 30, Jun. 8, 9, 10.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	
NOV 09...	1240	6.1	899	8.1	22.5	8.9	105	1.0	270	48	80	
DEC 05...	1310	6.7	892	8.0	18.0	9.9	106	0.4	250	28	74	
FEB 27...	1310	7.3	646	7.9	19.5	8.5	94	2.4	200	23	62	
APR 26...	1410	5.8	924	8.3	20.5	9.2	104	2.3	260	30	76	
JUN 26...	1410	6.2	913	8.2	28.0	9.2	120	2.0	260	53	76	
AUG 15...	1220	6.7	890	8.3	28.5	6.0	92	2.0	250	93	75	
DATE		MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 09...	16	77	2	9.3	220	64	100	0.20	13	505	2.29	
DEC 05...	16	80	2	9.9	220	60	100	0.20	12	504	3.39	
FEB 27...	10	48	1	7.6	170	54	60	0.30	12	364	0.830	
APR 26...	16	86	2	10	230	64	110	0.20	13	523	1.09	
JUN 26...	16	81	2	11	200	63	110	0.30	15	529	6.07	
AUG 15...	16	78	2	10	160	52	98	0.20	15	515	15.0	
DATE		NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
NOV 09...		2.29	0.010	2.30	2.30	<0.015	--	0.40	1.50	1.40	4.3	
DEC 05...		3.39	0.010	3.40	3.40	<0.015	--	0.40	1.10	1.10	3.4	
FEB 27...		0.830	0.010	0.840	0.840	0.210	0.49	0.70	0.930	0.870	2.7	
APR 26...		1.09	0.010	1.10	1.10	0.030	0.47	0.50	2.40	2.30	7.1	
JUN 26...		6.07	0.030	6.10	6.10	0.030	0.47	0.50	2.70	2.70	8.3	
AUG 15...		15.0	0.030	15.0	15.0	0.040	0.46	0.50	2.90	2.90	8.9	

## GUADALUPE RIVER BASIN

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

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. 1994	488.4	490	292	385	42	56	52	68	180
NOV. 1994	171.1	895	480	222	99	46	67	31	260
DEC. 1994	221.1	792	436	260	83	50	65	39	250
JAN. 1995	167.2	913	487	220	100	46	66	30	260
FEB. 1995	180.4	870	469	229	95	46	66	32	260
MAR. 1995	235.6	847	458	291	93	59	65	41	250
APR. 1995	179.0	979	511	247	110	56	65	32	270
MAY 1995	308.2	668	377	314	66	55	60	50	220
JUNE 1995	474.8	558	324	415	52	66	54	70	200
JULY 1995	207.0	867	467	261	95	53	66	37	260
AUG. 1995	170.2	900	482	221	100	46	67	31	260
SEPT 1995	239.9	764	424	275	79	51	64	42	240
TOTAL	3042.9	**	**	3300	**	630	**	501	**
WTD.AVG.	8.3	736	406	**	77	**	61	**	230

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	830	812	819	908	871	894	881	868	878	849	779	832
2	830	805	818	910	892	900	905	868	893	886	849	878
3	823	804	814	919	898	905	903	884	891	912	881	902
4	823	809	815	938	916	928	901	890	893	897	886	892
5	830	813	822	927	866	906	901	891	894	911	885	900
6	825	804	815	938	846	893	894	890	892	912	897	904
7	808	489	795	935	746	837	900	887	892	918	907	911
8	613	264	333	875	777	845	905	891	896	918	906	912
9	463	324	407	907	875	895	907	902	904	928	915	921
10	514	463	486	910	899	903	906	894	899	940	928	937
11	631	511	557	910	895	901	907	891	897	940	932	937
12	743	628	687	904	884	892	894	873	880	932	924	928
13	775	703	745	907	896	902	898	879	887	931	917	922
14	792	735	767	905	888	898	901	891	894	917	905	909
15	772	737	756	908	896	902	---	---	890	908	894	899
16	742	700	723	907	899	901	780	736	749	909	898	903
17	750	662	702	899	879	887	799	742	782	924	908	917
18	741	673	709	906	887	892	756	718	734	926	919	923
19	744	462	642	907	903	905	867	756	827	930	906	919
20	702	506	585	906	867	885	894	867	882	930	915	924
21	620	512	560	895	883	891	898	891	894	933	921	928
22	762	620	707	894	881	888	911	890	898	936	925	930
23	808	762	788	888	874	880	910	897	902	932	915	922
24	809	797	805	908	882	889	902	887	895	929	919	924
25	807	230	464	923	908	916	902	894	897	925	907	917
26	527	379	465	921	913	916	898	887	891	913	896	904
27	656	527	583	914	896	902	904	858	893	931	907	918
28	760	656	712	904	891	897	869	392	609	931	923	927
29	831	760	802	903	896	900	529	402	461	932	925	928
30	859	829	844	901	879	888	685	529	614	932	914	921
31	881	856	870	---	---	---	779	685	725	934	924	928
MONTH	881	230	690	938	746	895	911	392	840	940	779	913

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	934	924	928	861	784	841	982	968	977	932	927	929
2	933	911	920	882	859	872	982	973	977	937	927	931
3	924	908	916	897	879	888	988	979	983	935	924	929
4	919	905	912	906	891	899	992	979	988	932	915	921
5	922	904	915	913	899	906	987	969	980	935	922	926
6	919	900	910	936	905	923	990	973	980	943	935	939
7	928	909	918	936	472	720	995	987	990	943	908	937
8	928	914	922	782	506	593	1000	992	997	939	604	812
9	924	903	914	818	776	796	997	991	994	687	488	546
10	921	900	912	911	810	874	995	986	990	605	487	520
11	922	886	906	945	911	930	1010	989	999	807	605	714
12	905	897	902	962	944	954	989	924	960	884	807	855
13	906	899	902	957	453	669	951	922	937	912	884	894
14	906	904	905	550	439	471	976	923	945	919	911	915
15	904	892	898	776	550	667	1000	976	989	924	915	921
16	905	881	894	901	776	853	1010	1000	1000	939	921	931
17	905	885	894	958	901	938	1010	999	1010	934	913	926
18	889	872	881	978	958	972	1010	1000	1010	915	906	910
19	889	863	877	979	968	975	1000	988	996	931	912	920
20	893	871	883	976	962	972	995	979	986	956	927	936
21	901	889	896	991	974	983	994	982	986	960	956	958
22	904	891	899	984	974	980	982	970	977	959	925	939
23	913	887	900	981	969	976	989	977	981	964	928	950
24	920	896	906	991	964	984	990	983	986	960	469	740
25	907	818	884	990	983	988	995	982	988	585	408	446
26	868	594	720	983	978	979	993	936	963	609	424	497
27	754	634	663	997	977	988	946	937	940	800	390	633
28	784	660	695	1010	995	1000	951	941	945	499	386	428
29	---	---	---	999	989	994	955	949	951	626	499	576
30	---	---	---	993	978	985	954	932	938	684	252	441
31	---	---	---	990	962	980	---	---	---	482	382	435
MONTH	934	594	881	1010	439	889	1010	922	978	964	252	786
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	554	482	535	619	508	556	920	912	915	881	814	841
2	739	551	647	684	616	653	924	909	918	887	877	882
3	824	739	799	838	684	788	930	923	926	896	874	884
4	885	824	870	894	721	840	937	918	925	909	884	901
5	904	874	896	835	690	782	936	923	927	910	904	906
6	923	897	915	780	613	671	923	886	898	907	895	901
7	910	892	902	877	780	849	903	877	889	905	874	896
8	919	888	908	901	877	892	905	891	897	886	867	874
9	915	885	898	903	844	874	905	900	903	884	872	875
10	906	872	889	895	846	876	921	902	911	886	872	878
11	892	277	444	919	895	912	921	909	913	886	864	870
12	530	404	476	922	917	920	910	863	890	873	861	867
13	675	530	606	938	920	930	889	870	875	866	809	843
14	801	675	742	938	930	934	904	888	895	888	835	872
15	887	801	865	934	921	930	904	899	902	876	844	856
16	920	883	909	949	927	936	908	899	903	878	856	870
17	913	905	909	957	947	952	910	893	900	870	845	854
18	926	901	918	958	952	954	914	900	907	860	845	850
19	943	914	931	973	956	965	922	906	912	873	860	866
20	935	856	905	966	955	958	924	901	909	870	335	603
21	938	856	918	959	948	954	908	881	895	513	389	470
22	943	909	930	948	942	945	919	902	910	776	495	629
23	943	936	938	948	900	935	918	908	912	771	495	591
24	936	919	926	944	935	939	909	887	893	660	495	570
25	940	926	932	965	943	951	897	886	891	811	660	752
26	944	933	938	965	961	963	893	855	871	851	809	839
27	936	921	928	963	941	948	889	870	884	872	851	865
28	921	911	920	945	935	939	892	877	883	876	871	874
29	912	190	387	947	931	941	899	889	892	878	873	875
30	508	372	450	945	932	936	895	878	885	876	852	871
31	---	---	---	934	913	921	884	852	876	---	---	---
MONTH	944	190	808	973	508	889	937	852	900	910	335	817
YEAR	1010	190	857									



## GUADALUPE RIVER BASIN

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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



## GUADALUPE RIVER BASIN

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08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.7	7.7	7.6	7.4	7.5	8.3	8.0	8.2	8.2	8.1	8.2
2	7.9	7.8	7.8	7.7	7.5	7.6	8.1	8.0	8.1	8.2	8.1	8.1
3	8.0	7.9	7.9	7.8	7.6	7.7	8.1	8.0	8.1	8.2	8.1	8.1
4	8.1	8.0	8.0	7.8	7.6	7.7	8.2	8.1	8.1	8.2	8.1	8.1
5	8.1	8.0	8.0	7.7	7.6	7.7	8.2	8.1	8.1	8.2	8.1	8.1
6	8.1	8.0	8.1	7.8	7.6	7.7	8.2	8.1	8.2	8.3	8.1	8.2
7	8.1	8.0	8.1	7.9	7.8	7.8	8.2	8.1	8.2	8.3	8.1	8.2
8	8.1	8.0	8.1	8.0	7.8	7.9	8.2	8.1	8.1	8.2	8.0	8.1
9	8.2	8.1	8.1	8.0	7.9	7.9	8.2	8.1	8.2	8.2	8.1	8.1
10	8.1	8.1	8.1	8.0	7.9	8.0	8.3	8.1	8.2	8.2	8.1	8.2
11	8.3	7.6	7.8	8.1	7.9	8.0	8.3	8.2	8.2	8.3	8.1	8.2
12	7.8	7.6	7.7	8.1	8.0	8.0	8.3	8.2	8.2	8.2	8.1	8.2
13	7.9	7.7	7.8	8.1	8.0	8.1	8.3	8.2	8.2	8.2	8.1	8.2
14	8.1	7.9	8.0	8.1	8.0	8.1	8.3	8.2	8.2	8.1	8.0	8.0
15	8.2	8.0	8.1	8.1	8.0	8.1	8.3	8.1	8.2	8.1	8.0	8.0
16	8.1	8.0	8.1	8.2	8.0	8.1	8.3	8.2	8.2	8.1	8.0	8.1
17	8.2	8.1	8.1	8.1	8.0	8.1	8.3	8.2	8.3	8.2	8.1	8.1
18	8.2	8.1	8.1	8.1	8.0	8.1	8.4	8.2	8.3	8.2	8.1	8.1
19	8.2	8.1	8.1	8.1	8.0	8.1	8.3	8.1	8.2	8.2	8.1	8.1
20	8.2	8.1	8.1	8.2	8.1	8.1	8.3	8.1	8.2	8.3	7.6	8.0
21	8.2	8.0	8.1	8.2	8.1	8.1	8.3	8.1	8.2	7.6	7.5	7.5
22	8.3	8.1	8.1	8.2	8.1	8.1	8.3	8.1	8.2	7.9	7.5	7.7
23	8.3	8.1	8.2	8.2	8.1	8.2	8.3	8.1	8.2	7.9	7.8	7.9
24	8.3	8.1	8.2	8.2	8.1	8.2	8.3	8.1	8.2	8.0	7.8	7.9
25	8.3	8.1	8.2	8.3	8.2	8.2	8.2	8.1	8.2	8.1	7.9	8.0
26	8.2	7.8	8.0	8.3	8.2	8.2	8.3	8.1	8.2	8.2	8.0	8.1
27	8.0	7.8	7.8	8.2	8.2	8.2	8.3	8.1	8.2	8.1	8.0	8.0
28	7.9	7.7	7.8	8.3	8.2	8.2	8.2	8.1	8.2	8.1	8.0	8.0
29	8.1	7.4	7.7	8.3	8.2	8.2	8.3	8.1	8.2	8.1	8.0	8.1
30	7.5	7.4	7.4	8.3	8.2	8.2	8.3	8.2	8.2	8.2	8.0	8.1
31	---	---	---	8.3	8.2	8.2	8.3	8.1	8.2	---	---	---
MONTH	8.3	7.4	8.0	8.3	7.4	8.0	8.4	8.0	8.2	8.3	7.5	8.1
YEAR	8.7	7.4	8.1									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	24.5	21.5	23.0	19.5	17.5	18.5	14.5	12.5	13.5	14.0	12.0	13.0
2	25.0	22.5	23.5	20.0	18.0	19.0	15.0	14.0	14.5	12.0	11.0	11.5
3	25.5	23.0	24.5	21.5	20.0	21.0	17.0	15.0	16.0	11.5	10.5	11.0
4	25.5	24.0	24.5	23.0	21.5	22.5	18.0	16.5	17.0	11.0	10.0	10.5
5	25.0	23.0	24.5	23.0	20.5	21.5	19.0	17.0	18.0	10.0	9.5	9.5
6	25.0	23.5	24.5	20.5	18.5	19.5	20.0	18.5	19.5	12.0	9.5	10.5
7	25.5	23.0	25.0	19.5	18.0	19.0	21.5	20.0	20.5	12.0	9.5	11.0
8	23.5	20.5	21.5	22.0	19.5	20.5	22.5	21.0	21.5	13.0	10.0	11.5
9	21.0	19.5	20.5	22.5	20.0	21.5	22.0	16.5	19.5	14.5	11.0	12.5
10	20.0	18.0	19.5	20.0	18.0	19.0	16.5	14.0	16.0	16.0	14.0	15.0
11	19.5	17.0	18.5	18.0	17.0	17.5	14.0	12.0	13.0	18.0	15.5	17.0
12	19.0	17.0	18.0	18.0	17.5	17.5	13.5	11.5	12.5	19.0	17.5	18.0
13	19.5	17.0	18.5	20.0	18.0	19.5	13.5	12.5	13.0	18.0	15.5	17.0
14	19.0	18.0	18.5	21.5	20.0	21.0	15.5	13.5	14.5	16.0	13.5	15.0
15	20.0	18.0	18.5	21.0	19.0	19.5	---	---	---	14.5	12.5	13.5
16	22.5	20.0	21.0	19.0	18.0	18.5	19.5	18.0	19.0	16.5	13.0	14.5
17	24.5	22.5	23.5	19.5	18.0	18.5	18.0	17.0	17.5	16.0	16.0	16.0
18	24.5	24.0	24.0	20.0	18.5	19.5	17.0	15.5	16.5	17.0	14.0	16.0
19	25.5	24.0	24.5	21.5	20.0	21.0	16.0	14.0	15.5	15.0	12.5	14.0
20	26.0	24.5	25.0	21.5	19.0	21.0	17.5	15.5	16.5	14.0	12.5	13.5
21	26.0	24.5	25.5	19.5	17.5	18.5	16.5	14.5	15.5	13.5	11.0	12.5
22	25.5	24.5	25.0	19.0	17.5	18.5	15.0	13.5	14.5	16.0	13.0	14.0
23	25.5	24.0	24.5	18.5	15.5	17.0	14.0	12.5	13.0	14.0	12.0	13.0
24	25.5	24.0	24.5	15.5	15.0	15.5	13.5	12.5	13.0	12.5	11.0	12.0
25	24.5	20.5	22.0	17.0	15.0	16.0	13.5	11.0	12.5	13.0	12.0	12.5
26	20.5	19.5	20.0	18.0	16.0	17.0	13.0	10.5	12.0	15.0	13.0	14.0
27	19.5	18.0	18.5	20.0	17.5	18.5	13.0	12.5	12.5	17.0	14.0	15.5
28	19.0	17.5	18.0	18.0	16.5	17.5	13.5	12.0	13.0	16.5	13.5	15.0
29	20.0	18.0	19.0	17.0	15.5	16.5	14.0	11.5	12.5	15.0	13.5	14.5
30	21.0	19.0	20.0	15.5	14.0	14.5	13.0	12.0	12.5	14.5	12.0	13.0
31	21.5	19.5	20.5	---	---	---	14.5	13.0	13.5	13.5	10.5	12.0
MONTH	26.0	17.0	22.0	23.0	14.0	19.0	22.5	10.5	15.5	19.0	9.5	13.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.0	10.0	12.0	16.5	14.0	15.0	17.5	15.0	16.0	25.0	23.5	24.0
2	15.0	11.0	13.0	14.0	11.5	12.5	18.5	15.5	17.0	23.5	21.5	22.0
3	15.0	12.5	13.5	12.0	11.0	11.5	18.5	17.5	18.0	23.5	22.0	22.5
4	15.0	11.5	13.0	12.5	11.0	11.5	19.0	18.5	18.5	25.0	23.0	24.0
5	15.0	11.0	13.0	16.5	12.5	14.0	20.5	18.5	19.5	25.5	23.5	24.5
6	15.0	11.5	13.5	18.0	15.5	17.0	20.5	18.0	19.5	25.5	24.0	24.5
7	15.0	13.0	14.0	18.0	14.5	16.5	22.0	19.5	20.5	25.0	24.5	24.5
8	13.0	12.0	12.5	15.5	12.5	14.0	23.0	20.5	22.0	24.5	22.5	23.5
9	14.0	12.0	12.5	14.5	12.0	13.0	24.0	21.5	23.0	24.0	21.0	22.5
10	15.5	12.0	13.5	15.5	12.0	14.0	24.0	22.5	23.0	26.0	23.0	24.5
11	17.0	14.0	15.0	17.0	14.0	15.5	22.5	20.0	21.0	24.5	22.0	23.0
12	14.0	12.0	12.5	19.0	16.0	17.5	21.0	18.5	20.0	24.0	22.0	23.0
13	12.0	11.5	12.0	19.5	17.0	18.5	21.0	18.0	19.5	26.0	24.0	25.0
14	12.0	11.0	11.5	20.0	17.0	18.5	21.5	18.0	20.0	28.0	25.5	26.5
15	15.0	12.0	13.5	20.0	17.0	18.5	22.5	21.0	21.5	28.5	27.0	27.5
16	16.5	14.5	15.5	20.5	17.5	19.0	23.0	22.0	22.5	28.0	26.5	27.0
17	17.0	13.5	15.0	21.0	17.0	19.0	25.0	22.5	23.5	28.0	26.0	27.0
18	15.5	13.5	14.5	21.5	17.5	19.5	24.0	22.0	23.0	27.5	25.5	26.5
19	17.5	14.0	15.5	22.0	18.0	20.0	24.5	23.0	23.5	25.5	23.5	24.5
20	18.0	14.0	16.0	23.0	19.0	21.0	24.0	22.0	23.0	25.5	23.0	24.0
21	18.0	14.5	16.5	24.0	21.0	22.5	24.0	20.5	22.5	26.0	23.5	24.5
22	17.5	15.5	16.5	25.0	22.0	23.5	24.5	21.5	23.5	25.0	24.0	24.5
23	20.0	16.0	18.0	25.5	23.0	24.0	21.5	19.0	20.0	25.0	24.0	24.5
24	20.0	18.5	19.0	24.5	23.5	23.5	20.0	17.5	19.0	24.5	23.0	23.5
25	19.0	18.0	18.5	23.5	22.5	23.0	20.0	17.5	19.0	25.5	23.5	24.5
26	19.5	18.0	18.5	23.0	21.0	22.5	21.0	18.0	19.5	26.0	24.0	25.0
27	19.5	19.0	19.0	21.0	19.0	20.0	21.0	20.0	20.5	25.0	23.5	24.5
28	19.0	16.5	18.5	19.0	16.5	17.5	22.5	20.0	21.5	26.0	23.5	24.5
29	---	---	---	16.5	15.5	16.0	24.0	21.5	22.5	26.5	24.5	25.5
30	---	---	---	15.5	15.0	15.5	25.5	23.0	24.0	26.0	22.5	23.5
31	---	---	---	15.5	15.0	15.5	---	---	---	24.5	22.0	23.5
MONTH	20.0	10.0	15.0	25.5	11.0	17.5	25.5	15.0	21.0	28.5	21.0	24.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE												
1	26.5	23.5	25.0	27.5	25.5	26.5	29.0	27.0	28.0	28.0	26.5	27.0
2	27.5	25.5	26.5	29.5	26.0	27.5	28.5	27.5	28.0	28.0	26.0	27.0
3	28.0	26.0	27.0	29.5	27.0	28.0	29.5	27.5	28.5	28.0	26.0	27.5
4	28.0	26.0	27.0	28.0	26.0	27.0	29.5	28.0	29.0	28.5	26.5	27.5
5	28.5	26.5	27.5	28.5	27.0	27.5	29.5	27.5	28.5	28.5	26.5	27.5
6	29.0	26.5	28.0	29.0	27.5	28.0	29.5	28.0	28.5	28.5	27.0	28.0
7	28.5	27.5	28.0	28.5	27.0	28.0	29.5	28.0	28.5	28.5	26.5	27.5
8	29.0	27.0	28.0	28.5	27.0	28.0	29.5	27.5	28.5	28.0	27.0	27.5
9	29.5	27.5	28.5	29.0	27.0	28.0	29.0	27.5	28.5	28.0	26.5	27.5
10	29.5	28.0	28.5	29.0	26.5	28.0	29.0	27.0	28.0	27.5	26.5	27.0
11	28.5	22.0	24.0	29.0	27.0	28.0	28.5	27.0	28.0	27.5	26.0	27.0
12	25.5	23.0	24.0	29.0	27.0	28.0	28.5	27.5	28.0	28.0	26.0	27.0
13	25.5	23.0	24.5	29.0	27.0	28.0	29.0	27.5	28.0	28.0	27.0	27.5
14	25.5	23.0	24.5	29.0	27.5	28.0	29.5	28.0	28.5	27.5	26.5	27.0
15	25.5	23.0	24.5	28.5	27.0	28.0	29.5	28.0	28.5	27.5	26.0	27.0
16	26.0	24.0	25.0	29.0	27.0	28.0	29.0	28.0	28.5	28.5	27.0	27.5
17	26.0	24.0	25.0	29.5	27.0	28.5	29.0	27.5	28.5	29.0	27.5	28.5
18	26.5	24.5	25.5	29.5	27.5	28.5	29.0	27.5	28.5	29.0	27.5	28.0
19	26.5	25.0	26.0	29.5	27.5	28.5	28.5	27.0	28.0	29.0	27.5	28.5
20	27.0	25.0	26.5	29.5	27.5	29.0	28.5	26.5	27.5	28.5	24.5	26.0
21	27.5	25.0	26.5	29.5	28.0	29.0	29.0	27.0	28.0	25.0	23.5	24.5
22	27.5	25.0	26.0	30.0	28.0	29.0	29.0	27.0	28.0	23.5	20.5	21.5
23	27.5	25.0	26.5	30.0	28.5	29.5	29.0	27.5	28.0	21.0	19.0	20.0
24	28.0	25.5	27.0	30.0	28.0	29.0	29.0	27.5	28.0	21.5	19.0	20.5
25	28.0	26.0	27.0	29.5	28.0	29.0	29.0	27.5	28.0	23.0	20.0	21.5
26	28.5	26.0	27.5	30.0	28.5	29.5	29.0	27.5	28.5	24.0	21.5	23.0
27	28.5	26.0	27.0	30.0	28.0	29.5	29.0	27.0	28.0	25.5	23.5	24.5
28	29.0	27.0	28.0	30.0	28.0	29.0	29.0	27.5	28.0	26.5	25.0	25.5
29	27.5	21.0	23.5	30.0	27.5	29.0	29.0	27.5	28.0	26.5	25.0	26.0
30	27.0	24.5	25.5	28.5	27.5	28.0	28.5	27.0	27.5	26.5	24.5	25.5
31	---	---	---	28.5	27.0	28.0	28.0	27.0	27.5	---	---	---
MONTH	29.5	21.0	26.0	30.0	25.5	28.5	29.5	26.5	28.0	29.0	19.0	26.0
YEAR	30.0	9.5	21.5									

## 08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.6	5.6	6.5	9.4	7.1	8.1	12.0	9.3	10.3	11.0	9.2	10.0
2	8.5	5.2	6.5	9.8	7.3	8.1	10.6	9.0	9.7	11.9	9.8	10.6
3	8.4	5.3	6.4	9.3	6.9	7.7	11.4	8.5	9.6	12.4	10.2	11.1
4	8.3	5.3	6.2	8.5	6.4	7.1	10.5	8.1	8.9	12.7	10.6	11.4
5	8.1	5.3	6.2	8.2	6.3	7.1	10.1	7.2	8.6	12.7	10.9	11.6
6	7.9	5.3	6.1	8.9	7.0	7.7	9.2	6.5	7.5	12.6	10.5	11.3
7	7.1	5.2	5.8	9.6	7.2	8.1	8.8	6.0	7.0	12.7	10.5	11.3
8	7.1	6.2	6.6	9.7	6.9	8.0	8.0	5.5	6.4	12.5	9.8	11.1
9	6.8	6.4	6.6	9.3	7.1	7.7	7.1	5.3	6.2	12.4	9.2	10.7
10	7.5	6.4	6.9	9.9	7.2	8.4	9.1	6.6	7.8	11.3	8.1	9.4
11	7.9	6.8	7.4	10.7	8.1	9.1	10.6	8.1	9.2	10.5	7.0	8.4
12	8.3	7.3	7.6	10.5	8.3	9.1	11.0	9.2	9.9	9.1	6.3	7.3
13	8.7	7.3	8.0	10.4	7.6	8.7	11.1	8.9	9.7	10.1	6.4	7.9
14	8.5	7.5	7.9	9.9	7.2	8.1	9.2	7.6	8.5	10.9	7.5	8.9
15	8.0	7.3	7.6	8.9	7.0	7.7	---	---	---	11.8	8.3	9.7
16	8.0	6.6	7.2	9.8	7.5	8.4	8.0	6.5	7.3	11.5	7.9	9.5
17	7.6	6.0	6.7	10.1	7.5	8.5	8.4	6.4	7.2	10.1	7.6	8.4
18	6.6	5.8	6.1	9.4	7.5	8.2	9.0	6.8	7.7	10.9	7.1	8.7
19	6.8	5.6	6.1	9.7	7.1	8.1	10.0	7.5	8.5	11.9	8.5	9.8
20	6.5	5.2	5.7	9.6	6.8	7.8	10.1	7.7	8.6	12.1	8.6	10.0
21	6.6	5.2	5.7	10.1	7.4	8.5	10.4	8.1	9.0	12.3	9.3	10.5
22	6.8	5.3	5.8	10.8	7.8	9.0	11.2	8.4	9.6	12.1	8.9	10.1
23	7.1	5.6	6.2	9.3	7.9	8.5	12.0	9.1	10.2	12.4	9.1	10.4
24	7.4	5.8	6.3	9.9	8.4	9.0	11.7	9.3	10.2	12.8	9.6	10.9
25	7.2	5.8	6.5	11.2	8.6	9.6	12.0	9.8	10.7	11.8	9.6	10.4
26	7.4	6.4	6.8	10.6	7.9	9.1	12.4	9.9	10.9	10.8	8.7	9.5
27	7.8	6.6	7.1	9.9	7.3	8.2	11.2	9.7	10.3	11.3	8.3	9.4
28	8.3	7.1	7.6	10.3	7.2	8.3	9.9	9.4	9.7	11.5	8.4	9.6
29	8.6	7.3	7.7	10.7	7.6	8.9	10.3	9.2	9.8	12.3	8.6	10.2
30	8.9	7.2	7.7	11.4	8.4	9.7	10.1	9.1	9.6	12.9	9.5	10.9
31	9.0	6.9	7.7	---	---	---	10.3	9.1	9.5	13.3	10.1	11.4
MONTH	9.0	5.2	6.7	11.4	6.3	8.3	12.4	5.3	8.9	13.3	6.3	10.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13.7	10.6	11.7	9.0	7.4	8.2	9.5	8.4	8.8	7.7	5.7	6.4
2	13.6	10.2	11.4	10.2	8.5	9.4	9.5	8.1	8.8	8.3	5.9	6.9
3	13.6	9.6	11.3	11.5	10.0	10.7	8.3	7.5	8.0	7.6	5.7	6.5
4	14.1	10.0	11.6	11.3	10.1	10.7	8.1	7.2	7.6	6.7	5.1	5.8
5	14.3	10.1	11.8	10.5	9.0	9.9	8.2	7.2	7.6	6.9	5.3	5.8
6	14.6	10.1	11.8	9.3	7.8	8.7	9.1	7.0	7.8	6.3	5.0	5.5
7	12.3	9.2	10.5	8.9	7.7	8.3	9.0	7.3	8.1	5.7	4.8	5.1
8	14.8	9.7	11.7	10.0	8.4	9.3	8.6	6.8	7.6	5.3	4.4	4.9
9	15.2	9.7	11.8	10.9	9.2	10.0	8.2	6.4	7.2	4.8	4.0	4.4
10	15.0	9.9	11.9	10.9	9.3	10.0	7.5	6.4	6.7	4.9	3.9	4.3
11	15.1	9.0	11.5	10.6	8.5	9.5	8.0	6.4	7.2	5.4	4.1	4.8
12	13.5	9.6	11.1	9.8	7.6	8.6	8.4	7.0	7.5	6.1	5.3	5.6
13	13.1	9.9	11.3	8.0	7.1	7.7	8.6	7.0	7.7	6.0	4.9	5.4
14	14.0	10.6	11.9	8.4	6.9	7.5	8.7	7.0	7.7	5.6	4.1	5.0
15	14.4	9.7	11.4	8.9	6.9	7.7	8.2	6.7	7.3	5.4	4.1	4.8
16	13.8	8.8	10.8	9.1	7.0	7.8	7.3	6.4	6.8	5.7	4.4	5.0
17	14.6	9.0	11.2	9.4	7.1	8.0	7.4	5.9	6.6	5.4	4.1	4.8
18	14.9	9.2	11.3	9.9	7.0	8.1	7.4	6.0	6.5	5.1	4.0	4.4
19	15.2	9.0	11.4	9.7	6.7	8.0	6.9	5.9	6.3	5.5	4.4	4.9
20	15.2	9.4	11.5	9.7	6.3	7.7	7.3	5.9	6.5	5.8	4.7	5.1
21	15.0	9.1	11.3	9.1	6.0	7.2	7.7	6.3	6.9	5.9	4.7	5.2
22	14.8	8.7	10.9	8.5	5.5	6.7	7.4	6.3	6.7	5.3	4.7	4.9
23	14.7	8.3	10.6	8.2	5.4	6.3	8.5	6.8	7.6	5.4	4.7	5.0
24	13.0	7.8	9.6	7.2	5.4	6.0	8.7	7.4	8.0	5.3	4.3	4.8
25	9.6	7.5	8.5	7.1	5.6	6.1	9.2	7.6	8.2	4.5	4.0	4.2
26	9.0	7.6	8.5	6.8	5.7	6.1	9.1	7.4	8.1	4.7	4.0	4.3
27	10.7	6.4	7.6	7.9	6.0	7.0	8.9	7.3	7.8	4.7	4.2	4.5
28	8.1	6.2	7.1	8.0	7.1	7.5	9.1	7.0	7.9	4.5	3.9	4.3
29	---	---	---	8.7	7.7	8.2	8.8	6.3	7.3	4.6	3.8	4.1
30	---	---	---	8.9	8.1	8.5	8.2	5.6	6.8	4.4	3.7	4.1
31	---	---	---	9.1	8.2	8.7	---	---	---	4.4	3.9	4.2
MONTH	15.2	6.2	10.8	11.5	5.4	8.2	9.5	5.6	7.5	8.3	3.7	5.0



## GUADALUPE RIVER BASIN

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## 08180800 MEDINA RIVER NEAR SOMERSET, TX

LOCATION.--Lat 29°15'43", long 98°34'52", Bexar County, Hydrologic Unit 12100302, on left bank at downstream side of downstream bridge on State Highway 16, 2.0 mi upstream from Elm Creek, 5.0 mi downstream from Medio Creek, 5.2 mi northeast of Somerset, and 14.0 mi upstream from mouth.

DRAINAGE AREA.--967 mi<sup>2</sup>, of which 634 mi<sup>2</sup> is above Medina Dam, forming Medina Lake.

PERIOD OF RECORD.--October 1970 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 493.56 ft above sea level. Prior to June 16, 1993, at site 300 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Medina Lake 56 mi upstream and by Medina Diversion Lake (capacity, 4,500 acre-ft). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1890, that of July 17, 1973.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	67	61	67	52	51	45	44	107	158	44	36
2	39	67	62	65	48	50	41	44	77	107	46	36
3	38	67	63	63	48	50	39	44	69	94	42	33
4	36	67	62	63	47	49	41	42	64	92	40	31
5	39	71	61	61	47	49	43	43	61	91	41	30
6	39	72	61	62	48	49	74	45	60	82	40	29
7	39	71	61	62	47	60	68	45	58	80	40	29
8	290	70	60	61	45	61	57	63	58	79	39	34
9	196	69	59	60	45	54	54	71	58	74	36	33
10	90	68	59	61	45	51	53	71	56	71	34	34
11	70	67	57	63	45	48	52	56	117	69	36	32
12	65	67	59	70	43	48	50	51	120	67	37	32
13	65	68	59	65	45	72	46	48	81	66	39	29
14	59	68	60	61	45	88	48	47	68	63	39	33
15	65	68	62	60	44	77	57	48	63	63	39	36
16	68	68	65	60	46	62	50	47	60	64	39	37
17	66	70	66	61	47	56	51	44	58	62	38	42
18	64	68	63	60	44	52	46	48	56	61	35	36
19	72	67	59	60	44	51	45	45	56	60	35	34
20	74	64	57	60	42	55	42	41	56	55	37	237
21	68	63	55	59	41	50	38	38	56	56	37	209
22	66	64	55	57	41	48	37	38	55	53	37	111
23	65	61	54	56	41	47	38	42	51	52	51	88
24	65	62	57	55	40	46	39	82	50	51	44	70
25	81	63	58	54	50	43	37	84	49	50	37	62
26	98	63	59	55	69	45	39	61	49	48	37	58
27	79	62	60	57	66	44	37	120	51	48	36	57
28	72	61	80	56	58	43	37	93	53	48	37	55
29	70	61	101	52	---	43	39	72	473	43	37	56
30	69	63	82	49	---	43	39	126	507	43	37	56
31	69	---	72	51	---	44	---	175	---	44	37	---
TOTAL	2316	1987	1949	1846	1323	1629	1382	1918	2797	2094	1203	1695
MEAN	74.7	66.2	62.9	59.5	47.2	52.5	46.1	61.9	93.2	67.5	38.8	56.5
MAX	290	72	101	70	69	88	74	175	507	158	51	237
MIN	36	61	54	49	40	43	37	38	49	43	34	29
AC-FT	4590	3940	3870	3660	2620	3230	2740	3800	5550	4150	2390	3360

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1995, BY WATER YEAR (WY)

	197	159	151	173	268	233	209	312	616	286	177	142
MEAN	197	159	151	173	268	233	209	312	616	286	177	142
MAX	1284	648	549	751	2449	2326	1480	1663	6432	2875	1222	868
(WY)	1974	1977	1977	1992	1992	1992	1992	1992	1987	1973	1978	1973
MIN	41.2	40.2	33.5	37.2	33.4	34.4	35.6	31.1	27.4	22.3	24.5	22.7
(WY)	1989	1985	1985	1985	1971	1971	1971	1971	1990	1984	1984	1984

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1971 - 1995

ANNUAL TOTAL	27301		22139		243	
ANNUAL MEAN	74.8		60.7		1033	1992
HIGHEST ANNUAL MEAN					40.0	1984
LOWEST ANNUAL MEAN					24800	Jul 17 1973
HIGHEST DAILY MEAN	469	May 2	507	Jun 30	16	Sep 19 1984
LOWEST DAILY MEAN	36	Oct 4	29	Sep 6	19	Sep 17 1984
ANNUAL SEVEN-DAY MINIMUM	38	Sep 30	31	Sep 3	30500	Jul 17 1973
INSTANTANEOUS PEAK FLOW			838	Jun 29	29.39	Jul 17 1973
INSTANTANEOUS PEAK STAGE			9.94	Jun 29		
ANNUAL RUNOFF (AC-FT)	54150		43910		176000	
10 PERCENT EXCEEDS	99		75		495	
50 PERCENT EXCEEDS	65		56		78	
90 PERCENT EXCEEDS	45		37		41	



## GUADALUPE RIVER BASIN

08181400 HELOTES CREEK AT HELOTES, TX

LOCATION.--Lat 29°34'42", long 98°41'29", Bexar County, Hydrologic Unit 12100302, 42 ft to left and 44 ft downstream from centerline of bridge on State Highway 16, 0.1 mi northwest of Helotes, and 8.6 mi upstream from mouth.

DRAINAGE AREA.--15.0 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR TX-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,014.82 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. An undetermined amount of flow is diverted for domestic use above station, and some streamflow enters the Edwards and associated limestones through the Balcones Fault Zone in the vicinity of the gage. Recording rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1923, 13.7 ft in 1927, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	9.1	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	3.8	.05	.00	.00
4	.00	.00	.00	.00	.00	.00	9.0	.00	.75	.00	.00	.00
5	.00	.34	.00	.00	.00	.00	21	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	18	.00	.00	.35	.00	.00
7	1.6	.00	.00	.00	.00	.00	11	.00	.00	.00	.00	.00
8	.48	.00	.00	.00	.00	.00	6.7	.46	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	2.7	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.57	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	1.4	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
13	.00	.00	.00	.00	.00	.53	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.41	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.0
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.7
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
27	.00	.00	.04	.00	.00	.00	.00	.20	.00	.00	.00	.00
28	.00	.00	.27	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	1.2	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	6.6	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	12	---	.00	.00	---
TOTAL	2.71	0.34	0.32	0.00	0.00	0.53	68.97	19.26	31.57	0.40	0.00	11.70
MEAN	.087	.011	.010	.000	.000	.017	2.30	.62	1.05	.013	.000	.39
MAX	1.6	.34	.27	.00	.00	.53	21	12	15	.35	.00	7.0
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	5.4	.7	.6	.00	.00	1.1	137	38	63	.8	.00	23
CFSM	.01	.00	.00	.00	.00	.00	.15	.04	.07	.00	.00	.03
IN.	.01	.00	.00	.00	.00	.00	.17	.05	.08	.00	.00	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1995, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	5.02	2.15	4.42	2.11	4.09	3.66	3.59	7.95	15.1	4.47	1.02	1.99															
MAX	66.7	16.4	79.0	31.0	66.3	32.3	40.0	66.6	142	84.4	13.5	36.1															
(WY)	1974	1977	1992	1992	1992	1985	1973	1992	1987	1973	1971	1973															
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000															
(WY)	1979	1971	1971	1969	1971	1971	1983	1989	1980	1969	1970	1969															

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1969 - 1995

ANNUAL TOTAL	101.93	135.80	4.63
ANNUAL MEAN	.28	.37	28.3
HIGHEST ANNUAL MEAN			.003
LOWEST ANNUAL MEAN			950
HIGHEST DAILY MEAN	17	21	.00
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		74	7680
INSTANTANEOUS PEAK STAGE		2.46	10.80
ANNUAL RUNOFF (AC-FT)	202	269	3350
ANNUAL RUNOFF (CFSM)	.019	.025	.31
ANNUAL RUNOFF (INCHES)	.25	.34	4.19
10 PERCENT EXCEEDS	.00	.00	7.2
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00



## GUADALUPE RIVER BASIN

301

08181400 HELOTES CREEK AT HELOTES, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1969 to current year. Pesticide analyses: May 1969 to June 1981, October 1984 to current year. Sediment analyses: October 1968 to September 1973.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
MAY 30...	1330	1.5	375	8.1	22.5	50	14	6.6	77	3.8	K2200
DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CAC03)	HARDNESS NONCARBONIC FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT DIS-FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)
MAY 30...	K12000	160	32	49	9.2	11	0.4	1.9	130	13	18
DATE	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, NON-FILTERABLE (MG/L)	RESIDUE FIXED NON-FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)
MAY 30...	0.10	8.1	188	9	4	5	0.150	<0.010	0.150	0.150	0.030
DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)
MAY 30...	<0.20	<0.010	0.010	0.03	16	<1	21	<0.5	<1.0	<5	3
DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM, DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY, DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)
MAY 30...	<10	29	<10	<4	2	<0.1	<10	10	<1	3.0	170
DATE	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)
MAY 30...	<6	9	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.14	<0.010
DATE	DI-SYSTON TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	
MAY 30...	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01	<0.01	
DATE	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE, TOTAL (UG/L)	PHORATE, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP, TOTAL (UG/L)	2,4,5-T, TOTAL (UG/L)	
MAY 30...	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01	

08181440 INGRAM RD. OUTFALL AT LEON CREEK TRIB. AT SAN ANTONIO, TX

LOCATION.--Lat 29°26'25", long 98°39'26", Bexar County, Hydrologic Unit 12100302, 445 ft. south of the intersection of Ingram Rd. and Richland Hills Dr. on the east side of the northbound lane of Ingram Rd.

DRAINAGE AREA.-- 0.0218 mi<sup>2</sup>.

PERIOD OF RECORD.-- Chemical and biochemical analyses: December 1993 to current year.

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from storm sewer systems draining urban basins. This study is in cooperation with the City of San Antonio to fulfill requirements (by EPA) for the Texas Department of Transportation in applying for a National Pollution Discharge Elimination System (NPDES) storm-water discharge permit.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	PRECIP- ITATION TOTAL INCHES/ STORM	ELAPSED TIME OF STORM (HOURS)	STORM WATER FLOW (MGD)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	PH WATER WHOLE LAB (STAND- ARD UNITS)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAY												
08-08	0221	0.75	3.4	5.3	62	164	7.5	7.3	--	8.1	--	--
08...	0212	--	--	--	--	--	--	--	59	--	K1100	7500
MAY												
24-24	0244	0.96	3.2	4.4	42	74	8.0	8.0	--	4.2	--	--
24...	0236	--	--	--	--	--	--	--	48	--	K1900	59000

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FID. AS CACO3 (MG/L)	ALKA- LINIT WAT DIS FIX END FIELD CACO3 (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
MAY												
08-08	20	2	18	26	120	37	7.7	0.28	1.4	12	0.1	1.9
08...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
24-24	14	0	16	19	170	18	5.4	0.18	0.80	10	0.1	1.1
24...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	ANTIMONY TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	CYANIDE, TOTAL EPA (MG/L AS CN)
MAY												
08-08	2.8	1.4	1.7	0.290	0.090	--	1	<10	<1	5	6	--
08...	--	--	--	--	--	<10.0	--	--	--	--	--	<0.010
MAY												
24-24	1.6	0.60	1.1	0.250	0.050	--	1	<10	<1	6	7	--
24...	--	--	--	--	--	<10.0	--	--	--	--	--	<0.010

DATE	CYANIDE TOTAL (MG/L AS CN)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, TOTAL RECOV- ERABLE EPA (UG/L AS AG)	THAL- LIUM, TOTAL (UG/L AS TL)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PHENOLS TOTAL (UG/L)
MAY												
08-08	--	14	<0.10	4	<1	<1	--	--	120	--	--	--
08...	<0.010	--	--	--	--	--	<0.500	<10	--	15	<1	4
MAY												
24-24	--	13	<0.10	5	<1	<1	--	--	90	--	--	--
24...	<0.010	--	--	--	--	--	<0.500	<10	--	12	<1	3

DATE	ACRO- LEIN TOTAL (UG/L)	ACRYLO- NITRILE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	BROMO- BENZENE WHOLE, TOTAL (UG/L)	METHANE BROMO- CHLORO- WAT UNFLTRD REC (UG/L)	BROMO- FORM TOTAL (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL- WATER UNFLTRD REC (UG/L)	BENZENE TERT- BUTYL- WATER UNFLTRD REC (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)
MAY												
08-08	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
24-24	--	--	--	--	--	--	--	--	--	--	--	--
24...	<80	<80	<0.8	<0.8	<0.80	<0.8	<0.80	<0.80	<0.80	<0.8	<0.80	<0.8

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	0-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-E NE TOTAL (UG/L)	1,1-DI CHLORO-PRO-PENE, WH TOTAL (UG/L)
MAY 08-08	--	--	--	--	--	--	--	--	--	--	--	--
MAY 08-08	--	--	--	--	--	--	--	--	--	--	--	--
MAY 24-24	--	--	--	--	--	--	--	--	--	--	--	--
MAY 24-24	<0.8	<4.0	<0.8	<0.8	<0.8	<0.80	<4.0	<0.8	<0.8	<0.8	<0.8	<0.8
DATE	BENZENE 0-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-PHENYL-HYDRA-ZINE WATER TOT.REC (UG/L)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L)	1,2-TRANS DI-CHLORO-ETHENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L)	2,2-DI-CHLORO-PRO-PANE WAT. WH TOTAL (UG/L)
MAY 08-08	<5.0	<5.0	<5.0	--	--	--	<5.0	--	--	--	--	--
MAY 08-08	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	--	--
MAY 24-24	<5.0	<5.0	<5.0	--	--	--	<5.0	--	--	--	--	--
MAY 24-24	<5.0	<5.0	<5.0	<0.8	<0.8	<0.8	--	<0.8	<0.8	<0.8	<0.8	<0.8
DATE	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	METHYL ETHER TERT-BUTYL WAT UNF REC (UG/L)	NAPHTH-ALENE TOTAL (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	STYRENE TOTAL (UG/L)
MAY 08-08	--	--	--	<5.0	--	--	--	--	--	<5.0	--	--
MAY 08-08	--	--	--	<5.0	--	--	--	--	--	<5.0	--	--
MAY 24-24	--	--	--	<5.0	--	--	--	--	--	<5.0	--	--
MAY 24-24	<0.8	<0.8	<0.8	<5.0	<0.80	<0.80	<0.8	<0.8	<0.8	<5.0	<0.80	<0.8
DATE	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L)	TETRA-CHLORO-ETHYL-E NE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L)	BENZENE 1,2,4- TRI-CHLORO-WAT UNF REC (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-ETHYL-E NE TOTAL (UG/L)	TRI-CHLORO-FLURO-METHANE TOTAL (UG/L)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)
MAY 08-08	--	--	--	--	--	<5.0	--	--	--	--	--	--
MAY 08-08	--	--	--	--	--	<5.0	--	--	--	--	--	--
MAY 24-24	--	--	--	--	--	<5.0	--	--	--	--	--	--
MAY 24-24	<0.8	<0.8	<0.8	<0.8	<0.80	<5.0	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
DATE	PSEUDO-CUMENE WATER UNFLTRD REC (UG/L)	MESIT-YLENE WATER UNFLTRD REC (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)	ACE-NAPHTH-ENE TOTAL (UG/L)	ACE-NAPHTH-YLENE TOTAL (UG/L)	ANTHRA-CENE TOTAL (UG/L)	BENZI-DINE TOTAL (UG/L)	BENZO A ANTHRAC ENE1,2-BENZANT HRACENE TOTAL (UG/L)	BENZO-A-PYRENE TOTAL (UG/L)	BENZO B FLUOR-AN- THENE TOTAL (UG/L)	BENZO K FLUOR-AN- THENE TOTAL (UG/L)
MAY 08-08	--	--	--	--	<5.0	<5.0	<5.0	<40.0	<10.0	<10.0	<10.0	<10.0
MAY 08-08	--	--	--	--	--	--	--	--	--	--	--	--
MAY 24-24	--	--	--	--	<5.0	<5.0	<5.0	<40.0	<10.0	<10.0	<10.0	<10.0
MAY 24-24	<0.80	<0.80	<0.8	<0.80	--	--	--	--	--	--	--	--
DATE	BENZOGHI PERYL ENE1,12-BENZOP ERYLENE TOTAL (UG/L)	4-BROMO-PHENYL PHENYL TOTAL (UG/L)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L)	PARA-CHLORO-META CRESOL TOTAL (UG/L)	2-CHLORO-NAPH-THALENE TOTAL (UG/L)	2-CHLORO-PHENOL TOTAL (UG/L)	4-CHLORO-PHENYL PHENYL TOTAL (UG/L)	CHRY-SENE TOTAL (UG/L)	1,2,5,6-DIBENZ-ANTHRA-CENE TOTAL (UG/L)
MAY 08-08	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<30.0	<5.0	<5.0	<5.0	<10.0	<10.0
MAY 08-08	--	--	--	--	--	--	--	--	--	--	--	--
MAY 24-24	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<30.0	<5.0	<5.0	<5.0	<10.0	<10.0
MAY 24-24	--	--	--	--	--	--	--	--	--	--	--	--

## SAN ANTONIO RIVER BASIN

08181440 INGRAM RD. OUTFALL AT LEON CREEK TRIB. AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'47", long 98°35'02", Bexar County, Hydrologic Unit 12100302, on left bank between bridges on Interstate Highway 35 in San Antonio, 1.7 mi northeast of the intersection of Interstate Highway 35 and Loop 410, and 11.8 mi upstream from mouth.

DRAINAGE AREA.--219 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 573.49 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	12	8.7	9.5	8.4	5.0	3.6	2.5	15	43	3.9	3.0
2	3.3	11	19	7.5	8.3	5.3	3.3	2.4	6.4	20	11	2.3
3	3.7	11	14	9.5	6.7	6.6	3.2	2.6	4.7	12	3.9	1.8
4	4.7	11	7.3	9.0	7.7	5.5	4.0	3.3	4.0	34	3.0	1.8
5	4.8	36	8.6	8.8	7.6	5.4	6.7	2.9	3.5	15	3.0	2.2
6	4.8	13	9.0	9.4	7.7	4.9	4.3	3.0	3.7	9.8	2.8	2.2
7	4.7	11	8.8	9.7	7.5	36	3.9	2.9	3.2	8.3	4.1	2.4
8	1730	10	9.1	9.2	7.9	8.2	3.6	55	3.7	8.0	3.1	14
9	218	11	9.2	8.9	8.0	5.7	2.9	11	3.4	6.6	3.0	3.5
10	58	10	11	9.2	8.2	4.7	3.3	5.9	3.3	6.0	2.6	2.5
11	31	9.6	8.9	9.2	7.9	4.7	13	4.9	164	6.2	2.5	2.0
12	19	9.4	8.7	9.5	7.4	4.7	4.4	3.6	24	5.8	2.8	2.5
13	15	9.1	9.5	8.8	8.2	57	3.5	4.5	8.5	5.1	2.9	2.3
14	14	9.6	9.5	8.5	9.2	15	3.2	3.9	5.6	5.2	2.6	2.5
15	37	9.1	26	7.6	8.3	7.2	3.1	3.5	4.6	4.9	2.5	3.0
16	17	9.5	33	8.1	7.7	5.4	3.1	4.0	4.7	4.1	2.4	2.1
17	13	9.6	13	7.8	6.5	4.4	2.9	3.8	4.3	4.5	2.3	2.5
18	33	9.5	9.3	7.9	8.2	4.0	3.3	7.9	3.9	4.5	2.2	1.9
19	65	10	8.7	7.9	6.3	3.7	3.5	3.9	3.7	4.0	2.5	2.2
20	68	9.1	8.6	8.4	6.0	3.6	3.5	3.6	3.8	3.9	2.4	121
21	38	8.5	8.7	8.3	6.0	3.8	2.8	3.0	4.1	3.8	2.6	33
22	23	8.7	7.4	8.3	7.8	3.8	3.2	2.9	3.6	3.3	3.1	29
23	17	11	8.0	7.4	7.3	3.5	2.7	3.3	3.1	3.2	2.4	11
24	16	9.9	7.7	8.1	6.6	3.5	2.4	75	3.5	3.1	5.2	6.2
25	241	7.9	7.0	8.5	65	3.4	2.6	14	2.9	3.1	2.9	4.4
26	64	8.2	7.2	9.3	30	3.4	3.1	6.1	2.7	3.1	2.5	3.6
27	41	8.3	7.6	8.0	8.7	3.6	3.0	81	3.2	2.6	1.8	3.7
28	22	8.3	111	8.3	5.6	3.5	3.0	21	2.9	3.2	2.0	3.6
29	16	8.4	36	8.4	---	3.6	3.0	7.4	585	3.2	2.3	3.7
30	13	8.4	15	8.6	---	3.7	2.6	185	78	2.8	2.3	4.0
31	12	---	10	8.1	---	3.4	---	73	---	5.7	4.2	---
TOTAL	2850.7	318.1	465.5	265.7	290.7	236.2	110.7	606.8	967.0	248.0	96.8	279.9
MEAN	92.0	10.6	15.0	8.57	10.4	7.62	3.69	19.6	32.2	8.00	3.12	9.33
MAX	1730	36	111	9.7	65	57	13	185	585	43	11	121
MIN	3.3	7.9	7.0	7.4	5.6	3.4	2.4	2.4	2.7	2.6	1.8	1.8
AC-FT	5650	631	923	527	577	469	220	1200	1920	492	192	555

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY)

	MEAN	27.7	12.1	63.1	22.9	48.3	33.0	24.7	85.7	147	25.2	9.00	15.6
MAX	92.0	37.9	575	116	355	192	82.6	356	824	144	23.0	38.3	
(WY)	1995	1993	1992	1992	1992	1992	1991	1992	1987	1990	1992	1988	
MIN	4.94	3.95	4.62	5.36	5.93	6.46	3.69	5.89	4.96	2.56	1.94	1.97	
(WY)	1992	1992	1990	1990	1989	1989	1995	1989	1990	1989	1989	1989	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1985 - 1995

ANNUAL TOTAL	8255.0	6736.1	
ANNUAL MEAN	22.6	18.5	42.7
HIGHEST ANNUAL MEAN			156
LOWEST ANNUAL MEAN			9.41
HIGHEST DAILY MEAN	1730	Oct 8	6190
LOWEST DAILY MEAN	3.1	Sep 25	1.1
ANNUAL SEVEN-DAY MINIMUM	3.7	Jul 24	1.4
INSTANTANEOUS PEAK FLOW			21100
INSTANTANEOUS PEAK STAGE			22.30
ANNUAL RUNOFF (AC-FT)	16370	13360	30930
10 PERCENT EXCEEDS	36	22	41
50 PERCENT EXCEEDS	7.7	6.2	8.8
90 PERCENT EXCEEDS	4.1	2.6	3.7



08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1984 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1984 to current year.

pH: April 1989 to current year.

WATER TEMPERATURE: September 1984 to current year.

DISSOLVED OXYGEN: April 1989 to current year.

INSTRUMENTATION.--Since September 1984, specific conductance and water temperature are recorded continuously at this station. Since April 1989, pH and dissolved oxygen are recorded continuously.

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 regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,260 microsiemens Nov. 19, 1988, June 29, 1995; minimum, 39 microsiemens Jan. 18, 199

pH: Maximum, 8.5 units Mar. 29, 1990; minimum, 6.7 units June 30, 1991.

WATER TEMPERATURE: Maximum, 32.5°C July 16, 17, 1989; minimum, 4.0°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 19.8 mg/L Oct. 13, 14, 1989; minimum, 1.2 mg/L Sept. 1, 1990, Sept. 10, 1993.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,260 microsiemens Jun. 29; minimum, 151 microsiemens Oct. 8, May 8.

pH: Maximum, 8.3 units Oct. 25; minimum, 7.0 Aug. 5.

WATER TEMPERATURE: Maximum, 30.0°C Jul. 27; minimum, 10.5°C Jan. 5, 6.

DISSOLVED OXYGEN: Maximum, 13.7 mg/L Feb. 20; minimum, 1.9 mg/L Sep. 8, 9.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	
NOV 09...	1055	11	756	7.7	22.0	8	14	6.1	71	--	1.0	
DEC 05...	1125	8.6	780	7.6	18.0	18	3.4	6.3	67	--	1.2	
DEC 28-28	0331	325	447	7.7	--	--	--	--	--	30	3.9	
FEB 22...	1340	8.1	790	7.8	16.5	--	--	10.7	111	<10	0.8	
FEB 27...	1430	8.1	457	7.6	19.0	20	6.3	7.1	78	--	1.7	
MAY 22...	0940	2.8	719	7.6	24.0	8	5.3	4.6	56	--	1.4	
MAY 30-30	1440	359	190	7.6	--	--	--	--	--	37	4.3	
JUN 11-11	0433	149	310	7.6	--	--	--	--	--	57	7.2	
JUL 06...	1355	10	538	7.4	28.0	34	8.3	5.4	70	--	2.6	
AUG 16...	1015	2.4	798	7.7	27.0	15	3.5	4.6	59	--	1.3	
DATE		COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 09...	--	--	--	260	38	85	11	58	2	3.5	220	83
DEC 05...	--	--	--	290	26	92	14	52	1	4.0	260	78
DEC 28-28	--	--	--	150	18	51	6.0	29	1	3.2	130	46
FEB 22...	96	110	290	55	95	13	53	1	3.2	240	93	
FEB 27...	--	--	150	17	49	6.6	35	1	3.0	130	52	
MAY 22...	--	--	220	27	70	11	63	2	3.6	190	86	
MAY 30-30	--	--	71	9	25	2.2	7.3	0.4	3.8	62	9.1	
JUN 11-11	--	--	110	12	35	4.3	19	0.8	3.6	93	28	
JUL 06...	--	--	210	30	69	8.3	32	1	3.6	180	46	
AUG 16...	--	--	230	5	71	13	85	2	3.0	230	110	



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08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible][illegible][illegible]

## GUADALUPE RIVER BASIN

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

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. 1994	2850.7	318	181	1390	17	132	26	203	120
NOV. 1994	318.1	719	427	367	46	39	84	72	250
DEC. 1994	465.5	654	387	486	41	51	74	93	230
JAN. 1995	265.7	762	454	326	49	35	91	66	270
FEB. 1995	290.7	719	427	336	46	36	85	67	250
MAR. 1995	236.2	624	367	234	38	24	68	43	230
APR. 1995	110.7	766	458	137	50	15	93	28	270
MAY 1995	606.8	419	241	394	24	39	38	63	160
JUNE 1995	967.0	552	322	841	33	86	56	147	200
JULY 1995	248.0	584	342	229	35	24	62	41	210
AUG. 1995	96.8	752	448	117	48	13	90	23	260
SEPT 1995	279.9	477	276	209	28	21	46	35	180
TOTAL	6736.1	**	**	5100	**	515	**	881	**
WTD.AVG.	19	478	279	**	28	**	48	**	180

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	792	745	754	710	686	698	756	742	747	646	600	627
2	911	792	862	761	696	734	799	745	774	658	644	653
3	912	834	877	717	705	712	768	403	555	649	633	639
4	834	771	798	725	711	717	709	400	525	730	634	697
5	777	768	770	725	267	479	788	709	767	728	718	724
6	774	742	754	701	459	656	797	783	787	758	721	744
7	748	714	742	732	701	720	808	792	802	739	706	721
8	714	151	233	724	701	715	818	784	795	724	705	711
9	339	166	246	752	703	730	818	783	802	751	724	744
10	465	339	410	724	698	708	783	763	770	798	746	775
11	544	465	511	740	721	728	782	774	779	796	750	773
12	599	544	575	761	721	739	863	766	815	763	751	757
13	652	599	620	763	758	760	866	834	850	796	758	785
14	680	643	664	760	750	754	863	821	830	790	774	784
15	662	383	525	772	754	758	875	681	841	774	757	762
16	649	618	643	789	772	781	736	525	653	760	753	757
17	647	638	643	779	767	772	716	663	698	807	760	777
18	662	404	627	860	775	795	695	612	649	816	783	803
19	709	367	557	879	804	847	661	615	638	783	764	770
20	727	462	509	804	779	795	744	661	697	794	766	783
21	522	472	487	779	759	765	788	744	775	795	784	789
22	567	522	553	775	762	769	821	785	796	831	785	810
23	635	565	598	799	770	781	867	821	852	829	784	800
24	701	632	661	803	792	798	846	833	840	806	775	791
25	708	165	338	797	713	763	879	845	865	804	785	793
26	663	335	509	775	704	741	879	823	845	807	787	799
27	524	469	503	786	775	782	845	828	840	805	784	795
28	594	514	551	794	775	787	831	211	412	811	764	797
29	661	594	643	782	762	770	738	311	564	816	750	780
30	687	653	673	784	747	761	738	679	703	896	816	841
31	691	660	675	---	---	---	680	646	668	919	835	880
MONTH	912	151	597	879	267	744	879	211	740	919	600	763

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	835	775	792	675	595	636	742	731	738	797	777	785
2	784	764	774	761	675	723	751	741	744	794	777	784
3	793	773	785	754	730	744	781	751	764	796	778	789
4	787	740	764	743	672	709	792	777	785	778	753	762
5	763	741	749	789	684	740	779	721	749	759	752	755
6	768	746	757	815	789	805	740	627	685	759	744	751
7	774	755	764	815	333	670	698	636	677	787	757	775
8	777	762	770	608	547	564	791	681	756	788	151	577
9	768	760	764	564	556	560	791	767	777	499	427	449
10	765	740	754	575	561	567	776	762	769	518	462	495
11	773	751	762	595	575	586	771	575	697	568	518	546
12	798	754	780	709	595	645	674	439	549	620	567	580
13	943	798	863	709	218	508	763	674	741	667	620	645
14	943	806	873	453	346	383	971	746	826	674	660	669
15	810	786	791	659	453	561	1120	971	1080	745	666	701
16	919	810	894	740	659	710	1100	960	1030	764	745	755
17	940	914	932	757	740	751	960	853	919	772	624	765
18	935	828	889	747	711	726	853	789	818	769	624	750
19	828	785	796	716	693	705	789	712	765	795	752	775
20	801	772	787	705	693	699	763	707	730	784	680	736
21	779	770	773	727	705	716	782	763	773	720	680	699
22	783	762	774	741	714	732	784	768	779	756	720	735
23	835	783	819	735	720	728	768	758	763	827	756	793
24	812	790	799	737	720	727	770	753	758	832	237	463
25	792	170	686	789	737	754	770	750	755	368	295	328
26	508	373	404	798	778	791	792	770	786	482	368	425
27	495	414	449	779	741	756	800	791	797	667	239	412
28	595	495	548	754	746	751	801	789	794	363	246	298
29	---	---	---	766	746	755	805	790	798	460	363	416
30	---	---	---	794	750	777	805	795	801	472	172	301
31	---	---	---	758	729	737	---	---	---	369	201	300
MONTH	943	170	760	815	218	684	1120	439	780	832	151	613
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	493	369	435	451	352	427	907	829	850	855	802	832
2	530	493	506	512	451	487	844	654	766	807	802	804
3	599	530	564	547	511	530	678	547	574	802	780	790
4	654	599	627	544	275	431	621	529				

## GUADALUPE RIVER BASIN

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.7	7.5	7.6	7.8	7.8	7.8	7.6	7.5	7.6	7.7	7.6	7.7
2	7.7	7.5	7.5	7.9	7.8	7.9	7.7	7.5	7.6	7.7	7.6	7.7
3	7.7	7.5	7.5	7.9	7.9	7.9	7.6	7.3	7.4	7.8	7.7	7.7
4	7.7	7.5	7.6	7.9	7.9	7.9	7.4	7.2	7.3	7.8	7.6	7.7
5	7.7	7.6	7.6	8.1	7.8	7.9	7.6	7.4	7.5	7.7	7.6	7.7
6	7.7	7.5	7.6	8.0	7.8	7.9	7.5	7.4	7.5	7.8	7.7	7.7
7	8.0	7.5	7.5	7.9	7.9	7.9	7.5	7.4	7.4	7.7	7.7	7.7
8	8.0	7.5	7.9	7.9	7.9	7.9	7.5	7.4	7.5	7.7	7.6	7.7
9	7.8	7.5	7.6	7.9	7.9	7.9	7.5	7.4	7.5	7.8	7.6	7.7
10	7.5	7.5	7.5	8.0	7.9	8.0	7.6	7.5	7.5	7.8	7.6	7.7
11	7.6	7.5	7.6	8.0	7.9	7.9	7.6	7.5	7.6	7.8	7.6	7.7
12	7.6	7.6	7.6	7.9	7.9	7.9	7.7	7.6	7.6	7.7	7.6	7.7
13	7.6	7.6	7.6	7.9	7.9	7.9	7.7	7.6	7.6	7.8	7.6	7.7
14	7.6	7.6	7.6	8.0	7.9	7.9	7.6	7.6	7.6	7.8	7.6	7.7
15	7.7	7.5	7.6	8.0	7.8	7.9	7.6	7.6	7.6	7.8	7.7	7.7
16	7.7	7.6	7.6	7.9	7.8	7.8	7.7	7.6	7.7	7.9	7.7	7.8
17	7.6	7.5	7.6	7.9	7.8	7.9	7.6	7.6	7.6	7.8	7.7	7.7
18	7.8	7.5	7.6	7.9	7.9	7.9	7.6	7.5	7.6	7.9	7.7	7.8
19	7.8	7.7	7.8	7.9	7.7	7.8	7.6	7.5	7.6	7.9	7.7	7.8
20	7.9	7.8	7.8	7.8	7.7	7.7	7.6	7.5	7.6	7.9	7.7	7.8
21	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.6	7.6	7.9	7.7	7.8
22	7.7	7.7	7.7	7.8	7.8	7.8	7.7	7.6	7.7	7.9	7.7	7.8
23	7.7	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.7	7.8
24	7.8	7.7	7.8	7.7	7.6	7.7	7.8	7.7	7.7	7.9	7.7	7.8
25	8.3	7.6	7.9	7.7	7.6	7.6	7.8	7.7	7.7	7.9	7.7	7.8
26	7.9	7.6	7.8	7.7	7.5	7.6	7.8	7.7	7.8	7.8	7.6	7.7
27	7.8	7.7	7.7	7.7	7.6	7.7	7.8	7.7	7.7	7.8	7.6	7.7
28	7.8	7.7	7.8	7.7	7.6	7.6	7.9	7.7	7.8	7.8	7.6	7.7
29	7.8	7.8	7.8	8.0	7.6	7.6	7.9	7.7	7.8	7.9	7.7	7.8
30	7.8	7.8	7.8	7.6	7.5	7.6	7.8	7.7	7.7	7.9	7.7	7.8
31	7.9	7.8	7.8	---	---	---	7.7	7.6	7.6	7.9	7.7	7.8
MONTH	8.3	7.5	7.7	8.1	7.5	7.8	7.9	7.2	7.6	7.9	7.6	7.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.0	7.7	7.9	7.7	7.6	7.7	7.8	7.7	7.8	7.9	7.7	7.7
2	8.0	7.7	7.9	7.8	7.7	7.8	7.8	7.7	7.8	7.9	7.7	7.7
3	8.0	7.7	7.9	8.0	7.8	7.9	7.8	7.6	7.6	7.8	7.7	7.7
4	8.0	7.7	7.9	7.9	7.7	7.8	7.6	7.5	7.6	7.9	7.7	7.8
5	8.1	7.8	7.9	7.9	7.7	7.8	7.8	7.6	7.7	7.9	7.7	7.8
6	8.1	7.7	7.9	7.9	7.8	7.8	7.7	7.5	7.6	7.9	7.7	7.8
7	7.9	7.7	7.8	8.1	7.8	7.9	7.6	7.5	7.5	7.9	7.7	7.8
8	8.0	7.7	7.9	7.9	7.7	7.8	7.6	7.5	7.5	8.0	7.7	7.9
9	8.1	7.8	7.9	7.8	7.7	7.7	7.7	7.5	7.6	7.7	7.6	7.7
10	8.1	7.8	7.9	7.8	7.6	7.7	7.7	7.6	7.6	7.8	7.6	7.6
11	8.1	7.7	7.9	7.9	7.6	7.8	7.8	7.6	7.7	7.7	7.6	7.6
12	8.0	7.8	7.9	8.0	7.6	7.8	7.7	7.4	7.6	7.8	7.6	7.7
13	7.9	7.8	7.8	8.1	7.6	7.8	7.7	7.6	7.7	7.9	7.7	7.7
14	8.0	7.8	7.9	7.7	7.5	7.6	7.8	7.6	7.7	7.9	7.7	7.8
15	7.9	7.7	7.8	7.8	7.6	7.7	7.8	7.7	7.7	8.0	7.7	7.8
16	8.0	7.7	7.8	7.8	7.7	7.8	7.8	7.7	7.7	8.0	7.7	7.8
17	8.0	7.8	7.9	7.9	7.7	7.8	7.7	7.6	7.7	8.0	7.7	7.8
18	8.1	7.8	7.9	7.9	7.7	7.8	7.7	7.6	7.6	8.1	7.7	7.9
19	8.0	7.8	7.9	7.9	7.6	7.8	7.7	7.6	7.6	8.0	7.6	7.7
20	8.1	7.8	8.0	7.9	7.6	7.8	7.7	7.6	7.6	8.0	7.6	7.7
21	8.1	7.8	8.0	7.8	7.6	7.7	7.7	7.6	7.6	8.0	7.5	7.7
22	8.1	7.8	8.0	7.8	7.6	7.7	7.7	7.6	7.6	7.7	7.5	7.6
23	8.1	7.8	8.0	7.7	7.5	7.6	7.8	7.6	7.7	7.8	7.5	7.6
24	8.1	7.8	7.9	7.7	7.5	7.6	7.8	7.6	7.7	7.9	7.6	7.7
25	8.2	7.8	7.9	7.7	7.6	7.6	7.9	7.7	7.8	7.7	7.5	7.6
26	8.0	7.6	7.7	7.6	7.5	7.6	7.9	7.7	7.8	7.6	7.5	7.5
27	7.6	7.6	7.6	7.9	7.6	7.7	7.9	7.7	7.8	7.9	7.5	7.7
28	7.6	7.6	7.6	7.7	7.7	7.7	7.9	7.7	7.8	7.7	7.5	7.6
29	---	---	---	7.7	7.7	7.7	7.9	7.7	7.7	7.5	7.4	7.5
30	---	---	---	7.8	7.7	7.7	7.9	7.7	7.7	8.2	7.5	7.7
31	---	---	---	7.8	7.7	7.7	---	---	---	7.7	7.5	7.6
MONTH	8.2	7.6	7.9	8.1	7.5	7.7	7.9	7.4	7.7	8.2	7.4	7.7



GUADALUPE RIVER BASIN

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08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.5	7.5	7.6	7.5	7.6	8.2	7.9	8.0	7.9	7.5	7.6
2	7.5	7.5	7.5	7.6	7.6	7.6	8.0	7.8	7.9	7.8	7.4	7.6
3	7.6	7.5	7.6	7.6	7.6	7.6	7.9	7.4	7.6	7.8	7.4	7.6
4	7.6	7.5	7.6	7.7	7.4	7.5	7.5	7.1	7.3	7.9	7.4	7.6
5	7.6	7.5	7.6	7.7	7.6	7.6	7.5	7.0	7.2	7.9	7.4	7.6
6	7.7	7.6	7.6	7.6	7.5	7.6	7.6	7.1	7.3	7.9	7.5	7.6
7	7.6	7.6	7.6	7.6	7.5	7.6	7.4	7.2	7.3	7.9	7.5	7.6
8	7.7	7.6	7.7	7.7	7.6	7.6	7.7	7.3	7.4	7.7	7.2	7.5
9	7.8	7.6	7.7	7.7	7.6	7.7	7.7	7.3	7.4	7.6	7.2	7.4
10	7.8	7.6	7.7	7.8	7.7	7.7	7.7	7.3	7.4	7.5	7.3	7.4
11	8.1	7.5	7.7	7.8	7.7	7.8	7.7	7.3	7.4	7.6	7.3	7.4
12	7.6	7.4	7.4	7.8	7.7	7.8	7.6	7.3	7.4	7.7	7.4	7.5
13	7.5	7.4	7.4	7.8	7.7	7.8	7.7	7.3	7.5	7.7	7.4	7.5
14	7.5	7.4	7.5	7.8	7.7	7.8	7.8	7.4	7.5	7.7	7.5	7.6
15	7.6	7.5	7.5	7.9	7.7	7.8	7.8	7.3	7.5	7.8	7.5	7.6
16	7.6	7.5	7.6	7.8	7.7	7.8	7.8	7.4	7.5	7.8	7.5	7.6
17	7.6	7.4	7.5	7.9	7.7	7.8	7.8	7.3	7.5	7.8	7.5	7.6
18	7.6	7.5	7.5	7.9	7.8	7.8	7.8	7.3	7.5	7.8	7.5	7.6
19	7.6	7.4	7.5	7.9	7.8	7.8	7.8	7.4	7.5	7.8	7.5	7.6
20	7.7	7.5	7.6	7.9	7.7	7.8	7.9	7.4	7.6	7.9	7.6	7.7
21	7.7	7.6	7.6	8.0	7.7	7.8	7.8	7.4	7.6	7.7	7.4	7.5
22	7.8	7.6	7.6	8.0	7.7	7.8	7.9	7.4	7.6	7.6	7.4	7.5
23	7.8	7.6	7.6	8.0	7.7	7.8	7.8	7.4	7.5	7.5	7.4	7.5
24	7.8	7.6	7.6	7.9	7.7	7.8	7.8	7.3	7.5	7.5	7.5	7.5
25	7.8	7.6	7.7	8.0	7.7	7.8	7.7	7.4	7.5	7.5	7.5	7.5
26	7.9	7.6	7.7	8.0	7.8	7.9	7.7	7.4	7.5	7.6	7.5	7.5
27	7.9	7.6	7.7	8.0	7.8	7.9	7.8	7.4	7.5	7.6	7.5	7.5
28	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.4	7.5	7.6	7.5	7.6
29	8.2	7.6	7.8	8.1	7.8	7.9	7.8	7.4	7.5	7.7	7.6	7.6
30	7.6	7.5	7.5	8.1	7.9	8.0	7.8	7.4	7.5	7.7	7.6	7.7
31	---	---	---	8.1	7.9	7.9	7.6	7.4	7.5	---	---	---
MONTH	8.2	7.4	7.6	8.1	7.4	7.8	8.2	7.0	7.5	7.9	7.2	7.6
YEAR	8.3	7.0	7.7									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	24.0	22.0	23.0	21.0	19.0	20.0	15.5	14.0	15.0	14.5	13.5	14.0
2	24.5	22.0	23.0	21.0	19.0	20.0	17.5	15.0	15.5	13.5	12.0	12.5
3	24.5	22.5	23.5	22.5	21.0	22.0	18.5	17.5	18.0	12.5	11.5	12.0
4	25.0	23.5	24.0	23.5	22.5	23.0	19.0	18.0	18.5	12.5	11.5	12.0
5	24.5	23.0	24.0	23.5	20.0	21.5	19.0	17.5	18.5	12.0	10.5	11.0
6	25.0	23.5	24.0	20.5	19.5	20.0	20.5	19.0	19.5	13.0	10.5	11.5
7	24.5	22.5	24.0	20.5	19.0	19.5	21.5	20.5	21.0	13.5	11.5	12.5
8	24.0	20.0	21.5	22.0	20.0	21.0	22.0	21.0	21.5	14.0	11.5	13.0
9	20.5	19.5	20.0	22.5	21.5	22.0	22.0	18.0	20.5	15.5	13.0	14.0
10	20.5	19.5	20.0	21.5	19.0	20.0	18.0	15.5	17.0	17.5	15.5	16.5
11	20.0	19.0	19.5	19.0	17.5	18.0	15.5	14.0	14.5	18.5	17.0	18.0
12	20.0	19.0	19.5	19.0	18.0	18.5	14.0	12.5	13.5	19.5	18.5	19.0
13	20.0	19.0	19.5	20.5	19.0	20.0	15.0	14.0	14.5	19.0	17.0	18.0
14	20.5	20.0	20.0	21.5	20.5	21.0	17.0	15.0	16.0	17.0	15.0	16.0
15	20.5	20.0	20.0	21.5	19.5	20.5	19.0	17.0	18.0	16.0	14.0	15.0
16	22.0	20.5	21.5	19.5	18.5	19.0	19.0	18.0	18.5	17.0	14.5	15.5
17	24.0	22.0	23.0	19.5	18.5	19.0	18.5	17.0	17.5	17.5	16.5	17.0
18	25.0	23.5	24.0	20.5	19.5	20.0	17.0	16.5	17.0	17.5	16.0	17.0
19	25.0	24.0	24.5	21.5	20.5	21.0	16.5	15.0	16.0	16.0	14.0	15.0
20	24.5	24.0	24.0	22.0	20.5	21.5	17.5	16.0	17.0	15.5	14.0	14.5
21	25.0	24.0	24.5	20.5	18.5	19.0	17.5	16.0	17.0	15.0	13.0	14.0
22	25.0	24.5	25.0	19.0	17.5	18.5	16.5	14.5	15.5	16.5	15.0	15.5
23	25.0	24.0	24.5	19.0	17.5	18.5	15.0	14.0	14.5	16.0	14.0	15.0
24	25.0	24.0	24.5	17.5	16.5	17.0	15.0	14.5	14.5	14.5	13.0	13.5
25	24.5	19.5	21.5	17.5	16.0	17.0	14.5	13.0	13.5	14.5	13.5	13.5
26	20.5	20.0	20.0	18.5	17.0	18.0	14.0	12.0	13.0	16.5	14.5	15.5
27	20.0	19.0	19.5	20.0	18.5	19.5	14.0	14.0	14.0	18.0	16.0	16.5
28	20.0	19.0	19.5	19.0	17.5	18.5	14.5	12.0	12.5	17.0	15.0	16.5
29	20.5	19.5	20.0	17.5	16.5	17.0	13.5	12.0	12.5	16.5	14.5	15.5
30	21.0	20.0	20.5	16.5	15.5	16.0	13.5	12.5	13.0	15.0	13.5	14.5
31	22.0	20.5	21.0	---	---	---	15.0	13.5	14.5	14.5	12.5	13.5
MONTH	25.0	19.0	22.0	23.5	15.5	19.5	22.0	12.0	16.0	19.5	10.5	15.0



## GUADALUPE RIVER BASIN

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08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.5	5.2	6.3	7.3	6.5	6.8	9.3	6.8	7.8	9.1	7.5	8.2
2	8.1	4.8	5.9	7.3	6.4	6.8	7.7	6.8	7.3	9.5	7.9	8.6
3	8.2	4.5	5.5	6.9	5.9	6.4	7.1	5.4	6.3	10.1	8.5	9.2
4	7.6	4.8	5.7	6.3	5.4	5.8	6.8	4.9	5.7	10.5	8.9	9.6
5	7.8	4.9	5.8	7.3	5.4	6.4	7.1	5.6	6.2	10.6	9.0	9.8
6	7.7	4.9	5.8	7.1	6.2	6.5	6.3	4.9	5.5	11.2	9.2	10.0
7	7.7	4.7	5.3	6.7	6.1	6.4	5.8	4.1	4.8	11.1	8.9	9.8
8	7.7	5.3	6.4	7.2	6.0	6.5	5.7	4.0	4.7	11.2	8.9	9.8
9	7.4	6.8	7.3	6.4	5.8	6.0	4.8	3.9	4.4	12.1	8.4	9.7
10	7.4	7.2	7.3	7.3	5.8	6.5	7.0	4.8	5.8	10.8	8.3	9.3
11	7.6	6.0	7.2	7.9	6.6	7.1	8.3	6.0	7.1	10.1	7.2	8.5
12	7.4	7.1	7.3	7.8	6.7	7.1	9.0	7.1	7.9	9.1	6.8	7.9
13	7.3	6.9	7.1	7.4	6.3	6.7	8.7	6.7	7.6	10.0	6.7	8.1
14	7.0	6.8	6.9	7.2	6.0	6.5	7.4	6.2	6.7	10.3	7.1	8.5
15	7.1	6.6	6.8	6.7	5.9	6.2	6.3	5.8	6.1	10.7	7.6	9.0
16	6.9	6.2	6.6	7.2	6.1	6.6	7.2	6.2	6.6	10.9	7.6	9.1
17	6.2	5.5	6.0	7.9	6.5	6.9	7.0	5.9	6.4	8.9	6.9	7.9
18	6.1	4.5	5.1	6.8	6.0	6.4	7.1	5.9	6.5	9.8	6.6	8.1
19	6.7	6.0	6.2	6.9	5.7	6.1	7.9	5.9	6.8	10.6	7.4	8.9
20	6.7	6.3	6.5	6.8	5.1	5.7	8.0	6.0	6.9	10.7	7.7	9.1
21	6.3	5.8	6.1	7.4	5.4	6.1	8.1	5.8	6.9	10.6	7.7	9.1
22	6.0	5.6	5.7	8.1	6.1	6.9	8.6	6.3	7.4	10.7	7.5	9.0
23	5.9	5.5	5.6	6.6	6.1	6.3	9.4	7.0	8.1	10.8	7.3	9.0
24	5.9	5.5	5.6	7.1	6.0	6.5	9.1	7.0	8.0	10.5	7.7	9.2
25	8.6	5.5	7.2	8.1	6.0	6.7	9.3	7.4	8.4	9.5	7.6	8.7
26	7.9	7.0	7.5	8.0	5.9	6.6	10.2	7.7	9.0	8.6	6.9	7.8
27	7.6	7.2	7.5	7.8	5.8	6.5	9.4	7.5	8.3	9.5	6.3	7.7
28	7.4	7.0	7.2	7.7	5.6	6.3	9.8	7.8	9.3	9.7	6.2	7.7
29	7.1	6.7	7.0	8.2	6.1	6.9	9.5	8.7	9.2	9.9	6.5	8.2
30	6.9	6.5	6.6	8.8	6.4	7.3	8.7	8.0	8.5	10.7	6.7	8.6
31	7.0	6.4	6.6	---	---	---	8.6	7.6	8.0	11.2	7.2	9.0
MONTH	8.6	4.5	6.4	8.8	5.1	6.5	10.2	3.9	7.0	12.1	6.2	8.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.9	7.5	9.3	7.4	5.9	6.6	8.9	6.2	7.4	6.8	3.6	4.7
2	12.0	7.4	9.3	8.3	6.9	7.6	9.3	6.2	7.5	6.7	3.6	4.7
3	12.2	7.0	9.1	10.1	7.9	8.9	7.7	5.4	6.0	6.2	3.7	4.6
4	12.4	7.4	9.4	9.5	8.0	8.7	6.0	4.9	5.4	7.3	3.8	5.0
5	13.1	7.4	9.7	10.9	7.6	9.0	7.2	5.0	5.9	6.9	3.9	5.0
6	13.2	7.4	9.8	9.9	7.2	8.3	7.4	5.2	5.9	6.3	3.6	4.6
7	9.8	7.0	8.4	9.6	7.1	8.3	6.8	4.1	5.2	5.3	3.4	4.0
8	10.9	7.2	9.0	10.4	7.7	8.8	7.2	3.9	5.2	6.5	3.3	4.8
9	12.7	7.4	9.7	10.8	8.1	9.2	7.3	4.0	5.3	5.3	4.1	4.5
10	12.7	7.4	9.9	11.1	7.4	9.0	6.4	3.9	4.8	5.8	3.6	4.4
11	12.6	6.6	9.4	11.5	6.8	8.9	6.8	4.5	5.5	4.2	3.4	3.8
12	9.9	6.9	8.4	11.6	6.6	8.7	7.3	4.3	5.4	5.2	3.6	4.1
13	9.3	7.3	8.4	8.5	6.9	7.8	7.7	4.5	5.7	6.6	3.8	4.7
14	10.1	7.7	8.8	8.6	6.5	7.3	7.5	4.4	5.7	6.9	3.7	4.9
15	10.2	6.9	8.4	9.5	6.4	7.7	6.4	4.3	5.1	7.3	3.5	4.7
16	10.9	6.4	8.8	9.5	6.4	7.9	5.1	4.1	4.5	7.3	3.6	4.8
17	12.2	7.1	9.7	10.5	6.2	8.3	6.4	3.9	4.8	7.7	3.5	5.0
18	11.8	7.2	9.7	10.8	6.0	8.4	6.8	3.7	4.8	7.8	4.0	5.3
19	13.0	7.4	10.0	10.8	5.9	8.4	6.3	3.9	4.9	10.4	3.2	5.9
20	13.7	7.4	10.4	10.5	5.5	8.1	6.9	3.9	5.0	10.7	4.1	6.4
21	13.4	7.7	10.6	9.4	5.0	7.2	7.2	4.2	5.3	10.9	4.4	6.7
22	12.3	7.3	10.2	8.8	4.6	6.6	6.1	4.1	5.0	7.1	4.6	5.6
23	13.3	6.8	10.1	8.6	4.3	6.3	7.3	4.4	5.5	8.4	4.4	5.9
24	11.4	6.8	9.1	7.3	4.2	5.5	6.9	4.8	5.5	8.3	4.9	6.7
25	10.0	6.5	7.8	6.4	4.0	5.2	7.3	4.7	5.6	6.5	5.5	6.0
26	8.5	7.2	7.8	5.3	4.0	4.5	7.7	4.9	5.9	6.9	5.3	5.8
27	7.3	6.3	7.0	7.8	4.3	5.8	6.7	4.7	5.4	7.6	5.3	6.7
28	6.6	5.6	6.1	6.9	5.3	6.1	7.2	4.5	5.5	7.0	5.7	6.4
29	---	---	---	7.4	5.5	6.3	7.0	4.1	5.2	6.6	5.4	5.8
30	---	---	---	8.4	6.1	7.2	6.9	3.8	5.0	7.9	5.4	7.2
31	---	---	---	8.2	6.3	7.2	---	---	---	7.9	6.9	7.6
MONTH	13.7	5.6	9.1	11.6	4.0	7.5	9.3	3.7	5.5	10.9	3.2	5.4



## 08181500 MEDINA RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°15'14", long 98°28'20", Bexar County, Hydrologic Unit 12100302, near right bank at upstream side of pier of upstream bridge of two bridges on U. S. Highway 281 in San Antonio, and 6.8 mi upstream from mouth.

DRAINAGE AREA.--1,317 mi<sup>2</sup>, of which 634 mi<sup>2</sup> is above dam forming Medina Lake.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to December 1930, July 1939 to current year. October 1929 to December 1930, records below about 50 ft/s in connection with seepage investigation (published as "at Losoya"). Published as "near San Antonio" July 1939 to September 1970.

REVISED RECORDS.--WSP 1562: 1957. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.0 ft above sea level (levels by U.S. Army Corps of Engineers). October 1929 to December 1930, nonrecording gage at Losoya 1.5 mi downstream at different datum. July 27, 1939, to Sept. 30, 1987, at site near left bank at downstream side of pier of upstream bridge of two bridges at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Medina Lake 60 mi upstream and by diversion dam reservoir, capacity 4,500 acre-ft. For statement concerning losses into the Edwards and associated limestones formation, see Medina River near Somerset (station 08180800). Several small diversions below diversion dam reservoir. Records furnished by the city of San Antonio show that during the current year, less than 1,680 acre-ft from Mitchell Lake and sewage effluent in the amount of 35,000 acre-ft from the Leon Creek plant was discharged into the Medina River above this station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft sometime prior to construction of Medina Dam in 1913, from information by State Department of Highways and Public Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	138	120	133	109	124	109	83	274	340	109	103
2	83	138	122	128	97	119	106	79	189	228	109	99
3	83	137	138	129	95	121	103	77	157	191	116	96
4	83	136	124	127	95	119	107	77	141	203	105	95
5	80	160	120	125	93	119	113	78	135	187	102	96
6	80	139	114	126	103	120	129	88	130	171	99	94
7	82	141	106	125	106	149	137	86	127	194	101	93
8	1040	141	107	123	106	143	119	149	121	172	102	107
9	868	137	106	125	105	129	114	136	116	152	96	100
10	258	133	103	124	107	125	113	130	112	147	92	96
11	179	132	101	125	109	121	118	107	306	142	94	95
12	154	127	105	131	104	117	115	98	281	138	96	93
13	142	128	120	130	105	184	107	102	185	134	99	92
14	135	131	121	123	107	186	106	97	152	133	94	94
15	153	129	131	120	106	164	113	96	137	130	85	100
16	146	130	158	120	109	145	109	96	130	130	84	98
17	140	133	140	122	108	135	110	92	122	130	83	99
18	139	131	131	120	106	127	108	102	119	130	81	100
19	172	133	126	119	104	120	105	92	117	126	78	94
20	198	127	123	120	103	124	104	84	115	120	79	764
21	159	122	118	120	104	122	100	77	110	117	85	432
22	147	125	116	116	103	118	95	77	109	114	96	266
23	141	121	114	117	105	115	87	77	106	108	178	183
24	136	125	114	115	103	114	92	244	101	109	270	156
25	374	123	112	116	121	109	87	186	99	106	269	142
26	231	123	114	116	219	109	87	136	99	108	242	135
27	184	121	119	120	161	109	91	373	101	107	124	130
28	160	123	214	118	139	106	88	335	107	107	100	129
29	150	121	211	115	---	106	89	173	1240	103	99	126
30	148	123	164	112	---	108	89	440	802	100	97	126
31	139	---	144	111	---	109	---	589	---	106	98	---
TOTAL	6268	3928	3956	3771	3132	3916	3150	4656	6040	4483	3562	4433
MEAN	202	131	128	122	112	126	105	150	201	145	115	148
MAX	1040	160	214	133	219	186	137	589	1240	340	270	764
MIN	80	121	101	111	93	106	87	77	99	100	78	92
AC-FT	12430	7790	7850	7480	6210	7770	6250	9240	11980	8890	7070	8790

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	200	153	150	167	227	177	189	271	392	203	151	186
MEAN	200	153	150	167	227	177	189	271	392	203	151	186
MAX	1734	835	961	979	2923	2558	1620	2018	7006	3261	1175	1427
(WY)	1974	1977	1992	1968	1992	1992	1992	1992	1987	1973	1978	1973
MIN	7.60	8.50	12.7	5.58	12.7	9.77	6.63	8.71	6.52	6.13	6.40	8.24
(WY)	1956	1956	1955	1957	1953	1956	1956	1953	1956	1954	1952	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	57536	51295	
ANNUAL MEAN	158	141	
HIGHEST ANNUAL MEAN			206
LOWEST ANNUAL MEAN			1218
HIGHEST DAILY MEAN	1040	Oct 8	14.3
LOWEST DAILY MEAN	80	Oct 5	28300
ANNUAL SEVEN-DAY MINIMUM	82	Oct 1	3.3
INSTANTANEOUS PEAK FLOW			4.0
INSTANTANEOUS PEAK STAGE			31900
ANNUAL RUNOFF (AC-FT)	114100	101700	43.59
10 PERCENT EXCEEDS	207	184	148900
50 PERCENT EXCEEDS	131	119	364
90 PERCENT EXCEEDS	105	92	92



## GUADALUPE RIVER BASIN

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

08181500 MEDINA RIVER AT SAN ANTONIO, TX

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1965 to current year. Pesticide analyses: April 1971 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1987 to current year.

pH: January 1987 to current year.

WATER TEMPERATURE: January 1987 to current year.

DISSOLVED OXYGEN: January 1987 to current year.

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,150 microsiemens June 26, 1988, Feb. 15, 1990; minimum, 30 microsiemens July 16, 1990.

pH: Maximum, 8.8 units Dec. 4, 5, 1988, Mar. 22, 1989; minimum, 7.0 units Apr. 1-3, 1989, Mar. 5, 6, 1990.

WATER TEMPERATURE: Maximum, 32.0°C June 11, 1989; minimum, 9.0°C Jan. 11, 1988, Dec 23, 1989.

DISSOLVED OXYGEN: Maximum, 12.7 mg/L Jan. 16, 1989; minimum, 1.8 mg/L Oct. 17, Nov. 8, 1987.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1060 microsiemens April 20, May 8; minimum, 237 microsiemens Oct. 8.

pH: Maximum, 8.7 units on Sept. 20; minimum, 7.6 units on Oct. 14, May 27, 28, 30, 31.

WATER TEMPERATURE: Maximum, 30.5°C July 22, 23, 26, 27, 28; minimum, 13.0°C on Jan. 5.

DISSOLVED OXYGEN: Maximum, 11.3 mg/l Jan. 5; minimum, 4.2 mg/l Mar. 7.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV												
01...	1310	130	875	7.8	21.0	7.0	80	--	6.2	--	--	300
DEC												
06...	1120	96	928	7.9	21.0	7.5	85	--	1.5	--	--	310
FEB												
22...	1120	83	973	7.9	18.0	8.5	91	<10	1.3	210	220	320
MAR												
01...	0915	108	944	8.2	18.0	7.6	81	--	2.0	--	--	300
MAY												
18...	1030	86	912	8.0	26.5	6.5	83	--	54.6	--	--	300
MAY												
30-30	1450	788	485	7.7	--	--	--	50	9.3	--	--	160
JUN												
11-11	1123	429	610	7.7	--	--	--	47	6.3	--	--	200
28...	0930	92	929	7.9	27.0	7.0	89	--	2.0	--	--	300
AUG												
18...	0920	64	940	8.3	28.5	7.6	99	--	1.3	--	--	300

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
NOV												
01...	69	88	19	63	2	5.5	230	85	74	0.60	15	--
DEC												
06...	79	93	19	69	2	6.6	230	86	81	0.70	14	--
FEB												
22...	92	95	20	78	2	6.8	230	97	99	--	--	603
MAR												
01...	95	88	19	74	2	7.1	200	93	95	0.80	14	--
MAY												
18...	100	87	20	71	2	7.2	200	83	88	0.70	14	--
MAY												
30-30	32	50	9.0	32	1	6.0	130	45	37	--	--	288
JUN												
11-11	54	62	11	44	1	4.6	150	64	52	--	--	371
28...	92	88	19	69	2	5.3	210	91	91	0.70	13	--
AUG												
18...	93	87	20	75	2	6.8	210	88	94	0.70	14	--



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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C. SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
NOV 01...	503	--	2.53	2.53	0.270	2.80	2.80	0.770	--	--	0.43	1.2
DEC 06...	540	--	6.30	6.30	0.100	6.40	6.40	0.230	--	--	0.37	0.60
FEB 22...	573	14	9.40	--	--	9.40	9.40	0.070	10	0.63	0.53	0.60
MAR 01...	550	--	7.93	7.93	0.070	8.00	8.00	0.200	--	--	0.50	0.70
MAY 18...	533	--	8.70	8.70	0.100	8.80	8.80	0.110	--	--	0.59	0.70
MAY 30-30	267	1200	2.20	--	--	2.20	2.20	0.030	4.1	1.9	0.32	0.35
JUN 11-11	343	866	2.70	--	--	2.70	2.70	0.030	4.5	1.8	0.38	0.41
JUN 28...	546	--	9.35	9.35	0.050	9.40	9.40	0.080	--	--	0.52	0.60
AUG 18...	556	--	9.94	9.94	0.060	10.0	10.0	0.130	--	--	0.57	0.70

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)
NOV 01...	--	--	0.600	0.620	1.9	--	--	--	--	--	--	--
DEC 06...	--	--	0.690	0.680	2.1	--	--	--	--	<1	45	--
FEB 22...	0.70	0.750	0.700	--	--	12	<0.010	<1	<1	--	--	<10
MAR 01...	--	--	0.570	0.530	1.6	--	--	--	--	--	--	--
MAY 18...	--	--	1.20	1.10	3.4	--	--	--	--	--	--	--
MAY 30-30	1.9	1.30	0.300	--	--	23	<0.010	<1	6	--	--	<10
JUN 11-11	1.8	1.00	0.300	--	--	18	<0.010	<1	5	--	--	<10
JUN 28...	--	--	0.810	0.720	2.2	--	--	--	--	1	44	--
AUG 18...	--	--	0.610	0.590	1.8	--	--	--	--	--	--	--

[illegible]

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	ETHANE, 1,1,2,2- TETRA- CHLORO- WAT UNF REC (UG/L)	BENZENE O- CHLORO- WATER UNFLTRD REC (UG/L)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	BENZENE 1,3-DI- CHLORO- WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI- CHLORO- WATER UNFLTRD REC (UG/L)	1,2- TRANS DI CHLORO- ETHENE TOTAL (UG/L)
NOV 01...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	<0.2	<0.2	<0.2	<0.2	<0.2	<5.0	<0.2	<0.2	<5.0	<5.0	<0.2
MAR 01...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 30-30	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.20	<0.20	<0.2
JUN 11-11	<0.2	<0.2	<0.2	<0.2	<0.2	<5.0	<0.2	<0.2	<5.0	<5.0	<0.2
JUN 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	--	--	--	--	--	--	--	--	--	--	--

DATE	2- CHLORO- ETHYL- VINYL- ETHER TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)
NOV 01...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	<1.0	<0.20	<0.040	<0.1	<0.05	<0.020	<0.060	<0.030	<0.80	<0.030	<2
MAR 01...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 30-30	<1.0	<0.20	<0.040	<0.1	<0.05	<0.020	<0.060	<0.030	<0.80	<0.030	<2
JUN 11-11	<1.0	<0.20	<0.040	<0.1	<0.05	<0.020	<0.060	<0.030	<0.80	<0.030	<2
JUN 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	--	--	--	--	--	--	--	--	--	--	--

## SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	982	925	959	898	871	883	940	900	921	870	840	853
2	972	906	947	926	880	906	930	900	918	880	850	861
3	956	889	933	933	887	910	960	920	938	900	870	883
4	955	906	936	920	883	907	960	880	914	910	880	899
5	967	925	949	961	898	926	910	870	894	930	900	914
6	963	920	941	909	828	859	930	890	912	940	900	918
7	973	922	953	884	843	866	930	890	910	930	890	913
8	966	237	619	904	871	887	920	890	907	930	890	909
9	527	324	423	914	876	899	920	890	905	930	890	903
10	671	527	586	939	898	918	930	890	910	930	900	911
11	756	661	691	920	870	897	930	880	908	950	910	926
12	795	735	769	920	870	897	920	880	902	960	920	930
13	838	776	815	930	860	896	930	890	912	950	920	934
14	857	822	844	910	860	887	930	900	916	970	920	950
15	877	831	854	910	870	891	940	910	926	980	910	944
16	858	822	840	930	880	909	940	880	911	950	900	921
17	875	827	847	960	910	936	890	870	879	950	910	928
18	873	832	856	930	870	902	900	860	880	960	920	939
19	918	822	861	910	880	893	900	870	887	970	930	948
20	857	748	793	920	880	901	920	890	904	970	930	947
21	865	786	835	920	880	899	930	900	923	950	920	940
22	879	827	859	930	880	908	940	900	921	960	910	936
23	871	853	863	930	890	912	920	890	908	950	900	922
24	884	855	872	930	890	914	940	900	920	940	900	922
25	901	297	620	910	880	895	920	890	904	960	920	940
26	699	524	664	910	890	901	920	890	907	970	930	947
27	810	683	744	920	880	901	920	890	904	960	930	945
28	835	804	818	910	880	896	960	670	851	950	920	940
29	855	833	847	950	900	930	790	710	754	950	910	933
30	872	843	857	940	900	929	820	770	781	950	910	926
31	882	842	865	---	---	---	860	820	833	970	920	946
MONTH	982	237	815	961	828	902	960	670	895	980	840	923

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	960	910	935	940	910	931	1000	970	989	990	940	961
2	950	910	935	950	920	940	1010	950	981	990	940	966
3	970	930	952	970	940	954	980	950	964	1010	940	980
4	980	920	949	970	930	953	1010	960	984	1000	940	972
5	990	920	957	980	930	955	1010	950	982	1010	940	972
6	960	910	939	960	910	928	990	960	979	1000	950	979
7	1000	930	968	960	900	939	980	930	956	1000	934	969
8	1000	950	974	920	900	910	970	930	949	1060	766	929
9	1000	950	978	930	900	918	970	910	938	904	777	872
10	990	950	967	980	900	949	940	900	920	910	860	892
11	990	940	969	980	950	964	960	920	945	960	890	931
12	1010	930	966	990	930	963	970	930	952	1000	910	954
13	980	930	949	960	790	892	1010	940	967	990	910	946
14	970	940	959	880	820	844	1040	970	1000	960	900	932
15	990	950	968	890	860	875	1020	950	983	950	910	929
16	990	950	969	920	880	905	970	930	946	980	940	957
17	980	950	964	930	880	909	990	930	956	990	940	967
18	970	940	962	950	900	932	1000	930	971	950	880	923
19	1010	950	974	960	900	928	1020	960	991	960	910	937
20	980	940	958	970	910	933	1060	990	1020	990	920	956
21	980	950	963	990	940	962	1030	990	1010	990	890	947
22	990	950	979	990	950	969	1010	970	995	980	910	943
23	1010	980	992	1010	950	978	1000	960	980	1000	920	963
24	1010	970	992	1030	970	997	990	940	963	950	570	770
25	990	930	969	1010	970	987	1020	950	988	800	630	710
26	980	640	761	1010	950	980	1010	960	994	840	750	801
27	870	820	846	990	940	961	1020	970	999	860	330	684
28	930	870	913	1000	950	987	1040	980	1010	650	430	525
29	---	---	---	1020	990	1010	1030	980	1000	760	650	698
30	---	---	---	1030	990	1010	1020	950	987	770	390	610
31	---	---	---	1020	990	1000	---	---	---	580	390	474
MONTH	1010	640	950	1030	790	947	1060	900	977	1060	330	873
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	730	580	649	640	500	564	960	920	946	980	930	953
2	800	720	752	730	640	676	960	920	938	980	940	964
3	870	800	821	770	720	743	950	900	928	990	920	958
4	880	810	849	820	750	784	940	890	917</			

## GUADALUPE RIVER BASIN

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08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.0	7.9	8.0	8.0	7.8	7.9	8.0	7.9	8.0	8.2	8.1	8.1
2	8.0	7.9	8.0	8.0	7.8	7.9	8.0	7.9	7.9	8.3	8.1	8.2
3	8.0	7.9	8.0	8.1	7.8	8.0	8.0	7.9	7.9	8.3	8.1	8.2
4	8.0	7.9	7.9	8.1	8.0	8.0	8.0	7.9	7.9	8.3	8.1	8.2
5	8.1	7.9	8.0	8.0	7.9	8.0	8.0	7.9	7.9	8.3	8.2	8.2
6	8.0	7.9	8.0	8.0	7.9	8.0	8.0	7.9	7.9	8.3	8.1	8.2
7	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.3	8.1	8.2
8	8.1	7.8	7.9	8.0	7.8	8.0	8.0	7.9	7.9	8.3	8.2	8.2
9	8.2	8.1	8.1	8.0	8.0	8.0	8.0	7.9	7.9	8.3	8.1	8.2
10	8.1	8.1	8.1	8.0	7.8	7.9	8.1	8.0	8.0	8.2	8.1	8.2
11	8.1	7.9	8.0	7.9	7.8	7.9	8.1	8.0	8.1	8.2	8.1	8.2
12	7.9	7.9	7.9	7.9	7.8	7.9	8.1	8.0	8.1	8.2	8.1	8.2
13	7.9	7.7	7.8	7.9	7.8	7.9	8.1	8.0	8.0	8.3	8.1	8.2
14	7.8	7.6	7.7	7.9	7.8	7.9	8.1	8.0	8.0	8.3	8.2	8.2
15	8.0	7.7	7.9	7.9	7.8	7.9	8.0	7.9	8.0	8.3	8.1	8.2
16	8.0	7.9	8.0	8.0	7.8	7.9	8.0	7.9	8.0	8.2	8.1	8.1
17	8.1	7.8	8.0	7.9	7.8	7.8	8.1	8.0	8.0	8.1	8.0	8.1
18	8.1	8.0	8.0	7.8	7.8	7.8	8.1	8.0	8.0	8.2	8.0	8.1
19	8.2	7.9	8.1	7.9	7.8	7.8	8.1	8.0	8.0	8.3	8.1	8.2
20	8.1	8.0	8.1	7.9	7.8	7.8	8.1	8.0	8.0	8.3	8.1	8.2
21	8.1	8.0	8.0	7.9	7.8	7.9	8.1	8.0	8.1	8.3	8.1	8.2
22	8.0	7.9	7.9	7.9	7.9	7.9	8.2	8.0	8.1	8.3	8.0	8.2
23	8.1	7.9	8.0	8.0	7.8	7.9	8.2	8.1	8.1	8.2	8.0	8.1
24	8.1	7.9	8.0	8.0	7.9	7.9	8.2	8.0	8.1	8.2	8.0	8.1
25	8.2	7.9	8.0	8.0	7.9	8.0	8.2	8.0	8.1	8.1	8.0	8.1
26	8.2	8.1	8.2	8.0	7.9	7.9	8.2	8.1	8.1	8.1	8.0	8.0
27	8.2	8.1	8.1	8.0	7.9	7.9	8.2	8.0	8.1	8.1	8.0	8.0
28	8.2	8.0	8.1	8.0	7.9	8.0	8.1	8.0	8.1	8.2	8.0	8.1
29	8.0	7.9	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.2	8.0	8.1
30	8.0	7.9	8.0	8.0	7.9	7.9	8.2	8.1	8.1	8.1	7.9	8.0
31	8.0	7.9	7.9	---	---	---	8.2	8.1	8.1	8.0	7.9	8.0
MONTH	8.2	7.6	8.0	8.1	7.8	7.9	8.2	7.9	8.0	8.3	7.9	8.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.0	7.9	8.0	8.2	8.2	8.2	8.1	7.9	8.0	8.0	7.7	7.9
2	8.1	8.0	8.0	8.3	8.2	8.2	8.1	7.9	8.0	8.0	7.8	7.9
3	8.1	8.0	8.0	8.3	8.2	8.2	8.0	7.9	8.0	8.0	7.8	7.9
4	8.1	8.0	8.0	8.3	8.2	8.3	8.0	7.9	7.9	8.0	7.9	7.9
5	8.2	8.0	8.1	8.2	8.0	8.1	8.1	7.9	8.0	8.3	7.9	8.1
6	8.1	8.0	8.1	8.2	8.0	8.1	8.1	8.0	8.0	8.2	8.0	8.1
7	8.0	7.9	8.0	8.2	7.9	8.1	8.1	8.0	8.0	8.1	8.0	8.1
8	8.1	7.9	8.0	8.3	8.1	8.2	8.1	7.9	8.0	8.0	7.9	8.0
9	8.1	7.9	8.0	8.3	8.1	8.2	8.0	7.8	7.9	8.0	7.8	7.9
10	8.1	7.9	8.0	8.3	8.1	8.2	8.0	7.8	7.9	7.8	7.7	7.8
11	8.1	7.9	8.0	8.3	8.1	8.2	8.0	7.8	7.9	7.8	7.7	7.7
12	8.1	7.9	8.0	8.3	8.0	8.1	8.0	7.9	8.0	7.9	7.7	7.8
13	8.0	7.9	8.0	8.1	7.9	8.0	8.1	7.9	8.0	7.9	7.8	7.9
14	8.1	7.9	8.0	8.1	8.0	8.0	8.1	8.0	8.0	8.0	7.9	7.9
15	8.0	7.9	8.0	8.2	8.0	8.1	8.1	8.0	8.0	8.0	7.9	8.0
16	8.0	7.9	7.9	8.2	8.0	8.1	8.1	8.0	8.0	8.1	7.9	8.0
17	8.1	7.9	8.0	8.2	8.1	8.1	8.1	8.0	8.0	8.1	8.0	8.0
18	8.1	7.9	8.0	8.3	8.1	8.1	8.0	7.9	8.0	8.1	7.9	8.0
19	8.1	7.9	8.0	8.3	8.1	8.2	8.0	7.8	7.9	8.0	7.9	7.9
20	8.1	7.9	8.0	8.3	8.1	8.2	8.0	7.8	7.9	8.0	7.9	7.9
21	8.1	7.8	8.0	8.1	7.9	8.0	8.0	7.9	7.9	8.0	7.9	7.9
22	8.1	7.9	8.0	8.1	7.9	8.0	8.0	7.9	7.9	8.0	7.9	7.9
23	8.1	7.9	8.0	8.1	7.9	8.0	8.1	7.9	8.0	8.0	7.9	7.9
24	8.1	7.9	8.0	8.1	7.9	8.0	8.1	7.9	8.0	8.0	7.8	7.9
25	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0	7.8	7.7	7.8
26	8.1	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.0	7.8	7.8	7.8
27	8.2	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0	7.8	7.6	7.8
28	8.2	8.1	8.1	8.1	7.9	8.0	8.1	7.9	8.0	7.7	7.6	7.7
29	---	---	---	8.1	8.0	8.1	8.0	7.9	8.0	7.8	7.7	7.8
30	---	---	---	8.1	8.0	8.0	8.0	7.8	7.8	7.9	7.6	7.8
31	---	---	---	8.0	7.9	8.0	---	---	---	7.8	7.6	7.7
MONTH	8.2	7.8	8.0	8.3	7.9	8.1	8.1	7.8	8.0	8.3	7.6	7.9



## GUADALUPE RIVER BASIN

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.7	7.8	7.8	7.8	7.8	8.3	8.0	8.2	8.4	8.2	8.3
2	7.9	7.8	7.8	7.9	7.8	7.8	8.3	8.1	8.2	8.4	8.2	8.3
3	7.9	7.8	7.8	7.9	7.8	7.9	8.3	8.1	8.2	8.5	8.2	8.3
4	7.9	7.8	7.9	7.9	7.8	7.8	8.2	8.1	8.2	8.5	8.3	8.4
5	7.9	7.8	7.9	7.9	7.8	7.8	8.3	8.1	8.2	8.4	8.2	8.3
6	7.9	7.8	7.9	7.8	7.8	7.8	8.3	8.1	8.2	8.4	8.2	8.3
7	7.9	7.8	7.9	7.9	7.8	7.8	8.3	8.1	8.2	8.3	8.2	8.3
8	7.8	7.7	7.8	7.9	7.7	7.8	8.3	8.1	8.2	8.3	8.2	8.3
9	7.9	7.7	7.8	7.9	7.8	7.8	8.3	8.1	8.2	8.3	8.2	8.2
10	7.9	7.7	7.8	7.9	7.8	7.9	8.3	8.1	8.2	8.3	8.0	8.2
11	7.8	7.6	7.7	7.9	7.8	7.9	8.4	8.2	8.3	8.4	8.1	8.3
12	7.8	7.7	7.8	7.9	7.8	7.9	8.4	8.2	8.3	8.3	8.0	8.2
13	7.8	7.7	7.7	7.9	7.8	7.9	8.4	8.2	8.3	8.3	8.1	8.2
14	7.8	7.7	7.8	7.9	7.8	7.9	8.4	8.2	8.3	8.3	8.1	8.2
15	7.8	7.7	7.7	8.0	7.8	7.9	8.4	8.3	8.3	8.3	8.2	8.3
16	7.8	7.7	7.8	8.0	7.9	8.0	8.4	8.3	8.4	8.4	8.2	8.3
17	7.9	7.7	7.8	8.1	7.9	8.0	8.4	8.3	8.4	8.3	8.2	8.2
18	7.9	7.7	7.8	8.0	7.9	8.0	8.4	8.3	8.4	8.3	8.1	8.2
19	7.9	7.8	7.8	8.1	7.9	8.0	8.5	8.3	8.4	8.3	8.1	8.2
20	7.9	7.7	7.8	8.0	7.9	8.0	8.4	8.3	8.3	8.7	8.1	8.3
21	7.9	7.8	7.9	8.0	7.9	8.0	8.4	8.3	8.4	8.2	7.9	8.1
22	7.9	7.7	7.8	8.0	7.9	8.0	8.4	8.2	8.3	8.2	8.0	8.1
23	7.9	7.8	7.9	8.2	7.9	8.1	8.4	8.2	8.2	8.3	8.2	8.3
24	8.0	7.8	7.9	8.2	8.1	8.2	8.3	8.0	8.1	8.3	8.2	8.3
25	8.0	7.8	7.9	8.2	8.1	8.2	8.4	8.2	8.3	8.3	8.2	8.3
26	8.0	7.9	7.9	8.2	8.1	8.2	8.4	8.2	8.3	8.3	8.2	8.3
27	8.0	7.8	7.9	8.2	8.0	8.1	8.4	8.0	8.2	8.3	8.2	8.3
28	8.0	7.9	7.9	8.2	8.0	8.1	8.4	8.2	8.3	8.3	8.2	8.3
29	7.9	7.6	7.8	8.3	8.1	8.2	8.4	8.2	8.3	8.3	8.1	8.2
30	7.8	7.6	7.7	8.3	8.1	8.2	8.4	8.2	8.3	8.4	8.2	8.3
31	---	---	---	8.3	8.1	8.2	8.3	8.2	8.3	---	---	---
MONTH	8.0	7.6	7.8	8.3	7.7	8.0	8.5	8.0	8.3	8.7	7.9	8.3
YEAR	8.7	7.6	8.0									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	26.0	24.0	24.5	22.5	21.0	21.5	18.5	16.5	17.5	17.0	15.0	16.0
2	26.0	24.5	25.0	23.0	21.0	22.0	19.0	17.5	18.5	16.0	14.0	15.0
3	26.5	25.5	26.0	24.0	23.0	23.5	20.5	18.5	19.0	16.0	14.0	15.0
4	26.5	25.5	26.0	24.5	23.5	24.0	20.5	19.0	20.0	15.0	14.0	14.5
5	26.5	25.5	26.0	24.5	23.0	23.5	21.0	19.5	20.0	15.0	13.0	14.0
6	26.5	25.5	26.0	23.0	21.0	22.0	21.5	20.5	21.0	15.5	14.0	14.5
7	26.5	26.0	26.0	22.5	21.0	21.5	22.0	21.0	21.5	16.0	14.0	15.0
8	26.5	21.0	23.5	24.0	22.0	23.0	22.5	21.5	22.0	16.5	14.0	15.0
9	22.0	21.0	21.5	24.0	23.0	23.5	22.5	19.5	21.0	17.0	15.0	16.0
10	22.0	20.5	21.5	23.0	21.0	21.5	19.5	17.0	18.0	18.5	17.0	17.5
11	22.0	20.5	21.5	21.0	20.0	20.5	18.0	15.0	16.0	20.0	18.5	19.0
12	22.5	20.5	21.5	21.5	20.0	20.5	17.0	15.0	16.0	20.5	19.0	19.5
13	22.5	20.5	21.5	22.5	21.5	21.5	18.0	16.5	17.5	19.5	18.0	19.0
14	22.5	21.5	22.0	23.0	22.0	22.5	19.5	17.5	18.5	18.0	16.5	17.5
15	22.5	21.5	21.5	23.0	21.0	22.0	20.0	19.0	19.5	18.0	16.0	16.5
16	24.0	22.5	23.0	21.5	20.0	21.0	20.5	19.0	20.0	19.0	16.5	17.0
17	25.5	24.0	24.5	21.5	20.5	21.0	19.5	18.0	18.5	19.0	17.5	18.5
18	25.5	24.5	25.0	22.0	21.0	21.5	19.0	18.0	18.5	18.5	17.5	18.5
19	26.0	24.0	25.0	23.0	22.0	22.5	19.0	17.5	18.0	17.5	16.0	17.0
20	26.0	25.0	25.5	23.0	22.0	22.5	20.0	18.5	19.0	18.0	16.5	17.0
21	26.5	25.5	25.5	22.0	20.0	21.0	19.5	18.0	18.5	18.0	15.5	16.5
22	26.0	25.5	26.0	22.0	20.0	20.5	18.5	16.5	17.5	18.5	16.5	17.5
23	26.5	25.5	26.0	21.5	19.0	20.5	18.0	16.5	17.0	18.0	15.5	16.5
24	26.5	25.5	26.0	20.0	17.5	19.0	18.0	16.5	17.0	16.5	14.5	15.5
25	26.0	21.5	23.5	20.5	18.5	19.0	17.5	15.5	16.0	17.0	15.0	16.0
26	22.5	21.5	22.0	21.5	19.5	20.0	17.5	14.5	15.5	18.5	17.0	17.5
27	21.5	21.0	21.5	21.5	21.0	21.0	17.5	15.5	16.5	19.5	18.0	18.5
28	22.0	20.5	21.5	21.5	19.5	20.0	17.0	15.0	16.0	18.5	17.0	17.5
29	22.5	21.0	22.0	20.0	18.5	19.5	16.0	14.5	15.0	18.5	16.5	17.0
30	23.0	21.5	22.5	19.5	17.5	18.5	16.0	14.5	15.0	17.5	15.5	16.5
31	23.5	22.0	22.5	---	---	---	17.0	15.5	16.0	17.0	15.0	16.0
MONTH	26.5	20.5	23.5	24.5	17.5	21.5	22.5	14.5	18.0	20.5	13.0	16.5



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08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	17.5	15.0	16.0	19.5	17.5	18.5	21.0	19.0	20.0	25.5	24.5	25.0
2	17.5	15.0	16.0	17.5	15.5	16.5	21.5	19.0	20.0	24.5	23.0	23.5
3	17.5	15.5	16.5	16.5	15.0	16.0	21.0	20.0	20.5	24.5	23.5	23.5
4	17.0	15.0	16.0	17.5	15.0	16.0	21.5	20.5	21.0	26.0	24.0	25.0
5	17.0	14.5	15.5	19.0	16.5	17.5	23.0	21.0	21.5	26.0	24.5	25.5
6	18.0	15.0	16.5	20.0	18.5	19.0	23.0	21.0	21.5	26.5	25.5	26.0
7	18.0	16.5	17.0	20.0	17.5	19.0	23.5	21.0	22.0	26.0	25.5	25.5
8	17.0	15.5	16.5	18.0	16.0	17.0	24.5	22.0	23.0	26.0	24.0	25.0
9	17.5	15.5	16.5	17.5	16.0	16.5	25.0	22.5	23.5	26.0	23.5	24.5
10	19.0	16.5	17.5	18.5	16.0	17.0	25.0	23.5	24.0	26.5	24.5	25.5
11	19.0	17.5	18.0	19.5	17.5	18.0	24.0	22.0	23.0	26.0	24.0	24.5
12	18.0	15.0	16.0	20.5	19.0	19.5	23.5	21.0	22.0	25.5	24.0	24.5
13	16.5	14.5	15.5	20.5	19.5	20.0	23.5	21.0	22.5	27.0	25.0	26.0
14	16.0	14.5	15.5	20.5	19.0	19.5	23.5	21.5	22.5	28.0	26.0	27.0
15	18.0	16.0	17.0	21.0	19.5	20.0	24.0	22.5	23.0	28.0	26.5	27.5
16	18.5	17.5	18.0	21.5	19.5	20.5	24.0	23.5	23.5	28.0	26.5	27.5
17	18.5	17.0	17.5	21.5	19.5	20.5	25.5	24.0	24.5	28.0	26.5	27.0
18	18.5	16.5	17.0	22.5	19.5	21.0	25.5	23.5	24.5	28.0	26.5	27.0
19	19.0	17.0	18.0	22.5	20.0	21.0	26.0	24.0	24.5	26.5	25.0	26.0
20	19.5	17.0	18.0	23.5	20.5	22.0	25.5	24.0	24.5	26.5	24.5	25.5
21	19.5	17.5	18.5	24.5	22.0	23.0	25.5	23.0	24.0	26.5	25.0	25.5
22	19.5	18.0	18.5	25.0	23.0	24.0	25.0	24.5	25.0	26.0	25.0	25.5
23	21.5	19.0	20.0	25.5	23.5	24.5	24.5	22.0	22.5	25.5	25.0	25.5
24	21.0	20.0	20.5	24.5	24.0	24.0	22.5	21.0	21.5	25.5	23.0	24.0
25	21.0	19.0	20.0	24.5	23.5	24.0	23.0	21.0	22.0	25.0	24.0	24.5
26	20.0	18.0	19.0	24.0	23.0	23.5	24.0	21.5	22.5	26.5	25.0	25.5
27	20.5	19.5	20.0	23.0	21.5	22.0	23.5	22.5	23.0	26.0	22.0	24.5
28	20.5	19.5	20.0	21.5	20.5	21.0	24.5	22.5	23.5	26.0	23.5	25.0
29	---	---	---	20.5	19.0	19.5	25.5	23.5	24.0	27.0	25.5	26.0
30	---	---	---	19.5	18.5	19.0	26.0	24.0	25.0	26.5	23.5	24.5
31	---	---	---	19.5	18.5	19.5	---	---	---	24.5	23.0	23.5
MONTH	21.5	14.5	17.5	25.5	15.0	20.0	26.0	19.0	23.0	28.0	22.0	25.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	26.0	24.0	25.0	27.0	25.5	26.0	29.5	28.0	28.5	29.0	27.5	28.0
2	27.5	25.5	26.0	27.5	26.0	26.5	29.5	28.0	28.5	29.0	27.5	28.5
3	27.5	26.5	27.0	28.5	26.5	27.5	30.0	28.5	29.0	29.5	28.0	28.5
4	28.0	26.0	27.0	28.0	26.5	27.0	30.0	28.5	29.5	29.5	28.0	28.5
5	28.0	26.0	27.0	28.5	27.0	27.5	30.0	28.0	29.0	29.5	28.0	29.0
6	28.5	26.5	27.5	28.5	27.5	28.0	30.0	28.5	29.0	30.0	28.5	29.0
7	28.0	27.0	27.5	28.0	27.0	27.5	29.0	28.5	29.0	30.0	28.5	29.0
8	29.0	27.0	28.0	28.0	26.5	27.5	30.0	28.0	29.0	29.0	28.0	28.5
9	29.0	27.5	28.0	28.5	27.0	27.5	30.0	28.0	29.0	29.0	27.5	28.5
10	29.0	27.5	28.5	29.0	27.0	28.0	30.0	28.0	29.0	28.5	27.5	28.0
11	28.5	25.0	26.0	29.0	27.0	28.0	29.5	28.0	29.0	29.0	27.5	28.0
12	26.5	24.5	25.5	29.5	27.0	28.0	29.0	28.5	28.5	29.0	27.5	28.5
13	26.5	24.5	25.5	29.5	27.5	28.5	29.5	28.0	29.0	29.5	28.0	28.5
14	27.0	25.0	25.5	29.5	27.5	28.5	29.5	28.5	29.0	28.5	28.0	28.5
15	27.0	25.0	25.5	29.0	27.5	28.0	29.5	28.5	29.0	29.0	28.0	28.5
16	27.0	25.0	26.0	29.0	27.5	28.0	29.5	28.5	29.0	29.5	28.0	28.5
17	27.0	25.0	26.0	29.5	27.5	28.5	29.5	28.0	29.0	29.5	28.5	29.0
18	27.0	25.5	26.0	29.5	27.5	28.5	29.0	28.5	29.0	29.5	28.0	28.5
19	27.0	26.0	26.5	30.0	28.0	29.0	29.0	28.0	28.5	30.0	28.5	29.0
20	27.5	25.5	26.5	30.0	28.0	29.0	29.0	27.5	28.5	29.0	21.0	25.0
21	28.0	26.0	27.0	30.0	28.0	29.0	29.0	28.0	28.5	26.0	24.5	25.5
22	28.0	26.0	27.0	30.5	28.0	29.0	29.0	28.0	28.5	25.0	23.0	23.5
23	28.5	26.0	27.0	30.5	28.5	29.5	29.5	28.5	29.0	24.0	22.0	23.0
24	28.5	26.5	27.5	30.0	28.0	29.0	29.5	28.5	29.0	24.5	22.5	23.0
25	28.5	26.5	27.5	30.0	28.0	29.0	30.0	28.5	29.0	25.0	23.0	24.0
26	28.5	26.5	27.5	30.5	28.5	29.5	30.0	28.5	29.0	25.5	24.0	24.5
27	28.5	26.5	27.5	30.5	28.5	29.5	30.0	28.5	29.0	26.5	25.0	25.5
28	29.0	27.0	28.0	30.5	28.5	29.5	29.5	28.5	29.0	27.5	26.0	26.5
29	28.0	22.0	24.5	30.0	28.5	29.0	29.5	28.5	29.0	27.5	26.0	26.5
30	26.0	24.5	25.5	29.5	28.0	29.0	29.5	28.0	29.0	27.5	25.5	26.5
31	---	---	---	29.5	28.0	28.5	29.0	28.0	28.5	---	---	---
MONTH	29.0	22.0	26.5	30.5	25.5	28.5	30.0	27.5	29.0	30.0	21.0	27.0
YEAR	30.5	13.0	23.0									

## GUADALUPE RIVER BASIN

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	6.4	5.7	6.0	---	---	---	9.5	8.6	8.9	9.8	7.9	9.0
2	6.7	5.5	5.9	---	---	---	9.0	8.2	8.6	10.9	8.9	9.9
3	7.2	6.2	6.6	---	---	---	8.8	8.0	8.4	10.4	8.1	9.6
4	6.7	5.0	6.2	---	---	---	8.6	7.8	8.1	11.2	9.7	10.3
5	---	---	---	---	---	---	8.5	7.7	8.0	11.3	10.0	10.4
6	---	---	---	---	---	---	8.0	7.4	7.7	10.8	9.4	10.0
7	---	---	---	---	---	---	7.8	7.1	7.4	10.9	9.2	9.8
8	---	---	---	---	---	---	7.6	6.9	7.2	10.8	8.5	9.5
9	---	---	---	---	---	---	7.7	6.8	7.2	9.9	7.7	8.7
10	---	---	---	---	---	---	9.1	7.7	8.5	---	---	---
11	---	---	---	6.7	5.9	6.4	10.4	8.6	9.5	---	---	---
12	---	---	---	6.5	5.6	6.0	10.6	9.4	9.8	9.9	9.1	9.2
13	---	---	---	6.2	5.3	5.7	9.8	8.8	9.2	10.2	8.8	9.4
14	---	---	---	6.0	4.9	5.5	9.1	8.2	8.6	10.6	9.4	9.9
15	---	---	---	6.0	5.2	5.7	8.4	7.5	8.1	10.9	9.4	10.0
16	---	---	---	6.9	5.7	6.3	8.6	7.6	8.1	10.4	8.9	9.7
17	---	---	---	7.0	6.5	6.7	9.0	8.0	8.4	9.1	8.2	8.6
18	---	---	---	7.0	6.4	6.7	9.2	7.8	8.5	9.6	8.3	8.8
19	---	---	---	6.8	6.2	6.5	9.3	7.8	8.4	10.3	9.0	9.5
20	---	---	---	6.6	5.9	6.2	8.9	7.3	8.0	10.3	9.0	9.5
21	---	---	---	7.3	6.4	6.9	8.9	7.3	8.1	10.5	8.9	9.7
22	---	---	---	7.4	6.6	6.9	9.7	8.0	8.8	9.9	8.7	9.2
23	---	---	---	7.6	6.4	7.0	10.1	7.9	9.1	10.5	8.7	9.4
24	---	---	---	8.0	7.0	7.5	10.0	8.2	8.9	10.9	9.3	9.8
25	---	---	---	8.3	7.1	7.7	10.4	8.2	9.3	10.0	8.8	9.3
26	---	---	---	7.9	6.5	7.4	11.0	8.8	9.7	9.2	8.3	8.6
27	---	---	---	7.6	6.7	7.1	9.6	8.3	8.9	9.0	8.0	8.4
28	---	---	---	8.0	7.1	7.6	10.0	8.4	9.2	9.3	8.0	8.5
29	---	---	---	8.4	7.8	8.0	9.9	9.1	9.6	9.4	7.9	8.6
30	---	---	---	8.9	8.0	8.4	10.0	8.7	9.3	9.8	8.4	8.9
31	---	---	---	---	---	---	9.2	8.1	8.6	9.4	8.4	8.8
MONTH	7.2	5.0	6.2	8.9	4.9	6.8	11.0	6.8	8.6	11.3	7.7	9.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.3	8.4	8.7	8.7	7.3	7.9	10.0	8.6	9.2	7.4	5.7	6.7
2	10.1	8.4	9.0	9.6	8.5	8.9	9.8	7.7	8.6	7.5	5.9	6.8
3	9.8	8.4	9.0	9.9	8.8	9.4	8.7	6.6	8.1	7.6	5.9	6.7
4	10.0	8.7	9.2	10.4	8.4	9.3	8.3	5.8	7.6	6.9	5.3	6.3
5	10.3	8.6	9.3	9.3	5.8	7.4	8.9	7.7	8.3	---	---	---
6	10.3	8.4	9.1	7.7	4.8	6.7	9.7	8.6	9.0	---	---	---
7	8.7	7.9	8.3	8.7	4.2	6.3	9.1	8.2	8.7	---	---	---
8	9.5	8.0	8.6	9.4	8.4	8.8	9.0	7.7	8.3	---	---	---
9	9.6	8.0	8.6	9.8	8.4	9.0	8.8	7.2	8.1	---	---	---
10	9.1	7.6	8.2	9.0	7.3	8.0	8.3	7.2	7.8	---	---	---
11	8.7	7.0	7.8	7.7	5.0	6.7	9.1	7.4	8.3	---	---	---
12	9.6	7.2	8.3	---	---	---	9.1	7.9	8.6	---	---	---
13	9.4	7.8	8.5	---	---	---	8.9	7.1	8.2	---	---	---
14	9.7	8.5	8.9	---	---	---	9.0	7.5	8.2	---	---	---
15	9.0	7.8	8.4	---	---	---	8.1	7.3	7.6	---	---	---
16	8.7	7.2	8.0	---	---	---	7.6	7.0	7.3	---	---	---
17	9.3	7.5	8.3	9.4	8.5	8.9	7.5	6.8	7.2	---	---	---
18	9.5	6.9	8.1	9.4	8.3	8.7	7.1	6.5	6.8	---	---	---
19	9.5	7.3	8.2	9.3	8.1	8.6	7.2	6.5	6.8	8.2	6.3	7.4
20	9.2	7.5	8.2	9.1	7.7	8.3	7.3	6.4	6.9	8.3	7.5	7.9
21	9.0	7.1	8.0	8.4	7.2	7.7	7.6	6.7	7.1	8.5	7.5	8.0
22	9.0	7.4	8.1	8.0	6.7	7.3	7.1	6.1	6.7	8.3	7.4	7.8
23	8.9	7.0	7.9	7.7	6.1	6.9	8.0	6.4	7.2	8.3	7.5	7.8
24	8.3	6.9	7.5	7.5	6.1	6.8	8.5	7.4	7.9	8.3	7.7	8.0
25	8.4	6.7	7.6	7.6	6.1	6.9	8.1	7.0	7.7	7.9	7.7	7.8
26	8.2	7.4	7.7	7.2	5.5	6.5	8.0	6.5	7.4	7.9	7.7	7.9
27	7.5	6.4	7.0	7.9	5.7	7.1	7.7	6.4	7.1	8.0	7.3	7.8
28	7.6	6.0	6.8	8.9	7.3	8.4	7.7	6.2	7.0	7.6	7.2	7.4
29	---	---	---	9.7	8.7	9.1	7.2	5.5	6.5	7.7	7.6	7.7
30	---	---	---	10.1	9.1	9.5	7.5	6.2	6.8	8.2	7.6	7.9
31	---	---	---	9.9	9.0	9.4	---	---	---	8.1	7.9	8.0
MONTH	10.3	6.0	8.3	10.4	4.2	8.0	10.0	5.5	7.7	8.5	5.3	7.5



## GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX

LOCATION.--Lat 29°13'19", long 98°21'20", Bexar County, Hydrologic Unit 12100301, at downstream side of bridge on Farm Road 1604, 2.7 mi southwest of Elmendorf, 3.3 mi downstream from Braunig Plant lake, and 203.0 mi upstream from mouth.

DRAINAGE AREA.--1,743 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 380.00 ft above sea level. Sept. 12, 1962, to Dec. 19, 1980, at site 2.5 mi upstream at different datum. Dec. 19, 1980, to Dec. 23, 1986, at same site and datum. Dec. 24, 1986, to June 15, 1993, at site 2.8 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Medina Lake (station 08179500) and by Olmos flood-control reservoir (combined capacity, 269,500 acre-ft). Storage began in Medina Lake in 1913, and Olmos Dam was completed in 1926. Water is diverted above station from Medina River for irrigation in the vicinity of Devine and Lytle, with some water diverted for irrigation near San Antonio. During the current year, the city of San Antonio discharged 135,900 acre-ft of sewage effluent into the San Antonio River from their Leon Creek, Salado Creek, and Dos Rios plants, but no sewage effluent was discharged from their Mitchell Lake plant upstream from this station. There was, however, less than 1,680 acre-ft (not sewage effluent) released from Mitchell Lake during the year. The San Antonio City Public Service Board pumped 5,440 acre-ft into Braunig Lake and 10,900 acre-ft into Calaveras Lake upstream from this station and released 236 acre-ft from Braunig Lake and 161 acre-ft from Calaveras Lake upstream from this station. For additional information relating to sewage effluent, see station 08181500. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 61 ft in 1946. Second highest stage was 53 ft in 1913, from information by local residents. At site and datum in use prior to Dec. 19, 1980.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 8	1900	7,820	35.93	June 29	1700	8,880	37.22

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	363	255	381	325	322	299	199	729	875	284	181
2	187	362	262	359	308	312	296	132	476	525	270	167
3	196	363	400	405	305	356	295	127	361	435	328	162
4	196	358	338	381	295	332	304	131	323	713	216	156
5	194	592	285	365	296	319	424	131	313	496	144	169
6	192	427	211	366	306	323	368	135	302	403	137	164
7	214	378	198	343	292	430	350	144	297	426	143	166
8	5390	368	197	329	290	403	324	744	293	396	139	387
9	3770	357	214	344	299	329	316	510	282	346	143	260
10	746	343	192	357	309	303	318	260	271	336	136	219
11	485	338	190	357	302	312	361	160	1240	329	132	223
12	415	334	195	362	294	313	324	141	1200	322	130	198
13	397	336	258	365	307	958	309	135	436	312	147	161
14	368	380	310	347	314	579	296	135	349	302	167	174
15	591	334	365	344	310	421	299	134	318	293	136	184
16	518	328	579	342	312	369	300	133	304	296	155	169
17	426	336	397	353	307	347	298	128	289	304	171	166
18	508	331	340	355	298	329	307	167	279	303	168	177
19	2110	325	330	322	296	324	294	144	317	298	157	171
20	618	335	325	338	297	331	298	127	464	282	155	2540
21	439	331	320	329	300	331	285	123	292	271	164	2260
22	401	292	316	330	288	326	274	128	267	273	170	837
23	378	213	314	335	291	326	257	152	261	261	179	470
24	373	227	306	324	305	321	267	968	252	265	261	354
25	2550	216	300	324	462	308	259	553	248	263	248	338
26	1360	220	293	340	1240	302	228	326	252	262	238	306
27	515	214	317	357	469	311	198	1450	257	258	191	285
28	455	213	1220	335	364	299	193	1220	258	258	181	286
29	405	213	875	327	---	297	234	394	5020	249	176	284
30	389	219	500	329	---	303	248	1930	3960	245	178	274
31	383	---	407	323	---	306	---	3260	---	263	181	---
TOTAL	25355	9646	11009	10768	9781	11142	8823	14421	19910	10860	5625	11888
MEAN	818	322	355	347	349	359	294	465	664	350	181	396
MAX	5390	592	1220	405	1240	958	424	3260	5020	875	328	2540
MIN	186	213	190	322	288	297	193	123	248	245	130	156
AC-FT	50290	19130	21840	21360	19400	22100	17500	28600	39490	21540	11160	23580

GUADALUPE RIVER BASIN

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08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

MEAN	504	448	464	512	587	505	532	797	997	518	408	488
MAX	2424	1255	2176	2191	3803	3031	1997	3293	8527	3764	1760	2761
(WY)	1974	1977	1992	1968	1992	1992	1992	1992	1987	1973	1978	1973
MIN	144	153	160	168	146	143	150	130	88.6	81.9	52.8	120
(WY)	1963	1967	1971	1967	1967	1971	1967	1967	1967	1964	1963	1989

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995	
ANNUAL TOTAL	160682		149228			
ANNUAL MEAN	440		409		563	
HIGHEST ANNUAL MEAN					1784	
LOWEST ANNUAL MEAN					166	
HIGHEST DAILY MEAN	5390	Oct 8	5390	Oct 8	27600	Sep 27 1973
LOWEST DAILY MEAN	117	Aug 7	123	May 21	25	Aug 26 1963
ANNUAL SEVEN-DAY MINIMUM	124	Aug 1	136	May 16	42	Aug 21 1963
INSTANTANEOUS PEAK FLOW			8880	Jun 29	40000	Sep 27 1973
INSTANTANEOUS PEAK STAGE			37.22	Jun 29	53.06	Jun 5 1986
ANNUAL RUNOFF (AC-FT)	318700		296000		407600	
10 PERCENT EXCEEDS	594		509		1010	
50 PERCENT EXCEEDS	339		307		323	
90 PERCENT EXCEEDS	178		165		148	

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1964 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to September 1981; December 1992 to September 1994.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

pH: June 1984 to current year.

WATER TEMPERATURE: October 1966 to current year.

DISSOLVED OXYGEN: June 1984 to current year.

INSTRUMENTATION.--Beginning June 1984, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments. Mean monthly and annual concentration and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,240 microsiemens Jan. 29, 1973, Aug. 8, 1975; minimum, 110 microsiemens July 16, 1990.

pH: Maximum, 9.0 units Jun 16, 17, 1993; minimum, 7.0 units Oct. 25, 28, 1988, Jan. 11, 1989.

WATER TEMPERATURE: Maximum, 32.5°C Sept. 3, 1989, June 23, 24, 27, 1990, July 23, 1994; minimum, 5.5°C Jan. 10, 1973.

DISSOLVED OXYGEN: Maximum, 11.9 mg/L Feb. 2, 1994; minimum, 0.0 mg/L Mar. 2, Apr. 14, 15, 1985.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1060 microsiemens on May 3, 4, 5, 6, 7; minimum, 145 microsiemens June 29.

pH: Maximum, 8.5 units on July 30, 31; minimum, 7.3 units Oct. 8, 9.

WATER TEMPERATURE: Maximum, 32.5°C Jul. 27, 28, Aug. 8; minimum, 14.0°C Dec. 28, 29, Jan. 5.

DISSOLVED OXYGEN: Maximum, 10.6 mg/l Feb. 9; minimum, 5.2 mg/l Oct. 8.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 18-19	2157	1930	525	7.4	--	--	--	81	6.7	--	--	180
NOV 02...	1200	343	934	7.9	23.0	7.8	92	--	2.4	--	--	290
DEC 07...	1320	174	987	7.9	24.0	7.7	92	--	1.2	--	--	300
FEB 13...	1400	277	987	8.1	16.0	8.6	87	13	1.3	100	50	300
28...	1325	330	838	7.9	20.5	7.8	88	--	1.6	--	--	260
MAY 22...	1020	135	995	8.2	27.0	7.2	91	--	0.8	--	--	290
JUN 11-11	0933	1950	660	7.7	--	--	--	45	6.1	--	--	200
27...	1030	250	943	8.1	28.5	7.9	102	--	0.8	--	--	280
AUG 15...	0950	138	915	8.0	29.0	6.9	91	--	1.3	--	--	280

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT 18-19	35	55	9.4	36	1	5.5	140	45	46	--	--	321
NOV 02...	73	87	18	76	2	8.5	220	73	92	0.50	16	--
DEC 07...	75	90	18	84	2	9.0	230	73	100	0.50	13	--
FEB 13...	89	89	19	82	2	8.3	210	82	110	--	--	587
28...	72	78	15	63	2	7.5	180	74	79	0.40	13	--
MAY 22...	57	85	19	87	2	9.6	230	69	110	0.50	14	--
JUN 11-11	48	61	12	52	2	5.5	150	55	68	--	--	394
27...	85	84	17	75	2	6.2	200	74	96	0.50	13	--
AUG 15...	100	83	18	76	2	8.5	180	72	92	0.50	14	--



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08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

## WATER-QUALITY. A, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)
OCT 18-19	302	1040	4.30	--	--	4.30	4.30	0.080	4.6	0.22	0.45	0.53
NOV 02...	512	--	1.86	1.86	0.140	2.00	2.00	0.170	--	--	0.53	0.70
DEC 07...	577	--	11.0	11.0	0.040	11.0	11.0	0.070	--	--	0.53	0.60
FEB 13...	567	15	9.50	--	--	9.50	9.50	0.190	10	0.51	0.50	0.69
28...	481	--	8.27	8.27	0.030	8.30	8.30	0.110	--	--	0.49	0.60
MAY 22...	593	--	12.0	12.0	0.040	12.0	12.0	0.040	--	--	0.46	0.50
JUN 11-11	368	416	4.70	--	--	4.70	4.70	0.040	6.5	1.8	0.44	0.48
27...	547	--	13.0	13.0	0.030	13.0	13.0	0.020	--	--	0.58	0.60
AUG 15...	534	--	13.0	13.0	0.030	13.0	13.0	0.040	--	--	0.56	0.60
DATE	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)
OCT 18-19	0.30	1.20	0.580	--	--	27	<0.010	<1	5	--	--	<10
NOV 02...	--	--	1.60	0.300	0.92	--	--	--	--	--	--	--
DEC 07...	--	--	1.70	1.70	5.2	--	--	--	--	1	43	--
FEB 13...	0.70	1.10	1.00	--	--	4.5	<0.010	--	<1	--	--	<10
28...	--	--	1.20	1.20	3.7	--	--	--	--	--	--	--
MAY 22...	--	--	1.90	1.90	5.8	--	--	--	--	--	--	--
JUN 11-11	1.8	1.10	0.620	--	--	14	<0.010	<1	3	--	--	<10
27...	--	--	1.70	1.70	5.2	--	--	--	--	1	42	--
AUG 15...	--	--	1.80	1.70	5.2	--	--	--	--	--	--	--
DATE	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 18-19	--	<1	--	18	--	--	18	--	--	49	--	--
NOV 02...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	<0.5	--	<1.0	--	<5	<3	--	<10	11	--	<10	19
FEB 13...	--	<1	--	1	--	--	2	--	--	<1	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-11	--	1	--	9	--	--	10	--	--	23	--	--
27...	<0.5	--	<1.0	--	<5	<3	--	<10	<3	--	<10	16
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 18-19	--	<0.10	--	--	15	--	<1	--	<1	--	--	--
NOV 02...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	6	--	<0.1	<10	--	<10	--	<1	--	<1.0	850	<6
FEB 13...	--	<0.10	--	--	2	--	<1	--	<1	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-11	--	<0.10	--	--	8	--	<1	--	<1	--	--	--
27...	1	--	<0.1	<10	--	<10	--	<1	--	<1.0	840	<6
AUG 15...	--	--	--	--	--	--	--	--	--	--	--	--

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible][illegible][illegible][illegible]

GUADALUPE RIVER BASIN

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08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

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. 1994	25355	564	321	22000	45	3080	49	3350	210
NOV. 1994	9646	923	499	13000	94	2440	76	1980	290
DEC. 1994	11009	860	469	13900	85	2510	71	2120	280
JAN. 1995	10768	926	501	14600	94	2740	76	2210	290
FEB. 1995	9781	907	491	13000	93	2450	75	1970	290
MAR. 1995	11142	911	494	14800	92	2780	75	2260	290
APR. 1995	8823	975	523	12500	100	2450	79	1890	300
MAY 1995	14421	638	358	13900	54	2120	55	2130	230
JUNE 1995	19910	647	362	19500	56	3000	55	2970	230
JULY 1995	10860	859	468	13700	84	2470	71	2090	280
AUG. 1995	5625	942	508	7720	97	1470	77	1170	300
SEPT 1995	11888	688	383	12300	61	1970	58	1870	240
TOTAL	149228	**	**	171000	**	29500	**	26000	**
WTD.AVG.	409	772	424	**	73	**	65	**	260

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1020	998	1010	929	859	878	984	958	966	854	809	830
2	1010	975	996	957	908	924	999	961	978	855	825	838
3	988	947	971	963	923	939	1000	870	939	858	815	841
4	972	947	959	983	932	947	954	925	933	911	848	882
5	997	972	989	983	632	820	949	922	933	932	885	905
6	1010	987	997	868	776	847	976	933	946	941	907	919
7	1010	995	1000	877	825	842	1010	967	981	963	928	937
8	1010	150	426	932	863	886	1010	964	988	963	924	940
9	400	245	321	955	912	925	1010	960	984	965	901	933
10	642	400	517	955	909	927	1000	960	980	957	893	913
11	807	637	708	965	924	937	987	962	972	957	924	939
12	868	790	808	965	926	940	986	943	962	969	934	947
13	904	833	852	968	927	940	979	942	952	972	943	953
14	913	880	893	968	889	926	986	960	976	984	934	951
15	913	727	835	953	868	894	986	940	966	984	942	954
16	806	727	773	978	943	957	940	796	840	962	906	923
17	863	804	826	995	953	963	924	854	883	969	907	927
18	884	562	835	996	957	976	949	903	925	969	921	944
19	562	287	383	985	962	973	949	898	914	996	938	961
20	723	488	624	987	948	959	959	901	916	996	946	964
21	813	717	759	967	923	937	969	928	941	969	943	952
22	852	796	809	968	926	936	990	949	962	958	928	942
23	865	821	841	982	946	965	991	964	974	955	911	922
24	875	835	851	985	938	960	983	949	960	956	910	922
25	875	200	533	962	937	948	972	943	951	970	934	950
26	522	312	392	953	921	931	946	907	919	978	950	963
27	749	522	657	960	944	950	916	902	909	976	932	948
28	825	724	761	961	922	936	914	447	652	970	955	961
29	855	801	816	971	928	934	617	527	571	964	935	943
30	881	834	853	979	958	972	751	617	682	947	909	921
31	880	846	859	---	---	---	835	743	780	965	915	926
MONTH	1020	150	769	996	632	929	1010	447	911	996	809	927

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	971	945	959	941	897	910	1010	1000	1010	---	---	1010
2	977	942	955	959	911	934	1020	1010	1010	---	---	1020
3	980	945	966	959	921	940	1010	982	997	1060	1010	1030
4	989	947	961	962	906	933	990	962	976	1060	1040	1050
5	989	951	964	975	944	954	1010	897	954	1060	1050	1050
6	972	934	950	977	937	950	987	911	952	1060	1030	1050
7	---	---	960	953	805	914	1010	972	986	1060	1020	1040
8	---	---	975	898	792	858	1010	946	969	1020	446	775
9	---	---	990	967	853	908	976	942	956	779	697	746
10	1010	988	1000	993	967	973	965	911	935	924	779	848
11	1010	979	992	1010	993	998	932	867	910	941	920	927
12	1000	984	989	1000	956	971	988	885	938	983	905	947
13	1000	951	977	970	494	731	988	945	962	999	983	993
14	973	947	954	782	644	687	989	949	965	1010	984	998
15	1010	967	983	871	765	809	996	977	988	990	938	968
16	1010	989	1000	922	834	866	998	953	970	971	939	954
17	1010	989	998	968	888	918	954	919	930	1020	971	1000
18	1010	986	995	972	916	938	957	919	937	1020	806	948
19	1010	984	995	969	929	945	979	957	967	1020	940	966
20	1010	959	984	958	908	926	992	974	983	1010	970	997
21	993	965	975	982	918	935	1010	986	996	1020	991	1010
22	1010	992	998	990	955	972	1010	992	1000	1000	901	970
23	1030	1000	1010	992	967	980	1000	993	1000	959	901	936
24	1040	1020	1030	1000	963	977	998	957	974	970	359	714
25	1040	607	931	1010	978	991	998	925	964	690	607	648
26	697	325	574	1000	975	988	1020	998	1010	914	689	786
27	783	599	685	989	965	976	1030	1010	1020	919	212	672
28	912	778	825	985	961	968	1040	1020	1030	554	372	473
29	---	---	---	1030	985	1010	1050	1020	1030	765	554	644
30	---	---	---	1020	980	1000	1040	1000	1030	770	236	508
31	---	---	---	1020	991	1010	---	---	---	449	275	352
MONTH	1040	325	949	1030	494	931	1050	867	978	1060	212	872
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	692	449	587	637	442	539	939	898	921	979	944	967
2	788	692	751	759	628	689	967	925	949	983	966	973
3	904	788	831	805	723	759	1010	883	933	999	964	982
4	930	870	893	804	555	685	---	---	940	967	920	949
5	930	878	897	816	645	740	---	---	950	921	905	913
6	963	901	918	885	797	826	---	---	955	943	906	929
7	998	958	970	886	814	854	---	---	950	986	941	968
8	1020	982	993	892	823	860	---	---	960	994	749	881
9	1030	999	1010	888	859	872	980	935	967	902	748	827
10	1020	1010	1010	892	856	872	988	930	973	939	902	926
11	1010	376	723	944	881	897	998	947	985	955	903	927
12	588	337	457	961	942	951	1010	986	996	938	900	922
13	801	588	688	971	935	951	1000	959	988	979	935	964
14	889	790	824	985	956	970	959	884	916	984	958	974
15	953	856	888	986	967	975	934	883	908	958	930	945
16	985	919	941	979	945	959	985	934	965	961	946	953
17	991	953	965	963	928	942	993	963	984	977	960	966
18	997	959	971	970	935	943	988	966	979	969	911	947
19	975	903	939	980	964	970	984	968	978	939	909	925
20	903	721	774	991	976	983	985	962	978	966	249	587
21	975	817	904	1000	974	989	962	909	942	464	236	338
22	1000	962	977	996	974	984	937	905	926	548	453	503
23	1020	988	1000	990	961	976	963	929	948	698	534	604
24	1020	983	1000	975	929	954	972	848	918	797	682	719
25	1020	974	995	947	923	932	955	828	908	837	759	790
26	986	942	967	982	936	965	946	785	851	868	796	813
27	995	945	962	985	965	973	950	920	931	924	868	897
28	1010	983	997	997	968	983	930	886	914	946	917	930
29	994	145	515	980	968	975	925	878	913	961	933	946
30	442	233	349	999	929	977	971	925	949	957	922	938
31	---	---	---	957	896	932	980	925	955	---	---	---
MONTH	1030	145	857	1000	442	899	1010	785	946	999	236	863
YEAR	1060	145	902									

## GUADALUPE RIVER BASIN

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08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.0	7.8	7.9	7.9	7.8	7.8	8.1	8.0	8.1	8.0	7.9	8.0
2	8.0	7.8	7.9	7.9	7.8	7.8	8.1	8.0	8.1	8.1	8.0	8.0
3	8.0	7.8	7.9	7.9	7.8	7.9	8.1	8.0	8.1	8.1	8.0	8.0
4	8.0	7.9	7.9	8.0	7.9	7.9	8.1	8.0	8.0	8.1	8.0	8.0
5	8.0	7.9	7.9	7.9	7.8	7.9	8.0	8.0	8.0	8.1	8.0	8.1
6	8.0	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0	8.1	8.0	8.1
7	8.0	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0	8.1	8.1	8.1
8	7.9	7.3	7.6	7.9	7.9	7.9	8.0	8.0	8.0	8.1	8.1	8.1
9	7.4	7.3	7.4	7.9	7.9	7.9	8.1	8.0	8.0	8.1	8.1	8.1
10	7.5	7.4	7.5	7.9	7.9	7.9	8.1	8.0	8.0	8.1	8.0	8.0
11	7.6	7.5	7.5	8.0	7.9	7.9	8.1	8.0	8.1	8.1	8.0	8.0
12	7.6	7.5	7.6	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0
13	7.6	7.6	7.6	8.0	8.0	8.0	8.1	7.9	8.0	8.1	8.0	8.0
14	7.7	7.6	7.6	8.1	8.0	8.0	8.0	7.9	7.9	8.1	8.0	8.1
15	7.7	7.6	7.6	8.0	8.0	8.0	8.0	7.9	7.9	8.2	8.0	8.1
16	7.7	7.6	7.6	8.1	8.0	8.0	7.9	7.9	7.9	8.2	8.0	8.1
17	7.7	7.6	7.6	8.1	8.0	8.0	8.0	7.9	7.9	8.1	8.0	8.0
18	7.7	7.5	7.6	8.0	8.0	8.0	8.0	7.9	7.9	8.1	8.0	8.0
19	7.5	7.4	7.4	8.1	8.0	8.0	8.0	7.9	7.9	8.2	8.0	8.1
20	7.7	7.5	7.6	8.1	8.0	8.0	8.0	7.9	7.9	8.2	8.0	8.1
21	7.7	7.7	7.7	8.1	8.0	8.0	8.0	7.9	7.9	8.2	8.0	8.1
22	7.8	7.7	7.7	8.1	8.0	8.1	8.0	7.9	8.0	8.2	8.1	8.1
23	7.7	7.7	7.7	8.1	8.0	8.0	8.1	8.0	8.0	8.3	8.1	8.1
24	7.8	7.7	7.8	8.1	8.0	8.0	8.1	8.0	8.0	8.2	8.1	8.1
25	7.8	7.5	7.6	8.1	8.0	8.0	8.1	8.0	8.0	8.2	8.1	8.1
26	7.6	7.5	7.6	8.0	8.0	8.0	8.1	8.0	8.0	8.2	8.0	8.1
27	7.7	7.6	7.7	8.1	8.0	8.0	8.1	8.0	8.0	8.2	8.0	8.1
28	7.8	7.7	7.7	8.1	8.0	8.0	8.0	7.8	7.9	8.2	8.1	8.1
29	7.8	7.7	7.8	8.1	8.0	8.0	7.9	7.8	7.9	8.3	8.1	8.2
30	7.8	7.7	7.8	8.1	8.0	8.0	7.9	7.9	7.9	8.3	8.1	8.2
31	7.8	7.8	7.8	---	---	---	8.0	7.9	7.9	8.3	8.1	8.2
MONTH	8.0	7.3	7.7	8.1	7.8	8.0	8.1	7.8	8.0	8.3	7.9	8.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.3	8.1	8.2	8.1	8.1	8.1	8.2	8.1	8.1	---	---	---
2	8.3	8.1	8.2	8.2	8.1	8.1	8.2	8.1	8.1	---	---	---
3	8.4	8.1	8.2	8.2	8.1	8.2	8.2	8.1	8.1	8.0	7.8	7.9
4	8.4	8.1	8.2	8.2	8.2	8.2	8.1	8.1	8.1	8.0	7.9	8.0
5	8.4	8.1	8.2	8.2	8.2	8.2	8.2	8.1	8.1	8.0	7.9	8.0
6	8.4	8.2	8.3	8.2	8.1	8.2	8.2	8.0	8.1	8.1	7.9	8.0
7	---	---	---	8.3	8.1	8.2	8.1	8.0	8.0	8.1	7.9	8.0
8	---	---	---	8.3	8.2	8.2	8.1	8.0	8.0	8.3	7.5	7.9
9	8.3	8.2	8.1	8.3	8.2	8.2	8.2	8.0	8.1	7.8	7.7	7.8
10	8.2	8.1	8.1	8.3	8.2	8.3	8.1	8.0	8.0	7.9	7.8	7.8
11	8.2	8.1	8.1	8.3	8.1	8.1	8.2	8.0	8.1	7.9	7.8	7.9
12	8.2	8.1	8.2	8.2	8.1	8.1	8.2	8.0	8.1	8.0	7.8	7.9
13	8.2	8.1	8.1	8.2	7.9	8.0	8.1	8.0	8.1	8.0	7.9	7.9
14	8.2	8.1	8.1	8.0	8.0	8.0	8.2	8.0	8.1	8.0	7.9	7.9
15	8.2	8.1	8.1	8.1	8.0	8.0	8.2	8.0	8.1	8.1	7.9	8.0
16	8.2	8.1	8.1	8.1	8.0	8.1	8.2	8.0	8.1	8.1	7.9	8.0
17	8.2	8.1	8.1	8.1	8.0	8.1	8.2	8.1	8.1	8.1	8.0	8.0
18	8.2	8.1	8.2	8.1	7.9	8.0	8.2	8.1	8.1	8.1	7.9	8.0
19	8.3	8.1	8.2	8.1	7.9	8.0	8.2	8.0	8.1	8.1	8.0	8.0
20	8.3	8.1	8.2	8.2	8.0	8.1	8.1	8.0	8.0	8.1	8.0	8.0
21	8.3	8.1	8.2	8.2	8.0	8.1	8.2	8.0	8.1	8.2	8.0	8.1
22	8.3	8.1	8.2	8.2	8.0	8.1	8.1	8.0	8.1	8.2	8.1	8.1
23	8.3	8.1	8.2	8.3	8.0	8.1	8.2	8.0	8.1	8.2	8.1	8.1
24	8.2	8.1	8.1	8.2	8.0	8.1	8.2	8.1	8.1	8.2	7.8	8.0
25	8.2	7.8	8.1	8.1	8.0	8.0	8.2	8.1	8.1	7.9	7.9	7.9
26	8.0	7.8	8.0	8.1	7.9	8.0	8.2	8.1	8.1	8.2	7.9	8.0
27	8.0	8.0	8.0	8.1	7.9	8.0	---	---	---	8.4	8.2	8.3
28	8.1	8.0	8.0	8.4	7.9	8.0	8.3	8.1	8.2	8.3	8.0	8.2
29	---	---	---	8.1	8.0	8.0	8.2	8.0	8.1	8.3	8.0	8.1
30	---	---	---	8.1	8.0	8.0	8.2	8.0	8.1	8.3	8.2	8.3
31	---	---	---	8.2	8.0	8.1	---	---	---	8.4	8.2	8.2
MONTH	8.4	7.8	8.1	8.4	7.9	8.1	8.3	8.0	8.1	8.4	7.5	8.0



## GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.3	8.2	8.3	7.8	7.6	7.7	8.4	8.3	8.3	8.0	7.9	8.0
2	8.4	8.3	8.3	7.8	7.7	7.7	8.4	8.3	8.3	8.1	7.9	8.0
3	8.4	8.3	8.3	7.8	7.7	7.8	8.4	8.3	8.3	8.0	7.8	7.9
4	8.4	8.3	8.3	7.8	7.5	7.7	---	---	---	8.0	7.9	7.9
5	8.3	8.2	8.3	7.8	7.6	7.7	---	---	---	8.1	7.9	8.0
6	8.4	8.3	8.3	7.9	7.8	7.8	---	---	---	8.0	7.9	8.0
7	8.3	8.2	8.2	8.0	7.9	7.9	---	---	---	8.0	7.9	8.0
8	8.3	8.1	8.2	8.0	7.8	7.9	---	---	---	8.0	7.7	7.9
9	8.3	8.1	8.2	8.0	7.9	7.9	8.2	8.1	8.1	7.8	7.7	7.7
10	8.3	8.1	8.1	8.1	8.0	8.0	8.3	8.0	8.2	7.8	7.7	7.8
11	8.2	7.7	8.0	8.1	8.0	8.0	8.3	8.0	8.1	8.0	7.6	7.8
12	7.9	7.7	7.8	8.2	8.0	8.1	8.2	8.1	8.1	8.1	8.0	8.0
13	7.9	7.8	7.8	8.1	8.0	8.0	8.2	8.1	8.1	8.1	7.9	8.0
14	7.9	7.8	7.9	8.2	8.0	8.1	8.2	8.1	8.1	8.1	7.9	8.0
15	8.2	7.8	8.0	8.2	8.1	8.1	8.2	8.1	8.1	8.1	7.9	8.0
16	8.2	8.1	8.1	8.3	8.1	8.1	8.2	8.1	8.2	8.1	8.0	8.1
17	8.2	8.1	8.1	8.3	8.1	8.2	8.2	8.0	8.1	8.2	8.1	8.1
18	8.2	8.1	8.1	8.2	7.9	8.0	8.2	8.1	8.1	8.2	8.0	8.1
19	8.2	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	---	---	---
20	8.1	8.0	8.0	8.1	7.9	8.0	8.2	8.0	8.1	---	---	---
21	8.1	7.9	8.0	8.3	8.0	8.1	8.2	8.1	8.1	---	---	---
22	8.1	8.0	8.0	8.3	8.1	8.2	8.2	8.1	8.1	---	---	---
23	8.2	8.0	8.0	8.3	8.0	8.1	8.1	8.0	8.1	---	---	---
24	8.1	7.9	8.0	8.3	8.1	8.2	8.1	8.0	8.1	---	---	---
25	8.2	7.9	8.0	8.3	8.1	8.2	8.1	7.9	8.0	---	---	---
26	8.1	7.9	8.0	8.4	8.2	8.3	8.2	8.0	8.1	7.8	7.7	7.7
27	8.3	7.8	8.0	8.4	8.3	8.3	8.1	8.0	8.1	7.8	7.7	7.7
28	8.2	7.9	8.1	8.4	8.3	8.3	8.1	7.9	8.0	7.8	7.8	7.8
29	8.1	7.6	7.8	8.4	8.2	8.3	8.0	7.9	8.0	7.9	7.8	7.8
30	7.7	7.5	7.6	8.5	8.3	8.4	8.1	7.9	8.0	7.9	7.9	7.9
31	---	---	---	8.5	8.3	8.4	8.1	7.9	8.0	---	---	---
MONTH	8.4	7.5	8.1	8.5	7.5	8.0	8.4	7.9	8.1	8.2	7.6	7.9
YEAR	8.5	7.3	8.0									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	27.5	25.5	26.5	24.0	22.0	23.0	19.5	18.0	18.5	17.5	16.5	17.0
2	28.0	26.0	27.0	24.0	22.5	23.0	20.5	19.0	19.5	16.5	15.5	15.5
3	28.5	26.5	27.5	25.5	24.0	24.5	21.0	19.5	20.5	16.5	14.5	15.5
4	28.0	27.0	27.5	25.5	25.0	25.0	21.5	20.5	21.0	15.5	15.0	15.0
5	28.0	26.5	27.5	25.5	23.0	24.0	22.5	21.0	21.5	15.5	14.0	14.5
6	28.0	26.5	27.5	23.0	22.0	22.5	23.0	22.0	22.5	17.0	15.0	15.5
7	28.0	27.0	27.5	23.5	21.5	22.0	24.0	23.0	23.5	17.0	15.5	16.0
8	28.0	22.0	23.5	24.5	23.0	24.0	24.5	23.5	24.0	17.5	15.5	16.0
9	22.0	21.5	21.5	25.0	24.0	24.5	24.0	20.0	22.5	18.5	16.5	17.0
10	22.5	21.0	22.0	24.0	22.0	22.5	20.5	18.5	19.5	20.0	18.0	18.5
11	23.0	21.0	22.0	22.5	21.0	21.5	19.0	16.5	17.5	21.0	20.0	20.5
12	23.5	21.5	22.5	22.5	21.5	21.5	18.5	16.5	17.5	21.5	21.0	21.0
13	23.5	22.0	22.5	23.5	22.0	22.5	19.0	17.5	18.0	21.5	19.5	20.0
14	23.5	22.5	23.0	24.0	23.0	23.5	20.5	19.0	19.0	19.5	18.0	18.5
15	23.0	22.0	22.5	24.0	22.0	23.0	21.0	20.5	20.5	18.5	17.0	17.5
16	25.0	22.5	23.5	22.5	21.5	21.5	21.0	20.0	20.5	20.0	17.0	18.0
17	26.5	24.5	25.5	22.5	21.5	22.0	20.5	19.0	19.5	20.0	19.0	19.5
18	26.5	25.0	26.0	23.5	22.5	22.5	20.0	19.0	19.0	20.0	19.0	19.5
19	25.0	23.0	24.0	24.0	23.5	23.5	20.0	18.0	19.0	19.0	17.5	18.0
20	26.5	25.0	25.5	24.0	23.0	23.5	20.5	19.5	20.0	18.5	17.5	18.0
21	27.5	26.0	26.5	23.0	21.0	22.0	20.5	19.0	19.5	18.5	16.5	17.5
22	27.0	26.5	26.5	22.5	21.0	21.5	20.0	18.5	19.0	18.5	17.5	18.0
23	27.0	26.0	26.5	22.5	20.0	21.0	19.0	17.5	18.5	18.5	16.5	17.5
24	27.0	26.5	27.0	20.5	19.0	19.5	19.0	18.0	18.5	17.5	16.0	16.5
25	27.0	21.0	23.5	21.0	19.0	20.0	18.5	17.0	17.5	18.0	16.5	17.0
26	21.5	20.5	21.0	22.0	20.5	21.0	17.5	15.5	16.5	19.5	18.0	18.5
27	22.0	21.5	21.5	23.0	22.0	22.5	18.0	17.0	17.5	20.0	18.5	19.5
28	23.0	21.5	22.0	22.5	20.5	21.5	18.0	14.0	15.5	20.0	18.5	19.0
29	23.5	21.5	22.5	21.0	20.0	20.5	15.5	14.0	14.5	19.5	17.5	18.0
30	24.0	22.5	23.0	20.5	19.0	19.5	16.5	15.0	15.5	18.0	16.5	17.5
31	24.0	23.0	23.5	---	---	---	17.5	16.5	17.0	18.0	16.0	17.0
MONTH	28.5	20.5	24.5	25.5	19.0	22.5	24.5	14.0	19.0	21.5	14.0	17.5



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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	18.5	16.5	17.0	20.0	17.5	18.5	21.5	19.5	20.5	27.5	25.0	26.0
2	19.0	17.0	18.0	18.0	15.5	16.5	22.5	20.0	21.5	26.0	23.0	24.5
3	19.0	17.5	18.0	16.5	15.5	16.0	22.5	21.0	21.5	26.5	24.0	25.0
4	18.5	17.0	17.5	17.0	15.5	16.0	22.0	21.5	21.5	28.0	25.0	26.5
5	18.5	16.5	17.5	19.5	16.5	18.0	23.5	21.0	22.0	28.0	26.0	27.0
6	18.5	17.0	17.5	21.0	19.5	20.0	24.0	21.5	22.5	28.0	26.0	27.0
7	---	---	---	21.0	18.5	19.5	24.5	22.0	23.5	27.5	26.0	26.5
8	---	---	---	18.5	17.0	17.5	26.0	23.0	24.0	26.0	23.0	24.5
9	18.0	17.0	17.0	18.0	16.5	17.0	26.0	24.0	25.0	26.5	23.5	24.5
10	20.0	17.0	18.0	19.0	17.0	18.0	26.0	24.5	25.0	28.0	25.5	26.5
11	20.0	19.0	19.5	20.0	18.5	19.0	25.5	23.0	24.0	27.5	24.5	25.5
12	19.0	16.0	17.0	21.0	19.5	20.0	24.5	21.5	23.0	26.5	24.5	25.5
13	17.0	15.0	16.0	21.0	18.5	20.0	25.0	22.0	23.5	30.0	26.0	27.5
14	17.0	15.5	16.0	21.0	19.0	20.0	25.0	22.5	24.0	31.0	27.5	29.0
15	19.0	17.0	17.5	21.5	19.5	20.5	25.0	24.0	24.5	30.5	28.0	29.0
16	19.0	18.5	18.5	21.5	20.0	21.0	25.0	24.5	24.5	30.0	28.0	29.0
17	19.0	17.5	18.5	22.5	20.0	21.0	27.0	24.5	25.5	29.0	27.5	28.5
18	19.0	17.5	18.0	23.0	20.5	21.5	26.5	24.5	25.5	29.5	26.5	28.0
19	19.5	18.0	19.0	23.5	21.0	22.5	27.0	25.0	26.0	28.5	26.0	27.5
20	20.0	18.0	19.0	24.5	22.0	23.0	26.5	25.0	26.0	29.0	25.5	27.0
21	20.0	18.5	19.5	25.0	23.0	24.0	26.5	24.0	25.0	29.0	26.0	27.5
22	20.5	19.0	19.5	26.0	24.0	24.5	27.0	25.5	26.0	28.0	26.5	27.0
23	22.0	19.5	20.5	26.5	24.5	25.5	25.5	21.0	23.5	27.0	26.0	26.5
24	22.0	21.0	21.5	26.0	24.5	25.0	23.5	22.0	23.0	27.0	24.0	25.5
25	22.0	18.0	20.5	25.0	24.0	24.5	24.0	22.0	23.0	26.5	25.0	25.5
26	19.0	18.0	18.5	25.0	23.5	24.0	26.5	21.5	23.5	28.0	25.5	26.5
27	21.0	19.0	19.5	23.5	22.5	23.0	24.5	21.0	23.0	27.5	22.5	25.5
28	21.0	20.0	20.5	22.5	20.5	21.5	26.0	23.0	24.5	26.5	24.0	25.0
29	---	---	---	20.5	19.0	19.5	27.0	24.5	25.5	28.0	26.0	27.0
30	---	---	---	20.0	19.0	19.5	28.0	25.5	26.5	28.0	23.5	25.5
31	---	---	---	20.0	19.5	19.5	---	---	---	24.5	23.0	23.5
MONTH	22.0	15.0	18.5	26.5	15.5	20.5	28.0	19.5	24.0	31.0	22.5	26.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	26.5	24.5	25.0	28.0	26.0	27.0	31.0	29.0	30.0	30.5	28.0	29.0
2	28.5	26.0	27.0	29.0	27.0	28.0	30.5	29.5	30.0	31.0	29.0	30.0
3	29.0	27.0	28.0	30.0	27.5	28.5	30.0	29.5	30.0	31.5	29.0	30.5
4	29.5	27.0	28.0	29.5	27.5	28.5	---	---	---	31.5	29.0	30.5
5	30.0	27.5	28.5	30.0	28.0	28.5	---	---	---	31.0	29.0	30.5
6	30.0	28.0	29.0	30.0	28.5	29.0	---	---	---	31.5	29.0	30.5
7	29.5	28.5	29.0	30.0	28.5	29.0	---	---	---	31.5	29.5	30.5
8	30.5	28.0	29.0	30.5	28.0	29.0	32.5	29.5	31.0	30.5	29.0	29.5
9	30.5	29.0	29.5	30.5	28.5	29.5	31.5	29.0	30.5	30.5	28.5	29.5
10	30.5	29.0	29.5	31.0	28.5	29.5	32.0	29.0	30.5	30.5	29.0	29.5
11	30.0	25.5	27.5	31.0	28.5	30.0	31.5	29.0	30.0	30.0	29.0	29.5
12	26.5	24.0	25.0	31.5	29.0	30.0	30.5	29.0	30.0	30.5	28.5	29.5
13	27.5	25.0	26.0	31.5	29.0	30.0	31.0	29.0	30.0	31.0	29.0	30.0
14	28.5	25.5	27.0	31.0	29.0	30.0	30.5	29.5	30.0	30.0	29.0	29.5
15	28.0	26.0	27.0	31.0	29.0	30.0	31.0	29.5	30.0	30.0	28.5	29.5
16	28.5	26.5	27.5	31.0	29.0	30.0	31.5	29.0	30.5	31.0	29.0	30.0
17	28.5	26.5	27.5	31.5	29.0	30.0	31.5	29.0	30.5	31.5	29.5	30.5
18	28.0	26.5	27.5	31.5	29.0	30.5	31.0	29.5	30.0	31.0	29.5	30.0
19	28.0	27.0	27.5	32.0	29.5	30.5	31.0	29.0	30.0	31.0	29.5	30.0
20	29.0	26.5	28.0	32.0	29.5	31.0	31.5	29.0	30.5	30.5	24.5	27.0
21	29.5	27.0	28.0	31.5	29.5	30.5	31.5	29.5	30.5	27.0	25.0	26.0
22	30.0	27.5	28.5	32.0	29.5	30.5	31.5	29.0	30.5	26.5	23.0	24.5
23	30.0	27.5	29.0	32.0	30.0	31.0	31.0	29.5	30.5	24.5	22.5	23.0
24	30.5	28.0	29.0	31.5	29.5	30.5	31.0	29.5	30.0	25.5	23.0	24.5
25	30.5	28.5	29.5	31.5	29.5	30.5	31.0	29.5	30.5	27.0	24.0	25.5
26	30.5	28.5	29.5	32.0	29.5	31.0	31.5	29.5	30.5	27.0	25.0	26.0
27	30.0	28.5	29.5	32.5	30.0	31.0	31.5	29.5	30.5	28.0	26.5	27.0
28	31.0	28.5	29.5	32.5	30.0	31.0	31.5	29.5	30.5	29.0	27.5	28.0
29	30.0	22.5	25.5	32.0	30.0	31.0	31.0	29.5	30.0	29.0	27.5	28.5
30	26.5	23.5	25.0	31.0	29.5	30.0	31.0	29.0	30.0	29.0	27.5	28.0
31	---	---	---	30.5	29.0	29.5	30.5	28.5	29.5	---	---	---
MONTH	31.0	22.5	28.0	32.5	26.0	30.0	32.5	28.5	30.0	31.5	22.5	28.5
YEAR	32.5	14.0	24.0									

## GUADALUPE RIVER BASIN

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.1	7.0	7.5	8.4	7.6	8.0	9.2	8.5	8.8	9.1	8.6	8.9
2	7.8	6.7	7.2	8.0	7.7	7.9	8.7	8.1	8.5	9.5	8.9	9.3
3	7.6	6.4	6.9	7.9	7.6	7.7	8.7	8.1	8.3	9.9	9.1	9.4
4	7.6	6.3	6.8	7.7	7.4	7.6	8.2	7.8	8.0	9.9	9.4	9.6
5	7.5	6.4	6.9	7.8	7.3	7.4	8.4	7.8	8.0	10.0	9.4	9.7
6	7.5	6.5	6.9	8.0	7.4	7.8	8.0	7.6	7.8	9.7	9.1	9.5
7	7.0	6.2	6.6	8.3	7.8	8.0	7.7	7.4	7.5	9.7	9.1	9.4
8	7.4	5.2	6.8	7.8	7.4	7.6	7.7	7.2	7.4	9.7	9.0	9.4
9	8.2	6.0	7.4	7.4	7.1	7.3	8.0	7.2	7.5	9.6	8.9	9.2
10	8.3	7.8	8.1	7.8	7.2	7.5	8.7	7.9	8.3	9.0	8.0	8.6
11	8.2	7.7	8.0	8.3	7.6	7.9	9.4	8.4	8.9	8.1	7.6	7.9
12	8.1	7.6	7.9	8.4	7.9	8.1	9.4	8.7	9.1	7.9	7.5	7.7
13	8.0	7.4	7.8	8.1	7.7	7.9	9.2	8.5	8.8	8.3	7.5	7.9
14	7.8	7.4	7.6	8.1	7.5	7.7	8.5	7.9	8.3	8.6	7.8	8.2
15	8.1	7.4	7.6	7.9	7.4	7.7	7.9	7.7	7.8	9.0	8.1	8.5
16	7.6	7.1	7.4	8.1	7.7	7.9	7.8	7.6	7.7	8.8	8.2	8.4
17	7.1	6.7	6.9	8.2	7.8	7.9	8.2	7.6	7.9	8.3	7.6	7.9
18	7.1	6.6	6.8	7.9	7.6	7.8	8.3	7.8	8.0	8.4	7.6	8.0
19	7.9	6.6	7.5	7.8	7.5	7.6	8.3	7.9	8.1	9.1	8.2	8.6
20	7.3	6.7	7.1	7.8	7.4	7.6	8.3	7.7	8.0	9.1	8.3	8.6
21	6.9	6.6	6.7	8.3	7.6	8.0	8.4	7.7	8.0	9.2	8.4	8.8
22	6.8	6.6	6.8	8.4	7.9	8.1	8.7	7.8	8.3	9.0	8.3	8.6
23	7.1	6.7	7.0	8.3	7.8	8.0	8.9	8.1	8.5	9.6	8.3	8.9
24	7.3	6.9	7.1	8.6	8.1	8.3	8.8	8.1	8.4	9.7	8.6	9.1
25	8.4	7.0	7.6	8.5	8.1	8.3	9.2	8.2	8.7	9.2	8.5	8.9
26	9.0	7.8	8.7	8.3	7.8	8.1	9.4	8.5	9.0	8.7	8.3	8.5
27	8.5	8.1	8.3	7.9	7.5	7.7	9.0	8.5	8.7	8.9	8.1	8.5
28	8.3	7.8	8.1	8.3	7.6	7.9	9.7	8.2	9.0	9.1	8.1	8.5
29	8.0	7.5	7.8	8.7	7.9	8.3	9.6	9.3	9.5	9.4	8.2	8.8
30	7.7	7.3	7.6	9.0	8.2	8.6	9.3	8.9	9.2	9.8	8.4	9.0
31	7.6	7.3	7.4	---	---	---	9.0	8.7	8.9	10.1	8.6	9.2
MONTH	9.0	5.2	7.4	9.0	7.1	7.9	9.7	7.2	8.4	10.1	7.5	8.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.0	8.6	9.1	9.0	8.1	8.6	8.7	7.9	8.3	8.6	7.1	7.6
2	10.1	8.4	9.1	9.9	9.0	9.5	8.7	7.7	8.2	---	---	---
3	10.1	8.3	9.0	10.3	9.6	10.0	8.1	7.5	7.8	8.0	7.3	7.6
4	10.3	8.4	9.2	10.3	9.9	10.2	7.8	7.5	7.6	8.7	7.5	8.0
5	10.4	8.3	9.3	9.9	9.2	9.7	7.9	7.3	7.6	8.7	7.3	7.9
6	10.3	8.4	9.2	9.3	8.8	9.1	8.0	7.3	7.6	8.4	7.3	7.7
7	---	---	---	9.4	8.3	8.9	7.9	7.3	7.5	7.9	7.0	7.4
8	---	---	---	10.1	9.0	9.5	7.8	7.0	7.4	7.7	6.0	7.1
9	10.6	9.5	10	10.2	9.5	9.8	7.8	6.9	7.3	7.4	7.0	7.2
10	10.4	9.2	9.7	10.1	9.3	9.6	7.6	6.7	7.1	7.5	7.1	7.3
11	9.9	8.8	9.3	9.7	9.0	9.3	8.1	7.0	7.5	7.3	6.9	7.1
12	10.0	8.9	9.5	9.4	8.6	9.0	8.2	7.3	7.7	7.3	7.0	7.1
13	10.2	9.3	9.7	8.8	8.2	8.5	8.1	7.3	7.6	7.1	6.7	6.9
14	10.3	9.6	9.9	8.3	8.0	8.2	8.2	7.2	7.6	7.7	6.7	6.9
15	9.8	9.2	9.5	8.2	8.0	8.1	7.8	7.0	7.4	7.9	6.6	7.2
16	9.7	8.9	9.2	8.5	8.0	8.1	7.8	6.9	7.3	8.0	7.0	7.4
17	9.8	8.9	9.3	8.2	7.8	8.0	8.0	7.1	7.5	7.8	6.7	7.2
18	10.0	9.1	9.5	8.1	7.6	7.8	8.2	7.1	7.5	7.2	6.4	6.9
19	10.1	9.1	9.6	8.3	7.6	8.0	7.8	7.0	7.3	7.6	6.6	7.1
20	10.2	9.0	9.5	8.4	7.5	7.9	8.0	7.0	7.5	7.8	6.9	7.2
21	10.1	8.9	9.4	8.2	7.3	7.8	8.3	7.2	7.6	7.9	6.7	7.2
22	9.9	8.8	9.3	8.2	7.1	7.6	7.8	7.0	7.4	7.6	6.7	7.0
23	9.8	8.7	9.1	8.2	6.9	7.5	8.4	7.1	7.8	7.7	6.9	7.3
24	9.2	8.3	8.7	8.0	6.9	7.4	8.7	7.7	8.2	---	---	---
25	8.8	7.6	8.4	8.1	7.0	7.5	8.3	7.5	7.9	---	---	---
26	8.9	7.6	8.4	7.6	6.9	7.3	8.1	6.8	7.2	---	---	---
27	8.2	7.8	8.0	8.6	7.2	7.8	8.9	7.1	8.0	6.4	5.9	6.2
28	8.2	7.6	7.9	8.5	7.7	8.1	8.9	7.8	8.3	6.2	5.8	6.0
29	---	---	---	8.9	8.1	8.5	8.9	7.7	8.2	6.1	5.8	5.9
30	---	---	---	9.1	8.4	8.7	8.6	7.5	8.0	6.8	5.8	6.3
31	---	---	---	8.8	8.2	8.5	---	---	---	6.7	6.1	6.5
MONTH	10.6	7.6	9.2	10.3	6.9	8.5	8.9	6.7	7.7	8.7	5.8	7.1



## GUADALUPE RIVER BASIN

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX

LOCATION.--Lat 28°57'05", long 98°03'50", Karnes County, Hydrologic Unit 12100303, on left bank 23 ft downstream from bridge on Farm Road 791, 0.9 mi upstream from Scared Dog Creek, 3.6 mi southwest of Falls City, and 150.5 mi upstream from mouth.

DRAINAGE AREA.--2,113 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 1732: 1947(M). WSP 1923: Drainage area. WDR TX-87-3: 1983-84.

GAGE.--Water-stage recorder. Datum of gage is 285.49 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. For diversions and regulation above station, see REMARKS paragraph for Salado Creek (upper station) at San Antonio (station 08178700), Medina River at San Antonio (station 08181500), and San Antonio River near Elmendorf (station 08181800). Flow slightly regulated by Calaveras Lake on Calaveras Creek and by Braunig Lake. Flow from Braunig Lake enters the San Antonio River above the station near Elmendorf, and flow from Calaveras Creek enters the San Antonio River some distance downstream from the station near Elmendorf. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 26,130 acre-ft. These structures control runoff from 73.8 mi<sup>2</sup>. Records provided by the San Antonio City Public Service Board show that during the current year, 161 acre-ft was released into Calaveras Creek from Calaveras Lake and that 236 acre-ft was released from Braunig Lake. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1913 reached a stage of 28.4 ft, from floodmark, from information by local residents. Maximum stage since at least 1875, that of Sept. 29, 1946.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 10	0800	4,210	6.51	July 1	0900	4,360	6.66

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	399	194	447	326	402	306	248	2680	3950	e270	e211
2	185	384	230	403	328	341	303	238	1220	1470	e272	e210
3	184	375	270	370	317	309	297	150	658	679	e300	e200
4	179	376	340	395	301	330	297	107	519	548	e330	e197
5	184	375	371	395	301	349	322	103	437	707	e280	e191
6	185	521	330	379	296	323	384	114	412	673	e207	e193
7	179	529	236	370	291	328	413	112	401	513	e170	e220
8	199	409	199	358	301	360	366	131	388	479	e156	217
9	2370	386	191	353	303	456	350	428	384	492	e161	303
10	3760	367	196	346	301	362	333	745	375	436	e143	410
11	1180	352	196	366	306	320	312	373	368	401	e147	328
12	520	343	184	364	304	318	342	207	986	399	e148	295
13	414	340	179	365	302	435	352	151	1440	385	e147	290
14	379	343	192	372	294	860	318	134	683	371	e143	250
15	363	345	307	360	313	769	307	126	490	e352	e170	216
16	438	377	353	351	313	477	306	117	443	e342	e162	231
17	560	323	555	343	307	410	313	119	420	e339	e176	244
18	418	336	476	354	306	373	300	140	403	e330	e177	231
19	446	338	374	355	304	350	313	146	390	e319	e168	219
20	1750	331	339	338	299	344	306	159	382	e312	e170	219
21	875	341	338	337	294	329	303	135	593	e307	e177	1260
22	490	325	330	339	290	336	300	116	449	e299	e182	2150
23	420	320	326	336	285	329	284	107	376	e291	e190	1310
24	388	250	322	331	281	327	269	138	368	e283	e196	729
25	440	213	318	333	287	328	256	626	361	e281	e200	485
26	1710	216	310	331	420	320	265	824	338	e279	e260	406
27	1740	211	298	338	1190	307	257	581	289	e277	e255	378
28	670	205	479	359	633	302	203	935	296	e274	e237	338
29	503	195	1090	348	---	307	192	1460	396	e273	e220	328
30	445	194	1070	334	---	296	200	929	2280	e271	e213	328
31	416	---	599	326	---	300	---	1610	---	e279	e208	---
TOTAL	22188	10019	11192	11096	9793	11697	9069	11509	19225	16611	6235	12587
MEAN	716	334	361	358	350	377	302	371	641	536	201	420
MAX	3760	529	1090	447	1190	860	413	1610	2680	3950	330	2150
MIN	179	194	179	326	281	296	192	103	289	271	143	191
AC-FT	44010	19870	22200	22010	19420	23200	17990	22830	38130	32950	12370	24970

GUADALUPE RIVER BASIN

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08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

MEAN	429	373	371	407	465	387	464	640	754	419	292	482
MAX	2926	1592	2668	2705	4803	3536	2615	4303	10120	3662	1564	4100
(WY)	1974	1977	1992	1968	1992	1992	1992	1992	1987	1973	1978	1946
MIN	57.5	67.3	70.6	89.0	94.9	75.6	61.2	84.7	38.0	55.3	40.4	57.7
(WY)	1956	1956	1955	1957	1956	1956	1956	1956	1956	1954	1954	1930

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1925 - 1995

ANNUAL TOTAL	174290			151221								
ANNUAL MEAN	478			414						459		
HIGHEST ANNUAL MEAN										2253		1992
LOWEST ANNUAL MEAN										92.0		1956
HIGHEST DAILY MEAN	5150	May 15		3950	Jul 1	1				42200	Sep 29	1946
LOWEST DAILY MEAN	113	Aug 2		103	May 5					19	Jun 27	1956
ANNUAL SEVEN-DAY MINIMUM	120	Jul 30		132	May 17					23	Jun 8	1956
INSTANTANEOUS PEAK FLOW				4360	Jul 1	1				47400	Sep 29	1946
INSTANTANEOUS PEAK STAGE				6.66	Jul 1	1				33.80	Sep 29	1946
ANNUAL RUNOFF (AC-FT)	345700			299900						332200		
10 PERCENT EXCEEDS	698			629						824		
50 PERCENT EXCEEDS	373			328						247		
90 PERCENT EXCEEDS	185			181						91		

e Estimated

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1959. Chemical and biochemical analyses: May 1965 to September 1981, October 1986 to current year. Sediment analyses: November 1958 to February 1975.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1987 to current year.

pH: January 1987 to current year.

WATER TEMPERATURE: January 1987 to current year.

DISSOLVED OXYGEN: January 1987 to current year.

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument or probe fouling. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) record of specific conductance and regression relationships 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, 1,330 microsiemens May 6, 1995; minimum, 71 microsiemens May 24, 1993.

WATER TEMPERATURE: Maximum, 33.5°C June 22-24, 1990, Aug. 30, 31, 1993; minimum, 5.5°C Dec. 24, 1989.

pH: Maximum, 8.9 units Jan. 19, 20, Dec. 11, 14, 1989; minimum, 7.0 units on many days during period of record.

DISSOLVED OXYGEN: Maximum, 15.6 mg/L July 12, 1988; minimum, 0.0 mg/L May 16, 1987, July 3, 1990.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,330 microsiemens May 6; minimum, 210 microsiemens Jun. 30.

WATER TEMPERATURE: Maximum, 32.0°C Jan. 5, 6; minimum, 12.0°C Jul. 28.

pH: Maximum, 8.3 units Aug. 30; minimum, 7.4 units on several days in Oct., July, and Sept.

DISSOLVED OXYGEN: Maximum, 10.7 mg/L Jan. 5, 6; minimum, 2.1 mg/L Oct. 9.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV 01...	1330	406	861	8.0	21.5	7.3	83	1.7	280	84	86
DEC 07...	1125	225	1000	7.8	21.0	7.3	82	0.7	300	76	87
FEB 28...	1035	624	636	7.9	18.5	7.0	75	5.6	190	48	58
MAY 30...	1000	587	464	8.0	25.0	5.7	69	<3.3	170	50	51
JUN 27...	1015	280	1060	8.0	29.5	6.1	--	1.4	300	85	91
AUG 16...	1120	191	1130	8.1	29.5	6.8	92	1.8	330	110	95

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 01...	17	71	2	8.2	200	85	88	0.50	15	500	1.35
DEC 07...	20	84	2	8.7	220	91	100	0.50	13	582	8.98
FEB 28...	10	48	2	6.5	140	56	75	0.30	8.1	361	3.26
MAY 30...	9.3	33	1	6.0	120	42	40	0.30	10	274	2.66
JUN 27...	18	95	2	8.9	220	92	120	0.50	13	620	11.0
AUG 16...	22	100	2	9.2	220	110	130	0.60	13	661	9.97

DATE	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, PHOS-DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)
NOV 01...	1.35	0.050	1.40	1.40	0.060	0.44	0.50	0.840	0.860	2.6
DEC 07...	8.98	0.020	9.00	9.00	0.030	0.37	0.40	1.30	1.30	4.0
FEB 28...	3.26	0.040	3.30	3.30	0.150	0.35	0.50	0.390	0.370	1.1
MAY 30...	2.66	0.040	2.70	2.70	0.040	0.26	0.30	0.280	0.320	0.98
JUN 27...	11.0	0.030	11.0	11.0	0.030	0.47	0.50	1.00	1.10	3.4
AUG 16...	9.97	0.030	10.0	10.0	0.030	0.37	0.40	1.10	1.10	3.4



## GUADALUPE RIVER BASIN

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08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

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. 1994	22188	590	340	20400	52	3120	53	3160	200
NOV. 1994	10019	976	533	14400	100	2810	91	2460	300
DEC. 1994	11192	927	508	15400	97	2940	86	2610	290
JAN. 1995	11096	843	461	13800	89	2670	79	2350	260
FEB. 1995	9793	900	487	12900	98	2590	85	2240	280
MAR. 1995	11697	925	509	16100	96	3040	86	2710	290
APR. 1995	9069	1040	563	13800	120	2820	98	2410	320
MAY 1995	11509	750	418	13000	75	2330	69	2140	240
JUNE 1995	19225	705	398	20700	67	3480	64	3330	230
JULY 1995	16611	718	402	18000	70	3160	66	2950	230
AUG. 1995	6235	635	340	5730	71	1200	60	1010	190
SEPT 1995	12587	730	409	13900	71	2420	67	2270	240
TOTAL	151221	**	**	178000	**	32600	**	29700	**
WTD.AVG.	414	787	436	**	80	**	73	**	250

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1110	1080	1090	898	832	859	1090	1080	1090	699	568	643
2	1130	1110	1120	925	888	906	1090	1030	1060	792	699	754
3	1150	1130	1150	926	898	912	1030	997	1010	878	792	839
4	1170	1150	1160	972	916	933	1080	1000	1040	898	865	883
5	1180	1150	1160	982	954	965	1040	1010	1020	894	867	879
6	1160	1140	1140	982	946	968	1040	945	994	907	874	892
7	1140	1110	1120	964	761	916	1040	1000	1010	959	907	939
8	1110	1070	1090	879	687	768	1090	1040	1070	980	942	959
9	1070	225	638	924	879	913	1090	1070	1080	989	969	977
10	329	278	300	935	891	905	1100	1090	1090	1040	985	1010
11	441	329	386	990	926	948	1120	1100	1110	1040	1000	1020
12	565	441	499	1020	981	990	1140	1120	1130	1030	992	1010
13	704	565	648	1020	985	1000	1160	1130	1140	1020	973	990
14	859	704	786	1030	1000	1010	1160	1140	1140	1020	994	1010
15	917	846	864	1030	1000	1020	1140	1080	1100	1030	1000	1010
16	942	897	912	1020	985	1000	1080	1000	1050	1040	1020	1030
17	934	839	915	1010	989	996	1030	987	1010	1060	1010	1030
18	839	780	798	1000	954	970	987	863	935	1060	1030	1040
19	877	818	847	1040	1000	1020	945	858	886	1030	990	1000
20	877	324	607	1050	1030	1030	1000	945	964	1030	975	993
21	447	318	359	1070	1030	1050	1010	970	989	1040	1010	1030
22	677	447	573	1050	1030	1040	993	956	969	1070	1020	1040
23	808	677	753	1050	1020	1030	989	959	968	1070	1030	1050
24	871	807	835	1030	1010	1020	1010	984	993	1050	1030	1040
25	867	670	780	1090	1030	1070	1020	1000	1010	1040	1020	1030
26	831	227	624	1110	1070	1080	1040	1020	1030	1030	1010	1020
27	396	265	358	1130	1100	1110	1030	1010	1020	1010	1030	1000
28	458	357	398	1120	1090	1100	1040	789	934	---	---	---
29	681	458	573	1100	1070	1090	1040	544	826	---	---	---
30	771	680	738	1090	1060	1080	596	461	528	---	---	---
31	843	771	808	---	---	---	603	560	585	---	---	---
MONTH	1180	225	775	1130	687	990	1160	461	993	1070	568	967

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	681	633	658	1090	1040	1070	1170	1120	1140
2	---	---	---	813	681	767	1080	1080	1080	1120	1110	1120
3	---	---	---	967	813	871	1090	1080	1090	1150	1110	1130
4	1070	1060	1060	982	967	976	1090	1050	1080	1250	1150	1210
5	1100	1070	1080	1010	980	990	1090	1060	1080	1310	1250	1290
6	1100	1070	1090	1020	995	1000	1060	987	1010	1330	1290	1310
7	1100	1080	1090	1000	969	987	1040	987	1010	1290	1250	1270
8	1100	1070	1080	1020	987	1010	1040	960	991	1310	1260	1290
9	1080	1040	1060	1020	958	972	1040	978	1020	1330	952	1190
10	1060	1040	1050	974	873	934	1070	1040	1050	---	---	---
11	1090	1050	1080	965	896	937	1070	1020	1040	771	721	754
12	1110	1080	1100	1020	918	983	1040	1010	1030	829	766	805
13	1100	1080	1100	1040	825	922	1020	971	990	946	822	878
14	1100	1080	1090	1040	889	968	994	950	980	1060	946	1010
15	1090	1080	1090	889	523	609	1050	955	1000	1140	1060	1100
16	1090	1050	1080	709	625	684	1060	1030	1040	1150	1130	1140
17	1050	1040	1050	842	709	788	1050	1030	1040	1180	1140	1170
18	1090	1050	1070	928	842	890	1070	1030	1060	1200	1160	1190
19	1100	1090	1100	988	905	945	1070	1020	1050	1170	1090	1140
20	1100	1090	1100	1030	967	994	1020	993	1010	1180	1040	1100
21	1100	1090	1100	1040	1000	1010	1020	993	1010	1120	1080	1090
22	1100	1080	1090	1040	1010	1020	1040	1010	1030	1140	1120	1140
23	1080	1040	1070	1030	989	1000	1070	1040	1050	1200	1100	1160
24	1050	1040	1050	1040	997	1010	1080	1050	1070	1210	1180	1200
25	1070	1050	1070	1050	1030	1040	1100	1080	1090	1180	958	1090
26	1080	1050	1070	1060	1040	1050	1100	1090	1090	958	419	574
27	1060	369	729	1060	1040	1050	1090	1060	1080	663	466	590
28	702	533	627	1070	1050	1070	1090	1050	1070	894	551	713
29	---	---	---	1060	1040	1050	1150	1090	1120	625	260	390
30	---	---	---	1050	1040	1050	1180	1140	1160	507	232	431
31	---	---	---	1040	1040	1040	---	---	---	719	247	454
MONTH	1110	369	1050	1070	523	944	1180	950	1050	1330	232	997
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	398	273	324	338	270	297	1090	1080	1060	1040	965	1010
2	464	361	406	474	338	413	1090	1070	1090	1020	828	929
3	627	464	554	580	474	531	---	---	---	1060	1020	1040
4	771	627	704	717	580	652	---	---	---	1060	1040	1050
5	819	771	796	785	717	755	---	---	---	1080	1050	1070
6	928	819	867	813	605	741	---	---	---	1090	1080	1090
7	956	905	924	759	602	681	---	---	---	1100	1070	1090
8	957	920	935	855	759	823	---	---	---	1070	1010	1060
9	987	940	954	914	843	884	---	---	---	1030	974	999
10	1020	987	1000	914	867	894	---	---	---	987	952	972
11	1040	1020	1030	944	883	919	---	---	---	1010	823	919
12	1060	592	1010	946	924	933	---	---	---	908	819	847
13	607	367	475	951	919	934	---	---	---	997	908	948
14	524	367	441	1000	942	962	1190	1160	1170	900	982	990
15	691	524	614	1020	1000	1020	1200	1160	1180	1020	997	1010
16	835	691	771	1030	1010	1020	1180	1130	1160	1020	998	1010
17	930	834	876	1050	1030	1040	1160	1140	1150	1050	1010	1030
18	983	910	930	1040	1010	1030	1180	1100	1150	1050	1040	1040
19	1000	964	978	1050	1020	1040	1100	1040	1060	1040	1020	1030
20	1010	999	1010	1040	1010	1020	1120	1060	1090	1040	1030	1040
21	1030	932	986	1040	1010	1020	1120	1120	---	1050	307	838
22	936	815	887	1060	1040	1060	1140	1110	---	326	277	301
23	866	801	827	1090	1060	1080	1140	1120	1130	505	314	413
24	994	866	942	1090	1070	1080	1130	1100	1110	575	505	538
25	1040	994	1030	1100	1070	1080	1110	1020	1070	609	528	562
26	1070	1040	1060	1090	1060	1080	1040	992	1020	719	609	660
27	1080	1050	1070	1070	1040	1060	1050	970	1030	814	711	749
28	1070	1040	1060	1040	1020	1030	1020	952	980	857	789	813
29	1040	938	1020	1080	1030	1060	1030	920	982	862	833	843
30	938	210	600	1090	1070	1080	1070	932	990	933	853	910
31	---	---	---	1100	1070	1090	1070	1040	1050	---	---	---
MONTH	1080	210	836	1100	270	913	1200	920	1080	1100	277	893
YEAR	1330	210	951									

## GUADALUPE RIVER BASIN

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08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.1	7.8	7.9	7.9	7.8	7.8	7.9	7.9	7.9	7.8	7.7	7.7
2	8.1	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.8
3	7.9	7.8	7.9	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.8	7.8
4	8.1	7.8	7.9	8.0	7.9	8.0	7.9	7.8	7.9	7.9	7.8	7.9
5	7.9	7.8	7.8	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9
6	7.9	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	8.0
7	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.9
8	8.0	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.9
9	7.9	7.4	7.7	7.9	7.8	7.9	7.9	7.8	7.8	7.9	7.8	7.9
10	8.1	7.8	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.8	7.9
11	7.9	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0
12	8.0	7.9	7.9	7.9	7.9	7.9	8.0	7.9	8.0	8.0	8.0	8.0
13	8.0	8.0	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.0	7.9	8.0
14	8.1	8.0	8.1	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9	8.0
15	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0
16	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0
17	8.2	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0
18	8.2	8.0	8.1	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0
19	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.8	7.8	8.0	7.9	8.0
20	8.1	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	8.0
21	8.0	7.5	7.7	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9	8.0
22	7.7	7.6	7.7	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0	8.0
23	7.8	7.7	7.8	8.0	7.9	7.9	8.0	8.0	8.0	8.1	8.0	8.0
24	7.9	7.8	7.8	8.0	7.9	8.0	8.0	7.9	8.0	8.1	7.9	8.0
25	7.9	7.8	7.8	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9
26	7.8	7.6	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	7.9
27	7.7	7.5	7.6	8.0	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.9
28	7.7	7.6	7.6	8.0	8.0	8.0	8.0	7.9	8.0	---	---	---
29	7.8	7.7	7.7	8.0	7.9	8.0	8.0	7.7	7.9	---	---	---
30	7.8	7.8	7.8	7.9	7.9	7.9	7.8	7.6	7.7	---	---	---
31	7.8	7.8	7.8	---	---	---	7.8	7.7	7.7	---	---	---
MONTH	8.2	7.4	7.9	8.0	7.8	7.9	8.0	7.6	7.9	8.1	7.7	7.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	7.9	7.9	7.9	8.2	8.1	8.1	8.0	7.9	8.0
2	---	---	---	8.0	7.9	8.0	8.2	8.1	8.2	8.0	7.8	7.9
3	---	---	---	8.1	8.0	8.0	8.2	8.1	8.2	7.9	7.8	7.9
4	7.8	7.8	7.8	8.1	8.1	8.1	8.2	8.1	8.1	7.9	7.7	7.8
5	7.9	7.8	7.8	8.1	8.1	8.1	8.2	8.0	8.1	---	---	---
6	7.9	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	---	---	---
7	7.9	7.8	7.9	8.1	8.0	8.1	8.1	8.0	8.0	---	---	---
8	7.9	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.1	---	---	---
9	7.9	7.8	7.9	8.1	8.1	8.1	8.1	8.1	8.1	---	---	---
10	7.9	7.8	7.8	8.1	8.1	8.1	8.1	8.1	8.1	---	---	---
11	7.9	7.8	7.8	8.1	8.1	8.1	8.1	8.1	8.1	7.8	7.6	7.7
12	7.9	7.8	7.9	8.1	8.1	8.1	8.1	8.1	8.1	7.8	7.8	7.8
13	7.9	7.8	7.8	8.1	8.1	8.1	8.1	8.1	8.1	7.9	7.8	7.8
14	7.9	7.8	7.8	8.2	8.0	8.1	8.1	8.1	8.1	7.9	7.8	7.9
15	7.8	7.8	7.8	8.0	7.9	7.9	8.1	8.0	8.1	8.0	7.8	7.9
16	7.8	7.8	7.8	8.0	7.9	7.9	8.0	8.0	8.0	8.1	7.9	8.0
17	7.9	7.8	7.8	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.0
18	7.9	7.8	7.9	8.1	8.0	8.1	8.0	8.0	8.0	8.1	8.0	8.0
19	7.9	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	7.8	7.9
20	7.9	7.9	7.9	8.1	8.0	8.1	8.1	8.0	8.0	8.0	7.8	7.9
21	7.9	7.9	7.9	8.1	8.0	8.0	8.1	7.9	8.0	8.0	7.9	7.9
22	7.9	7.8	7.9	8.1	8.0	8.0	8.0	7.9	7.9	8.0	7.9	7.9
23	7.8	7.7	7.8	8.1	7.9	8.0	8.0	7.9	8.0	8.0	7.8	7.9
24	8.0	7.8	7.9	8.1	8.0	8.1	8.0	8.0	8.0	8.0	7.9	7.9
25	8.0	7.9	7.9	8.1	8.0	8.1	8.0	8.0	8.0	7.9	7.8	7.9
26	8.0	7.9	8.0	8.1	8.0	8.1	8.0	7.9	8.0	7.8	7.5	7.6
27	8.0	7.6	7.8	8.1	8.0	8.1	7.9	7.9	7.9	7.7	7.6	7.7
28	7.9	7.8	7.9	8.1	8.1	8.1	8.0	7.9	7.9	7.8	7.6	7.8
29	---	---	---	8.1	8.1	8.1	8.0	7.9	7.9	7.7	7.5	7.6
30	---	---	---	8.1	8.1	8.1	8.0	7.9	7.9	7.8	7.6	7.6
31	---	---	---	8.1	8.1	8.1	---	---	---	7.8	7.5	7.7
MONTH	8.0	7.6	7.9	8.2	7.9	8.1	8.2	7.9	8.0	8.1	7.5	7.8

## GUADALUPE RIVER BASIN

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.5	7.6	7.5	7.4	7.5	8.1	8.1	8.1	8.1	8.1	8.1
2	7.6	7.5	7.6	7.5	7.4	7.4	8.1	8.1	8.1	8.1	7.9	8.0
3	7.8	7.6	7.7	7.6	7.5	7.6	---	---	---	8.1	8.0	8.1
4	7.8	7.7	7.7	7.7	7.6	7.7	---	---	---	8.1	8.1	8.1
5	7.8	7.7	7.8	7.8	7.7	7.7	---	---	---	8.1	8.1	8.1
6	7.9	7.8	7.8	7.8	7.6	7.8	---	---	---	8.2	8.1	8.1
7	7.9	7.9	7.9	7.8	7.6	7.7	---	---	---	8.2	8.0	8.1
8	8.0	7.9	7.9	7.8	7.8	7.8	---	---	---	8.1	8.0	8.0
9	8.0	7.9	8.0	7.9	7.8	7.8	---	---	---	8.1	8.0	8.0
10	8.0	8.0	8.0	7.9	7.8	7.8	---	---	---	8.1	8.0	8.0
11	8.0	8.0	8.0	7.9	7.9	7.9	---	---	---	8.0	8.0	8.0
12	8.0	7.7	8.0	7.9	7.9	7.9	---	---	---	8.0	7.9	7.9
13	7.7	7.6	7.6	7.9	7.9	7.9	---	---	---	8.2	7.8	7.9
14	7.7	7.6	7.6	7.9	7.9	7.9	8.1	8.0	8.0	7.8	7.8	7.8
15	7.8	7.7	7.8	7.9	7.9	7.9	8.1	8.0	8.0	7.8	7.8	7.8
16	7.8	7.8	7.8	7.9	7.9	7.9	8.1	8.0	8.0	7.9	7.8	7.8
17	7.9	7.8	7.9	8.0	7.9	7.9	8.1	8.0	8.1	7.9	7.8	7.9
18	7.9	7.9	7.9	8.0	7.9	7.9	8.1	8.0	8.1	7.9	7.8	7.8
19	8.0	7.9	7.9	8.0	7.9	8.0	8.1	8.0	8.0	7.9	7.8	7.8
20	8.0	7.9	8.0	8.0	8.0	8.0	8.1	8.0	8.1	7.9	7.8	7.9
21	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.1	7.9	7.4	7.7
22	8.1	7.9	8.0	8.1	8.0	8.0	8.1	8.1	8.1	7.5	7.4	7.5
23	8.0	7.8	7.9	8.1	8.0	8.1	8.1	8.0	8.1	7.6	7.4	7.5
24	8.0	7.8	7.9	8.1	8.0	8.1	8.1	8.1	8.1	7.6	7.5	7.6
25	8.0	7.9	7.9	8.1	8.0	8.1	8.1	8.1	8.1	7.6	7.5	7.6
26	8.1	7.9	8.0	8.1	8.0	8.1	8.1	8.1	8.1	7.7	7.6	7.7
27	8.2	7.9	8.0	8.1	8.0	8.1	8.1	8.0	8.0	7.8	7.7	7.8
28	8.0	7.9	7.9	8.1	8.1	8.1	8.0	7.9	8.0	7.8	7.8	7.8
29	8.0	7.9	8.0	8.1	8.1	8.1	8.1	8.0	8.0	7.8	7.8	7.8
30	7.9	7.5	7.7	8.1	8.1	8.1	8.3	8.0	8.2	7.9	7.8	7.8
31	---	---	---	8.1	8.1	8.1	8.1	8.0	8.0	---	---	---
MONTH	8.2	7.5	7.9	8.1	7.4	7.9	8.3	7.9	8.1	8.2	7.4	7.9
YEAR	8.3	7.4	7.9									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	26.0	25.0	25.5	22.0	21.0	21.5	17.5	16.5	17.0	14.5	14.0	14.5
2	26.5	25.5	26.0	22.0	21.0	21.5	17.0	16.5	16.5	14.0	13.5	14.0
3	27.5	26.0	26.5	23.0	22.0	22.5	17.5	17.0	17.0	14.0	13.5	13.5
4	27.5	26.5	26.5	24.0	23.0	23.0	18.5	17.5	18.0	13.5	13.0	13.0
5	27.0	26.0	26.5	23.5	23.5	23.5	20.0	18.5	19.0	13.0	12.0	12.5
6	26.5	26.0	26.0	23.5	22.0	22.5	20.5	20.0	20.0	13.0	12.0	12.5
7	26.5	26.0	26.5	22.5	22.0	22.0	21.5	20.5	21.0	13.5	12.5	13.0
8	26.5	25.0	26.0	23.0	21.5	22.0	22.5	21.5	22.0	14.0	12.5	13.5
9	25.0	21.5	23.5	23.0	22.5	22.5	22.5	20.0	22.0	15.0	14.0	14.5
10	21.5	21.0	21.0	23.0	21.5	22.0	20.0	18.0	19.0	16.5	15.0	16.0
11	21.0	20.5	20.5	21.5	20.5	20.5	18.0	16.0	17.0	18.0	16.5	17.0
12	21.0	20.0	20.5	20.5	20.0	20.5	16.0	15.5	15.5	19.0	18.0	18.5
13	21.0	20.0	20.5	21.5	20.5	21.0	15.5	15.5	15.5	19.0	18.5	19.0
14	21.0	20.5	21.0	22.0	21.5	21.5	16.5	15.5	16.0	18.5	17.5	18.0
15	22.0	21.0	21.0	22.0	21.5	21.5	18.0	16.5	17.0	18.0	17.0	17.0
16	23.0	22.0	22.5	21.5	21.0	21.0	18.5	18.0	18.5	17.5	16.5	17.0
17	24.5	23.0	23.5	21.0	20.5	21.0	19.0	18.5	18.5	17.5	17.0	17.5
18	24.5	23.5	24.0	21.5	21.0	21.0	19.0	18.5	18.5	17.5	17.5	17.5
19	25.5	24.0	24.5	22.0	21.5	21.5	18.5	17.5	18.0	17.5	16.5	16.5
20	25.5	24.0	25.0	22.5	22.0	22.0	18.0	17.5	17.5	16.5	16.0	16.5
21	25.0	24.0	24.5	22.0	21.0	21.5	18.0	17.5	18.0	16.5	15.5	16.0
22	25.5	25.0	25.5	21.0	20.5	20.5	17.5	17.0	17.0	16.5	15.5	16.0
23	26.0	25.5	25.5	21.0	20.5	20.5	17.0	16.5	16.5	16.5	15.5	15.5
24	26.5	25.5	26.0	19.5	18.0	18.5	16.5	16.0	16.5	15.5	14.5	14.5
25	26.5	24.0	25.0	18.5	17.5	18.0	16.0	15.0	15.5	15.0	14.5	14.5
26	24.5	20.5	23.0	19.5	18.5	19.0	15.0	14.5	15.0	16.0	15.0	15.5
27	21.0	20.5	21.0	20.5	19.5	20.0	15.5	15.0	15.0	16.5	16.0	16.5
28	20.5	20.0	20.0	20.5	19.5	20.0	15.0	14.0	15.0	---	---	---
29	21.0	20.0	20.5	19.5	18.5	19.0	16.0	13.5	14.5	---	---	---
30	21.5	20.5	21.0	18.5	17.5	18.0	14.5	14.0	14.0	---	---	---
31	22.0	21.0	21.5	---	---	---	14.0	14.0	14.0	---	---	---
MONTH	27.5	20.0	23.5	24.0	17.5	21.0	22.5	13.5	17.5	19.0	12.0	15.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	18.5	17.0	17.5	19.0	18.0	18.5	26.0	25.5	26.0
2	---	---	---	17.0	16.0	16.0	19.5	18.5	19.0	25.5	24.5	25.0
3	---	---	---	14.5	14.0	14.5	20.0	19.5	19.5	26.0	24.5	25.0
4	16.0	15.5	15.5	14.0	14.0	14.0	20.5	20.0	20.0	27.5	24.5	26.0
5	16.0	15.0	15.5	16.0	14.5	15.0	21.5	20.5	21.0	27.5	25.5	26.5
6	16.0	15.5	15.5	17.5	16.0	16.5	22.0	21.0	21.5	27.5	26.0	26.5
7	16.5	16.0	16.0	17.5	17.0	17.5	23.0	21.5	22.0	26.5	26.0	26.0
8	16.0	15.0	15.5	17.0	16.0	16.5	24.0	22.5	23.0	28.0	25.5	26.0
9	15.0	14.5	15.0	17.0	16.0	16.5	25.0	23.0	24.0	27.0	25.5	26.0
10	16.0	15.0	15.5	16.5	16.0	16.0	25.0	24.5	24.5	---	---	---
11	17.0	16.0	16.5	17.5	16.0	17.0	25.0	23.0	24.0	25.5	25.0	25.5
12	16.5	15.0	15.5	18.5	17.5	18.0	24.0	22.5	23.5	26.0	24.5	25.0
13	15.0	14.0	14.5	20.0	18.0	19.0	24.0	22.5	23.0	29.5	25.5	27.0
14	14.5	14.0	14.5	20.5	19.5	20.0	23.5	22.5	23.0	30.5	27.0	28.5
15	15.0	14.5	15.0	20.5	19.0	19.5	24.0	23.0	23.5	30.5	28.5	29.5
16	15.5	15.0	15.5	20.0	19.5	19.5	24.5	23.5	24.0	30.0	29.0	29.5
17	15.5	15.0	15.5	20.5	19.0	20.0	25.5	24.0	24.5	30.0	28.5	29.0
18	16.0	15.5	15.5	21.5	19.5	20.5	25.5	24.5	25.0	30.0	28.5	29.0
19	17.5	16.0	16.5	22.0	20.5	21.0	26.0	25.0	25.5	29.5	27.5	28.5
20	17.5	16.5	17.0	23.0	21.0	22.0	26.0	25.0	25.5	29.0	27.0	27.5
21	17.5	17.0	17.5	24.0	22.5	23.0	26.0	24.5	25.5	29.0	27.0	27.5
22	17.5	17.5	17.5	24.5	23.0	24.0	26.0	25.5	26.0	27.5	27.0	27.5
23	19.0	17.5	18.5	25.5	24.0	25.0	26.0	23.5	24.5	27.5	26.5	27.0
24	19.5	19.0	19.5	25.5	25.0	25.0	23.5	22.5	23.0	27.5	26.5	27.0
25	19.5	19.5	19.5	25.0	24.5	24.5	23.0	22.0	22.5	27.0	26.0	26.5
26	20.0	19.5	19.5	24.5	24.0	24.5	23.0	22.0	22.5	26.5	25.0	25.5
27	20.0	19.0	19.5	24.0	22.5	23.0	23.0	22.5	23.0	26.0	25.0	26.0
28	19.0	18.5	19.0	22.5	20.5	21.5	24.5	22.5	23.5	28.0	26.0	27.0
29	---	---	---	20.5	19.0	19.5	25.5	23.5	24.0	27.0	24.5	25.5
30	---	---	---	19.0	18.5	18.5	26.5	24.5	25.5	26.0	22.5	25.0
31	---	---	---	18.5	18.0	18.5	---	---	---	27.0	22.5	24.5
MONTH	20.0	14.0	16.5	25.5	14.0	19.5	26.5	18.0	23.0	30.5	22.5	26.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	25.0	24.0	24.5	25.5	24.0	24.5	30.5	29.5	30.0	29.5	28.5	29.0
2	26.5	24.5	25.5	27.5	25.5	26.5	30.5	29.5	30.0	29.5	28.0	29.5
3	28.0	26.5	27.0	28.5	27.0	27.5	---	---	---	30.5	29.0	29.0
4	29.0	27.5	28.0	29.0	27.5	28.0	---	---	---	31.0	29.0	30.0
5	29.5	28.0	29.0	29.5	28.5	29.0	---	---	---	31.0	29.5	30.0
6	30.0	28.5	29.5	30.0	29.0	29.5	---	---	---	31.5	30.0	30.0
7	30.0	29.0	29.5	30.0	29.0	29.5	---	---	---	31.0	30.0	30.0
8	30.5	29.5	30.0	30.0	29.0	29.5	---	---	---	31.0	29.5	30.0
9	31.0	30.0	30.5	30.5	29.0	30.0	---	---	---	29.5	29.0	29.5
10	31.0	30.0	30.5	30.5	29.0	30.0	---	---	---	29.5	28.5	29.0
11	31.0	29.5	30.0	30.5	29.5	30.0	---	---	---	29.5	28.5	29.0
12	30.0	27.5	29.0	31.0	29.5	30.5	---	---	---	29.5	29.0	29.0
13	27.5	26.0	26.5	31.0	29.5	30.5	---	---	---	29.5	29.0	29.5
14	26.5	25.5	26.0	30.5	30.0	30.5	31.0	29.5	30.0	29.5	29.0	29.5
15	27.5	26.5	27.0	30.5	29.5	30.0	31.0	29.5	30.0	29.5	28.5	29.0
16	28.0	26.5	27.5	30.5	29.5	30.0	31.0	30.0	30.0	29.5	28.5	29.0
17	28.5	27.0	28.0	31.0	29.5	30.5	31.5	29.5	30.0	30.5	29.0	29.5
18	28.5	27.5	28.0	31.0	29.5	30.5	31.0	29.5	30.0	30.5	29.5	30.0
19	28.5	28.0	28.0	31.5	30.0	31.0	30.5	29.5	29.5	31.0	29.5	30.0
20	29.5	27.5	28.5	31.5	30.5	31.0	30.0	29.0	29.5	30.5	29.5	30.0
21	29.5	28.0	29.0	31.5	30.5	31.0	30.0	29.5	30.0	29.5	25.0	28.0
22	29.5	28.0	29.0	31.5	30.5	31.0	31.5	30.0	30.5	25.0	23.5	24.0
23	30.0	28.5	29.5	31.0	30.5	31.0	31.0	29.5	30.0	24.0	23.0	23.5
24	30.5	29.0	30.0	31.0	30.0	31.0	30.5	29.5	29.5	23.5	23.0	23.0
25	31.0	29.5	30.5	31.0	30.5	30.5	30.0	29.5	29.5	24.0	22.5	23.0
26	31.0	30.0	30.5	31.5	30.5	31.0	30.5	29.5	30.0	25.0	23.5	24.0
27	31.0	29.5	30.5	31.5	30.5	31.0	30.5	29.5	30.0	26.0	24.5	25.0
28	30.5	29.5	30.0	32.0	30.5	31.5	31.0	30.0	30.5	27.0	25.5	26.0
29	30.0	29.0	29.5	31.5	31.0	31.0	31.0	30.0	30.5	27.0	26.5	27.0
30	29.0	24.0	26.5	31.0	30.0	30.5	31.0	30.0	30.0	27.5	26.5	27.0
31	---	---	---	30.0	29.5	30.0	30.5	29.0	29.5	---	---	---
MONTH	31.0	24.0	28.5	32.0	24.0	30.0	31.5	29.0	30.0	31.5	22.5	28.0
YEAR	32.0	12.0	23.5									



## GUADALUPE RIVER BASIN

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.6	7.2	7.3	7.8	7.4	7.6	8.9	8.4	8.7	9.8	9.6	9.7
2	7.6	7.1	7.3	7.7	7.5	7.6	8.9	8.8	8.9	10.0	9.8	9.9
3	7.5	7.0	7.1	7.5	7.2	7.4	8.8	8.0	8.5	10.2	10.0	10.1
4	7.4	6.8	7.0	7.3	7.0	7.2	8.3	8.0	8.2	10.5	10.1	10.4
5	7.1	6.7	6.9	7.0	6.9	7.0	8.3	7.9	8.1	10.7	10.5	10.6
6	7.1	6.8	7.0	7.4	6.7	7.1	8.0	7.8	7.9	10.7	10.5	10.6
7	7.1	6.6	6.9	7.3	7.1	7.2	7.8	7.4	7.5	10.5	10.3	10.5
8	6.9	6.5	6.7	7.8	7.0	7.1	7.4	7.1	7.3	10.5	10.2	10.4
9	6.6	2.1	4.7	7.3	7.1	7.2	7.3	7.1	7.2	10.2	9.8	10.0
10	5.5	4.2	4.9	7.5	7.2	7.4	8.1	7.3	7.6	9.8	9.4	9.6
11	6.8	5.5	6.2	7.7	7.4	7.6	8.8	8.1	8.4	9.4	9.0	9.2
12	7.3	6.8	7.1	7.8	7.6	7.7	9.2	8.8	9.0	9.0	8.6	8.8
13	7.4	7.3	7.4	7.7	7.5	7.6	9.3	9.1	9.2	8.6	8.4	8.5
14	7.5	7.4	7.4	7.6	7.4	7.5	9.3	9.0	9.1	8.9	8.5	8.7
15	7.5	7.3	7.4	7.6	7.4	7.5	9.1	8.9	8.9	9.2	8.7	9.0
16	7.3	7.1	7.2	7.7	7.5	7.6	8.9	8.2	8.7	9.4	9.1	9.2
17	7.2	6.9	7.0	7.8	7.6	7.7	8.3	8.1	8.2	9.3	9.0	9.1
18	7.0	6.4	6.6	7.8	7.7	7.7	8.4	8.2	8.3	9.2	8.9	9.0
19	6.7	6.3	6.6	7.7	7.6	7.6	8.4	8.2	8.3	9.4	9.0	9.2
20	6.8	4.9	5.9	7.6	7.4	7.5	8.7	8.4	8.6	9.5	9.2	9.4
21	7.4	6.0	6.8	7.7	7.3	7.5	9.1	8.6	8.8	9.7	9.4	9.5
22	7.4	7.2	7.3	7.9	7.6	7.7	9.4	9.0	9.2	9.7	9.4	9.6
23	7.4	7.1	7.2	7.9	7.7	7.8	9.7	9.3	9.4	10.0	9.5	9.7
24	7.2	6.7	7.0	8.3	7.9	8.1	9.7	9.4	9.6	10.3	9.8	10.0
25	6.8	5.4	6.3	8.4	8.3	8.3	10.1	9.6	9.8	10.2	9.9	10.0
26	---	---	---	8.4	8.2	8.3	10.2	9.9	10.0	9.9	9.7	9.8
27	---	---	---	8.2	7.8	7.9	10.2	9.9	9.9	9.7	9.3	9.5
28	---	---	---	7.9	7.6	7.7	10.1	9.6	9.8	---	---	---
29	---	---	---	8.3	7.8	8.0	9.8	8.5	9.4	---	---	---
30	---	---	---	8.6	8.2	8.4	9.5	8.4	9.1	---	---	---
31	---	---	---	---	---	---	9.7	9.5	9.6	---	---	---
MONTH	7.6	2.1	6.8	8.6	6.7	7.6	10.2	7.1	8.7	10.7	8.4	9.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	9.2	8.1	8.5	9.3	8.7	8.8	7.6	6.9	7.2
2	---	---	---	9.0	8.7	8.8	9.1	8.6	8.8	7.4	6.8	7.0
3	---	---	---	9.4	8.8	9.1	8.8	8.4	8.6	7.9	6.8	7.2
4	10.3	9.8	10.0	9.7	9.4	9.6	8.4	8.1	8.3	7.4	6.6	7.0
5	10.4	9.7	10.1	9.7	9.4	9.6	8.3	8.1	8.2	7.2	6.4	6.8
6	10.4	9.8	10.1	9.5	8.6	9.0	8.1	7.7	7.9	6.8	6.3	6.5
7	10.4	9.7	9.9	8.6	8.4	8.5	8.1	7.8	8.0	6.8	6.2	6.5
8	10.0	9.4	9.7	8.9	8.4	8.7	7.9	7.7	7.8	6.6	6.1	6.3
9	10.1	9.6	9.8	9.0	8.8	8.9	7.9	7.8	7.8	6.8	5.6	6.4
10	10.1	9.5	9.8	9.6	9.0	9.2	7.8	7.6	7.7	---	---	---
11	9.9	9.3	9.5	9.4	9.0	9.1	7.6	7.4	7.5	5.5	5.1	5.3
12	9.6	9.1	9.3	9.7	8.9	9.2	7.8	7.4	7.6	5.7	5.4	5.6
13	9.4	9.2	9.3	9.0	8.0	8.5	7.9	7.6	7.8	5.6	5.2	5.5
14	9.5	9.2	9.4	8.5	7.6	8.1	8.0	7.7	7.8	6.0	5.2	5.6
15	9.5	9.3	9.3	7.8	7.3	7.5	7.9	7.6	7.7	6.2	5.4	5.7
16	9.3	9.0	9.1	8.2	7.5	7.9	7.6	7.3	7.4	6.8	5.5	6.0
17	9.4	8.9	9.1	8.4	7.9	8.1	7.3	7.0	7.2	7.2	5.8	6.4
18	9.4	9.0	9.1	8.4	8.2	8.3	7.3	7.1	7.1	6.6	5.9	6.2
19	9.0	8.7	8.9	8.2	8.1	8.2	7.2	6.9	7.0	5.9	5.0	5.5
20	8.9	8.4	8.6	8.2	7.6	8.0	7.2	6.9	7.0	6.5	5.1	5.9
21	8.6	8.1	8.3	7.8	7.1	7.4	7.3	7.1	7.2	6.8	6.1	6.4
22	8.8	7.9	8.3	8.1	7.1	7.4	7.3	7.0	7.1	7.0	6.1	6.6
23	9.0	8.4	8.6	7.7	7.1	7.3	7.6	7.0	7.2	7.3	6.0	6.5
24	8.4	8.0	8.2	7.7	7.0	7.2	7.8	7.4	7.6	7.0	6.1	6.5
25	8.2	7.9	8.0	7.4	7.0	7.2	7.9	7.6	7.8	6.4	5.3	5.9
26	8.7	7.8	8.0	7.4	7.2	7.3	7.9	7.7	7.8	5.3	4.0	4.7
27	8.1	6.0	7.0	7.8	7.3	7.5	7.8	7.5	7.6	6.8	5.1	5.7
28	8.1	7.1	7.5	8.1	7.7	7.8	7.9	7.6	7.7	5.9	4.5	5.6
29	---	---	---	8.5	8.1	8.2	7.9	7.5	7.7	5.4	3.9	4.8
30	---	---	---	8.6	8.5	8.5	7.7	7.4	7.6	6.2	5.4	5.7
31	---	---	---	8.8	8.6	8.7	---	---	---	6.2	4.9	5.8
MONTH	10.4	6.0	9.0	9.7	7.0	8.3	9.3	6.9	7.7	7.9	3.9	6.1





## 08183900 CIBOLO CREEK NEAR BOERNE, TX

LOCATION.--Lat 29°46'26", long 98°41'50", Kendall County, Hydrologic Unit 12100304, on left bank 0.6 mi upstream from Southern Pacific Lines bridge, 0.9 mi downstream from Menger Creek, and 2.5 mi southeast of Boerne.

DRAINAGE AREA.--68.4 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1962 to September 1995 (discontinued).

REVISED RECORDS.--WDR TX-73-1: 1964-65, 1966(P), 1968-72(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,339.61 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 8,850 acre-ft. These structures control runoff from 34.0 mi<sup>2</sup> above station. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--The second highest flood occurred at 1700 hours on Sept. 10, 1952, and reached a stage of 16.3 ft (discharge, 25,600 ft<sup>3</sup>/s).

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1445	1,290	4.74	Sept. 22	Unknown	Unknown	Unknown

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	6.2	6.4	33	15	11	e9.8	e6.3	e33	e20	e4.1	e3.5
2	.75	6.6	6.2	30	15	11	e9.0	e5.6	e36	e22	e4.5	e1.7
3	.48	6.8	6.7	27	14	11	e8.6	e6.3	e22	e12	e5.1	e1.4
4	.61	6.4	7.4	25	13	11	e13	e6.4	e18	e18	e3.8	e1.0
5	.43	30	7.4	24	13	9.5	e19	e5.7	e22	e16	e2.9	e.82
6	.24	11	7.4	24	13	9.3	e15	e8.5	e20	e14	e2.9	e1.1
7	22	10	7.4	22	13	15	e13	e5.8	e18	e14	e2.7	e1.1
8	72	10	8.4	21	13	11	e12	e19	e17	e13	e3.1	e1.8
9	4.9	10	8.7	22	13	10	e11	e12	e15	e12	e2.7	e1.8
10	1.5	9.5	8.7	23	14	9.5	e10	e9.5	e14	e12	e2.5	e1.4
11	.71	8.8	7.7	23	15	e9.6	e10	e8.8	e25	e11	e2.0	e1.2
12	.50	8.2	6.5	22	14	e9.7	e9.3	e6.0	e26	e9.9	e2.1	e1.0
13	.69	8.0	5.9	21	13	e43	e9.0	e6.6	e16	e9.3	e3.3	e1.0
14	.89	8.0	6.6	20	13	e20	e8.6	e6.2	e16	e8.3	e2.5	e1.6
15	8.7	10	17	20	13	e16	e8.1	e5.8	e14	e8.3	e2.7	e6.6
16	21	9.7	17	20	14	e19	e8.1	e5.3	e14	e8.4	e2.8	e5.8
17	16	9.3	12	20	13	e13	e8.4	e5.0	e13	e8.4	e2.3	e3.5
18	110	9.3	11	19	12	e18	e13	e5.0	e12	e8.0	e2.0	e2.4
19	6.6	9.8	10	18	12	e15	e11	e4.5	e12	e7.4	e1.6	e1.2
20	2.6	8.4	9.5	18	11	e14	e9.6	e4.2	e12	e6.9	e1.2	e15
21	1.6	8.7	9.3	18	11	e13	e9.1	e3.9	e11	e6.6	e1.5	e89
22	2.2	8.2	8.8	17	11	e12	e8.1	e3.4	e10	e6.2	e1.2	e186
23	2.5	7.6	8.2	17	12	e12	e7.8	e3.7	e9.7	e5.7	e1.3	e46
24	2.1	8.0	8.0	16	13	e11	e7.5	e8.1	e8.9	e5.3	e1.1	e26
25	76	8.0	7.6	16	19	e11	e7.3	e6.9	e9.3	e5.0	e.93	e28
26	11	8.0	7.4	18	15	e11	e7.1	e6.4	e11	e4.8	e1.1	e21
27	7.5	8.6	14	17	12	e10	e6.9	e15	e19	e4.6	e1.3	e29
28	6.5	8.8	140	17	11	e9.6	e6.7	e10	e14	e4.4	e1.6	e23
29	6.2	8.1	58	16	---	e9.5	e6.3	e8.2	e125	e4.1	e2.0	e20
30	6.2	6.9	41	15	---	e9.8	e6.3	e84	e36	e3.8	e1.7	e18
31	6.1	---	37	15	---	e9.8	---	e99	---	e3.8	e2.1	---
TOTAL	399.43	276.9	517.2	634	370	404.3	288.6	391.1	628.9	293.2	72.63	540.92
MEAN	12.9	9.23	16.7	20.5	13.2	13.0	9.62	12.6	21.0	9.46	2.34	18.0
MAX	110	30	140	33	19	43	19	99	125	22	5.1	186
MIN	.24	6.2	5.9	15	11	9.3	6.3	3.4	8.9	3.8	.93	.82
AC-FT	792	549	1030	1260	734	802	572	776	1250	582	144	1070
CFSM	.19	.13	.24	.30	.19	.19	.14	.18	.31	.14	.03	.26
IN.	.22	.15	.28	.34	.20	.22	.16	.21	.34	.16	.04	.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
MEAN	20.7	16.8	34.0	24.7	36.8	29.1	31.8	45.7	53.6	22.2	14.1	15.6																							
MAX	165	61.6	380	136	333	206	124	194	430	296	135	130																							
(WY)	1974	1987	1992	1992	1992	1992	1979	1965	1981	1973	1971	1964																							
MIN	.000	.10	.000	.79	1.46	1.00	1.48	.81	.12	.000	.000	.000																							
(WY)	1964	1963	1964	1990	1963	1967	1967	1967	1963	1963	1962	1963																							

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1962 - 1995

ANNUAL TOTAL	4491.70	4817.18	29.2
ANNUAL MEAN	12.3	13.2	132
HIGHEST ANNUAL MEAN			1.38
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	178	May 15	3830
LOWEST DAILY MEAN	.24	Oct 6	.00
ANNUAL SEVEN-DAY MINIMUM	.68	Sep 30	.00
INSTANTANEOUS PEAK FLOW			36400
INSTANTANEOUS PEAK STAGE			19.15
ANNUAL RUNOFF (AC-FT)	8910	9550	21150
ANNUAL RUNOFF (CFSM)			.43
ANNUAL RUNOFF (INCHES)	.18	.19	5.80
10 PERCENT EXCEEDS	2.44	2.62	56
50 PERCENT EXCEEDS	7.4	9.5	7.6
90 PERCENT EXCEEDS	1.3	1.8	.80

e Estimated

## 08185000 CIBOLO CREEK AT SELMA, TX

LOCATION.--Lat 29°35'38", long 98°18'39", Bexar-Guadalupe County line, Hydrologic Unit 12100304, on right bank 0.6 mi downstream from Missouri-Kansas-Texas Railroad Co. bridge and 0.9 mi upstream from bridge on Interstate Highway 35 at Selma.

DRAINAGE AREA.--274 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1946 to current year. Figures for water year 1960 in WSP 1813 are in error and should be disregarded.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 728.34 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. One known diversion above station. For statement regarding regulation by floodwater-retarding structures, see station 08183900. Considerable flow of Cibolo Creek enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin between this station and the station near Boerne (station 08183900). Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 26 ft occurred in 1889, from information by local residents. Maximum stage since at least 1869, that of July 16, 1973.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1900	426	4.69				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	61	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	6.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	11	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.68	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	78.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.68	0.00	0.00	0.00
MEAN	2.54	.000	.000	.000	.000	.000	.000	.000	.39	.000	.000	.000
MAX	61	.00	.00	.00	.00	.00	.00	.00	11	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	156	.00	.00	.00	.00	.00	.00	.00	23	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1995, BY WATER YEAR (WY)

	12.6	2.79	27.2	9.24	16.8	13.4	11.4	48.9	48.6	21.8	3.82	15.3
MEAN	12.6	2.79	27.2	9.24	16.8	13.4	11.4	48.9	48.6	21.8	3.82	15.3
MAX	304	44.7	1143	371	646	483	217	622	1010	1044	80.6	370
(WY)	1974	1947	1992	1968	1992	1992	1957	1972	1987	1973	1971	1952
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1948	1948	1948	1948	1947	1947	1946	1947	1947	1946	1946	1947

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1946 - 1995

ANNUAL TOTAL	161.17	90.28	19.4
ANNUAL MEAN	.44	.25	257
HIGHEST ANNUAL MEAN			.000
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	71	May 16	22500
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			1946
INSTANTANEOUS PEAK STAGE			1973
ANNUAL RUNOFF (AC-FT)	320	179	26.20
10 PERCENT EXCEEDS	.00	.00	14020
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## GUADALUPE RIVER BASIN

08186000 CIBOLO CREEK NEAR FALLS CITY, TX

LOCATION.--Lat 29°00'50", long 97°55'48", Karnes County, Hydrologic Unit 12100304, at right downstream abutment of bridge on State Highway 123, 5.7 mi northeast of Falls City, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--827 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 733: 1931. WSP 1058: 1935. WSP 1562: 1931(M), 1933. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 264.28 ft above sea level. Nov. 4, 1930, to Aug. 4, 1940, water-stage recorder at site 1,600 ft upstream at datum 0.56 ft higher. Aug. 5 to Sept. 13, 1940, nonrecording gage at site 150 ft to the left at same datum. Sept. 14, 1940, to Mar. 15, 1990, water-stage recorder at site 150 ft to the left at same datum. Mar. 16, 1990, to July 15, 1993, water-stage recorder at site 50 ft downstream at same datum.

REMARKS.--Records good. There are several diversions for irrigation above station. Much of the base flow is effluent from the Carrizo Sands in the vicinity of Sutherland Springs. Flow is affected at times by discharge from the flood detention pools of ten floodwater-retarding structures with a combined detention capacity of 16,620 acre-ft. These structures control runoff from 62.9 mi<sup>2</sup>. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 35 ft occurred in October 1913 (discharge, about 35,000 ft<sup>3</sup>/s). Maximum stage since at least 1890, that of Sept. 28, 1973.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	53	32	100	37	57	37	28	567	615	19	40
2	23	49	47	75	37	48	36	27	271	232	20	30
3	23	48	153	63	37	45	36	26	147	138	21	26
4	23	45	46	54	34	42	44	28	92	110	21	23
5	23	45	37	48	34	42	118	28	68	90	20	21
6	23	48	34	46	34	42	65	26	56	85	21	19
7	23	51	34	44	34	199	53	25	48	74	21	18
8	81	47	34	43	34	64	46	28	42	61	20	24
9	1570	43	35	42	34	44	42	34	37	53	20	26
10	388	41	37	42	35	40	39	41	34	46	20	23
11	234	39	36	42	35	36	40	44	35	41	20	25
12	180	38	34	43	34	35	37	38	39	38	20	23
13	117	38	33	51	34	931	37	32	104	36	20	21
14	84	38	34	51	35	496	36	29	69	34	21	21
15	79	38	43	55	36	163	35	28	55	32	20	27
16	127	38	283	53	37	96	35	27	46	31	21	21
17	291	38	171	46	36	70	35	26	40	30	20	27
18	97	38	89	43	36	59	36	34	36	28	20	24
19	510	37	59	41	35	52	35	28	35	27	19	21
20	895	36	49	40	34	49	34	25	37	27	17	20
21	311	36	44	38	33	46	34	24	35	26	18	194
22	211	35	40	38	32	43	34	24	33	25	18	212
23	144	35	38	37	33	42	31	24	30	25	17	159
24	103	34	37	36	33	40	30	28	28	24	18	85
25	1110	33	37	36	35	40	30	34	27	23	18	63
26	167	33	36	38	58	39	30	31	26	23	17	52
27	121	34	37	38	72	40	30	61	25	22	17	44
28	87	34	582	38	105	38	28	40	24	21	19	38
29	72	34	995	38	---	39	28	53	1130	20	22	34
30	66	32	357	38	---	38	28	195	1190	18	22	32
31	58	---	159	37	---	37	---	730	---	18	21	---
TOTAL	7265	1188	3682	1434	1103	3052	1179	1846	4406	2073	608	1393
MEAN	234	39.6	119	46.3	39.4	98.5	39.3	59.5	147	66.9	19.6	46.4
MAX	1570	53	995	100	105	931	118	730	1190	615	22	212
MIN	23	32	32	36	32	35	28	24	24	18	17	18
AC-FT	14410	2360	7300	2840	2190	6050	2340	3660	8740	4110	1210	2760

GUADALUPE RIVER BASIN

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08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

MEAN	105	86.1	103	97.4	117	68.7	167	253	252	99.9	54.5	159
MAX	996	565	2156	1627	1756	860	1492	2230	2821	1357	909	1579
(WY)	1974	1941	1992	1968	1992	1992	1977	1972	1987	1942	1946	1973
MIN	8.49	8.08	9.99	10.3	9.64	7.04	5.23	4.59	1.74	1.96	2.40	5.41
(WY)	1932	1932	1955	1956	1956	1956	1971	1971	1967	1971	1956	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1931 - 1995
ANNUAL TOTAL	42366	29229	
ANNUAL MEAN	116	80.1	130
HIGHEST ANNUAL MEAN			717
LOWEST ANNUAL MEAN			10.4
HIGHEST DAILY MEAN	5910	May 16	1570
LOWEST DAILY MEAN	22	Jul 30	17
ANNUAL SEVEN-DAY MINIMUM	22	Jul 27	18
INSTANTANEOUS PEAK FLOW			3140
INSTANTANEOUS PEAK STAGE			13.52
ANNUAL RUNOFF (AC-FT)	84030	57980	33600
10 PERCENT EXCEEDS	148	131	35.44
50 PERCENT EXCEEDS	40	37	94200
90 PERCENT EXCEEDS	25	21	126
			27
			9.6

## GUADALUPE RIVER BASIN

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to current year. Chemical and biochemical analyses: December 1969 to current year. Sediment analyses: 1960, November 1965 to May 1975.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to Sept. 1991.

WATER TEMPERATURE: October 1968 to Sept. 1991.

INSTRUMENTATION.--Beginning March 1981, specific conductance and water temperature are recorded continuously at this station. The water quality monitor was discontinued Sept. 30, 1991.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water years 1969-91): Maximum, 2,270 microsiemens May 20, 21, 1971; minimum, 115 microsiemens Dec. 22, 23, 1986.

WATER TEMPERATURE (water years 1969-91): Maximum, 34.0°C July 31, Aug. 8, 9, 1980; minimum, 0.0°C Dec. 25, 26, 1983, Dec. 23, 24, 1989.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	
NOV 02...	1330	50	810	8.0	21.0	9.0	102	0.8	260	68	81	
JAN 23...	1255	37	1250	8.2	13.5	13.1	129	8.3	360	120	110	
MAR 14...	1426	435	497	8.1	18.0	8.6	91	5.9	150	25	48	
MAY 23...	1100	24	1300	8.2	25.0	7.9	96	0.8	370	130	110	
JUN 15...	1340	54	870	8.2	26.0	9.0	111	1.0	260	76	84	
AUG 22...	1130	19	1200	8.2	27.5	7.0	89	0.8	330	130	99	
DATE		MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
NOV 02...	13	67	2	7.3	190	130	68	0.30	17	502	1.10	
JAN 23...	21	120	3	7.2	240	200	130	0.40	6.8	754	2.78	
MAR 14...	8.1	40	1	8.4	130	49	46	0.20	8.0	294	1.88	
MAY 23...	22	140	3	8.7	230	64	150	0.40	14	654	0.970	
JUN 15...	13	76	2	7.9	190	120	80	0.30	17	521	1.80	
AUG 22...	21	120	3	8.5	200	210	130	0.40	15	727	0.450	
DATE		NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
NOV 02...	--	<0.010	1.10	1.10	0.020	0.38	0.40	0.200	0.180	0.55		
JAN 23...	2.78	0.020	2.80	2.80	0.020	0.18	0.20	0.060	0.060	0.18		
MAR 14...	1.88	0.020	1.90	1.90	0.090	0.51	0.60	0.300	0.250	0.77		
MAY 23...	0.970	0.020	0.990	0.990	0.050	0.15	0.20	0.160	0.170	0.52		
JUN 15...	--	<0.010	1.80	1.80	0.030	0.37	0.40	0.270	0.280	0.86		
AUG 22...	0.450	0.010	0.460	0.460	0.050	0.35	0.40	0.140	0.110	0.34		



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WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

## GUADALUPE RIVER BASIN

08188500 SAN ANTONIO RIVER AT GOLIAD, TX

LOCATION.--Lat 28°38'58", long 97°23'04", Goliad County, Hydrologic Unit 12100303, on right bank at upstream side of bridge on U.S. Highway 183, 1.2 mi southeast of courthouse in Goliad, 11.7 mi upstream from Manahuilla Creek, and 66.5 mi upstream from mouth.

DRAINAGE AREA.--3,921 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to March 1929, February 1939 to current year.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 91.08 ft above sea level. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 1.1 mi upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. There are many diversions and regulations above station (see station 08181800). Flow is affected at times by discharge from the flood-detention pools of 36 floodwater-retarding structures, with a combined detention capacity of 66,730 acre-ft. These structures control runoff from 213 mi<sup>2</sup> in the drainage area above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1913 and June 15, 1935, reached about the same stage as flood in 1942. Maximum stage since about 1800 occurred in 1869 and was several feet higher than flood of Sept. 23, 1967. Maximum stage since 1869, that of Sept. 23, 1967. Flood of July 9, 1942, reached a stage of 44.9 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	2100	10,100	28.50				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	594	288	1150	409	1080	465	305	2020	2760	301	222
2	254	556	288	763	401	704	450	309	3020	4350	308	218
3	245	535	298	614	400	523	448	347	2230	2950	283	259
4	221	514	377	550	398	460	513	343	1110	1140	310	239
5	209	505	444	506	387	426	537	283	771	790	311	230
6	207	496	473	517	374	443	625	236	609	674	337	214
7	211	484	451	503	370	456	607	225	529	820	310	203
8	231	660	410	482	365	482	615	233	489	653	237	196
9	236	583	335	473	360	590	569	236	464	553	199	224
10	1380	501	294	459	370	536	515	244	443	534	185	213
11	3810	478	284	450	374	532	487	621	448	508	183	292
12	2680	464	281	498	369	447	463	684	435	455	187	367
13	1110	451	285	523	371	481	445	439	432	426	188	297
14	778	440	277	468	376	1090	471	299	1390	411	184	273
15	653	435	273	464	373	1970	470	241	1050	394	178	272
16	612	432	285	469	368	1600	443	217	625	390	177	246
17	608	446	491	468	381	916	428	207	506	378	186	226
18	4340	458	694	454	383	700	420	200	457	368	198	228
19	4710	426	770	438	379	610	426	200	432	363	178	235
20	1020	429	575	441	378	560	424	218	418	354	186	223
21	2040	425	471	442	374	528	426	216	403	354	199	221
22	1920	409	427	423	366	509	426	225	417	347	202	575
23	1040	417	415	421	361	496	430	208	536	338	203	2240
24	781	405	402	418	374	499	405	192	419	322	200	1610
25	662	396	395	416	366	487	390	185	369	317	208	928
26	1370	338	388	419	368	479	376	200	356	309	209	617
27	1840	310	383	421	381	477	365	797	346	296	234	482
28	2380	308	403	415	813	467	369	790	332	298	281	430
29	1300	303	552	418	---	453	360	659	331	293	295	402
30	773	299	1830	432	---	475	319	1460	771	294	265	365
31	661	---	2030	423	---	548	---	1190	---	293	266	---
TOTAL	38552	13497	15569	15338	10989	20024	13687	12209	22158	22732	7188	12747
MEAN	1244	450	502	495	392	646	456	394	739	733	232	425
MAX	4710	660	2030	1150	813	1970	625	1460	3020	4350	337	2240
MIN	207	299	273	415	360	426	319	185	331	293	177	196
AC-FT	76470	26770	30880	30420	21800	39720	27150	24220	43950	45090	14260	25280

GUADALUPE RIVER BASIN

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08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995h, BY WATER YEAR (WY)

MEAN	770	598	537	579	699	528	765	1094	1174	602	395	927
MAX	7084	2574	4628	4309	7682	4379	4488	6169	15370	4723	1736	12050
(WY)	1974	1941	1992	1968	1992	1992	1992	1992	1987	1973	1978	1967
MIN	75.1	76.2	86.5	104	107	83.9	86.8	137	26.2	52.4	47.9	66.8
(WY)	1956	1956	1955	1956	1956	1956	1956	1971	1956	1956	1963	1954
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR				FOR 1995 WATER YEAR				WATER YEARS 1924 - 1995h			
ANNUAL TOTAL	255028				204690				730			
ANNUAL MEAN	699				561				3289			
HIGHEST ANNUAL MEAN									98.2			
LOWEST ANNUAL MEAN									121000			
HIGHEST DAILY MEAN	9640				4710				2.1			
LOWEST DAILY MEAN	180				177				5.0			
ANNUAL SEVEN-DAY MINIMUM	187				183				138000			
INSTANTANEOUS PEAK FLOW					10100				53.70			
INSTANTANEOUS PEAK STAGE					28.50				528500			
ANNUAL RUNOFF (AC-FT)	505800				406000				1230			
10 PERCENT EXCEEDS	1090				921				331			
50 PERCENT EXCEEDS	469				421				116			
90 PERCENT EXCEEDS	237				220							

h See PERIOD OF RECORD paragraph.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1941 to December 1942, November 1944 to September 1946, September 1958 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to May 1982. Sediment analyses: April 1959, October 1974 to August 1994.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1942 to September 1946, September 1958 to September 1994.

WATER TEMPERATURE: September 1958 to September 1994.

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 regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,580 microsiemens July 22, 1978; minimum daily, 138 microsiemens Oct. 27, 1960.

WATER TEMPERATURE: Maximum daily, 36.0°C June 5, 1969; minimum daily, 0.0°C on many days during winter months.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-A-TURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECA, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	
NOV 21...	0945	425	1090	7.8	20.0	12	29	7.8	88	1.3	150	70	
JAN 25...	0955	421	1150	7.7	13.0	8	4.6	10.0	94	2.0	150	580	
MAR 16...	0935	1740	564	8.1	18.5	58	290	7.8	83	3.4	K500	K3500	
MAY 25...	0930	190	1310	8.4	26.0	8	29	7.6	93	1.7	K15	290	
JUN 16...	0845	644	566	7.9	26.0	450	70	7.0	86	17	540	770	
AUG 24...	1000	203	1190	8.2	28.0	17	55	7.0	89	K1.3	760	1400	
DATE		HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 21...	330	96	100	19	91	2	7.9	230	110	120	0.50	16	
JAN 25...	370	110	110	22	110	3	7.9	250	120	140	0.50	14	
MAR 16...	150	32	47	8.4	45	2	8.3	120	50	60	0.30	10	
MAY 25...	370	130	110	22	130	3	8.8	240	140	170	0.50	17	
JUN 16...	180	32	55	9.3	40	1	5.5	140	51	53	0.30	11	
AUG 24...	300	87	90	19	110	3	8.8	220	120	150	0.60	15	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
NOV 21...	605	64	12	52	--	--	--	--	--	--	--	--	--
JAN 25...	712	10	1	9	7.47	7.47	0.030	7.50	7.50	0.050	0.45	0.50	
MAR 16...	319	390	130	260	3.58	3.58	0.020	3.60	3.60	0.050	0.55	0.60	
MAY 25...	772	57	11	46	5.97	5.97	0.030	6.00	6.00	0.020	0.28	0.30	
JUN 16...	322	408	84	324	2.18	2.18	0.020	2.20	2.20	0.040	0.26	0.30	
AUG 24...	677	115	22	93	6.57	6.57	0.030	6.60	6.60	0.050	0.45	0.50	

## GUADALUPE RIVER BASIN

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08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, TOTAL ORGANIC (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 21...	--	--	--	3.8	3	80	<0.5	<1.0	<5	<3	<10	<3
JAN 25...	1.10	1.10	3.4	3.5	--	--	--	--	--	--	--	--
MAR 16...	0.430	0.400	1.2	28	2	60	<0.5	<1.0	<5	<3	<10	90
MAY 25...	0.870	0.920	2.8	4.0	4	85	<0.5	<1.0	<5	<3	<10	20
JUN 16...	0.410	0.390	1.2	12	--	--	--	--	--	--	--	--
AUG 24...	0.910	0.890	2.7	5.1	3	73	<0.5	<1.0	<5	4	<10	<3
DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	
NOV 21...	<10	28	2	<0.1	<10	<10	1	<1.0	940	<6	<3	
JAN 25...	--	--	--	--	--	--	--	--	--	--	--	
MAR 16...	<10	19	1	<0.1	10	<10	<1	2.0	380	<6	5	
MAY 25...	<10	41	3	<0.1	20	<10	2	<1.0	1000	9	9	
JUN 16...	--	--	--	--	--	--	--	--	--	--	--	
AUG 24...	20	30	2	<0.1	20	<10	1	<1.0	880	10	14	

LOCATION.--Lat 28°30'00", long 96°46'43", Calhoun County, Hydrologic Unit 12100204, at raw water pump station on Goff Bayou, 0.6 mi upstream from State Highway 185, and 1.3 mi northwest of Long Mott.

PERIOD OF RECORD.--March 1968 to February 1970 (monthly discharge only), March 1970 to current year.

GAGE.--Totalizing flow meters on rated pumps. March 1968 to Mar. 6, 1981, Parshall flume and deflection-vane recorder. Mar. 7, 1981, to Oct. 5, 1989, water-stage and velocity recorders with duplex water-stage recorder. Oct. 6, 1989, to June 30, 1992, non-recording gage. All at former site 0.5 mi downstream.

REMARKS.--No estimated daily discharges. Records good. Flow is diverted from Guadalupe River 550 ft upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.2 mi to the pumping station on Goff Bayou. Satellite telemeter at station.

COOPERATION.--Log of pumping station on Goff Bayou provided by the Guadalupe-Blanco River Authority.

AVERAGE DISCHARGE.--27 years (water years 1969-95). 89.8 ft<sup>3</sup>/s (65.060 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 311 ft<sup>3</sup>/s July 7, 1968; no flow at times in 1968-74 and 1977-95.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	43	71	21	32	40	37	91	93	142	120	79
2	143	37	71	21	51	40	22	108	76	141	122	61
3	135	40	67	21	43	52	22	104	100	157	127	69
4	122	27	69	21	22	53	38	112	107	157	147	111
5	133	27	72	21	22	53	36	117	100	156	175	125
6	122	27	72	21	22	65	33	129	157	140	181	117
7	122	40	49	21	41	61	22	113	187	133	132	118
8	101	27	22	20	51	66	22	75	205	144	107	129
9	106	40	22	20	35	68	22	70	204	153	117	138
10	89	53	21	39	22	41	22	81	174	125	129	137
11	100	39	21	49	22	.00	22	90	100	101	133	137
12	112	.00	36	49	22	.00	28	78	55	159	120	109
13	108	.00	49	36	22	.00	30	72	76	171	102	105
14	97	35	48	21	22	.00	22	62	132	183	98	94
15	88	69	49	21	22	.00	26	87	143	169	83	95
16	89	77	37	21	22	.00	31	128	163	146	82	93
17	84	58	27	41	22	.00	48	134	156	161	91	96
18	78	51	26	50	22	.00	74	127	138	169	91	91
19	69	35	27	30	22	35	67	87	127	168	85	94
20	79	26	27	21	22	37	59	107	135	157	123	90
21	72	42	42	22	22	.00	54	112	153	159	106	85
22	75	54	30	22	22	.00	48	118	167	151	77	73
23	71	37	22	32	38	11	40	149	157	148	60	73
24	87	27	22	48	37	15	57	158	141	144	46	74
25	98	25	22	50	22	.00	52	141	136	138	54	75
26	96	24	21	53	22	.00	48	122	150	138	54	74
27	97	23	40	32	52	43	61	114	167	144	77	75
28	86	38	49	22	70	67	61	118	154	150	86	75
29	62	50	36	22	---	54	78	68	130	139	83	79
30	54	55	22	22	---	42	71	55	135	132	76	83
31	40	---	21	22	---	22	---	58	---	128	71	---
TOTAL	2956	1126.00	1210	912	846	865.00	1253	3185	4118	4603	3155	2854
MEAN	95.4	37.5	39.0	29.4	30.2	27.9	41.8	103	137	148	102	95.1
MAX	143	77	72	53	70	68	78	158	205	183	181	138
MIN	40	.00	21	20	22	.00	22	55	55	101	46	61
AC-FT	5860	2230	2400	1810	1680	1720	2490	6320	8170	9130	6260	5660
CAL YR 1994	TOTAL 30802.00		MEAN 84.4		MAX 223		MIN .00		AC-FT 61100			
WTR YR 1995	TOTAL 27083.00		MEAN 74.2		MAX 205		MIN .00		AC-FT 53720			



## GUADALUPE RIVER MAIN STEM

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08188800 GUADALUPE RIVER NEAR TIVOLI, TX

LOCATION.--Lat 28°30'20", long 96°53'04", Calhoun-Refugio County line, Hydrologic Unit 12100204, on right bank at diversion and saltwater barrier, one orifice located upstream and one downstream, 550 ft downstream from Calhoun County Irrigation Canal intake, 0.4 mi downstream from San Antonio River, 3.5 mi north of Tivoli, and at mile 10.2.

DRAINAGE AREA.--10,128 mi<sup>2</sup>.

## WATER-STAGE RECORDS

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

REVISED RECORDS.--WDR TX-68-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.04 ft above sea level.

REMARKS.--Many small diversions above station. Some regulation by powerplants. Upstream regulation same as that for Guadalupe River at Cuero (station 08175800) and San Antonio River at Goliad (station 08188500).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream from barrier), 13.7 ft Sept. 22, 1967; minimum, 1.2 ft July 2, 1984, Jan. 25, 1990. Maximum gage height (downstream from barrier), 13.6 ft Sept. 22, 1967; minimum, 0.5 ft July 12, 14, 1967. Maximum stage since at least 1936, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1936 reached a stage of 11 ft, present site and datum. Levees along the Navigation Canal from San Antonio Bay to Victoria were built in 1961, thus decreasing the flood plain.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream from barrier), 8.5 ft Oct. 20-22; minimum, 2.3 ft Sept. 22. Maximum gage height (downstream from barrier), 8.4 ft Oct. 21; minimum, 2.3 ft Sept. 22.

GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER  
WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
MAXIMUM VALUES

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3.8	---	7.5	7.4	4.5	4.5	---	7.6	---	4.8	5.2	4.9
2	3.9	3.7	7.2	7.1	4.6	4.6	---	7.6	---	4.7	6.2	6.0
3	3.9	---	6.9	6.9	4.7	4.7	---	7.6	---	4.7	6.4	6.2
4	3.8	3.3	6.7	6.6	4.8	4.7	---	7.4	---	4.6	6.4	6.3
5	3.8	3.2	6.5	6.5	4.5	4.5	---	7.2	---	4.5	6.3	6.1
6	3.9	3.4	6.1	6.1	5.0	4.9	---	7.1	---	4.4	6.0	5.9
7	3.9	3.5	5.7	5.7	5.0	4.9	---	6.9	4.5	4.4	5.8	5.7
8	3.9	3.7	5.5	5.5	5.1	5.0	---	6.7	4.5	4.4	6.4	6.2
9	3.7	2.7	5.8	5.7	4.9	4.8	---	6.6	4.5	4.4	6.4	6.2
10	3.5	2.6	5.8	5.8	4.2	4.2	---	6.5	4.4	4.3	6.3	6.2
11	5.6	5.3	5.8	5.8	4.0	4.0	---	6.5	4.4	4.3	6.3	6.2
12	7.0	6.8	5.6	5.6	4.1	4.0	---	6.5	4.4	4.3	6.2	6.0
13	7.2	7.0	5.6	5.6	4.2	4.1	6.6	6.5	4.4	4.4	6.4	6.2
14	7.5	7.4	5.5	5.5	4.2	4.1	6.9	6.7	4.6	4.5	6.9	6.6
15	7.5	7.4	5.1	5.1	4.2	4.1	6.9	6.7	4.6	4.4	7.2	7.0
16	7.0	6.9	4.9	4.9	4.3	4.2	6.8	6.6	4.4	4.4	7.7	7.5
17	6.3	6.3	5.0	5.0	4.6	4.4	6.6	6.5	4.2	4.1	7.8	7.6
18	6.8	6.7	4.9	4.9	5.3	5.1	---	6.5	4.2	4.1	7.8	7.6
19	7.7	7.7	5.0	5.0	6.5	6.4	---	6.3	4.2	4.1	7.8	7.6
20	8.5	8.3	5.2	5.2	6.8	6.8	---	6.2	4.1	4.0	7.6	7.4
21	8.5	8.4	4.9	4.9	6.9	6.8	---	6.1	4.1	4.0	7.4	7.2
22	8.5	8.3	4.6	4.6	6.9	6.8	---	6.0	4.1	4.0	7.2	7.0
23	8.2	8.1	4.7	4.7	---	6.6	---	5.9	4.1	4.0	7.1	6.9
24	8.0	7.9	4.7	4.7	---	6.3	---	5.7	4.0	4.0	6.9	6.7
25	7.8	7.7	4.6	4.6	6.1	6.0	---	5.5	4.2	4.1	6.7	6.6
26	7.6	7.5	4.6	4.6	---	5.8	---	5.4	4.5	4.4	6.7	6.5
27	7.4	7.3	4.8	4.7	---	5.5	---	5.5	4.7	4.6	6.6	6.4
28	7.6	7.5	4.4	4.4	---	5.6	---	5.4	4.9	4.8	6.4	6.2
29	7.8	7.6	4.3	4.3	---	5.6	---	5.3	---	---	6.2	6.1
30	7.8	7.6	4.3	4.3	---	5.8	---	5.1	---	---	6.3	6.2
31	7.8	7.6	---	---	---	7.2	---	5.0	---	---	6.4	6.3
MAX	8.5	---	7.5	7.4	---	7.2	---	7.6	---	4.8	7.8	7.6
MIN	3.5	---	4.3	4.3	---	4.0	---	5.0	---	4.0	5.2	4.9

## GUADALUPE RIVER MAIN STEM

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM FROM SALTWATER BARRIER  
WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
MAXIMUM VALUES

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.5	6.3	5.6	5.2	6.9	6.8	5.6	5.5	3.8	3.8	3.1	3.1
2	6.4	6.3	5.5	5.0	7.4	7.4	7.1	7.0	4.0	3.9	3.2	3.2
3	6.2	6.1	5.0	4.9	7.8	7.8	7.7	7.6	4.2	4.2	3.0	3.0
4	7.5	7.2	4.8	4.7	8.0	7.9	8.0	7.8	4.3	4.2	3.0	3.0
5	7.9	7.7	4.7	4.6	8.0	7.9	8.0	7.8	4.2	4.1	3.2	3.2
6	7.8	7.6	4.8	4.7	7.9	7.8	7.8	7.7	4.0	4.0	3.1	3.1
7	7.7	7.6	4.8	4.7	7.7	7.7	7.4	7.4	3.9	3.9	3.4	3.4
8	7.6	7.4	4.9	4.8	7.6	7.5	7.0	6.9	3.9	3.9	3.3	3.3
9	7.5	7.3	4.6	4.5	7.4	7.4	6.7	6.6	3.8	3.8	3.3	3.3
10	7.5	7.3	4.4	4.3	7.3	7.2	6.3	6.2	3.9	3.8	2.9	2.9
11	7.4	7.2	4.7	4.6	7.3	7.2	6.0	5.9	4.0	4.0	2.8	2.8
12	7.2	7.0	5.2	5.2	7.2	7.1	5.6	5.6	3.8	3.8	3.1	3.1
13	7.1	6.9	5.9	5.8	7.0	6.9	5.4	5.3	3.6	3.6	3.1	3.1
14	7.0	6.7	5.9	5.8	6.9	6.8	5.0	4.9	3.6	3.6	3.2	3.2
15	6.9	6.6	5.5	5.4	7.2	7.2	4.9	4.8	3.5	3.5	3.4	3.4
16	6.8	6.6	5.0	5.0	7.4	7.2	5.0	4.9	3.4	3.4	3.4	3.4
17	6.7	6.5	4.9	4.9	7.4	7.2	4.8	4.7	3.4	3.4	3.2	3.2
18	6.7	6.5	4.6	4.5	7.2	7.1	4.5	4.4	3.2	3.2	3.2	3.2
19	6.4	6.2	4.1	4.1	7.0	6.9	4.4	4.3	3.2	3.2	3.5	3.5
20	6.4	6.2	4.0	3.9	6.8	6.7	4.2	4.1	3.1	3.1	3.4	3.4
21	6.2	6.0	3.7	3.7	6.5	6.4	4.2	4.1	2.9	2.9	3.0	3.0
22	6.1	5.9	3.8	3.7	6.2	6.2	4.1	4.0	2.8	2.8	3.3	3.3
23	6.0	5.8	4.0	4.0	6.0	6.0	4.0	4.0	2.9	2.9	3.6	3.6
24	5.6	5.4	4.1	4.0	6.0	5.9	3.9	3.9	3.1	3.1	5.9	5.8
25	5.5	5.3	4.0	3.9	6.0	5.9	3.7	3.7	3.2	3.2	6.4	6.4
26	5.6	5.4	3.8	3.8	5.9	5.8	3.7	3.7	3.5	3.5	6.4	6.3
27	5.6	5.4	3.9	3.8	5.8	5.7	3.6	3.5	3.4	3.4	5.4	5.4
28	5.5	5.3	4.0	3.9	5.6	5.6	3.5	3.5	3.1	3.1	4.4	4.4
29	5.5	5.3	5.1	5.0	5.9	5.8	3.4	3.4	3.0	3.0	4.1	4.1
30	5.6	5.2	5.8	5.7	5.8	5.7	3.6	3.5	2.9	2.9	4.0	4.0
31	---	---	6.5	6.4	---	---	3.9	3.9	3.1	3.1	---	---
MAX	7.9	7.7	6.5	6.4	8.0	7.9	8.0	7.8	4.3	4.2	6.4	6.4
MIN	5.5	5.2	3.7	3.7	5.6	5.6	3.4	3.4	2.8	2.8	2.8	2.8

## GUADALUPE RIVER MAIN STEM

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08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1965 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1965 to October 1982.

WATER TEMPERATURES: August 1965 to October 1982.

INSTRUMENTATION.--From August 1965 to October 1982 specific conductance was recorded continuously at this station. From March 1981 to October 1982 water temperature was recorded continuously at this station.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,000 microsiemens June 1, 1971, Aug. 3, 1978; minimum daily, 159 microsiemens Apr. 28, 1980.

WATER TEMPERATURES (1965-69, 1981-82): Maximum daily, 32.0°C on many days during summer months; minimum daily, 8.0°C Jan. 15, 1968.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)
			WATER WHOLE FIELD (STANDARD UNITS)									
NOV 03...	1000	455	8.0	22.0	6.4	73	1.2	160	24	52	8.2	25
JAN 24...	1010	676	7.6	13.5	9.2	90	1.5	260	60	76	16	42
MAR 15...	0945	641	8.0	19.5	8.3	90	4.6	210	35	63	13	45
MAY 24...	0900	724	8.3	27.0	7.2	90	1.5	250	21	74	17	50
JUN 15...	0945	549	7.7	27.0	6.7	83	1.3	210	5	65	11	33
AUG 23...	1000	767	8.2	30.0	6.6	87	3.7	240	37	68	18	58
DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 03...	0.9	5.4	140	27	37	0.20	14	258	0.930	0.930	0.020	0.950
JAN 24...	1	3.8	200	46	66	0.30	12	390	2.10	--	<0.010	2.10
MAR 15...	1	4.9	180	44	61	0.30	11	359	2.29	2.29	0.010	2.30
MAY 24...	1	3.7	230	47	68	0.30	13	421	1.48	1.48	0.020	1.50
JUN 15...	1	4.8	200	32	40	0.20	15	330	1.30	--	<0.010	1.30
AUG 23...	2	4.2	210	56	81	0.30	15	433	1.79	1.79	0.010	1.80
DATE	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	
NOV 03...	0.950	0.020	0.18	0.20	0.200	0.190	0.58	--	--	--	--	
JAN 24...	2.10	0.020	0.18	0.20	0.170	0.220	0.67	1	80	<0.5	<1.0	
MAR 15...	2.30	0.020	0.38	0.40	0.240	0.210	0.64	--	--	--	--	
MAY 24...	1.50	0.030	--	<0.20	0.170	0.170	0.52	--	--	--	--	
JUN 15...	1.30	0.030	0.27	0.30	0.160	0.180	0.55	3	79	0.5	1.0	
AUG 23...	1.80	0.040	0.26	0.30	0.210	0.200	0.61	--	--	--	--	

	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELЕНИУМ, DIS- SOLVED (UG/L AS SE)
--	--	--	--	--	--	--	---	--	--	--	--

DATE	NOV 03...	JAN 24...	MAR 15...	MAY 24...	JUN 15...	AUG 23...
NOV 03...	--	--	--	--	--	--
JAN 24...	<5	<3	<10	<3	<10	15
MAR 15...	--	--	--	--	--	--
MAY 24...	--	--	--	--	--	--
JUN 15...	<5	<3	<10	<3	10	14
AUG 23...	--	--	--	--	--	--

[illegible][illegible][illegible]

## 08189200 COPANO CREEK NEAR REFUGIO, TX

LOCATION.--Lat 28°18'12", long 97°06'44", Refugio County, Hydrologic Unit 12100405, on right bank at downstream end of bridge on Farm Road 774, 3.6 mi upstream from Alameda Creek, 8.1 mi east of Refugio, and 11.9 mi upstream from mouth.

DRAINAGE AREA.--87.8 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: July 1970 to December 1988. Pesticide analyses: July 1970 to July 1981.

GAGE.--Water-stage recorder. Datum of gage is 17.25 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are no known diversions above station. Recording rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft in September 1967, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	1600	724	10.51				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.97	.00	301	.00	.00	.02	.00	117	.00	.00	.00
2	.00	.78	.00	256	.00	.00	.00	.00	37	.00	.00	.00
3	.00	.73	9.3	76	.00	.00	.00	.00	22	.00	.00	.00
4	.00	.53	20	31	.00	.00	28	.00	14	.00	.00	.00
5	.00	.44	8.6	17	.00	.00	282	.00	9.1	2.9	.00	.00
6	.00	.32	5.2	12	.00	.00	374	.00	5.4	1.6	.00	.00
7	.00	.23	3.2	7.9	.00	7.0	397	.00	3.0	.79	.00	.00
8	.00	.27	1.9	5.4	.00	38	362	.00	1.8	.36	.00	.00
9	3.9	.14	1.2	3.8	.00	19	311	.00	1.2	.04	.00	.00
10	4.0	.04	.75	2.7	.00	10	252	.00	.81	.00	.00	.00
11	2.5	.00	.41	2.0	.00	6.5	182	.00	.80	.00	.00	.00
12	1.5	.00	.21	1.6	.00	4.2	115	.00	1.0	.00	.00	.00
13	.81	.00	.03	1.2	.00	58	e75	.00	.84	.00	.00	.00
14	.33	.00	.00	.96	.00	129	e70	.00	.37	.00	.00	.00
15	.27	.00	.00	.73	.00	67	e42	.00	.12	.00	.00	.00
16	.28	.00	.00	.49	.00	34	e30	.00	.00	.00	.00	.00
17	.16	.00	.00	.33	.00	26	e20	.00	.00	.00	.00	.00
18	.03	.00	.00	.23	.00	18	e18	.00	.00	.00	.00	.00
19	.01	.00	.00	.08	.00	11	e16	.00	.00	.00	.00	.00
20	.00	.00	.00	.03	.00	7.2	e12	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	4.6	e7.0	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	3.2	e4.0	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	2.3	e3.0	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	1.7	e2.1	.00	.00	.00	.00	.00
25	.01	.00	.00	.00	.00	1.2	e1.6	.00	.00	.00	.00	.00
26	1.4	.00	.00	.00	.00	.90	e1.2	.00	.00	.00	.00	.00
27	1.8	.00	.00	.00	.00	.59	e.70	.00	.00	.00	.00	.00
28	1.4	.00	.14	.00	.00	.37	.31	.00	.00	.00	.00	.00
29	1.2	.00	18	.00	---	.24	.14	6.2	.18	.00	.00	.00
30	1.2	.00	11	.00	---	.15	.04	433	.26	.00	.00	.00
31	1.1	---	19	.00	---	.06	---	437	---	.00	.00	---
TOTAL	21.90	4.45	98.94	720.45	0.00	450.21	2606.11	876.20	214.88	5.69	0.00	0.00
MEAN	.71	.15	3.19	23.2	.000	14.5	86.9	28.3	7.16	.18	.000	.000
MAX	4.0	.97	20	301	.00	129	397	437	117	2.9	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	43	8.8	196	1430	.00	893	5170	1740	426	11	.00	.00
CFSM	.01	.00	.04	.26	.00	.17	.99	.32	.08	.00	.00	.00
IN.	.01	.00	.04	.31	.00	.19	1.10	.37	.09	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1995, BY WATER YEAR (WY)

	54.3	43.0	25.3	25.8	41.5	23.0	25.8	69.4	76.6	47.4	2.64	93.3
MEAN	54.3	43.0	25.3	25.8	41.5	23.0	25.8	69.4	76.6	47.4	2.64	93.3
MAX	551	589	240	189	459	168	229	508	499	416	16.6	1028
(WY)	1984	1982	1992	1979	1992	1992	1992	1981	1981	1990	1973	1971
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1978	1989	1971	1983	1971	1971	1971	1971	1971	1971	1974	1977

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1970 - 1995

ANNUAL TOTAL	4081.95	4998.83	44.1
ANNUAL MEAN	11.2	13.7	138
HIGHEST ANNUAL MEAN			.52
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	292	437	5960
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW	724	724	6300
INSTANTANEOUS PEAK STAGE	10.51	10.51	21.00
ANNUAL RUNOFF (AC-FT)	8100	9920	31920
ANNUAL RUNOFF (CFSM)	.13	.16	.50
ANNUAL RUNOFF (INCHES)	1.73	2.12	6.82
10 PERCENT EXCEEDS	26	16	67
50 PERCENT EXCEEDS	.00	.00	.08
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

LOCATION.--Lat 28°17'30", long 97°16'44", Refugio County, Hydrologic Unit 12100406, on left bank at upstream side of upstream bridge of two bridges on U.S. Highway 77, 560 ft upstream from Missouri Pacific Railroad Co. bridge, and 0.2 mi southwest of Refugio.

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

Water-quality records: Chemical analyses: September 1961 to August 1993. Chemical and biochemical analyses: January 1968 to August 1993. Pesticide analyses: October 1970 to April 1979. Sediment analyses: January 1978 to August 1993.

GAGE.--Water-stage recorder. Datum of gage is 1.00 ft above sea level. Prior to Nov. 25, 1958, nonrecording gage at site 59 ft downstream at same datum. Nov. 26, 1958, to Apr. 18, 1963, nonrecording gage at present site and datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft, from information by local residents. Maximum stage since about 1899, that of Sept. 12, 1971.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 20	1500	7,830	26.51				

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	51	26	52	15	17	14	15	27	6.8	6.8	6.1
2	12	47	40	30	15	17	14	15	18	6.8	6.1	4.6
3	12	45	33	24	15	16	14	15	14	6.8	5.2	3.8
4	11	43	27	22	15	16	315	15	11	17	5.2	3.8
5	11	42	27	21	15	16	2010	15	9.6	8.5	5.2	3.8
6	11	40	26	20	15	16	1100	15	8.6	7.2	4.9	3.8
7	11	38	26	20	15	29	279	14	8.3	7.2	4.9	3.6
8	49	38	26	20	15	17	123	14	7.6	7.2	4.9	3.6
9	154	37	25	19	15	15	71	14	7.5	7.0	4.9	3.8
10	65	35	26	19	15	15	46	14	7.2	6.5	4.6	3.3
11	30	34	25	19	15	15	34	14	8.3	6.4	5.5	3.3
12	22	33	25	19	15	15	29	14	7.6	6.1	9.8	3.3
13	18	33	25	19	15	73	26	14	7.2	5.5	7.2	3.6
14	16	32	24	19	15	54	23	13	6.9	5.5	5.5	3.6
15	15	31	24	18	15	43	22	13	6.9	5.5	5.2	3.8
16	15	31	24	18	15	31	21	13	6.8	5.5	4.9	3.8
17	16	30	24	18	15	25	21	12	6.8	5.2	4.9	3.6
18	20	30	23	18	15	21	20	12	7.1	5.2	4.9	3.6
19	2650	30	22	17	15	19	18	13	11	5.2	4.6	3.6
20	7020	30	22	17	15	19	19	12	9.7	5.2	4.6	3.8
21	4870	29	22	17	15	17	19	12	7.2	5.2	4.3	3.8
22	1110	29	21	17	15	16	19	12	7.2	5.2	4.9	4.8
23	302	28	21	17	15	16	19	12	6.8	5.2	6.1	5.1
24	183	28	21	16	18	16	17	12	6.8	5.2	6.8	14
25	137	27	21	16	22	15	17	12	6.5	5.2	6.1	13
26	138	27	20	18	20	15	16	12	6.5	5.2	5.5	9.3
27	100	27	20	17	18	15	15	12	6.5	5.2	4.9	7.2
28	85	27	39	17	18	15	16	14	6.5	5.2	4.9	5.5
29	74	26	33	16	---	14	16	40	7.6	5.2	4.9	4.9
30	65	26	29	16	---	14	15	392	7.3	5.2	6.8	4.0
31	58	---	72	16	---	14	---	101	---	5.2	6.1	---
TOTAL	17292	1004	839	612	441	656	4388	907	266.0	193.5	171.1	147.8
MEAN	558	33.5	27.1	19.7	15.7	21.2	146	29.3	8.87	6.24	5.52	4.93
MAX	7020	51	72	52	22	73	2010	392	27	17	9.8	14
MIN	11	26	20	16	15	14	14	12	6.5	5.2	4.3	3.3
AC-FT	34300	1990	1660	1210	875	1300	8700	1800	528	384	339	293
CFSM	.81	.05	.04	.03	.02	.03	.21	.04	.01	.01	.01	.01
IN.	.93	.05	.05	.03	.02	.04	.24	.05	.01	.01	.01	.01

MEAN	160	63.8	62.4	48.1	109	50.6	95.5	192	185	143	58.0	310
MAX	1882	1380	849	417	1178	377	851	1387	1848	2135	1076	7646
(WY)	1974	1982	1992	1992	1958	1992	1992	1972	1973	1990	1942	1967
MIN	.051	.63	.62	.66	.66	2.20	1.90	.46	.65	.40	.096	.027
(WY)	1990	1990	1990	1990	1990	1989	1940	1989	1990	1989	1989	1989

ANNUAL TOTAL	42706.3		26917.4				
ANNUAL MEAN	117		73.7			123	
HIGHEST ANNUAL MEAN						647	1967
LOWEST ANNUAL MEAN						1.74	1989
HIGHEST DAILY MEAN	7020	Oct 20	7020	Oct 20		78800	Sep 22 1967
LOWEST DAILY MEAN	5.5	Aug 3	3.3	Sep 10		.00	Sep 1 1989
ANNUAL SEVEN-DAY MINIMUM	6.0	Jul 28	3.5	Sep 7		.00	Aug 30 1989
INSTANTANEOUS PEAK FLOW			7830	Oct 20		79000	Sep 12 1971
INSTANTANEOUS PEAK STAGE			26.51	Oct 20		38.25	Sep 12 1971
ANNUAL RUNOFF (AC-FT)	84710		53390			89390	
ANNUAL RUNOFF (CFSM)	.17		.11			.18	
ANNUAL RUNOFF (INCHES)	2.30		1.45			2.43	
10 PERCENT EXCEEDS	66		40			93	
50 PERCENT EXCEEDS	21		15			11	
90 PERCENT EXCEEDS	9.4		4.9			2.2	



## 08189700 ARANSAS RIVER NEAR SKIDMORE, TX

LOCATION.--Lat 28°16'56", long 97°37'14". Bee County, Hydrologic Unit 12100407, on right bank 160 ft downstream from centerline of county road bridge, 3.8 mi downstream from confluence of West Aransas and Poesta Creeks, and 4.4 mi northeast of Skidmore.

DRAINAGE AREA.--247 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1964 to current year.

Water-quality records.--Chemical analyses: October 1965 to September 1966. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 72.37 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. The city of Beeville discharges sewage effluent into the river via Poesta Creek 3.8 mi upstream. There are no known diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1954 reached a stage of 33 ft (discharge, 19,600 ft<sup>3</sup>/s), from information by local resident. Maximum stage since at least 1914, that of Sept. 22, 1967.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 18	1500	2,280	16.11	Apr. 4	1700	1,000	11.89

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	7.3	5.0	5.1	4.8	11	6.3	5.0	16	8.9	3.7	4.7
2	3.4	7.2	5.3	4.6	4.9	10	5.7	4.8	7.4	4.8	3.7	5.0
3	3.3	7.1	8.0	4.3	5.1	8.1	5.6	4.7	5.1	4.1	3.5	4.5
4	3.4	7.1	6.7	4.3	5.2	7.8	477	4.7	4.2	8.9	3.9	3.8
5	3.3	7.1	5.6	4.2	4.9	8.0	185	4.7	3.7	24	3.5	3.6
6	3.4	6.7	5.0	4.4	5.1	8.3	30	4.7	3.5	8.6	3.4	3.4
7	3.3	6.7	4.9	4.3	5.6	9.0	14	4.6	3.5	5.9	4.2	3.7
8	19	6.5	5.1	4.1	5.4	8.3	10	4.9	3.5	5.9	4.3	7.3
9	17	6.4	5.1	4.1	5.2	7.6	8.1	4.8	3.6	4.6	3.8	4.6
10	8.2	6.2	5.1	4.3	5.6	8.3	7.1	4.7	3.7	4.0	3.6	3.6
11	4.7	5.9	5.1	4.6	6.1	8.5	6.5	4.7	4.7	3.6	3.7	3.2
12	4.2	5.9	5.1	4.5	5.8	8.5	5.9	4.7	8.3	3.4	6.1	3.0
13	3.8	6.0	5.1	4.3	6.2	36	5.7	4.6	6.9	3.2	19	3.0
14	3.8	6.1	5.5	3.7	6.3	29	5.5	4.5	4.2	3.1	11	3.1
15	4.4	5.9	6.8	3.5	6.1	11	5.6	4.2	3.7	3.5	7.0	3.7
16	4.6	5.9	6.0	3.6	6.7	8.7	5.8	3.6	3.5	3.3	5.5	3.6
17	5.0	5.9	5.7	3.7	6.8	7.8	5.6	3.5	3.4	3.3	4.7	2.8
18	1000	6.0	5.4	4.1	6.4	7.3	5.6	3.4	3.4	3.2	4.4	2.7
19	536	6.4	5.0	3.6	6.4	7.1	5.5	3.3	4.2	3.2	4.4	2.6
20	76	6.1	5.0	3.4	6.1	6.9	5.5	3.0	4.7	3.0	4.5	2.5
21	31	5.8	5.0	3.5	6.0	6.7	5.4	3.1	4.2	3.0	4.5	2.8
22	20	5.9	5.3	4.0	6.7	6.7	5.5	3.1	3.7	2.7	4.6	3.2
23	15	5.7	6.2	4.1	7.3	6.8	5.7	3.0	3.6	2.6	6.1	7.2
24	12	5.6	6.1	3.8	7.4	6.7	6.3	3.1	3.7	2.6	74	6.4
25	11	5.4	6.3	4.1	7.3	6.4	5.5	3.0	3.6	2.5	27	3.6
26	10	5.5	6.3	4.9	9.0	6.6	4.9	3.0	3.5	2.6	12	3.2
27	22	5.5	6.5	5.6	7.8	6.5	4.9	3.5	3.5	2.6	7.6	2.9
28	14	5.3	13	6.3	8.6	6.1	5.1	6.9	3.4	2.8	6.2	2.6
29	11	5.2	18	5.2	---	6.3	4.8	8.9	4.4	2.9	5.9	2.6
30	8.7	4.9	6.8	4.6	---	6.4	4.8	11	17	3.0	5.5	2.6
31	8.0	---	5.6	4.4	---	6.4	---	48	---	3.0	4.7	---
TOTAL	1872.8	183.2	195.6	133.2	174.8	288.8	858.9	183.7	151.8	142.8	266.0	111.5
MEAN	60.4	6.11	6.31	4.30	6.24	9.32	28.6	5.93	5.06	4.61	8.58	3.72
MAX	1000	7.3	18	6.3	9.0	36	477	48	17	24	74	7.3
MIN	3.3	4.9	4.9	3.4	4.8	6.1	4.8	3.0	3.4	2.5	3.4	2.5
AC-FT	3710	363	388	264	347	573	1700	364	301	283	528	221
CFSM	.24	.02	.03	.02	.03	.04	.12	.02	.02	.02	.03	.02
IN.	.28	.03	.03	.02	.03	.04	.13	.03	.02	.02	.04	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1995, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
MEAN	31.6	7.86	19.8	7.96	15.0	14.0	27.8	59.8	54.9	30.9	12.2	147																					
MAX	318	39.0	327	38.9	119	117	255	349	512	451	176	2356																					
(WY)	1974	1980	1992	1992	1969	1992	1992	1972	1973	1990	1980	1967																					
MIN	.000	.17	.72	1.05	1.10	.55	.31	1.04	.026	.031	.000	.000																					
(WY)	1990	1965	1965	1971	1967	1966	1967	1989	1967	1986	1965	1965																					

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1964 - 1995

	1994	1995	1964-1995
ANNUAL TOTAL	5315.0	4563.1	
ANNUAL MEAN	14.6	12.5	36.4
HIGHEST ANNUAL MEAN			199
LOWEST ANNUAL MEAN			3.15
HIGHEST DAILY MEAN	1000	1000	49300
LOWEST DAILY MEAN	1.9	2.5	.00
ANNUAL SEVEN-DAY MINIMUM	2.1	2.6	.00
INSTANTANEOUS PEAK FLOW		2280	82800
INSTANTANEOUS PEAK STAGE		16.11	42.22
ANNUAL RUNOFF (AC-FT)	10540	9050	26390
ANNUAL RUNOFF (CFSM)	.059	.051	.15
ANNUAL RUNOFF (INCHES)	.80	.69	2.00
10 PERCENT EXCEEDS	12	9.4	16
50 PERCENT EXCEEDS	6.4	5.1	3.9
90 PERCENT EXCEEDS	3.1	3.2	.56

## 08190000 NUECES RIVER AT LAGUNA, TX

LOCATION.--Lat 29°25'42", long 99°59'49", Uvalde County, Hydrologic Unit 12110101, on right bank 0.5 mi downstream from Sycamore Creek, 1.0 mi northeast of Laguna, and at mile 370.8.

DRAINAGE AREA.--737 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to current year.

Water-quality records.--Chemical analyses: May 1949 to June 1952, September 1964 to September 1993. Chemical, biochemical, and pesticide analyses: February 1970 to September 1993. Sediment analyses: January 1966.

REVISED RECORDS.--WSP 1562: 1930, 1931(M), 1932, 1939. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,119.72 ft above sea level. Prior to Jan. 26, 1925, nonrecording gage at site 2 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. There are many small diversions above station for irrigation. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1913 reached a stage of about 29 ft (discharge, 210,000 ft<sup>3</sup>/s); flood of Sept. 21, 1923, reached a stage of about 26.5 ft (discharge, 160,000 ft<sup>3</sup>/s); from information by local residents. Maximum stage since at least 1866, that of Sept. 24, 1955.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 20	1030	4,820	7.25	Sept. 22	0130	5,080	7.40

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	87	74	111	89	75	95	59	176	92	41	37
2	78	87	75	113	88	79	93	58	133	85	41	40
3	77	86	75	116	86	79	91	60	120	88	40	35
4	76	85	73	117	85	79	107	57	114	105	39	32
5	74	84	73	117	86	77	106	56	111	94	37	31
6	73	84	73	116	85	78	98	56	107	98	36	31
7	76	82	73	114	84	85	92	55	105	95	35	30
8	91	82	73	112	83	78	89	58	103	92	35	30
9	81	81	77	110	83	75	87	56	99	89	34	29
10	78	79	75	109	82	75	86	56	96	86	34	29
11	75	78	71	109	82	74	84	56	130	83	33	28
12	74	78	70	109	81	78	83	55	115	80	35	28
13	72	79	69	108	82	159	81	53	109	76	38	27
14	74	80	70	105	82	155	79	51	104	74	36	32
15	79	91	71	104	82	124	79	49	100	72	35	30
16	79	91	70	103	81	115	78	48	96	69	34	28
17	79	90	69	103	80	114	78	48	93	66	33	27
18	80	89	66	101	80	114	77	45	91	64	32	25
19	81	84	66	100	79	113	75	44	88	61	32	25
20	82	82	66	100	79	112	72	42	85	59	32	508
21	80	81	65	98	78	115	70	41	82	58	31	637
22	79	79	64	97	77	111	69	41	78	56	32	2200
23	77	81	64	97	77	108	67	49	75	54	32	663
24	75	82	65	97	76	106	66	97	72	52	31	385
25	78	82	62	97	77	105	65	65	70	50	32	278
26	84	80	61	98	77	104	64	64	69	49	30	228
27	93	79	66	96	78	102	64	91	66	49	29	201
28	92	77	116	93	77	100	63	126	65	47	29	180
29	91	75	152	92	---	99	62	120	95	45	29	164
30	90	75	128	91	---	98	60	127	98	44	29	151
31	89	---	115	90	---	97	---	350	---	43	39	---
TOTAL	2486	2470	2387	3223	2276	3083	2380	2233	2945	2175	1055	6169
MEAN	80.2	82.3	77.0	104	81.3	99.5	79.3	72.0	98.2	70.2	34.0	206
MAX	93	91	152	117	89	159	107	350	176	105	41	2200
MIN	72	75	61	90	76	74	60	41	65	43	29	25
AC-FT	4930	4900	4730	6390	4510	6120	4720	4430	5840	4310	2090	12240
CFSM	.11	.11	.10	.14	.11	.13	.11	.10	.13	.10	.05	.28
IN.	.13	.12	.12	.16	.11	.16	.12	.11	.15	.11	.05	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995, BY WATER YEAR (WY)

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	
MEAN	212	121	116	105	116	106	110	158	247	162	143	244																						
MAX	2030	544	894	610	1160	867	766	868	5407	1580	2500	2668																						
(WY)	1974	1924	1992	1992	1949	1992	1977	1935	1935	1939	1971	1955																						
MIN	7.39	5.42	5.58	5.46	5.10	7.04	23.7	18.2	12.2	8.11	6.99	8.60																						
(WY)	1953	1957	1957	1957	1957	1957	1935	1953	1953	1953	1953	1956																						

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1924 - 1995

ANNUAL TOTAL	40524	32882	
ANNUAL MEAN	111	90.1	153
HIGHEST ANNUAL MEAN			611
LOWEST ANNUAL MEAN			23.1
HIGHEST DAILY MEAN	3560	May 14	107000
LOWEST DAILY MEAN	43	Jul 13	3.0
ANNUAL SEVEN-DAY MINIMUM	46	Sep 2	3.2
INSTANTANEOUS PEAK FLOW			307000
INSTANTANEOUS PEAK STAGE			32.70
ANNUAL RUNOFF (AC-FT)	80380	65220	111100
ANNUAL RUNOFF (CFSM)	.15	.12	.21
ANNUAL RUNOFF (INCHES)	2.05	1.66	2.83
10 PERCENT EXCEEDS	152	114	234
50 PERCENT EXCEEDS	79	79	75
90 PERCENT EXCEEDS	54	35	23

NUECES RIVER BASIN

369

08190500 WEST NUECES RIVER NEAR BRACKETTVILLE, TX

LOCATION.--Lat 29°28'21", long 100°14'10", Kinney County, Hydrologic Unit 12110102, at Wilson Ranch on Farm Road 3199, 1.3 mi upstream from Miguel Canyon, 16.0 mi northeast of Brackettville, and 40.2 mi upstream from mouth.

DRAINAGE AREA.--694 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1939 to September 1950, April 1956 to current year.

REVISED RECORDS.--WSP 1312: 1949(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,326.79 ft above sea level. Prior to Mar. 14, 1940, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. In ordinary years, a large part of streamflow is lost by seepage into the Balcones Fault Zone of the Edwards and associated limestones above station. No known diversion above station.

AVERAGE DISCHARGE FOR PERIOD (WATER YEARS 1940-50).--11 years (water years 1940-50), 13.6 ft<sup>3</sup>/s (9,860 acre-ft/yr).

EXTREMES FOR PERIOD (WATER YEARS 1940-50).--Maximum discharge, 51,000 ft<sup>3</sup>/s June 25, 1948 (gage height, 20.95 ft); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft June 14, 1935 (discharge, 550,000 ft<sup>3</sup>/s, based on slope-area measurements of 580,000 ft<sup>3</sup>/s at site 33 mi upstream from gage) and 536,000 ft<sup>3</sup>/s (at site 24 mi downstream from gage, present site and datum), from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mi upstream. Flood in 1900 reached a stage about 34 ft, and flood of Sept. 24, 1955, reached a stage of 27.1 ft, from floodmark at present site (discharge, 150,000 ft<sup>3</sup>/s, by slope-area measurement).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	.71	.26	2.1	.78	.57	.79	.45	2.8	.72	.02	.00
2	5.8	.71	.26	1.7	.78	.57	.78	.45	3.1	.64	.01	.00
3	5.4	.71	.26	1.4	.78	.57	.82	.45	2.6	.70	.01	.00
4	5.1	.68	.26	1.3	.77	.57	1.0	.45	1.9	.90	.01	.00
5	4.6	.46	.26	1.1	.64	.57	.89	.45	1.5	.87	.00	.00
6	4.4	.40	.30	.99	.64	.60	.78	.45	1.3	1.1	.00	.00
7	4.2	.40	.27	.94	.64	.79	.78	.45	1.1	.84	.00	.00
8	3.6	.43	.29	.94	.64	.64	.78	.59	1.0	.78	.01	.00
9	3.2	.40	.34	.94	.64	.64	.78	.45	1.0	.73	.00	.00
10	2.9	.36	.28	.94	.64	.64	.74	.40	.98	.59	.00	.00
11	2.7	.35	.27	.94	.64	.64	.64	.40	2.0	.47	.00	.00
12	2.4	.37	.30	.94	.64	.78	.68	.40	4.0	.45	.00	.00
13	2.4	.40	.30	.94	.64	1.3	.71	.40	4.4	.40	.00	.00
14	2.4	.40	.32	.94	.64	4.1	.71	.40	3.8	.39	.00	.01
15	2.4	.38	.35	.86	.64	5.0	.71	.40	2.9	.35	.00	.01
16	2.3	.35	.35	.86	.64	4.4	.71	.40	2.3	.31	.00	.01
17	2.1	.35	.38	.86	.64	3.3	.72	.38	1.8	.30	.00	.00
18	2.0	.30	.40	.82	.64	2.6	.70	.33	1.6	.29	.00	.00
19	1.9	.31	.40	.78	.64	2.1	.57	.26	1.3	.24	.00	.00
20	1.8	.31	.44	.78	.64	1.8	.51	.26	1.1	.18	.00	.56
21	1.6	.26	.43	.78	.64	1.5	.45	.26	1.1	.15	.00	.17
22	1.5	.26	.40	.78	.64	1.4	.45	.26	1.0	.13	.00	.28
23	1.3	.30	.45	.78	.64	1.2	.43	.26	.97	.11	.01	1.4
24	1.3	.30	.49	.78	.64	1.2	.40	.72	.94	.10	.00	2.2
25	1.2	.30	.53	.78	.63	1.1	.40	.54	.90	.07	.00	2.1
26	1.1	.30	.53	.78	.57	1.1	.43	.50	.86	.06	.00	1.7
27	1.0	.30	.61	.78	.57	1.0	.45	.92	.81	.06	.00	1.5
28	.87	.30	1.3	.78	.57	.86	.45	.79	.71	.04	.00	1.1
29	.86	.30	2.1	.78	---	.87	.45	1.6	1.3	.04	.00	.78
30	.86	.30	3.1	.78	---	.86	.45	2.5	.86	.03	.00	.66
31	.78	---	2.9	.78	---	.86	---	1.8	---	.02	.00	---
TOTAL	79.97	11.70	19.13	29.65	18.25	44.13	19.16	18.37	51.93	12.06	0.07	12.48
MEAN	2.58	.39	.62	.96	.65	1.42	.64	.59	1.73	.39	.002	.42
MAX	6.0	.71	3.1	2.1	.78	5.0	1.0	2.5	4.4	1.1	.02	2.2
MIN	.78	.26	.26	.78	.57	.57	.40	.26	.71	.02	.00	.00
AC-FT	159	23	38	59	36	88	38	36	103	24	.1	25

## NUECES RIVER BASIN

08190500 WEST NUECES RIVER NEAR BRACKETTVILLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1995h, BY WATER YEAR (WY)

MEAN	63.9	4.90	5.13	2.52	22.4	3.74	10.2	12.9	93.7	49.0	47.2	71.3
MAX	1113	76.5	164	68.4	978	60.2	238	266	1880	737	1308	2180
(WY)	1982	1959	1985	1985	1949	1979	1990	1957	1958	1976	1971	1964
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1941	1941	1940	1940	1940	1940	1942	1942	1942	1941	1940	1940

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1940 - 1995h	
ANNUAL TOTAL	7667.57		316.90			
ANNUAL MEAN	21.0		.87		32.6	
HIGHEST ANNUAL MEAN					237	
LOWEST ANNUAL MEAN					.000	
HIGHEST DAILY MEAN	4430		6.0		42500	
LOWEST DAILY MEAN	.13		.00		.00	
ANNUAL SEVEN-DAY MINIMUM	.13		.00		.00	
INSTANTANEOUS PEAK FLOW			6.0		246000	
INSTANTANEOUS PEAK STAGE			1.58		31.30	
ANNUAL RUNOFF (AC-FT)	15210		629		23650	
10 PERCENT EXCEEDS	6.9		2.1		8.0	
50 PERCENT EXCEEDS	.94		.64		.00	
90 PERCENT EXCEEDS	.26		.00		.00	

h See PERIOD OF RECORD paragraph.

LOCATION.--Lat 29°07'25", long 99°53'40", Uvalde County, Hydrologic Unit 12110103, on right bank at McDaniel Ranch, 5.7 mi upstream from bridge on U.S. Highway 83, 8.8 mi southwest of Uvalde, 18.2 mi downstream from West Nueces River, and at mile 338.7.

PERIOD OF RECORD.--April 1939 to current year. October 1927 to April 1939, published as "near Uvalde"; records are equivalent only during periods of flood flow.

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft above sea level. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 6.2 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Part of the flow of the Nueces River enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin downstream from Laguna (station 08190000) and upstream from this station. At low stage, most of headwater flow enters this formation. There are many small diversions above station for irrigation. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft June 14, 1935, from floodmark (discharge at former site, 616,000 ft<sup>3</sup>/s, by slope-area measurement). Large floods also occurred in 1901 and 1913, stages unknown.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 22	1600	1,960	5.76				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	23	26	28	27	28	28	25	23	19	14	14
2	22	24	26	28	27	29	27	25	22	19	13	14
3	22	24	26	28	26	28	28	26	22	19	13	14
4	22	24	26	28	27	28	30	25	22	20	13	14
5	22	26	27	28	27	28	28	25	22	18	13	14
6	22	24	27	27	27	28	27	25	22	22	12	14
7	25	24	27	27	27	30	28	25	22	23	12	14
8	35	24	27	27	27	28	27	29	22	21	12	16
9	25	24	30	27	28	28	28	25	21	19	12	14
10	24	24	27	27	28	28	27	25	21	19	12	14
11	24	24	27	27	27	28	27	25	25	19	12	14
12	24	24	27	27	28	29	27	25	22	19	12	14
13	24	25	27	26	28	34	27	25	21	17	13	14
14	25	28	27	27	28	29	27	24	21	17	12	18
15	27	45	27	27	28	28	28	24	21	17	12	17
16	25	30	26	27	28	28	28	23	21	17	12	16
17	25	28	25	27	28	28	27	23	21	17	12	16
18	25	27	26	26	28	28	27	22	21	17	12	15
19	40	26	26	26	28	28	27	22	20	17	12	15
20	27	26	26	26	28	28	26	22	20	17	12	21
21	25	26	26	26	28	29	25	22	19	16	12	22
22	25	26	27	26	28	29	26	23	19	16	13	625
23	25	27	27	26	28	28	25	23	19	15	14	707
24	24	26	27	26	29	28	26	34	18	14	13	315
25	25	25	27	27	31	28	26	25	19	14	14	169
26	24	25	27	27	29	28	26	24	18	14	14	103
27	24	26	28	26	28	28	26	30	20	14	14	72
28	23	26	36	25	28	28	26	25	24	14	14	57
29	24	26	30	26	---	28	26	27	31	12	14	48
30	24	26	29	26	---	28	25	24	20	12	14	44
31	24	---	29	26	---	28	---	24	---	13	14	---
TOTAL	775	783	846	828	779	882	806	771	639	527	397	2464
MEAN	25.0	26.1	27.3	26.7	27.8	28.5	26.9	24.9	21.3	17.0	12.8	82.1
MAX	40	45	36	28	31	34	30	34	31	23	14	707
MIN	22	23	25	25	26	28	25	22	18	12	12	14
AC-FT	1540	1550	1680	1640	1550	1750	1600	1530	1270	1050	787	4890

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

MEAN	225	82.6	78.6	70.3	98.9	60.5	72.6	101	227	141	156	224
MAX	3153	380	811	656	2487	909	785	972	3496	1525	3654	3081
(WY)	1974	1959	1992	1985	1949	1992	1977	1987	1958	1976	1971	1964
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1953	1953	1952	1952	1952	1952	1952	1953	1953	1951	1951	1951

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1939 - 1995
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ANNUAL TOTAL	18616		10497				
ANNUAL MEAN	51.0		28.8			128	
HIGHEST ANNUAL MEAN						547	1987
LOWEST ANNUAL MEAN						3.63	1956
HIGHEST DAILY MEAN	2460	Jul 15	707	Sep 23	48900		Jun 17 1958
LOWEST DAILY MEAN	18	Mar 9	12	Jul 29		.00	May 10 1951
ANNUAL SEVEN-DAY MINIMUM	20	Feb 23	12	Aug 6		.00	Jun 18 1951
INSTANTANEOUS PEAK FLOW			1960	Sep 22	189000		Sep 24 1955
INSTANTANEOUS PEAK STAGE			5.76	Sep 22		24.61	Sep 24 1955
ANNUAL RUNOFF (AC-FT)	36920		20820			92500	
10 PERCENT EXCEEDS	47		28			189	
50 PERCENT EXCEEDS	26		25			26	
90 PERCENT EXCEEDS	20		14			2.4	



## 08193000 NUECES RIVER NEAR ASHERTON, TX

LOCATION.--Lat 28°30'00", long 99°40'54", Dimmit County, Hydrologic Unit 12110103, on right bank 28 ft downstream from bridge on Farm Road 190, 0.1 mi downstream from El Moro Creek, 5.8 mi northeast of Asherton, and at mile 266.0.

DRAINAGE AREA.--4,082 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft above sea level. Prior to Feb. 2, 1940, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Part of flow of the Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Since March 1948, flow slightly regulated by Upper Nueces Reservoir (capacity, 7,590 acre-ft), 13 mi upstream. Many small diversions above station for irrigation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 33 ft June 17, 1935; flood of June 30, 1913, reached about same stage, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 8	1900	2,120	16.05				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	35	.00	.01	.03	.04	.00	.00	101	.20	.00	.00
2	.00	24	.00	.01	.02	.04	.00	.00	56	.16	.00	.00
3	.00	17	.00	.02	.02	.08	.00	.00	32	.10	.00	.00
4	.00	12	.00	.02	.02	.13	.00	.00	16	.03	.00	.00
5	.00	7.5	.00	.03	.02	.14	.00	.00	7.8	.01	.00	.00
6	.00	4.3	.00	.03	.02	.09	.01	.00	3.7	.99	.00	.00
7	2.1	2.3	.00	.03	.03	.10	1.0	.00	1.6	148	.00	.00
8	103	1.6	.00	.05	.04	.12	1.4	.00	.56	1640	.00	.00
9	181	.91	.00	.05	.07	.12	.54	.00	.17	1600	.00	.00
10	266	.42	.00	.06	.08	.16	.27	.00	.04	703	.00	.00
11	91	.18	.00	.08	.07	.16	.09	.00	.08	318	.00	.00
12	35	.10	.00	.06	.05	.40	.05	.00	.03	164	.00	.00
13	15	.08	.00	.05	.06	.84	.05	.00	.01	89	.00	.00
14	6.7	.10	.00	.03	.15	.12	.05	.00	.00	49	.00	.00
15	8.9	.11	.00	.03	.21	.12	.05	.00	.00	28	.00	.00
16	7.2	.08	.00	.03	.15	.08	.05	.00	.00	17	.00	.00
17	4.2	.07	.00	.03	.09	.03	.05	.00	.00	9.3	.00	.00
18	1.9	.05	.00	.02	.08	.02	.03	.00	.00	4.6	.00	.00
19	.53	.05	.00	.02	.08	.02	.01	.00	.00	2.1	.00	.00
20	.11	.03	.00	.01	.05	.02	.00	.00	.00	.82	.00	.00
21	13	.01	.00	.01	.05	.01	.00	.00	.00	.32	.00	.00
22	902	.00	.00	.00	.04	.01	.00	.00	.00	.10	.00	.00
23	1090	.01	.00	.00	.05	.00	.00	.00	.00	.05	.00	.00
24	509	.01	.00	.00	.05	.00	.00	.00	.00	.02	.00	.00
25	250	.01	.00	.01	.11	.00	.00	.00	.00	.01	.00	.00
26	182	.01	.00	.03	.16	.00	.00	.00	.00	.00	.00	110
27	159	.01	.00	.05	.19	.00	.00	.00	.00	.00	.00	183
28	139	.00	.00	.04	.10	.00	.00	.00	.00	.00	.00	110
29	110	.00	.00	.03	---	.00	.00	9.3	2.9	.00	.00	48
30	74	.00	.00	.02	---	.00	.00	532	.16	.00	.00	19
31	51	---	.00	.02	---	.00	---	356	---	.00	.00	---
TOTAL	4201.64	105.94	0.00	0.88	2.09	2.85	3.65	897.30	222.05	4774.81	0.00	470.00
MEAN	136	3.53	.000	.028	.075	.092	.12	28.9	7.40	154	.000	15.7
MAX	1090	35	.00	.08	.21	.84	1.4	532	101	1640	.00	183
MIN	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
AC-FT	8330	210	.00	1.7	4.1	5.7	7.2	1780	440	9470	.00	932

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1995, BY WATER YEAR (WY)

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
MEAN	353	75.2	46.9	57.3	79.0	70.8	112	240	405	197	197	321	
MAX	3254	635	537	724	1498	1347	1256	1738	4349	1845	5246	3674	
(WY)	1960	1959	1992	1985	1949	1949	1957	1957	1 37	1971	1971	1964	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1941	1941	1942	1940	1942	1942	1943	1956	1945	1944	1943	1952	

SUMMARY STATISTICS

	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1940 - 1995
ANNUAL TOTAL	8042.34	10681.21	
ANNUAL MEAN	22.0	29.3	
HIGHEST ANNUAL MEAN			180
LOWEST ANNUAL MEAN			700
HIGHEST DAILY MEAN	1090	1640	.003
LOWEST DAILY MEAN	.00	.00	1971
ANNUAL SEVEN-DAY MINIMUM	.00	.00	1989
INSTANTANEOUS PEAK FLOW	.00	.00	24800
INSTANTANEOUS PEAK STAGE	.00	.00	.00
ANNUAL RUNOFF (AC-FT)	15950	21190	.00
10 PERCENT EXCEEDS	46	18	.00
50 PERCENT EXCEEDS	.00	.01	.10
90 PERCENT EXCEEDS	.00	.00	.00



NUECES RIVER MAIN STEM

373

08194000 NUECES RIVER AT COTULLA, TX

LOCATION.--Lat 28°25'34", long 99°14'23", La Salle County, Hydrologic Unit 12110105, on left bank at downstream side of bridge on U.S. Highway 81, 0.4 mi upstream from Missouri Pacific Railroad Co. bridge, 0.8 mi southwest of Cotulla, 1.0 mi upstream from Lind Dam, and at mile 216.9.

DRAINAGE AREA.--5,171 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1923 to current year. November 1923 to September 1926 monthly discharge only, published in WSP 1312; figures of daily discharge for Oct. 31, 1923, to Sept. 30, 1926, published in WSP 588, 608, and 628, have been found to be unreliable and should not be used. Gage-height records collected in this vicinity in 1914-17 and since 1922 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1732: 1957(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 368.08 ft above sea level. From Oct. 31, 1923, to Aug. 3, 1924, nonrecording gage at approximate site of present gage at datum 7.28 ft higher. Aug. 4, 1924, to Nov. 19, 1934, nonrecording gage at site 5,000 ft downstream at datum 8.42 ft higher. From Nov. 20, 1934, to July 14, 1938, water-stage recorder, and July 15, 1938, to Apr. 30, 1963, nonrecording gage, at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. Part of the flow of the Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Low flow is slightly regulated by small storage reservoirs above station, with most diverted above station by pumping (see REMARKS for Nueces River near Asherton, station 08193000). Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1899, reached a stage of 29.7 ft, from information by local residents. Maximum stage since at least 1879, that of June 18, 1935.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	72	.00	1.9	.00	.00	.00	.00	296	2.4	.00	.00
2	2.1	48	.00	.76	.00	.00	.00	.00	879	50	.00	.00
3	.52	33	.00	.41	.00	.00	.00	.00	916	104	.00	.00
4	.06	23	.00	.24	.00	.00	471	.00	457	80	.00	.00
5	.00	17	.00	.14	.00	.00	631	.00	253	62	.00	.00
6	.00	13	.00	1.1	.00	.00	49	.00	152	79	.00	.00
7	.00	9.3	.00	4.0	.00	.00	26	.00	98	158	.00	.00
8	337	6.4	.00	5.0	.00	.00	56	.00	66	50	.00	.00
9	72	3.7	.00	5.0	.00	.00	56	.00	50	88	.00	.00
10	9.2	2.2	.00	4.7	.00	.00	42	.00	42	621	.00	.00
11	113	1.3	.00	3.5	.00	.00	31	.00	34	1030	.00	.00
12	247	.88	.00	2.7	.00	.00	22	.00	33	1200	.00	.00
13	133	.59	.00	1.8	.00	.58	18	.00	35	990	.00	.00
14	54	.42	.00	1.3	.00	3.3	13	.00	34	383	.00	.00
15	27	.32	.00	.91	.00	1.8	9.3	.00	28	203	.00	.00
16	17	.30	.00	.77	.00	.70	7.5	.00	25	125	.00	.00
17	12	.19	.00	.72	.00	.35	5.3	.00	27	79	.00	.00
18	8.6	.12	.00	.58	.00	.21	2.9	.00	26	54	.00	.00
19	5.6	.05	.00	.30	.00	.10	1.9	.00	19	41	.00	.00
20	3.5	.01	.00	.20	.00	.03	1.2	.00	13	29	.00	.00
21	2.3	.00	.00	.14	.00	.02	.91	.00	7.8	21	.00	.00
22	1.3	.00	.00	.13	.00	.00	.51	.00	4.1	14	.00	.00
23	1.5	.00	.00	.09	.00	.00	.27	.00	2.8	9.1	.00	.00
24	301	.00	.00	.06	.00	.00	.11	.00	1.9	4.7	.00	.00
25	757	.00	.00	.04	.00	.00	.07	.00	38	2.6	.00	.00
26	823	.00	.00	.04	.00	.00	.01	.00	51	1.3	.00	.00
27	373	.00	.00	.04	.00	.00	.00	.00	7.5	.45	.00	.00
28	226	.00	31	.03	.00	.00	.00	.00	2.6	.12	.00	.00
29	166	.00	44	.01	---	.00	.00	106	2.9	.01	.00	.00
30	138	.00	13	.00	---	.00	.00	58	2.0	.00	.00	.01
31	108	---	5.2	.00	---	.00	---	10	---	.00	.00	---
TOTAL	3942.98	231.78	93.20	36.61	0.00	7.09	1444.98	174.00	3603.6	5481.68	0.00	0.01
MEAN	127	7.73	3.01	1.18	.000	.23	48.2	5.61	120	177	.000	.000
MAX	823	72	44	5.0	.00	3.3	631	106	916	1200	.00	.01
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00	.00	.00
AC-FT	7820	460	185	73	.00	14	2870	345	7150	10870	.00	.02

## NUECES RIVER MAIN STEM

08194000 NUECES RIVER AT COTULLA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1995, BY WATER YEAR (WY)

MEAN	471	99.1	50.0	63.7	54.5	78.6	140	356	625	354	238	545
MAX	3906	1098	414	761	619	2351	1444	2131	10680	3922	6412	6335
(WY)	1960	1977	1970	1985	1992	1949	1957	1929	1935	1971	1971	1932
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1932	1929	1927	1927	1928	1928	1928	1948	1932	1928	1930	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1927 - 1995	
ANNUAL TOTAL	5535.21		15015.93			
ANNUAL MEAN	15.2		41.1			
HIGHEST ANNUAL MEAN					257	
LOWEST ANNUAL MEAN					1430	
HIGHEST DAILY MEAN	823		1200		79000	
LOWEST DAILY MEAN	.00		.00		.00	
ANNUAL SEVEN-DAY MINIMUM	.00		.00		.00	
INSTANTANEOUS PEAK FLOW			1270		82600	
INSTANTANEOUS PEAK STAGE			11.70		32.40	
ANNUAL RUNOFF (AC-FT)	10980		29780		186000	
10 PERCENT EXCEEDS	22		72		360	
50 PERCENT EXCEEDS	.00		.00		.51	
90 PERCENT EXCEEDS	.00		.00		.00	

NUECES RIVER BASIN

375

08194200 SAN CASIMIRO CREEK NEAR FREER, TX

LOCATION.--Lat 27°57'53", long 98°58'00", Webb County, Hydrologic Unit 12110105, at downstream side of bridge on State Highway 44, 11.4 mi upstream from mouth, and 22 mi northwest of Freer.

DRAINAGE AREA.--469 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 298 ft above sea level, from Texas Department of Transportation datum.

REMARKS.--Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1946, that of Oct. 17, 1971. The next highest stage, 26 ft (discharge 65,200 ft<sup>3</sup>/s), occurred in 1954, from information by Texas Department of Transportation.

PEAK DISCHARGES.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 23	0300	1,570	17.56				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	1.7	.00	.00	.00	.00	11	57	.00	1.4
2	.00	.00	.00	.47	.00	.00	.00	.00	3.2	28	.01	3.2
3	.00	.00	.00	.16	.00	.00	.00	.00	.93	9.1	.04	31
4	.00	.00	.00	.08	.00	.00	.00	.00	.22	2.8	.00	7.6
5	.00	.00	.00	.04	.00	.00	.00	.00	.05	1.3	.00	1.3
6	.00	.00	.00	.02	.00	.00	.00	.00	.03	e.50	.00	.39
7	.00	.00	.00	.00	.00	.00	.00	.00	.01	e.20	.00	.06
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.08	.00	.05
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	.00	.02
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	32	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	166	11	.01	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	201	4.4	.06	.00
13	.00	.00	.00	.00	.00	30	.00	.00	38	2.1	.01	.47
14	.00	.00	.00	.00	.00	18	.00	.00	42	e1.0	.00	1.0
15	.00	.00	.00	.00	.00	9.2	.00	.00	20	e.30	.00	.07
16	.00	.00	.00	.00	.00	1.4	.00	.00	5.4	e.10	.00	.03
17	.00	.00	.00	.00	.00	.56	.00	.00	2.8	e.20	.00	.00
18	.00	.00	.00	.00	.00	.13	.00	.00	e1.2	24	.00	.00
19	.00	.00	.00	.00	.00	.04	.00	.00	e.50	2.4	.00	.00
20	.00	.00	.00	.00	.00	.01	.00	.00	e.20	e.60	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	e.08	e.08	.01	173
22	.00	.00	.00	.00	.00	.00	.00	.00	e.04	e.00	.04	698
23	.00	.00	.00	.00	.00	.00	.00	.00	e.02	e.00	.04	1360
24	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	2.6	1130
25	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.55	698
26	.25	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.04	147
27	15	.00	.01	.00	.00	.00	.00	.00	e.00	.00	.00	27
28	1.9	.00	118	.00	.00	.00	.00	.00	e.00	.00	.00	12
29	.36	.00	42	.00	---	.00	.00	6.0	24	.00	.00	3.6
30	.06	.00	4.6	.00	---	.00	.00	204	181	.00	.00	2.1
31	.00	---	2.5	.00	---	.00	---	36	---	.00	.02	---
TOTAL	17.57	0.00	167.11	2.47	0.00	59.34	0.00	246.00	697.68	188.16	3.43	4297.29
MEAN	.57	.000	5.39	.080	.000	1.91	.000	7.94	23.3	6.07	.11	143
MAX	15	.00	118	1.7	.00	30	.00	204	201	57	2.6	1360
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	35	.00	331	4.9	.00	118	.00	488	1380	373	6.8	8520

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MEAN	138	17.6	9.09	2.31	2.50	8.63	20.0	129	85.7	17.4	24.7	148																						
MAX	3021	288	247	40.2	19.5	145	297	747	606	365	377	2367																						
(WY)	1972	1986	1977	1977	1973	1985	1985	1981	1981	1976	1980	1967																						
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000																						
(WY)	1964	1965	1965	1962	1962	1962	1965	1962	1965	1965	1963	1965																						

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1962 - 1995

ANNUAL TOTAL	2172.07	5679.05	51.4
ANNUAL MEAN	5.95	15.6	323
HIGHEST ANNUAL MEAN			2.44
LOWEST ANNUAL MEAN			36600
HIGHEST DAILY MEAN	381	1360	36600
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1570	82000
INSTANTANEOUS PEAK STAGE		17.56	26.87
ANNUAL RUNOFF (AC-FT)	4310	11260	37240
10 PERCENT EXCEEDS	4.1	4.5	17
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

## NUECES RIVER MAIN STEM

08194500 NUECES RIVER NEAR TILDEN, TX

LOCATION.--Lat 28°18'31", long 98°33'25", McMullen County, Hydrologic Unit 12110105, on right bank at downstream side of bridge on State Highway 16, 1.8 mi upstream from Kings Branch, 10.5 mi south of Tilden, and at mile 135.4.

DRAINAGE AREA.--8,093 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1942 to current year.

REVISED RECORDS.--WSP 1512: 1947. WSP 1732: 1951(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.5 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Part of flow of Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Some diversions for irrigation above station. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1935 reached a stage of 23.7 ft and in July 1942 about 22 ft, from information by local residents. Maximum stage since about 1902, that of Sept. 24, 1967. Flood of Oct. 11, 1946, reached a stage of 26.46 ft (discharge, 70,000 ft<sup>3</sup>/s).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
No peak greater than base discharge.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	284	.01	257	.27	2.6	.01	e.33	212	83	.00	16
2	.00	161	.01	197	.25	5.2	.00	e.22	117	199	.00	6.4
3	.00	117	.01	107	.24	3.1	.00	e.14	31	159	.00	2.3
4	.00	95	.01	61	.20	1.9	.01	e.09	29	95	.00	35
5	.00	76	.01	35	.14	1.2	.01	e.05	393	49	.00	32
6	.00	54	.01	20	.09	.89	.01	e.04	576	22	.00	35
7	.00	40	.00	12	.07	.99	251	e.02	550	52	.00	15
8	17	29	.00	8.7	.04	7.9	618	e.01	280	53	.00	7.2
9	19	19	.00	6.1	.02	6.5	470	e.00	143	182	.00	4.5
10	161	13	.00	4.6	.02	4.6	129	e.00	91	285	.00	2.9
11	594	9.5	.00	3.4	.02	2.1	70	e.00	63	104	.01	1.9
12	736	7.0	.00	2.6	.00	1.2	67	e.00	45	77	.01	.96
13	553	5.1	.00	1.9	.01	11	62	e.00	170	340	.01	.75
14	136	3.8	.00	1.3	.03	47	49	e.00	244	533	.01	.73
15	181	2.7	.00	.96	.04	56	40	e.00	97	631	.01	.58
16	149	2.0	.00	.75	.05	50	32	e.00	59	696	.01	.47
17	94	1.3	.00	.58	.05	57	24	e.00	43	677	.00	15
18	61	1.0	.00	.47	.03	30	18	e.00	25	307	.00	52
19	40	.74	.00	.33	.03	11	14	e.00	19	127	.00	32
20	26	.51	.00	1.3	.02	5.1	11	e.00	17	90	.00	9.9
21	17	.33	.00	1.4	.01	2.9	8.6	e.00	9.1	54	.01	3.7
22	11	.21	.00	1.2	.00	1.6	6.6	e.00	7.5	33	.03	14
23	7.1	.10	.00	.92	.00	1.0	4.5	e.00	7.3	20	.03	117
24	4.7	.05	.00	.74	.00	.66	3.7	e.00	5.8	10	.05	473
25	20	.05	.00	.64	.01	.43	3.0	e.00	3.6	5.3	.03	648
26	121	.03	.00	.62	.44	.26	2.4	e.00	2.6	3.3	.03	754
27	225	.04	.16	.64	24	.16	2.0	e.00	1.5	2.8	.01	844
28	666	.05	.67	.82	6.7	.07	1.6	e.00	.77	1.6	.01	943
29	683	.04	199	.74	---	.04	1.2	e.00	1.4	.68	.01	1060
30	722	.02	292	.53	---	.02	e.51	2.6	22	.18	.01	542
31	638	---	273	.35	---	.02	---	13	---	.00	.03	---
TOTAL	5881.80	922.57	831.22	730.59	76.34	312.44	1889.15	16.50	3265.57	4891.86	0.31	5669.29
MEAN	190	30.8	26.8	23.6	2.73	10.1	63.0	.53	109	158	.010	189
MAX	736	284	292	257	44	57	618	13	576	696	.05	1060
MIN	.00	.02	.00	.33	.00	.02	.00	.00	.77	.00	.00	.47
AC-FT	11670	1830	1650	1450	151	620	3750	33	6480	9700	.6	11250

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, BY WATER YEAR (WY)

	MEAN	965	246	84.2	109	143	113	184	595	735	396	321	767
MAX	11250	3509	1275	1912	4793	2104	2028	4122	5404	6291	7197	10150	
(WY)	1972	1977	1977	1958	1958	1949	1949	1957	1987	1971	1971	1967	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.003	.000	.000	.000	
(WY)	1953	1953	1951	1951	1964	1954	1955	1971	1984	1953	1951	1952	

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1943 - 1995
ANNUAL TOTAL	14207.59	24487.64	
ANNUAL MEAN	38.9	67.1	
HIGHEST ANNUAL MEAN			1736
LOWEST ANNUAL MEAN			14.0
HIGHEST DAILY MEAN	1120	1060	70000
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1100	76500
INSTANTANEOUS PEAK STAGE		11.51	26.57
ANNUAL RUNOFF (AC-FT)	28180	48570	283800
10 PERCENT EXCEEDS	92	199	737
50 PERCENT EXCEEDS	.01	1.5	5.0
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

LOCATION.--Lat 29°29'18", long 99°42'16", Uvalde County, Hydrologic Unit 12110106, on left bank 0.7 mi southeast of Concan Post Office, 15 mi upstream from Dry Frio River, and 222.8 mi upstream from mouth.

PERIOD OF RECORD.--October 1923 to September 1929, October 1930 to current year.

Water-quality records.--Chemical analyses: June 1952, December 1964 to July 1965. Chemical, biochemical, and pesticide analyses: August 1968 to September 1993. Pesticide analyses: August 1968 to September 1993.

GAGE.--Water-stage recorder. Datum of gage is 1,203.71 ft above sea level. Oct. 26, 1923, to July 28, 1924, nonrecording gage at site 86 ft upstream at datum 5.08 ft lower. July 29, 1924, to Oct. 3, 1930, nonrecording gage, and Oct. 4, 1930, to May 18, 1939, water-stage recorder, at site 130 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Many small diversions for irrigation above station. Rain gage at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 21	1630	21,100	13.71				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	65	86	150	95	75	101	79	172	161	55	58
2	52	65	86	141	95	77	98	77	148	136	54	51
3	52	67	89	137	92	77	98	77	134	127	55	49
4	52	67	86	129	92	77	115	77	125	133	53	49
5	50	72	86	129	92	77	122	76	118	122	53	47
6	48	72	86	126	89	75	117	77	113	116	52	46
7	50	70	86	122	89	95	113	73	111	110	51	46
8	89	67	86	122	89	85	111	89	110	107	50	48
9	56	67	95	122	86	83	111	80	104	102	49	47
10	52	65	89	122	86	83	110	74	100	98	48	46
11	50	65	86	118	86	83	107	72	137	97	47	46
12	48	67	83	118	86	86	104	73	119	95	49	45
13	48	67	83	118	86	176	102	73	113	92	55	44
14	50	67	86	122	86	167	101	78	107	89	50	46
15	58	120	83	122	86	153	102	72	102	85	49	49
16	56	105	83	118	83	140	102	69	98	85	48	50
17	53	98	80	115	80	132	101	67	96	82	47	49
18	67	98	80	108	80	126	104	64	94	79	47	45
19	60	98	80	108	80	122	99	60	92	77	46	43
20	58	95	77	108	80	118	93	59	91	74	48	190
21	58	92	77	108	80	117	89	57	90	72	47	4390
22	58	92	72	108	80	111	88	58	83	70	47	2060
23	60	95	72	105	80	109	86	59	82	69	49	620
24	60	95	75	105	83	108	85	89	81	64	50	407
25	80	95	72	102	80	108	84	72	81	63	58	324
26	78	92	72	105	80	107	83	65	80	61	59	277
27	75	92	75	102	80	105	83	92	79	60	51	244
28	70	89	133	98	77	103	83	97	82	58	50	223
29	70	89	166	95	---	102	83	90	149	56	51	211
30	67	86	187	95	---	102	80	119	234	56	47	195
31	67	---	167	95	---	102	---	242	---	57	54	---
TOTAL	1845	2474	2864	3573	2378	3281	2955	2506	3325	2753	1569	10045
MEAN	59.5	82.5	92.4	115	84.9	106	98.5	80.8	111	88.8	50.6	335
MAX	89	120	187	150	95	176	122	242	234	161	59	4390
MIN	48	65	72	95	77	75	80	57	79	56	46	43
AC-FT	3660	4910	5680	7090	4720	6510	5860	4970	6600	5460	3110	19920
CFSM	.15	.21	.24	.30	.22	.27	.25	.21	.28	.23	.13	.86
IN.	.18	.24	.27	.34	.23	.31	.28	.24	.32	.26	.15	.96

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1995h, BY WATER YEAR (WY)

MEAN	141	99.1	100	90.1	97.1	96.7	105	138	178	169	100	141
MAX	648	391	767	525	613	762	859	1041	2468	2823	1050	1333
(WY)	1970	1959	1992	1992	1992	1992	1981	1935	1935	1932	1971	1936
MIN	.000	.000	.000	3.01	8.25	11.8	8.52	6.48	1.08	1.25	.019	.000
(WY)	1957	1957	1957	1957	1957	1956	1956	1956	1956	1953	1956	1956

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1924 - 1995h
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ANNUAL TOTAL	41621		39568				
ANNUAL MEAN	114		108			121	
HIGHEST ANNUAL MEAN						434	1992
LOWEST ANNUAL MEAN						8.80	1956
HIGHEST DAILY MEAN	2680	May 14	4390	Sep 21		52000	Jul 1 1932
LOWEST DAILY MEAN	48	Jan 3	43	Sep 19		.00	Aug 5 1956
ANNUAL SEVEN-DAY MINIMUM	48	Jan 2	46	Sep 7		.00	Aug 5 1956
INSTANTANEOUS PEAK FLOW			21100	Sep 21		162000	Jul 1 1932
INSTANTANEOUS PEAK STAGE			13.71	Sep 21		d34.44	Jul 1 1932
ANNUAL RUNOFF (AC-FT)	82560		78480			87960	
ANNUAL RUNOFF (CFSM)	.29		.28			.31	
ANNUAL RUNOFF (INCHES)	3.98		3.78			4.24	
10 PERCENT EXCEEDS	162		126			196	
50 PERCENT EXCEEDS	83		84			67	
90 PERCENT EXCEEDS	53		50			18	

d Maximum stage since at least 1869.  
h See PERIOD OF RECORD paragraph.



## NUECES RIVER BASIN

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX

LOCATION.--Lat 29°30'16", long 99°46'52", Uvalde County, Hydrologic Unit 12110106, on right bank 2.3 mi upstream from bridge on U.S. Highway 83, 3.1 mi upstream from Rocky Creek, 4.3 mi southeast of Reagan Wells, and 25.9 mi upstream from mouth.

DRAINAGE AREA.--126 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1952 to current year.

Water-quality records.--Chemical and biochemical analyses: January 1966 to September 1993. Pesticide analyses: January 1974 to September 1993. Sediment analyses: January 1966.

REVISED RECORDS.--WSP 1712: 1953. WSP 1923: 1955(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,335.2 ft above sea level, from Texas Department of Transportation datum.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions above station. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875 occurred in 1880 (about 33 ft). Flood of June 14, 1935, reached a stage of 26.0 ft (discharge, 64,700 ft<sup>3</sup>/s, determined at site 2.6 mi upstream), and flood of July 1, 1932, reached a stage of 23 ft (discharge, 30,700 ft<sup>3</sup>/s, determined at site 2.0 mi upstream), from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 31	0600	232	3.01	Sept. 21	1630	18,100	a17.81
Sept. 20	1145	939	4.62				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	18	25	64	18	11	17	12	82	25	5.5	8.1
2	8.7	18	25	58	18	10	16	11	55	21	5.2	6.1
3	8.5	18	25	52	17	10	16	11	44	20	5.1	5.1
4	8.2	17	24	48	17	10	25	12	38	29	4.8	4.8
5	8.0	18	22	45	15	10	32	11	35	23	4.7	4.6
6	7.6	18	22	44	15	11	27	12	33	22	4.3	4.4
7	7.9	18	22	41	15	16	25	11	31	25	4.0	4.4
8	11	17	22	39	15	12	22	15	30	26	3.9	4.4
9	15	17	34	37	14	11	20	13	27	22	3.7	4.3
10	12	16	31	36	14	10	19	11	24	19	3.7	4.0
11	11	16	26	35	14	10	18	11	39	17	3.5	3.7
12	10	16	24	34	14	11	17	11	34	16	3.6	3.4
13	10	16	23	33	14	41	17	11	31	14	4.3	3.3
14	10	17	22	31	14	48	16	11	28	13	4.4	4.6
15	14	79	22	29	14	37	16	10	25	13	4.4	5.5
16	14	61	20	28	14	32	16	9.1	23	12	4.0	4.9
17	13	51	20	27	13	29	16	8.9	22	11	3.7	4.4
18	17	45	19	26	13	26	17	8.4	20	11	3.4	4.0
19	19	42	19	25	13	25	17	7.6	20	10	3.4	3.5
20	16	40	18	24	12	23	15	7.1	19	9.1	3.5	302
21	15	36	17	24	12	22	14	6.6	17	8.6	3.4	1780
22	15	34	16	23	12	21	14	6.4	17	8.0	3.4	803
23	14	33	16	22	12	20	13	7.2	16	7.6	3.5	304
24	13	33	16	21	12	19	13	18	14	7.2	3.3	215
25	25	31	15	21	11	20	12	16	14	6.8	3.2	169
26	35	30	14	21	11	20	12	12	13	6.7	3.2	143
27	28	30	16	21	11	19	12	18	13	6.3	3.2	122
28	25	28	74	20	11	18	12	21	12	5.9	3.1	111
29	22	27	126	19	---	18	12	22	29	5.5	2.9	101
30	20	25	92	19	---	18	12	33	31	5.3	2.7	93
31	19	---	74	19	---	17	---	136	---	5.6	4.9	---
TOTAL	460.4	865	941	986	385	605	510	510.3	836	431.6	119.9	4230.5
MEAN	14.9	28.8	30.4	31.8	13.7	19.5	17.0	16.5	27.9	13.9	3.87	141
MAX	35	79	126	64	18	48	32	136	82	29	5.5	1780
MIN	7.6	16	14	19	11	10	12	6.4	12	5.3	2.7	3.3
AC-FT	913	1720	1870	1960	764	1200	1010	1010	1660	856	238	8390
CFSM	.12	.23	.24	.25	.11	.15	.13	.13	.22	.11	.03	1.12
IN.	.14	.26	.28	.29	.11	.18	.15	.15	.25	.13	.04	1.25



NUECES RIVER BASIN

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08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

MEAN	51.5	29.2	28.0	22.6	24.6	28.2	27.7	41.1	59.6	38.4	34.7	38.5
MAX	258	134	185	120	131	208	257	338	483	277	365	277
(WY)	1970	1968	1992	1992	1992	1992	1981	1987	1987	1976	1966	1958
MIN	.000	.000	.055	.51	.87	2.24	1.50	.86	.19	.077	.000	.000
(WY)	1957	1957	1957	1957	1957	1954	1956	1956	1953	1953	1956	1956

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1952 - 1995

ANNUAL TOTAL	12091.9	10880.7	35.5
ANNUAL MEAN	33.1	29.8	121
HIGHEST ANNUAL MEAN			2.99
LOWEST ANNUAL MEAN			8100
HIGHEST DAILY MEAN	520 Mar 16	1780 Sep 21	Aug 13 1966
LOWEST DAILY MEAN	4.8 Jan 4	2.7 Aug 30	Jul 10 1953
ANNUAL SEVEN-DAY MINIMUM	4.8 Jan 4	3.1 Aug 24	Jul 30 1953
INSTANTANEOUS PEAK FLOW		18100 Sep 21	Aug 13 1966
INSTANTANEOUS PEAK STAGE		a17.81 Sep 21	Aug 13 1966
ANNUAL RUNOFF (AC-FT)	23980	21580	25690
ANNUAL RUNOFF (CFSM)	.26	.24	.28
ANNUAL RUNOFF (INCHES)	3.57	3.21	3.82
10 PERCENT EXCEEDS	60	38	64
50 PERCENT EXCEEDS	19	16	14
90 PERCENT EXCEEDS	8.2	4.5	2.3

a From floodmark.

## NUECES RIVER BASIN

## 08197500 FRIO RIVER BELOW DRY FRIO RIVER NEAR UVALDE, TX

LOCATION.--Lat 29°14'44", long 99°40'27", Uvalde County, Hydrologic Unit 12110106, on right bank 1.1 mi upstream from Farm Road 1023, 5.7 mi downstream from Dry Frio River, 6.3 mi downstream from bridge on U.S. Highway 90, 7.2 mi northeast of Uvalde, and 194.5 mi upstream from mouth.

DRAINAGE AREA.--631 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1952 to current year. Sum of records published as Frio River at Knippa and Dry Frio River at Knippa for period September 1952 to September 1953 is equivalent to record for this station.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.47 ft above sea level.

REMARKS.--Records good. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses the basin between Concan (station 08195000) and this station. Most of the low flow enters this formation. Many diversions for irrigation above station. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft in 1894. Flood of July 1, 1932, reached a stage of about 30 ft. A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 22	0100	16,800	12.69				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	191
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5720
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	520
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	150
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	64
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	19
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.9
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6667.20
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	222
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5720
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	13220

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1995, BY WATER YEAR (WY)

	MEAN	61.0	4.10	31.1	11.6	7.42	12.4	27.7	41.5	94.4	37.0	47.8	51.5
MAX	717	81.3	710	241	300	455	702	865	1461	597	897	699	
(WY)	1970	1959	1985	1992	1992	1992	1981	1987	1987	1973	1971	1958	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1954	1954	1954	1954	1954	1954	1954	1955	1954	1954	1954	1954	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1954 - 1995

ANNUAL TOTAL	1365.74	6667.20	
ANNUAL MEAN	3.74	18.3	
HIGHEST ANNUAL MEAN			35.7
LOWEST ANNUAL MEAN			221
HIGHEST DAILY MEAN	434	Mar 16	24100
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			99600
INSTANTANEOUS PEAK STAGE			25.05
ANNUAL RUNOFF (AC-FT)	2710	13220	25880
10 PERCENT EXCEEDS	.00	.00	.15
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

LOCATION.--Lat 29°29'27", long 99°29'33", Uvalde County, Hydrologic Unit 12110106, on right bank 108 ft upstream from concrete dam, 2.3 mi downstream from mouth of Onion Creek, 12.5 mi north of Sabinal, and 41.6 mi upstream from mouth.

PERIOD OF RECORD.--October 1942 to current year.

Water-quality records.--Chemical analyses: November 1964 to July 1965. Chemical and biochemical analyses: February 1970 to September 1993. Pesticide analyses: August 1971 to September 1993. Sediment analyses: November 1965

GAGE.--Water-stage recorder. Datum of gage is 1,131.20 ft above sea level. Prior to Apr. 9, 1971, at site 0.3 mi downstream at same datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft July 2, 1932, from information by local residents. A flood in the middle 1800's reached a stage of nearly 63 ft; see flood history for station 08198500.

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 21	2100	1.600	7.14				

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	20	33	73	47	34	44	32	83	46	18	14
2	10	20	34	71	45	34	43	30	67	43	18	14
3	10	19	35	69	42	34	42	31	59	42	34	12
4	10	20	34	67	40	34	57	32	54	45	35	11
5	10	30	34	65	40	34	61	30	52	45	24	10
6	9.6	33	34	66	40	34	60	35	50	42	20	9.9
7	9.6	33	33	64	39	39	54	29	50	40	19	9.7
8	13	26	34	63	37	32	49	42	49	39	18	9.2
9	21	26	42	63	38	32	45	38	46	36	17	9.1
10	18	26	41	63	39	32	45	35	44	34	17	8.5
11	17	26	38	62	38	32	44	32	71	33	17	8.3
12	17	26	37	62	35	34	43	32	88	32	17	7.5
13	17	26	35	61	36	247	42	32	71	31	22	7.0
14	17	26	35	62	38	108	41	29	64	29	19	8.1
15	17	36	35	61	39	74	41	27	60	29	19	9.5
16	17	68	35	60	37	65	42	26	56	27	18	11
17	17	57	35	59	35	58	41	25	54	27	16	11
18	23	49	35	57	34	56	44	25	53	26	15	10
19	37	43	34	54	33	52	43	24	53	25	14	9.5
20	22	40	35	54	34	50	39	22	52	23	15	59
21	17	36	34	57	34	49	38	22	50	23	16	298
22	17	35	34	54	34	48	37	21	47	25	14	549
23	17	35	34	50	34	47	35	22	44	24	13	159
24	17	35	34	50	34	46	35	38	43	23	12	102
25	16	35	34	50	34	46	35	42	42	22	12	81
26	23	35	34	50	34	46	35	34	42	21	13	71
27	30	34	35	50	34	46	34	57	47	21	12	66
28	26	35	110	49	35	44	34	62	48	20	13	61
29	26	34	143	48	---	44	34	46	49	19	13	58
30	25	34	95	47	---	44	33	46	52	18	12	55
31	24	---	83	47	---	44	---	135	---	18	12	---
TOTAL	560.2	998	1378	1808	1039	1619	1270	1133	1640	928	534	1748.3
MEAN	18.1	33.3	44.5	58.3	37.1	52.2	42.3	36.5	54.7	29.9	17.2	58.3
MAX	37	68	143	73	47	247	61	135	88	46	35	549
MIN	9.6	19	33	47	33	32	33	21	42	18	12	7.0
AC-FT	1110	1980	2730	3590	2060	3210	2520	2250	3250	1840	1060	3470
CFSM	.09	.16	.22	.28	.18	.25	.21	.18	.27	.15	.08	.28
IN.	.10	.18	.25	.33	.19	.29	.23	.20	.30	.17	.10	.33

MEAN	66.1	49.2	50.3	47.2	54.0	58.8	56.5	70.3	118	79.4	55.2	51.4
MAX	318	321	612	408	584	624	392	389	1527	1035	669	306
(WY)	1972	1959	1992	1992	1992	1992	1992	1987	1987	1973	1971	1980
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1952	1952	1952	1952	1952	1952	1954	1953	1953	1953	1948	1951

ANNUAL TOTAL	11878.2		14655.5				
ANNUAL MEAN	32.5		40.2			63.1	
HIGHEST ANNUAL MEAN						340	1992
LOWEST ANNUAL MEAN						.82	1955
HIGHEST DAILY MEAN	276	May 14	549	Sep 22	13000		Jun 17 1958
LOWEST DAILY MEAN	9.6	Oct 6	7.0	Sep 13	.00		Aug 10 1946
ANNUAL SEVEN-DAY MINIMUM	9.9	Oct 1	8.2	Sep 8	.00		Aug 10 1946
INSTANTANEOUS PEAK FLOW			1600	Sep 21	55200		Jun 17 1958
INSTANTANEOUS PEAK STAGE			7.14	Sep 21	28.30		Jun 17 1958
ANNUAL RUNOFF (AC-FT)	23560		29070		45690		
ANNUAL RUNOFF (CFSM)	.16		.19		.31		
ANNUAL RUNOFF (INCHES)	2.14		2.65		4.16		
10 PERCENT EXCEEDS	50		62		122		
50 PERCENT EXCEEDS	27		35		26		
90 PERCENT EXCEEDS	13		14		.00		

## NUECES RIVER BASIN

08198500 SABINAL RIVER AT SABINAL, TX

LOCATION.--Lat 29°18'05", long 99°28'46", Uvalde County, Hydrologic Unit 12110106, on left bank 80 ft downstream from bridge on U.S. Highway 90, 1,100 ft downstream from Southern Pacific Lines railroad bridge, 0.8 mi west of Sabinal, 5.8 mi upstream from Rancho Creek, and 223 mi upstream from mouth.

DRAINAGE AREA.--241 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1952 to current year.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.17 ft above sea level. Prior to July 29, 1958, nonrecording gage, and July 29, 1958, to Mar. 19, 1964, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--Records fair. Several small diversions for irrigation above station. Most of low flow of the Sabinal River enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin upstream from this station and downstream from Sabinal River near Sabinal (station 08198000). Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 40 ft Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft (discharge, 60,000 ft<sup>3</sup>/s), from information by Southern Pacific Lines. Information indicates that a flood in 1858 covered the townsite of Sabinal. The stage would have been 70 to 80 ft, which seems unlikely. However, it is possible that a flood occurred in 1858 that covered part of the townsite and was higher than any flood since that date.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 23	0730	548	6.99				

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.85	1.1	1.7	e1.4	e.95	1.3	.85	1.2	.88	.46	.50
2	.40	.94	1.0	e1.6	e1.4	e.95	1.2	.85	1.0	.78	.46	.47
3	.39	1.0	1.1	e1.6	e1.4	e.95	1.4	.85	.93	.80	.46	.35
4	.34	1.0	1.1	e1.5	e1.3	e.94	1.7	.85	.93	1.1	.45	.34
5	.35	1.3	1.1	e1.5	e1.3	.93	1.7	.85	.93	.71	.38	.30
6	.35	1.1	1.1	e1.6	e1.2	.94	1.6	.85	.93	.81	.37	.30
7	1.9	1.1	1.2	e1.5	e1.2	1.8	1.4	.85	.93	.95	.42	.29
8	3.5	1.1	1.2	e1.5	e1.2	.70	1.4	1.5	.93	.85	.46	.28
9	.29	1.1	1.6	e1.5	e1.2	.71	1.3	.85	.91	.85	.46	.30
10	.23	1.1	1.1	e1.5	e1.2	.71	1.3	.81	.85	.85	.46	.29
11	.20	1.1	.93	e1.6	e1.2	.71	1.5	.78	1.5	.82	.46	.30
12	.20	1.1	.86	e1.6	e1.1	1.2	1.3	.78	1.0	.71	.54	.28
13	.20	1.1	.85	e1.6	e1.2	3.5	1.3	.78	.74	.78	.79	.25
14	.26	.78	.85	e1.6	e1.2	1.1	1.4	.78	.71	.78	.72	.52
15	.46	.85	.86	e1.6	e1.2	1.0	1.2	.78	.71	.78	.55	.44
16	.46	.85	1.0	e1.6	e1.2	1.0	1.2	.72	.71	.76	.35	.44
17	.44	.85	1.0	e1.5	e1.2	1.1	1.1	.65	.70	.65	.24	.39
18	.53	.85	1.0	e1.5	e1.2	1.2	1.5	.63	.65	.65	.20	.40
19	.90	.85	1.0	e1.4	e1.0	1.5	1.4	.52	.65	.65	.18	.39
20	.50	.89	1.0	e1.4	e1.1	1.1	1.2	.52	.65	.68	.19	1.6
21	.49	1.4	1.0	e1.6	e1.1	1.2	1.1	.57	.65	.71	.24	.76
22	.49	1.0	1.0	e1.5	e1.1	1.2	1.2	.58	.71	.69	.38	.75
23	.51	1.1	1.0	e1.5	e1.0	1.2	1.2	.58	.71	.61	.60	.87
24	.46	1.1	1.0	e1.5	e.99	1.3	1.2	2.0	.71	.54	.68	13
25	7.4	1.1	1.0	e1.5	e.98	1.4	1.1	.86	.71	.52	.68	4.7
26	1.1	1.1	1.0	e1.5	e.95	1.4	.98	.70	.67	.52	.76	3.8
27	.85	1.1	1.1	e1.5	e.94	1.3	1.0	2.2	.58	.52	.82	3.7
28	.85	1.2	2.2	e1.4	e1.0	1.2	1.0	.94	.62	.49	.46	3.5
29	.85	1.1	1.8	e1.4	---	1.3	.95	.91	10	.35	.49	3.4
30	.85	1.1	1.8	e1.4	---	1.3	.95	2.1	1.1	.42	.51	3.2
31	.85	---	1.7	e1.4	---	1.3	---	1.4	---	.46	.46	---
TOTAL	27.00	31.11	35.55	47.1	32.46	37.09	38.08	28.89	34.02	21.67	14.68	206.49
MEAN	.87	1.04	1.15	1.52	1.16	1.20	1.27	.93	1.13	.70	.47	6.88
MAX	7.4	1.4	2.2	1.7	1.4	3.5	1.7	2.2	10	1.1	.82	.87
MIN	.20	.78	.85	1.4	.94	.70	.95	.52	.58	.35	.18	.25
AC-FT	54	62	71	93	64	74	76	57	67	43	29	410

NUECES RIVER BASIN

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08198500 SABINAL RIVER AT SABINAL, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY)

MEAN	36.6	15.6	21.0	16.7	22.9	26.8	27.9	37.0	107	61.3	34.3	23.8
MAX	261	219	498	292	510	535	349	427	1493	1066	709	210
(WY)	1970	1959	1992	1992	1992	1992	1992	1987	1987	1973	1971	1958
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1953	1953	1953	1953	1953	1956	1956	1953	1953	1953	1962	1962

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1953 - 1995

ANNUAL TOTAL	391.08	554.14	36.0
ANNUAL MEAN	1.07	1.52	265
HIGHEST ANNUAL MEAN			.070
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	7.4 Oct 25	87 Sep 23	17100 Jun 17 1958
LOWEST DAILY MEAN	.20 Sep 26	.18 Aug 19	.00 Oct 1 1952
ANNUAL SEVEN-DAY MINIMUM	.25 Jan 6	.25 Aug 16	.00 Oct 1 1952
INSTANTANEOUS PEAK FLOW		548 Sep 23	73300 Jun 17 1958
INSTANTANEOUS PEAK STAGE		6.99 Sep 23	33.30 Jun 17 1958
ANNUAL RUNOFF (AC-FT)	776	1100	26040
10 PERCENT EXCEEDS	1.7	1.6	47
50 PERCENT EXCEEDS	1.0	.95	1.5
90 PERCENT EXCEEDS	.40	.41	.10

e Estimated

## NUECES RIVER BASIN

08200000 HONDO CREEK NEAR TARPLEY, TX

LOCATION.--Lat 29°34'10", long 99°14'47", Medina County, Hydrologic Unit 12110107, on left bank 460 ft downstream from bridge on Ranch Road 462, 6.3 mi southeast of Tarpley, and 16.6 mi northwest of Hondo.

DRAINAGE AREA.--95.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1952 to current year.

Water-quality records.--Chemical analyses: November 1965 to September 1969. Chemical and biochemical analyses: February 1970 to September 1993. Pesticide analyses: August 1971 to September 1993. Sediment analyses: November to December 1965.

REVISED RECORDS.--WSP 1712: 1957. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,169.1 ft, from Magnolia Oil Co. datum.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions for irrigation above station. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1932 reached a stage of about 26 ft (discharge, 58,500 ft<sup>3</sup>/s), from information by local resident. Maximum stage since at least 1907, that of June 17, 1958.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	2100	573	3.32	Sept. 20	0715	1,290	4.36
June 11	0330	895	3.84	Sept. 21	1545	3,490	6.25

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	6.3	8.4	42	18	10	13	12	36	28	10	4.3
2	.28	6.4	8.5	40	18	11	12	12	32	27	9.9	3.1
3	.10	6.6	8.4	39	17	10	12	12	30	27	9.5	2.4
4	.07	6.5	8.0	37	16	10	41	12	28	32	8.9	2.0
5	.07	26	7.7	36	16	9.9	24	11	27	27	8.4	1.3
6	.06	11	8.2	35	16	9.9	17	14	25	26	7.8	.90
7	.14	10	8.0	33	16	11	16	13	26	25	7.5	.76
8	14	9.6	8.4	32	15	10	16	22	25	24	6.8	3.1
9	3.8	9.6	9.0	31	15	10	15	14	24	23	6.3	1.3
10	2.8	8.9	8.3	30	15	10	16	13	23	22	3.9	1.0
11	2.6	8.6	7.8	30	17	9.9	15	12	162	21	5.6	.60
12	2.7	8.4	7.6	30	16	10	14	13	39	20	5.7	.31
13	2.8	8.4	7.3	28	14	24	14	12	35	19	6.9	.25
14	3.3	8.4	7.7	27	14	18	14	12	34	19	5.7	1.8
15	6.7	13	8.8	26	14	16	14	11	33	19	5.3	4.1
16	5.4	12	8.5	26	13	15	14	11	32	18	5.0	1.3
17	5.1	11	7.9	26	13	15	14	11	31	17	4.6	1.3
18	6.4	11	7.6	25	13	14	19	11	30	16	4.3	1.2
19	7.7	11	7.4	24	12	14	15	9.8	30	16	5.0	1.1
20	9.3	11	7.3	23	12	14	14	9.4	30	15	4.2	211
21	7.5	10	7.0	23	12	14	13	9.1	28	14	4.3	400
22	7.0	10	7.0	22	11	14	14	9.2	27	14	4.9	145
23	6.6	11	7.0	22	11	13	13	9.3	27	14	3.2	76
24	6.3	11	7.1	21	11	13	13	12	26	13	3.1	58
25	7.9	10	7.0	21	12	14	13	10	25	12	3.2	50
26	7.4	9.6	7.0	22	11	14	13	10	26	12	2.8	45
27	7.2	9.5	9.4	21	11	13	13	14	30	12	2.6	42
28	7.2	8.8	99	19	11	13	12	12	25	11	3.1	39
29	7.1	8.7	58	19	---	13	12	11	50	11	2.6	37
30	6.9	8.4	50	18	---	13	12	73	31	10	2.1	35
31	6.7	---	46	18	---	14	---	60	---	10	9.1	---
TOTAL	151.48	300.7	465.3	846	390	399.7	457	476.8	1027	574	172.3	1170.12
MEAN	4.89	10.0	15.0	27.3	13.9	12.9	15.2	15.4	34.2	18.5	5.56	39.0
MAX	14	26	99	42	18	24	41	73	162	32	10	400
MIN	.06	6.3	7.0	18	11	9.9	12	9.1	23	10	2.1	.25
AC-FT	300	596	923	1680	774	793	906	946	2040	1140	342	2320
CFSM	.05	.10	.16	.29	.15	.13	.16	.16	.36	.19	.06	.41
IN.	.06	.12	.18	.33	.15	.16	.18	.19	.40	.22	.07	.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

	MEAN	34.8	25.5	34.3	27.6	35.6	37.3	36.2	68.0	94.1	39.6	37.2	29.0
MAX	254	134	541	172	342	323	178	402	1056	574	654	153	
(WY)	1972	1959	1992	1992	1992	1992	1992	1987	1987	1973	1971	1958	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.013	.018	.000	.000	
(WY)	1956	1955	1955	1956	1956	1956	1956	1956	1955	1984	1984	1955	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1952 - 1995

ANNUAL TOTAL	4326.58	6430.40	
ANNUAL MEAN	11.9	17.6	41.6
HIGHEST ANNUAL MEAN			205
LOWEST ANNUAL MEAN			.41
HIGHEST DAILY MEAN	210	May 15	11900
LOWEST DAILY MEAN	.06	Oct 6	.00
ANNUAL SEVEN-DAY MINIMUM	.15	Oct 1	.00
INSTANTANEOUS PEAK FLOW			69800
INSTANTANEOUS PEAK STAGE			28.20
ANNUAL RUNOFF (AC-FT)	8580	12750	30160
ANNUAL RUNOFF (CFSM)	.12	.18	.44
ANNUAL RUNOFF (INCHES)	1.68	2.50	5.92
10 PERCENT EXCEEDS	25	31	83
50 PERCENT EXCEEDS	7.6	12	12
90 PERCENT EXCEEDS	1.3	3.3	.20



MUECES RIVER BASIN

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08200700 HONDO CREEK AT KING WATERHOLE NEAR HONDO, TX

LOCATION.--Lat 29°23'26", long 99°09'04", Medina County, Hydrologic Unit 12110107, on left bank 0.3 mi downstream from county road low-water crossing, 3.1 mi north of Hondo, 7.8 mi upstream from Verde Creek, and 55.4 mi upstream from mouth.

DRAINAGE AREA.--149 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Most of the low flow enters the Edwards and associated limestone in the Balcones Fault Zone, that crosses the basin between Tarpley (station 08200000) and this station. There are several small diversions above station for irrigation. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 21 ft in September 1919, from information by local resident. Other outstanding floods occurred in July 1932, stage 18 ft, and June 17, 1958, stage 17 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 20	1230	1,270	4.17	Sept. 21	2200	741	3.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	465.42
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.5
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	177
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	923

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	MEAN	9.61	.53	12.0	3.13	7.83	9.32	7.08	33.1	55.2	15.9	35.6	7.99
MAX	160	10.8	379	56.9	187	168	89.5	468	1060	509	1015	151	
(WY)	1972	1972	1992	1968	1992	1992	1981	1987	1987	1973	1971	1980	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1962	1961	1962	1961	1962	1962	1961	1961	1962	1962	1961	1961	1961

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1961 - 1995

ANNUAL TOTAL	465.42		
ANNUAL MEAN	1.28		
HIGHEST ANNUAL MEAN		16.5	
LOWEST ANNUAL MEAN		128	1987
HIGHEST DAILY MEAN		.000	1962
LOWEST DAILY MEAN		11700	Aug 13 1971
ANNUAL SEVEN-DAY MINIMUM		.00	Oct 1 1960
INSTANTANEOUS PEAK FLOW	.00 Jan 1	.00	Oct 1 1960
INSTANTANEOUS PEAK STAGE	.00 Jan 1	.00	May 29 1987
ANNUAL RUNOFF (AC-FT)		1270	May 29 1987
10 PERCENT EXCEEDS	.00	4.17	
50 PERCENT EXCEEDS	.00	923	
90 PERCENT EXCEEDS	.00	11950	

## 08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX

LOCATION.--Lat 29°34'23", long 99°24'10", Medina County, Hydrologic Unit 12110107, on right bank 200 ft upstream from county road crossing, 4.5 mi downstream from Cascade Creek, 7.9 mi southeast of Utopia, and 58.0 mi upstream from mouth.

DRAINAGE AREA.--45.0 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1961 to current year.

Water-quality records.--Chemical analyses: November 1965 to September 1969. Chemical and biochemical analyses: March 1970 to September 1993. Pesticide analyses: January 1974 to September 1993. Sediment analyses: November 1965.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 1,265.8 ft. from Magnolia Oil Company datum, adjustment unknown.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft June 17, 1958, from floodmarks (discharge, 52,600 ft<sup>3</sup>/s, by slope-area measurement of peak flow).

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 21	1400	1,650	4.26				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	2.8	5.7	27	8.4	5.3	9.0	5.7	27	15	3.4	1.4
2	.68	2.8	5.7	26	8.4	5.3	7.9	5.3	24	14	3.4	1.4
3	.64	3.1	5.7	24	7.8	5.3	7.4	5.3	22	13	4.7	1.4
4	.58	3.6	5.7	24	7.4	5.3	15	5.3	21	17	4.0	1.4
5	.51	28	5.7	24	7.3	5.3	16	4.7	19	13	2.8	1.3
6	.42	8.8	5.7	23	7.0	5.3	12	11	18	12	2.8	1.3
7	.72	7.1	5.7	21	7.0	8.6	11	5.6	18	12	2.6	1.2
8	14	6.9	5.7	21	7.0	5.7	10	15	17	12	2.6	5.2
9	2.5	6.4	8.8	19	7.0	5.7	9.6	7.8	14	11	2.4	2.1
10	1.8	5.7	7.0	18	6.7	5.7	8.4	6.9	14	10	2.4	1.5
11	1.6	5.6	5.9	18	6.4	5.7	8.4	5.9	23	9.6	2.2	1.4
12	1.4	5.3	5.7	17	6.1	7.0	7.9	5.7	16	9.0	2.3	1.2
13	1.3	5.3	5.7	17	6.1	42	7.9	5.7	14	8.4	4.2	1.2
14	1.3	5.3	5.9	16	6.1	19	7.4	5.3	14	8.0	2.6	1.7
15	1.5	11	6.7	16	6.1	16	7.0	4.7	13	7.9	2.2	3.5
16	1.8	9.7	6.2	15	6.1	16	7.0	4.3	12	7.4	2.2	2.1
17	1.8	8.4	5.7	15	5.7	15	7.0	4.3	11	7.0	2.2	1.7
18	2.7	8.4	5.7	12	5.7	14	12	4.5	11	6.5	1.9	1.4
19	5.1	7.9	5.5	11	5.8	14	7.9	4.0	11	6.5	2.0	1.4
20	2.9	7.4	5.3	11	5.3	13	7.0	3.9	11	6.1	2.1	99
21	2.0	7.4	5.3	11	5.3	12	6.5	3.6	9.6	5.7	2.0	206
22	1.8	7.0	6.0	11	5.3	12	6.5	3.6	9.1	5.3	1.9	117
23	1.6	7.0	6.4	11	5.3	12	5.7	3.6	9.0	5.0	2.0	59
24	1.5	7.0	5.9	11	5.3	11	5.7	8.4	7.9	4.6	1.8	47
25	11	7.0	5.1	11	5.3	11	5.7	4.6	9.3	4.6	1.8	41
26	6.0	7.0	4.8	11	5.3	11	5.7	3.7	12	4.3	1.7	37
27	3.8	6.7	6.3	10	5.3	10	5.7	13	17	4.0	1.6	33
28	3.6	6.1	54	9.6	5.3	9.0	5.7	7.3	9.9	3.9	1.6	31
29	3.5	5.9	41	9.4	---	9.0	5.7	6.1	67	3.7	1.6	29
30	3.4	5.5	34	7.9	---	9.6	5.7	50	17	3.4	1.5	26
31	3.2	---	30	8.1	---	9.6	---	41	---	3.4	1.4	---
TOTAL	85.33	216.1	318.5	486.0	175.8	335.4	244.4	265.8	497.8	253.3	73.9	758.8
MEAN	2.75	7.20	10.3	15.7	6.28	10.8	8.15	8.57	16.6	8.17	2.38	25.3
MAX	14	28	54	27	8.4	42	16	50	67	17	4.7	206
MIN	.42	2.8	4.8	7.9	5.3	5.3	5.7	3.6	7.9	3.4	1.4	1.2
AC-FT	169	429	632	964	349	665	485	527	987	502	147	1510
CFSM	.06	.16	.23	.35	.14	.24	.18	.19	.37	.18	.05	.56
IN.	.07	.18	.26	.40	.15	.28	.20	.22	.41	.21	.06	.63

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
MEAN	19.3	11.6	17.7	13.1	15.2	16.3	15.2	27.8	40.3	23.4	21.7	15.6																								
MAX	169	48.8	241	92.9	136	134	91.1	120	471	276	279	63.1																								
(WY)	1972	1987	1992	1992	1992	1992	1987	1987	1987	1973	1971	1967																								
MIN	.24	.50	.40	.67	1.08	.70	1.53	.64	.15	.010	.005	.000																								
(WY)	1964	1964	1964	1963	1963	1963	1984	1984	1989	1989	1989	1989																								

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1961 - 1995

ANNUAL TOTAL	1858.10	3711.13	19.9
ANNUAL MEAN	5.09	10.2	87.4
HIGHEST ANNUAL MEAN			.97
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	54	206	3200
LOWEST DAILY MEAN	.42	.42	.00
ANNUAL SEVEN-DAY MINIMUM	.60	.60	.00
INSTANTANEOUS PEAK FLOW		1650	38500
INSTANTANEOUS PEAK STAGE		4.26	14.40
ANNUAL RUNOFF (AC-FT)	3690	7360	14400
ANNUAL RUNOFF (CFSM)	.11	.23	.44
ANNUAL RUNOFF (INCHES)	1.54	3.07	6.00
10 PERCENT EXCEEDS	10	18	40
50 PERCENT EXCEEDS	3.4	6.3	5.6
90 PERCENT EXCEEDS	1.1	1.8	.82

NUECES RIVER BASIN

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08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1965 to September 1969. Chemical and biochemical analyses: March 1970 to 1993, August 1994 to current year. Pesticide analyses: January 1974 to 1993, August 1994 to current year. Sediment analyses: November 1965.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
FEB 06...	1205	7.0	442	8.2	13.0	11.0	108	1.7	K6	K16	230	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
FEB 06...	61	72	11	6.3	0.2	0.90	170	44	9.7	0.20	11	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
FEB 06...	256	0.300	<0.010	0.300	0.300	<0.015	<0.20	0.010	<0.010	3	0.06	
DATE		SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
FEB 06...	76	<1	28	<0.5	<1.0	<5	<3	<10	<3	<10	<4	
DATE		MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	AME-TRYNE TOTAL (UG/L)	ATRA-ZINE WATER UNFLTRD REC (UG/L)
FEB 06...		<1	<0.1	<10	<10	<1	<1.0	480	<6	6	<0.10	<0.1
DATE		CYAN-AZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	
FEB 06...		<0.20	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	

## 08202700 SECO CREEK AT ROWE RANCH NEAR D'HANIS, TX

LOCATION.--Lat 29°21'43", long 99°17'05", Medina County, Hydrologic Unit 12110107, on left bank 2.9 mi north of D'Hanis and 8.0 mi downstream from Rocky Creek.

DRAINAGE AREA.--168 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft above sea level. Prior to October 1970, published as "at Crook Ranch, near D'Hanis".

REMARKS.--No estimated daily discharges. Records good. All of low flow from Seco Creek enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin between Miller Ranch (station 08201500) and this station. There are no known diversions above station. Rain gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35.7 ft May 31, 1935, from information by local resident. Other floods occurred Aug. 31, 1894, 33 ft; September 1919, 28 ft; July 2, 1932, 28.2 ft (discharge, 35,800 ft<sup>3</sup>/s, by slope-area measurement); and June 17, 1958, 32.4 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

[illegible]

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

MEAN	7.21	.002	4.96	.72	1.09	1.74	3.48	12.8	20.2	8.81	28.1	4.81
MAX	183	.057	117	24.7	33.2	27.0	74.6	277	345	275	862	58.5
(WY)	1972	1977	1992	1968	1992	1992	1981	1987	1987	1973	1971	1980
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1962	1961	1961	1961	1961	1961	1961	1961	1962	1962	1961	1961

### SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

## WATER YEARS 1961 - 1995

ANNUAL TOTAL			9.63					
ANNUAL MEAN			.026			8.00		
HIGHEST ANNUAL MEAN						73.3		1971
LOWEST ANNUAL MEAN						.000		1962
HIGHEST DAILY MEAN			6.6	Sep 20		8310	May 29	1987
LOWEST DAILY MEAN			.00	Oct 1		.00	Nov 1	1960
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1		.00	Nov 1	1960
INSTANTANEOUS PEAK FLOW			52	Sep 20		35800	May 29	1987
INSTANTANEOUS PEAK STAGE			8.23	Sep 20		28.20	May 29	1987
ANNUAL RUNOFF (AC-FT)			19			5790		
10 PERCENT EXCEEDS	.00		.00			.00		
50 PERCENT EXCEEDS	.00		.00			.00		
90 PERCENT EXCEEDS	.00		.00			.00		

LOCATION.--Lat 28°44'11", long 99°08'40", Frio County, Hydrologic Unit 12110106, on right bank 17 ft downstream from centerline of railroad tracks, 35 ft right of the Missouri Pacific Railroad Co. bridge abutment, 167 ft downstream from Interstate Highway 35, 917 ft downstream from Leona River, 2.5 mi south of Derby, and 115.1 mi upstream from mouth.

PERIOD OF RECORD.--August 1915 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 449.11 ft above sea level. Aug. 1, 1915, to Apr. 21, 1931, nonrecording gage, and Apr. 22, 1931, to Mar. 6, 1940, water-stage recorder at same site and datum. Mar. 7, 1940, to May 4, 1972, water-stage recorder, and May 5 to Nov. 1, 1972, nonrecording gage at site 167 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Part of flow of the Frio River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08197500, 08198500, 08200700, and 08202700). There is considerable loss of flow into various permeable formations downstream from the Balcones Fault Zone. There are many small diversions for irrigation above station. Maximum stage since at least 1860 that of July 4, 1932. Rain gage at station. Satellite telemeter at station.

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 20	1600	1,330	4.33	Sept. 24	0500	2,410	6.44

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	30	35	54	34	24	33	19	71	235	3.5	5.9
2	11	30	34	48	34	24	34	16	38	261	3.1	5.8
3	10	29	34	47	34	23	34	15	29	121	4.2	4.8
4	9.9	29	34	46	32	21	37	15	22	59	4.4	4.2
5	9.9	29	34	45	32	20	61	14	20	35	4.7	3.9
6	9.5	29	34	43	33	22	266	12	18	26	5.3	4.1
7	9.7	29	34	43	33	23	209	11	19	32	6.1	4.4
8	40	30	34	43	33	23	130	12	19	32	6.1	8.7
9	73	33	33	43	33	20	95	13	18	29	5.2	6.7
10	125	31	33	43	32	22	70	18	17	28	4.6	5.9
11	66	29	32	45	29	24	52	20	15	25	3.8	5.1
12	34	30	34	46	28	24	42	22	27	23	3.1	4.8
13	22	31	42	46	29	29	39	22	21	22	2.9	4.3
14	18	33	41	46	29	31	36	20	11	20	2.7	5.0
15	17	36	40	45	28	98	37	17	16	20	2.4	5.8
16	16	39	38	44	27	193	37	15	19	20	1.9	4.7
17	17	40	37	43	27	141	35	14	19	19	2.0	3.9
18	20	83	37	42	27	64	32	14	18	16	2.4	3.9
19	23	70	37	40	27	46	32	16	16	15	3.3	4.1
20	965	45	37	40	23	42	33	15	14	15	3.5	4.5
21	461	34	37	39	21	39	31	12	11	14	4.1	4.8
22	264	31	37	38	21	37	30	11	11	13	8.7	6.7
23	194	31	37	36	20	36	27	9.9	8.3	12	4.9	1120
24	71	31	37	36	20	36	25	9.1	5.7	11	4.3	1600
25	74	31	38	37	22	34	20	8.5	4.7	9.1	4.3	493
26	55	32	39	38	25	31	17	8.5	4.0	7.7	4.3	241
27	71	35	40	37	25	30	17	20	3.9	6.1	4.3	132
28	70	36	55	38	22	31	18	25	3.2	4.9	3.9	79
29	46	35	46	38	---	31	19	85	4.2	4.5	4.2	49
30	38	36	45	37	---	31	19	145	59	4.4	4.3	33
31	33	---	52	35	---	31	---	135	---	4.1	4.7	---
TOTAL	2884.0	1067	1177	1301	780	1281	1567	789.0	562.0	1143.8	127.2	3859.0
MEAN	93.0	35.6	38.0	42.0	27.9	41.3	52.2	25.5	18.7	36.9	4.10	129
MAX	965	83	55	54	34	193	266	145	71	261	8.7	1600
MIN	9.5	29	32	35	20	20	17	8.5	3.2	4.1	1.9	3.9
AC-FT	5720	2120	2330	2580	1550	2540	3110	1560	1110	2270	252	7650

MEAN	161	46.8	46.8	52.4	62.0	48.9	118	206	360	258	142	201
MAX	1813	674	950	559	988	1079	1072	2320	8069	8943	5648	3247
(WY)	1920	1920	1992	1992	1992	1992	1957	1935	1935	1932	1971	1919
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1918	1916	1916	1916	1916	1916	1917	1917	1918	1918	1917	1922

## WATER YEARS 1915 - 1995

ANNUAL TOTAL	14463.0		16538.0						
ANNUAL MEAN	39.6		45.3						
HIGHEST ANNUAL MEAN						142			
LOWEST ANNUAL MEAN						1087			1935
HIGHEST DAILY MEAN	965	Oct 20	1600	Sep 24		1.76			1952
LOWEST DAILY MEAN	1.3	Aug 2	1.9	Aug 16		.00			1915
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 1	2.5	Aug 12		.00			1915
INSTANTANEOUS PEAK FLOW			2410	Sep 24		230000			1932
INSTANTANEOUS PEAK STAGE			a6.44	Sep 24		29.45			1932
ANNUAL RUNOFF (AC-FT)	28690		32800			102900			
10 PERCENT EXCEEDS	64		60			153			
50 PERCENT EXCEEDS	25		29			5.3			
90 PERCENT EXCEEDS	3.8		4.5			.00			

a From floodmark.



## NUECES RIVER BASIN

08206600 FRIO RIVER AT TILDEN, TX

LOCATION.--Lat 28°28'02", long 98°32'50", McMullen County, Hydrologic Unit 12110108, on left bank 80 ft downstream from bridge on State Highway 16 in Tilden, 300 ft downstream from Leoncita Creek, 1.3 mi upstream from Salt Branch, 1.8 mi downstream from Big Slough, and 44.2 mi upstream from mouth.

DRAINAGE AREA.--4,493 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft above sea level. July 14, 1978, to Sept. 13, 1994, at site 80 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Part of the flow of the Frio River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin upstream from U. S. Highway 90 (see REMARKS paragraph for station 08205500). Considerable flow into various permeable formations also occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
No peak greater than base discharge.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	123	34	57	40	20	22	16	78	87	3.9	18
2	9.0	94	34	50	41	23	24	16	102	139	3.3	5.2
3	8.7	75	34	53	40	26	25	17	97	91	6.0	3.4
4	9.1	60	34	59	39	24	48	18	62	179	6.1	2.8
5	9.2	53	35	57	37	25	46	18	41	177	3.7	7.4
6	9.2	46	35	53	36	27	115	17	29	99	2.8	6.0
7	8.9	41	34	50	36	29	79	16	24	57	2.4	4.3
8	184	38	34	48	35	26	142	15	21	41	2.1	3.8
9	126	36	34	48	35	21	235	16	18	30	1.6	3.1
10	307	34	34	48	36	19	171	15	18	24	1.4	2.3
11	293	33	33	48	37	21	113	14	17	22	1.2	1.8
12	241	35	33	47	38	21	82	14	17	23	1.3	1.5
13	234	37	33	47	38	30	61	14	17	23	1.3	1.3
14	160	34	33	47	36	27	47	15	16	20	.97	1.3
15	94	32	33	47	30	37	38	16	15	18	.91	1.2
16	58	30	35	47	30	41	35	17	17	15	2.6	2.6
17	43	28	41	48	29	40	32	17	18	14	2.7	2.8
18	32	28	42	47	31	85	30	19	14	13	2.6	2.3
19	24	28	40	44	30	154	29	15	12	13	3.0	1.9
20	17	30	38	41	30	120	28	14	13	12	16	1.5
21	13	64	37	40	29	74	25	14	14	11	4.2	1.1
22	175	84	37	40	28	52	24	13	14	9.6	3.5	4.2
23	520	60	37	39	27	42	23	13	14	8.4	2.9	22
24	473	45	37	39	22	37	24	13	14	7.4	1.9	13
25	275	39	37	38	19	32	23	13	12	7.0	1.4	56
26	228	36	37	37	19	29	22	11	11	6.7	1.1	440
27	378	35	38	37	19	27	21	14	109	6.3	.83	633
28	321	34	56	38	19	25	20	12	66	5.8	.60	762
29	191	33	55	39	---	25	18	12	48	5.5	.56	413
30	208	33	78	41	---	22	16	30	125	5.1	.59	141
31	174	---	78	40	---	21	---	169	---	4.4	2.9	---
TOTAL	4832.7	1378	1230	1414	886	1202	1618	633	1073	1174.2	86.36	2559.8
MEAN	156	45.9	39.7	45.6	31.6	38.8	53.9	20.4	35.8	37.9	2.79	85.3
MAX	520	123	78	59	41	154	235	169	125	179	16	762
MIN	8.7	28	33	37	19	19	16	11	11	4.4	.56	1.1
AC-FT	9590	2730	2440	2800	1760	2380	3210	1260	2130	2330	171	5080

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	200	51.4	129	131	153	123	145	236	886	202	102	104
MEAN	861	160	1314	877	1745	1188	935	1171	8992	1232	609	315
MAX	1986	1993	1992	1992	1992	1992	1992	1980	1987	1990	1978	1991
(WY)	.12	.24	.27	.45	.32	2.91	.55	1.75	.032	.029	.045	.52
MIN	1991	1991	1991	1991	1990	1984	1984	1984	1984	1984	1985	1989
(WY)												

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1978 - 1995

ANNUAL TOTAL	24476.81	18087.06	202
ANNUAL MEAN	67.1	49.6	1000
HIGHEST ANNUAL MEAN			7.06
LOWEST ANNUAL MEAN			20100
HIGHEST DAILY MEAN	1690	762	Jun 9 1987
LOWEST DAILY MEAN	.27	.56	Aug 29
ANNUAL SEVEN-DAY MINIMUM	.63	1.0	Aug 24
INSTANTANEOUS PEAK FLOW		784	Sep 28
INSTANTANEOUS PEAK STAGE		10.91	Sep 28
ANNUAL RUNOFF (AC-FT)	48550	35880	29.18
10 PERCENT EXCEEDS	174	105	146200
50 PERCENT EXCEEDS	33	29	301
90 PERCENT EXCEEDS	2.5	3.1	32
			.38



NUECES RIVER BASIN

391

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX

LOCATION.--Lat 28°35'14", long 98°32'44", McMullen County, Hydrologic Unit 12110109, on left bank 25 ft downstream from State Highway 16, 0.3 mi upstream from mouth of Bruce Branch, 0.9 mi downstream from mouth of Far Live Oak Creek, 3 mi upstream from San Patricio Creek, 7 mi downstream from Clear Creek, 8.7 mi north of Tilden, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--783 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1964 to current year.

Water-quality records.--Chemical and biochemical analyses: July 1978 to September 1984.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 242.95 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. There are five diversions above station, but amounts are unknown. At times, excessive amount of water from Bexar-Medina-Atascosa Counties Water Improvement District No. 1 system enters San Miguel Creek basin via Chacon Creek 52 mi upstream (amounts unknown). Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft in 1942; stage of 1919 flood not known, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.01	.00	.00	.51	.00	88	98	.00	5.8
2	.00	.00	.00	.00	.00	.00	.05	.00	52	91	.00	.00
3	.00	.00	.00	.00	.00	.00	.04	.00	40	44	.00	.00
4	.00	.00	.00	.00	.00	.00	2.8	.00	18	21	.00	.00
5	.00	.00	.00	.00	.00	.00	.74	.00	7.8	19	.00	.00
6	.00	.00	.00	.00	.00	.00	.13	.00	3.3	23	.00	.00
7	.00	.00	.00	.00	.00	.00	.06	.00	.61	6.8	.00	.00
8	46	.00	.00	.00	.00	.00	.04	.00	.02	1.4	.00	.00
9	137	.00	.00	.00	.00	.00	.02	.00	.00	.01	.00	.00
10	136	.00	.00	.00	.00	14	.01	.00	.00	.00	.00	.00
11	70	.00	.00	.00	.00	34	.12	.00	.01	.00	.00	.00
12	28	.00	.00	.00	.00	21	.00	.00	.00	.00	.00	.00
13	16	.00	.00	.00	.00	29	.00	.00	.00	.00	.00	.00
14	7.7	.00	.00	.00	.00	40	.00	.00	.00	.00	.00	.00
15	7.4	.00	.00	.00	.00	141	.00	.00	.00	.00	.00	.00
16	1.6	.00	.00	.00	.00	92	.00	.00	.45	.00	.00	.00
17	.17	.00	.00	.00	.00	43	.00	.00	2.3	.00	.00	.00
18	.02	.00	.00	.00	.00	26	.00	.00	.17	.00	.00	.00
19	.00	.00	.00	.00	.00	19	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	18	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	18	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	17	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	15	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	15	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	14	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	10	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	7.6	.00	62	52	.00	.00	.00
28	.00	.00	5.0	.00	.00	5.4	.00	89	11	.00	.00	.00
29	.00	.00	.00	.00	.00	3.9	.00	141	21	.00	.00	.00
30	.00	.00	.39	.00	.00	2.6	.00	180	69	.00	.00	.00
31	.00	.00	.24	.00	.00	1.5	.00	137	.00	.00	7.2	.00
TOTAL	449.89	0.00	5.63	0.01	0.00	587.00	4.52	609.00	365.66	304.21	7.20	5.80
MEAN	14.5	.000	.18	.000	.000	18.9	.15	19.6	12.2	9.81	.23	.19
MAX	137	.00	5.0	.01	.00	141	2.8	180	88	98	7.2	5.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	892	.00	11	.02	.00	1160	9.0	1210	725	603	14	12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1995, BY WATER YEAR (WY)

	MEAN	71.3	22.3	18.8	30.2	26.4	9.90	63.1	135	110	42.5	54.3	95.4
MAX	486	286	226	641	352	78.0	1065	900	690	748	741	1233	
(WY)	1982	1993	1987	1968	1992	1992	1977	1980	1987	1990	1980	1967	
MIN	.000	.000	.000	.000	.000	.007	.023	.000	.000	.001	.000	.000	
(WY)	1980	1995	1989	1989	1995	1966	1964	1971	1967	1994	1991	1989	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1964 - 1995

ANNUAL TOTAL	2527.14	2338.92	58.0
ANNUAL MEAN	6.92	6.41	161
HIGHEST ANNUAL MEAN			2.43
LOWEST ANNUAL MEAN			16700
HIGHEST DAILY MEAN	619	Jun 15	May 16 1980
LOWEST DAILY MEAN	.00	Mar 11	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 1	.00
INSTANTANEOUS PEAK FLOW			20600
INSTANTANEOUS PEAK STAGE			27.31
ANNUAL RUNOFF (AC-FT)	5010	4640	42010
10 PERCENT EXCEEDS	11	15	39
50 PERCENT EXCEEDS	.01	.00	2.3
90 PERCENT EXCEEDS	.00	.00	.00

## 08206900 CHOKE CANYON RESERVOIR NEAR THREE RIVERS, TX

LOCATION.--Lat 28°29'01", long 98°14'44", Live Oak County, Hydrologic Unit 12110108, at Choke Canyon Dam on Frio River, 3.9 mi upstream from Atascosa River, and 4.0 mi west of Three Rivers.

DRAINAGE AREA.--5,490 mi<sup>2</sup>.

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

GAGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is sea level.

REMARKS.--The reservoir is formed by a rolled earthfill dam, 3.5 mi long. The dam was completed and deliberate impoundment began on Oct. 12, 1982. The spillway has seven radial gates, each 50 ft long and 24 ft high. Water for municipal and industrial use to meet the needs of the Coastal Bend area is released downstream through a 5.0- x 5.0-foot square slide gate. Satellite telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	241.1	-
Top of spillway gates.....	222.5	743,900
Crest of spillway.....	199.5	269,600
Lowest gated outlet (invert).....	136.3	52

COOPERATION.--Capacity table computed June 1, 1983, provided by the city of Corpus Christi. Elevation and reservoir contents record provided by the city of Corpus Christi.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 733,100 acre-ft June 21, 1987 (elevation, 222.1 ft); minimum, 4,500 acre-ft Oct. 1-9, 1984 (elevation, 156.9 ft).

EXTREMES (AT 0600 HOURS) FOR CURRENT YEAR.--Maximum contents, 468,800 acre-ft Oct. 1 (elevation, 210.8 ft); minimum, 309,000 acre-ft Sept. 27 (elevation, 202.1 ft).

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

156.0	4,000	180.0	69,720	210.0	452,600
160.0	6,860	190.0	151,500	220.0	678,300
170.0	25,000	200.0	277,100	223.0	757,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	468800	466000	457900	446600	439500	425000	425400	411400	388800	363500	335800	326700
2	467800	466000	457600	446600	439100	425000	425000	410500	388500	362900	334800	326200
3	466600	465800	457600	446600	439100	425000	424800	410100	388300	362000	334400	325600
4	465400	466200	457000	446200	438500	425000	424600	409100	387900	361700	334100	324700
5	464100	466200	456800	446000	437500	425000	426000	408400	387500	361200	333600	323900
6	462700	465400	456200	448200	437100	426400	425600	407800	387400	360500	333300	323400
7	461700	464900	456200	446000	436700	427900	425200	406900	387200	360100	332800	322900
8	466200	465200	455600	446200	436300	426000	425000	405700	387000	359600	332600	323100
9	465800	465600	454800	446000	435700	425400	424000	404400	386100	358700	332100	322600
10	464300	464300	453800	446000	435000	425200	423300	403500	385900	357800	331400	321900
11	463300	463100	453200	446200	434800	425400	424200	401800	386100	356800	330900	321300
12	462900	463100	452400	446200	433600	425400	424400	401000	385200	355900	330700	320400
13	462700	463300	451800	447000	433000	428700	423900	399900	384300	355000	330700	319800
14	462500	463300	451600	446800	433000	428700	423100	399200	383500	354000	330200	319100
15	464100	463100	451400	446600	432000	428300	418800	398100	382600	353600	329700	318600
16	464300	462500	452000	446200	431000	428500	423100	397300	381900	353100	329400	318100
17	464500	462300	451200	446200	430800	428500	417700	396000	381200	352600	329100	317500
18	464500	462300	450400	446000	430800	428300	419200	396800	380100	352300	328700	316800
19	464500	462300	450400	445200	430100	428100	416400	394700	379400	351900	328400	316300
20	464500	462300	449400	444600	429500	428700	418100	393800	378600	351200	328400	315700
21	464300	461500	448800	444000	428900	428700	417100	392900	377400	350700	328100	314500
22	464100	461300	448200	443400	428100	428900	417700	391600	376300	350000	327900	314200
23	464100	460100	447600	443000	428100	429100	416400	390500	374900	349000	327400	312300
24	464900	459900	447200	442600	427100	428900	416000	389700	373200	347600	327100	311300
25	466000	459900	446200	442200	426400	428500	415600	388800	371600	346400	326900	310300
26	465600	460300	446000	441600	427000	428100	414800	387700	370000	345000	326600	309200
27	465400	460700	445400	441800	426400	428900	414100	388800	368100	343600	326200	309000
28	466000	459900	447200	441500	426000	427700	413500	387900	366100	342100	325900	309400
29	466000	459700	447200	440700	---	427100	412500	387000	366600	340200	325600	310300
30	466000	458700	446600	440500	---	426200	412000	386400	364300	338500	325200	310800
31	466400	---	446600	440900	---	426200	---	388600	---	337100	324700	---
MAX	468800	466200	457900	448200	439500	429100	426000	411400	388800	363500	335800	326700
MIN	461700	458700	445400	440500	426000	425000	412000	386400	364300	337100	324700	309000
(+)	210.7	210.3	209.7	209.4	208.7	208.7	207.9	206.7	205.3	203.8	203.0	202.2
(@)	-3400	-7700	-12100	-5700	-14900	+200	-14200	-23400	-24300	-27200	-12400	-13900

CAL YR 1994 MAX 598900 MIN 445400 (+) -152700  
WTR YR 1995 MAX 468800 MIN 309000 (@) -159000

(+) Elevation, in feet, at end of month.

(@) Change in contents, in acre-feet.

NUECES RIVER BASIN

393

08206910 CHOKE CANYON RESERVOIR OWC NEAR THREE RIVERS, TX

LOCATION.--Lat 28°29'09", long 98°14'29", Live Oak County, Hydrologic Unit 12110108, 0.2 mi downstream from Choke Canyon Dam on Frio River, 3.7 mi upstream from Atascosa River, and 3.8 mi west of Three Rivers.

DRAINAGE AREA.--5,490 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1991 to current year (low flow only).

GAGE.--Water-stage recorder. Datum of gage is 124.06 ft above sea level.

REMARKS.--Records poor. Discharges are not published for days when instantaneous discharge exceeds 73 ft<sup>3</sup>/s. Flow is regulated by Choke Canyon Reservoir (station 08206900) 0.2 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 9.97 ft June 26 at 1800 hours; minimum recorded daily discharge, 33 ft<sup>3</sup>/s on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	34	---	38	---	---	---	---	---	---	---	---
2	---	e33	---	37	---	---	---	---	---	---	---	---
3	---	e33	---	34	---	---	---	---	---	---	38	---
4	---	e33	---	34	---	47	---	---	---	---	37	---
5	---	35	---	36	---	48	---	---	---	---	37	---
6	---	37	---	34	---	46	---	---	52	---	37	---
7	---	e33	---	34	---	48	---	---	51	---	37	---
8	---	e33	---	34	---	e46	---	---	51	---	37	---
9	---	e33	---	33	---	46	---	---	---	---	37	---
10	---	e33	---	35	---	47	---	---	---	---	37	---
11	---	e33	---	37	---	47	---	---	---	---	37	---
12	---	45	---	39	---	47	---	---	---	---	37	---
13	---	36	---	40	---	50	---	---	---	---	37	---
14	---	e33	---	36	---	51	---	---	---	---	37	---
15	---	e33	---	35	---	51	---	---	---	60	37	---
16	---	e33	---	35	---	51	---	---	---	60	37	---
17	---	e33	---	---	---	52	---	---	---	60	37	---
18	---	39	---	---	---	51	---	---	---	60	37	---
19	---	e33	---	---	---	50	---	---	---	60	37	---
20	e43	e33	---	---	---	50	---	---	---	60	37	---
21	e43	e33	---	---	---	50	---	---	---	---	37	---
22	e43	e33	---	---	---	50	---	---	---	---	37	---
23	e43	e33	---	---	---	48	---	---	---	---	37	---
24	47	34	---	---	---	49	---	---	---	---	37	---
25	e43	e33	---	---	---	49	---	---	---	---	37	---
26	46	e33	---	---	---	49	---	---	---	---	37	---
27	40	e33	---	---	---	---	---	---	---	---	37	---
28	34	e33	---	---	---	---	---	---	---	---	37	---
29	e33	e33	---	---	---	---	---	---	---	---	37	62
30	e33	e33	---	---	---	---	---	---	---	---	37	65
31	e33	---	38	---	---	---	---	---	---	---	37	---
TOTAL	---	1019	---	---	---	---	---	---	---	---	---	---
MEAN	---	34.0	---	---	---	---	---	---	---	---	---	---
MAX	---	45	---	---	---	---	---	---	---	---	---	---
MIN	---	33	---	---	---	---	---	---	---	---	---	---

e Estimated

## NUECES RIVER BASIN

08208000 ATASCOSA RIVER AT WHITSETT, TX

LOCATION.--Lat 28°37'19", long 98°16'52", Live Oak County, Hydrologic Unit 12110110, on right bank at downstream side of bridge on Farm Road 99, 1.1 mi southwest of Whitsett, 4.2 mi downstream from La Parita Creek, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--1,171 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 159.04 ft above sea level. Prior to May 8, 1926, nonrecording gage at bridge destroyed in 1956 at site 200 ft downstream at 1.38 ft higher datum. May 21, 1932, to Feb. 16, 1983, water-stage recorder at site 1,000 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Considerable loss of flow into various permeable formations occurs upstream from this station. The Campbellton water wells discharge into the Atascosa River 12 mi upstream from this station to supplement streamflow during dry periods; however, records provided by the city of Corpus Christi indicate that during the current year, the Campbellton water wells did not discharge into the Atascosa River. There are several small diversions above station. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1881, that of Sept. 23, 1967. Second highest stage, 41 ft (discharge 106,000 ft<sup>3</sup>/s), occurred in September 1919.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
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No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	8.5	3.3	40	4.4	7.7	6.0	2.3	463	242	.00	61
2	1.2	7.2	3.3	27	4.2	7.9	6.1	2.2	254	147	.00	63
3	1.5	6.2	3.4	21	4.2	11	6.3	2.2	107	57	.00	32
4	1.5	6.0	22	16	4.3	9.8	7.8	2.1	46	38	.00	15
5	1.2	7.4	23	14	4.6	8.5	17	2.2	25	31	.00	8.9
6	1.1	14	13	12	4.2	8.2	17	2.1	12	36	.00	4.3
7	.98	11	9.3	9.9	3.8	7.7	14	2.1	5.5	34	.00	.89
8	3.9	10	7.3	9.1	3.8	7.4	17	2.1	3.1	18	.00	.94
9	18	7.8	6.0	8.7	3.9	7.0	15	1.9	1.8	11	.00	3.0
10	36	5.9	5.3	8.0	3.9	6.3	12	1.9	1.0	4.6	.00	2.2
11	30	5.4	4.9	7.9	3.8	6.6	10	1.7	1.1	2.5	.00	.38
12	17	5.2	4.9	8.0	3.8	7.4	8.3	1.7	1.3	1.7	.00	.12
13	11	4.9	4.6	8.2	3.8	33	7.1	2.7	2.0	.71	.00	.10
14	7.7	4.7	4.6	8.0	3.8	73	6.3	2.3	1.5	.24	.00	.02
15	7.1	4.3	4.7	7.3	3.8	87	5.6	2.0	.62	.13	.00	.01
16	6.9	4.0	5.4	7.0	3.8	52	6.0	1.9	.34	.09	.00	.01
17	8.0	3.9	6.2	7.0	3.8	30	5.5	1.9	.22	.07	.00	.01
18	6.7	3.9	6.5	6.7	3.8	23	5.8	1.8	.14	.05	.00	.01
19	5.4	3.9	6.7	6.4	3.8	18	5.1	1.6	.13	.04	.00	.01
20	5.0	3.9	7.3	6.4	3.8	14	4.6	25	.12	.03	.00	.01
21	5.1	3.7	7.1	6.4	3.8	12	4.1	21	.11	.03	.00	.01
22	4.6	3.7	6.2	6.4	3.8	10	3.7	10	.27	.02	.00	.01
23	4.3	3.6	5.6	6.4	3.8	8.7	3.3	5.8	.16	.02	.00	.00
24	5.1	3.5	5.6	6.0	4.0	7.7	3.0	3.9	.11	.02	.00	.00
25	8.2	3.5	5.3	6.0	20	7.0	2.8	3.0	.09	.01	.00	.00
26	203	3.5	5.2	6.2	20	6.6	2.8	12	.07	.01	.00	.00
27	119	3.5	5.3	6.2	14	6.4	2.5	23	.07	.01	.00	.00
28	39	3.5	11	6.3	8.4	5.8	2.4	187	.07	.01	.00	.00
29	23	3.4	360	5.8	---	5.8	2.4	215	1.6	.01	.00	.00
30	16	3.4	287	5.4	---	5.8	2.4	59	80	.01	.00	.00
31	11	---	71	5.2	---	5.8	---	191	---	.00	5.7	---
TOTAL	609.68	163.4	921.0	304.9	157.1	507.1	211.9	794.4	1008.42	624.31	5.70	191.93
MEAN	19.7	5.45	29.7	9.84	5.61	16.4	7.06	25.6	33.6	20.1	.18	6.40
MAX	203	14	360	40	20	87	17	215	463	242	5.7	63
MIN	.98	3.4	3.3	5.2	3.8	5.8	2.4	1.6	.07	.00	.00	.00
AC-FT	1210	324	1830	605	312	1010	420	1580	2000	1240	11	38

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1995, BY WATER YEAR (WY)

MEAN	107	51.6	61.1	83.8	95.3	32.7	157	241	243	125	75.8	255
MAX	788	399	1060	2053	1590	250	2298	1365	3445	2879	1207	5006
(WY)	1947	1941	1992	1968	1992	1970	1977	1957	1935	1942	1946	1967
MIN	.048	.21	.19	1.79	1.57	3.27	1.59	2.32	.000	.89	.000	.12
(WY)	1989	1989	1989	1990	1990	1988	1939	1971	1989	1971	1954	1989

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1932 - 1995
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ANNUAL TOTAL	25507.88		5499.84				
ANNUAL MEAN	69.9		15.1			128	
HIGHEST ANNUAL MEAN						472	1935
LOWEST ANNUAL MEAN						2.29	1989
HIGHEST DAILY MEAN	4390	Apr 30	463	Jun 1	65000		Sep 23 1967
LOWEST DAILY MEAN	.98	Oct 7	.00	Jul 31	.00		Jun 11 1934
ANNUAL SEVEN-DAY MINIMUM	1.2	Oct 1	.00	Jul 31	.00		Jun 11 1934
INSTANTANEOUS PEAK FLOW			597	Dec 29	121000		Sep 23 1967
INSTANTANEOUS PEAK STAGE			10.67	Dec 29	41.30		Sep 23 1967
ANNUAL RUNOFF (AC-FT)	50590		10910		92450		
10 PERCENT EXCEEDS	62		24		96		
50 PERCENT EXCEEDS	7.3		4.6		11		
90 PERCENT EXCEEDS	1.8		.00		1.1		

NUECES RIVER MAIN STEM

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08210000 NUECES RIVER NEAR THREE RIVERS, TX

LOCATION.--Lat 28°25'38", long 98°10'40", Live Oak County, Hydrologic Unit 12110111, on right bank at U.S. Highway 281, 1.0 mi downstream from Frio River, 2.2 mi south of Three Rivers, and at mile 100.2.

DRAINAGE AREA.--15,427 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to current year. Monthly discharge only for November 1919 to January 1920, published in WSP 1312.

REVISED RECORDS.--WSP 548: 1920-21. WSP 1562: 1916, 1918-21, 1922(M), 1923, 1929. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 99.26 ft above sea level. Prior to Apr. 5, 1932, nonrecording gage at railroad bridge 0.8 mi upstream at datum 1.87 ft higher. Apr. 5, 1932, to Aug. 9, 1983, recording gage at a site 0.8 mi upstream at datum 1.87 ft higher.

REMARKS.--Records good. Flow of the Frio River is impounded in Choke Canyon Reservoir (see station 08206900), about 11 mi upstream from this station on the Frio River. Part of flow of the Nueces and Frio Rivers and their headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. There are many small diversions for irrigation and for municipal supply above this station. There is some minor upstream regulation by small reservoirs and by groundwater supplements (see station 08208000, Atascosa River at Whitsett). Satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--67 years (water years 1916-82) prior to partial regulation by Choke Canyon Reservoir, 857 ft<sup>3</sup>/s (620,900 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1916-82).--Maximum discharge, 141,000 ft<sup>3</sup>/s Sept. 23, 1967 (gage height, 49.21 ft), site and datum then in use; no flow at times. Maximum stage since about 1875, that of Sept. 23, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	419	644	77	363	172	184	105	249	504	555	460	117
2	419	323	213	319	170	163	106	255	623	553	214	245
3	419	209	220	266	177	73	115	305	401	595	51	198
4	419	173	219	176	219	68	175	344	213	550	43	163
5	421	151	239	125	220	69	178	345	156	476	41	150
6	421	129	243	100	220	68	185	346	389	409	39	145
7	410	118	235	86	220	67	184	347	586	353	37	155
8	517	107	232	78	223	63	325	347	561	344	36	163
9	192	95	231	73	242	e63	722	370	323	351	35	152
10	313	85	230	70	243	62	590	556	322	432	34	150
11	421	79	227	67	244	62	328	640	283	535	35	148
12	808	74	227	65	242	64	251	287	247	313	35	144
13	754	71	229	64	243	128	240	347	223	262	35	145
14	586	67	230	63	243	104	236	342	318	447	35	148
15	242	65	232	61	244	153	225	343	414	473	34	146
16	262	61	233	60	243	171	214	343	309	554	34	145
17	244	59	231	74	242	135	208	342	338	619	34	145
18	182	64	230	171	242	124	204	345	324	608	34	144
19	120	67	230	173	242	104	204	340	328	305	34	144
20	104	e65	230	173	242	85	201	339	452	153	35	181
21	92	e62	231	172	241	75	200	362	451	149	35	369
22	84	e61	231	173	236	72	196	366	450	302	35	458
23	80	e59	229	173	215	68	191	394	576	285	35	448
24	76	58	228	173	215	66	188	389	746	296	35	491
25	93	58	226	172	216	64	198	385	748	416	54	847
26	120	58	226	172	234	64	247	381	745	494	36	1030
27	374	57	226	172	225	75	249	405	811	496	34	1110
28	335	58	224	172	179	167	254	420	801	503	34	892
29	659	59	196	172	---	162	253	724	818	679	34	851
30	702	60	779	172	---	106	250	534	723	696	35	921
31	740	---	473	172	---	105	---	545	---	667	36	---
TOTAL	11028	3296	7707	4522	6294	3034	7222	12037	14183	13870	1738	10545
MEAN	356	110	249	146	225	97.9	241	388	473	447	56.1	351
MAX	808	644	779	363	244	184	722	724	818	696	460	1110
MIN	76	57	77	60	170	62	105	249	156	149	34	117
AC-FT	21870	6540	15290	8970	12480	6020	14320	23880	28130	27510	3450	20920



## NUECES RIVER MAIN STEM

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1995#, BY WATER YEAR (WY)

MEAN	531	302	291	275	346	243	343	602	1254	620	282	302
MAX	2126	1805	1572	1361	2808	1015	1730	2514	8451	2687	1643	1699
(WY)	1986	1986	1992	1992	1992	1992	1992	1992	1987	1990	1990	1983
MIN	41.6	21.7	10.8	10.9	10.9	10.3	4.30	10.2	39.2	26.9	1.47	1.28
(WY)	1994	1983	1984	1983	1984	1984	1984	1984	1988	1986	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1983 - 1995#
ANNUAL TOTAL	109155	95476	
ANNUAL MEAN	299	262	449
HIGHEST ANNUAL MEAN			1261 1992
LOWEST ANNUAL MEAN			82.3 1984
HIGHEST DAILY MEAN	3720 May 17	1110 Sep 27	17600 Sep 21 1983
LOWEST DAILY MEAN	42 Apr 14	34 Aug 10	.55 Aug 29 1984
ANNUAL SEVEN-DAY MINIMUM	43 Apr 9	34 Aug 13	.57 Aug 25 1984
INSTANTANEOUS PEAK FLOW		1160 Sep 27	18300 Sep 21 1983
INSTANTANEOUS PEAK STAGE		9.04 Sep 27	37.29 Jun 22 1987
ANNUAL RUNOFF (AC-FT)	216500	189400	325300
10 PERCENT EXCEEDS	610	555	979
50 PERCENT EXCEEDS	182	220	130
90 PERCENT EXCEEDS	61	59	10

e Estimated

# Period of regulated streamflow.



08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1941 to September 1952. Chemical and biochemical analyses: May 1965 to current year. Pesticide analyses: January 1968 to May 1982. Sediment analyses: October 1941 to August 1945, March 1951 to September 1952, October 1974 to August 1994.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1941 to September 1952, October 1974 to September 1981.

WATER TEMPERATURE: October 1950 to September 1952, October 1974 to September 1981.

SUSPENDED-SEDIMENT DISCHARGE: October 1950 to September 1951.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,310 microsiemens Jan. 17, 1977; minimum daily, 157 microsiemens May 26, 1975.  
WATER TEMPERATURE: Maximum daily, 32.0°C on several days during summers of 1977, 1978, and 1981; minimum daily, 7.0°C Jan. 2, 3, 1979.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	
FEB 28...	1330	178	840	7.3	15.0	14	13	8.9	88	1.7	K150	K30	
MAY 23...	1330	394	770	8.3	25.0	22	17	8.6	105	0.8	110	480	
JUL 25...	1530	412	725	8.1	29.5	15	5.3	7.2	95	1.8	80	140	
AUG 29...	0930	34	806	8.1	28.0	22	8.8	8.0	101	1.0	120	42	
DATE		HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
FEB 28...	190	57	56	12	83	3	9.5	130	71	130	0.20	15	
MAY 23...	190	49	55	13	75	2	9.4	140	74	110	0.20	15	
JUL 25...	170	44	48	12	68	2	9.7	130	69	100	0.20	17	
AUG 29...	190	71	53	13	77	2	11	120	84	120	0.20	17	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)
FEB 28...	458	12	8	4	0.100	--	<0.010	0.100	0.100	0.100	0.060	0.44	0.50
MAY 23...	438	45	4	41	0.150	0.150	0.010	0.160	0.160	0.160	0.040	0.36	0.40
JUL 25...	400	8	7	1	--	--	<0.010	--	<0.050	0.040	0.36	0.40	
AUG 29...	445	15	<1	--	0.060	--	<0.010	0.060	0.060	0.060	0.040	0.36	0.40
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB 28...	0.040	0.030	0.09	7.5	4	96	<0.5	2.0	<5	<3	<10	<3	
MAY 23...	0.030	0.020	0.06	10	4	96	<0.5	2.0	7	<3	<10	4	
JUL 25...	0.010	<0.010	--	5.8	4	92	<0.5	<1.0	<5	<3	<10	<3	
AUG 29...	<0.010	0.010	0.03	7.2	4	97	<0.5	1.0	<5	<3	<10	<3	
DATE		LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 28...	<10	22	3	<0.1	<10	<10	<1	<1.0	440	<6	<3		
MAY 23...	30	31	<1	<0.1	<10	<10	<1	1.0	390	7	12		
JUL 25...	30	18	2	0.3	<10	<10	<1	1.0	370	<6	4		
AUG 29...	10	20	4	<0.1	<10	<10	<1	<1.0	410	<6	<3		

## 08210500 LAKE CORPUS CHRISTI NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°52'15", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, on right upstream corner of outlet tower at right end of Wesley E. Seale Dam on Nueces River, 0.6 mi upstream from bridge on State Highway 359, and 4.5 mi southwest of Mathis.

DRAINAGE AREA.--16,656 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1948 to current year. Prior to October 1960, month end records only. The Natural Resources Conservation Service, in cooperation with the Texas Natural Resources Conservation Commission, collected fragmentary gage-height records in connection with sedimentation studies from Feb. 2, 1942, to July 10, 1947.

REVISED RECORDS.--WSP 1923: 1953(M), 1957(M).

GAUGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is sea level. Prior to Oct. 1, 1957, nonrecording gage at various sites 0.2 mi upstream at datum 0.52 ft higher. Oct. 1, 1957, to Apr. 3, 1961, nonrecording gage near left end of Mathis Dam 0.2 mi upstream at present datum.

REMARKS.--Mathis Dam was completed and storage began July 24, 1934. The original capacity at spillway crest (elevation, 74.5 ft) was 54,000 acre-ft, but by March 1948 had decreased to 39,400 acre-ft because of sedimentation. Wesley E. Seale Dam was completed and deliberate impoundment began on Apr. 26, 1958, submerging the old Mathis Dam. Wesley E. Seale Dam is a rolled earthfill dam, 5,930 ft long, including two spillways. The 1,320-foot north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080-foot south spillway has 27 gates that are electrically operated from the control tower. The gates were repaired and modified in August 1966. All gates in both spillways are 37.5 by 8.75 ft wide. Water for municipal supply for the city of Corpus Christi is released downstream through a 4.0-foot-diameter cylinder valve and three 2.5- by 4.0-foot rectangular openings. The releases are diverted from the river at Calallen 35 mi downstream for domestic, municipal, irrigation, mining, and industrial uses in the Corpus Christi area. The cities of Alice, Beeville, and Mathis withdrew 7,700 acre-ft from the lake during the current year for municipal use. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	106.0	-
Top of north spillway gates.....	94.46	-
Top of south spillway gates.....	94.0	241,200
Crest of spillways.....	88.0	137,100
Lowest gated outlet (invert).....	55.5	-

COOPERATION.--Capacity curve 5-C is from a January 1987 survey provided by the city of Corpus Christi. Figures for new capacity curve were used beginning Oct. 1, 1989. Elevation and content records were provided by the city of Corpus Christi.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 320,000 acre-ft Sept. 22, 1967, and Sept. 12, 1971; maximum elevation, 94.82 ft Sept. 22, 1967; minimum contents, 14,740 acre-ft May 5, 1951 (elevation, 67.62 ft).

EXTREMES (AT 0600) FOR CURRENT YEAR.--Maximum contents, 148,300 acre-ft Oct. 20 (elevation, 88.7 ft); minimum, 121,700 acre-ft Sept. 21 (elevation, 87.0 ft).

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

86.0	107,900	89.0	152,800	92.0	204,000
87.0	122,100	90.0	169,200	93.0	222,300
88.0	137,100	91.0	186,300	94.0	241,200

NUECES RIVER MAIN STEM

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08210500 LAKE CORPUS CHRISTI NEAR MATHIS, TX--Continued

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136300	147200	137500	140500	137700	140800	137700	137500	142600	139700	136600	125100
2	137100	147200	137200	140600	137800	141100	137500	137400	142800	139800	138300	125100
3	137200	148000	137400	140900	137500	141500	137400	137200	142800	139800	137800	124900
4	137200	147700	137500	141400	137700	141700	137100	137200	142900	140200	137200	124600
5	137500	147500	137500	141700	137500	141900	138300	137100	142500	140200	136600	124600
6	137700	147800	137500	141400	137400	142200	138900	137100	141700	141700	135700	124300
7	137800	147800	137700	140900	137400	142300	139200	137100	141200	142200	134900	124000
8	138300	147700	137700	141200	137500	142300	138800	137100	140600	142200	134500	124300
9	138500	147200	138200	140900	137500	142200	138500	137100	140200	142000	133900	124500
10	138600	147200	138600	140500	137700	141400	138500	137100	140200	141700	133600	124000
11	139500	146600	138600	139800	137700	140900	140000	136900	140200	141500	133000	123900
12	140900	145800	138000	139500	137800	140500	140600	137100	140900	142000	132500	123500
13	141400	145100	138600	139500	137800	142000	140800	137100	140900	141900	132700	123000
14	142900	145000	138600	139400	138000	142300	140600	137100	140000	141500	132400	123000
15	143900	144700	138600	139200	138300	142300	140500	137400	139400	141500	131900	122700
16	144400	144500	138600	138600	138500	142000	140300	137400	138900	141200	131500	123000
17	144500	143700	138600	138200	138500	142000	140200	137100	138500	141400	130700	122700
18	145000	142900	138600	138000	138600	142000	140000	137200	138200	141200	130400	122600
19	148000	142300	139400	137500	139100	141900	140500	137200	137800	141400	130000	122000
20	148300	142000	139500	137500	139700	141500	140300	137100	137500	140900	129500	121800
21	147700	142000	139700	137200	139800	141700	140000	137100	137100	139700	129200	121700
22	146400	141700	139800	137400	140200	141400	139700	136500	137100	139200	128800	121800
23	145800	141700	139800	137400	140200	140900	139700	136200	136500	138300	128500	121800
24	145500	141700	139400	137700	140000	140500	139400	136600	135600	137700	127900	123200
25	144500	141400	139100	137500	140200	140200	138600	136900	135400	136800	127300	123600
26	145600	140500	137800	137500	140500	139800	138000	137100	135200	135600	127000	124000
27	144500	140000	137500	137500	140600	139200	138200	136900	135400	134900	126500	125100
28	144800	139500	137800	137800	140800	138900	138000	137200	135600	134500	126100	126000
29	144400	139200	138800	138200	---	138800	137800	137400	136200	135100	125700	126500
30	144700	138600	139100	138600	---	138500	137700	138300	138600	135900	125200	127300
31	145600	---	139800	138300	---	137800	---	142500	---	136600	124800	---
MAX	148300	148000	139800	141700	140800	142300	140800	142500	142900	142200	138300	127300
MIN	136300	138600	137200	137200	137400	137800	137100	136200	135200	134500	124800	121700
(+)	88.6	88.1	88.2	88.1	88.2	88.0	88.0	88.4	88.1	88.0	87.2	87.4
(@)	+9600	-7000	+1200	-1500	+2500	-3000	-100	+4800	-3900	-2000	-11800	+2500

CAL YR 1994 MAX 167000 MIN 135200 (@) -200  
WTR YR 1995 MAX 148300 MIN 121700 (@) -8700

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

## NUECES RIVER MAIN STEM

08211000 NUECES RIVER NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°51'36", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, at downstream side of bridge on State Highway 359, 0.6 mi downstream from Wesley E. Seale Dam, 4 mi southwest of Mathis, and at mile 46.7.

DRAINAGE AREA.--16,660 mi<sup>2</sup>, of which 16,656 mi<sup>2</sup> is above Wesley E. Seale Dam.

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

Water-quality records.--Chemical analyses: October 1947 to September 1991. Specific conductance: October 1947 to September 1991. Water temperature: October 1947 to September 1991.

GAGE.--Water-stage recorder. Datum of gage is 26.53 ft above sea level. Aug. 5, 1939, to Aug. 29, 1984, on left bank 9 ft upstream at datum 1.0 ft higher. Aug. 29 to Nov. 5, 1984, on left bank 9 ft upstream at present datum. Nov. 5, 1984, to Aug. 5, 1987, on left bank 154 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Lake Corpus Christi (station 08210500) 0.6 mi upstream. Upstream from Lake Corpus Christi, flow is affected by recharge to permeable formations, small diversions, and minor regulation. Water for municipal and industrial uses at Corpus Christi is released from Lake Corpus Christi above gage and is diverted from river at Calallen 34 mi downstream. Rain gage at station. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 41 ft, present datum, occurred Sept. 20, 1919, from information by Texas and New Orleans Railroad Co. and is the second highest known. Maximum stage since at least 1888, that of Sept. 24, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	160	144	129	110	131	117	164	298	169	136	145
2	206	161	134	129	121	91	125	191	299	175	161	135
3	167	162	134	129	129	91	143	115	326	175	167	127
4	152	162	134	129	183	92	137	174	374	176	184	143
5	154	163	134	157	181	92	143	159	374	173	198	159
6	149	162	133	187	129	93	134	159	375	200	213	169
7	151	162	133	188	129	154	154	159	375	265	221	171
8	155	144	130	188	129	156	137	159	374	249	196	174
9	120	128	137	237	129	156	124	204	375	249	182	174
10	121	129	134	311	129	148	130	344	376	246	172	174
11	120	129	120	256	129	132	131	441	379	243	137	171
12	155	178	137	177	125	108	138	140	377	243	116	161
13	168	154	139	175	111	109	143	135	374	243	125	170
14	169	173	140	174	111	107	142	149	372	313	151	151
15	150	162	140	173	118	100	141	128	371	362	124	147
16	138	184	140	173	129	88	136	162	371	363	119	144
17	140	182	141	139	129	87	133	192	371	405	135	144
18	141	194	137	113	109	87	147	198	371	489	151	144
19	172	182	121	111	93	101	160	200	371	487	150	163
20	311	164	121	111	93	111	161	207	371	485	150	171
21	469	160	198	111	93	148	160	181	371	484	165	169
22	454	152	402	111	150	179	160	184	407	483	173	134
23	451	143	414	111	234	173	154	178	604	483	152	128
24	452	148	414	110	258	182	150	176	615	483	151	127
25	444	165	415	110	259	205	226	183	616	482	149	254
26	427	166	334	110	252	227	267	199	616	481	149	475
27	315	141	260	110	153	236	268	203	514	309	146	476
28	202	159	200	110	148	254	281	205	224	175	142	475
29	205	153	146	110	---	241	284	163	224	177	142	474
30	191	153	150	110	---	168	168	172	206	184	142	473
31	183	---	129	110	---	116	---	297	---	166	143	---
TOTAL	7040	4775	5745	4599	4063	4363	4894	5921	11671	9617	4842	6322
MEAN	227	159	185	148	145	141	163	191	389	310	156	211
MAX	469	194	415	311	259	254	284	441	616	489	221	476
MIN	120	128	120	110	93	87	117	115	206	166	116	127
AC-FT	13960	9470	11400	9120	8060	8650	9710	11740	23150	19080	9600	12540

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	1298	440	201	307	344	292	453	1281	1349	848	544	1571
MEAN	1298	440	201	307	344	292	453	1281	1349	848	544	1571
MAX	14850	4552	1871	4994	5165	4377	4639	10500	8204	10440	10050	24950
(WY)	1972	1977	1977	1958	1958	1958	1977	1941	1987	1942	1971	1967
MIN	55.3	31.0	27.9	28.1	24.3	31.0	37.3	39.3	43.7	67.0	41.6	44.0
(WY)	1953	1940	1940	1940	1942	1948	1948	1948	1948	1951	1943	1945

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	93991	73852	746
ANNUAL MEAN	258	202	2167
HIGHEST ANNUAL MEAN			104
LOWEST ANNUAL MEAN			1967
HIGHEST DAILY MEAN	893	Apr 30	125000
LOWEST DAILY MEAN	77	Jan 25	6.8
ANNUAL SEVEN-DAY MINIMUM	88	Feb 2	15
INSTANTANEOUS PEAK FLOW			138000
INSTANTANEOUS PEAK STAGE			48.70
ANNUAL RUNOFF (AC-FT)	186400	146500	540400
10 PERCENT EXCEEDS	486	375	1320
50 PERCENT EXCEEDS	182	161	128
90 PERCENT EXCEEDS	118	116	51

NUECES RIVER MAIN STEM

401

08211200 NUECES RIVER AT BLUNTZER, TX

LOCATION.--Lat 27°56'15", long 97°46'32", Nueces County, Hydrologic Unit 12110111, on right bank, at downstream end of bridge on Farm Road 666, 1.2 mi south of San Patricio, 5.5 mi upstream from Cayamon Creek, and 10.3 mi northwest of Calallen.

DRAINAGE AREA.--16,772 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1966 to February 1967, March 1992 to current year (operated as a low-flow station only). Prior to October 1994, published as "above Calallen".

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Mar. 27, 1992, at same site at datum 6.04 ft higher.

REMARKS.--No estimated daily discharges. Records good. Daily discharges are published only for days when instantaneous maximum discharge does not exceed 2,950 ft<sup>3</sup>/s. Flow is largely regulated by Lake Corpus Christi (station 08210500). Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 27.18 ft Mar. 29, 1992, at 1500 hours; minimum daily discharge, 83 ft<sup>3</sup>/s Feb. 7-9, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 11.03 ft June 27 at 0800 hours; minimum daily discharge, 106 ft<sup>3</sup>/s Mar. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	192	159	151	127	177	126	180	318	198	146	146
2	216	177	150	145	127	139	124	173	315	177	143	145
3	202	175	148	142	130	116	132	167	315	176	149	132
4	165	176	148	142	135	111	149	160	356	176	153	126
5	154	175	148	142	193	111	188	169	384	176	168	135
6	153	175	148	178	161	110	176	162	390	165	180	144
7	152	174	148	192	140	125	153	163	392	218	194	154
8	295	174	148	194	137	157	160	163	395	251	200	158
9	331	152	146	197	136	159	137	162	395	247	178	161
10	181	145	158	278	133	160	131	241	396	243	172	164
11	141	144	142	330	133	151	138	412	407	243	159	167
12	137	157	141	243	134	134	134	368	408	239	159	156
13	166	176	145	194	130	127	142	176	403	239	133	153
14	170	167	150	188	127	131	145	160	401	244	137	162
15	172	180	151	186	126	118	144	144	401	331	143	148
16	150	177	151	183	129	113	142	136	401	364	124	145
17	144	190	151	182	133	108	138	171	401	371	122	139
18	145	192	152	141	134	106	135	185	401	444	135	134
19	225	202	146	130	118	106	155	193	403	494	141	133
20	217	185	138	126	113	115	164	194	405	504	141	146
21	398	175	137	127	111	121	165	196	402	507	142	156
22	461	168	285	127	113	145	167	182	398	508	151	162
23	468	161	409	126	174	167	167	182	489	509	160	136
24	469	154	431	126	234	162	159	176	615	510	156	129
25	472	164	436	124	262	188	167	174	646	508	156	127
26	477	172	435	125	269	214	250	180	654	508	152	306
27	464	168	332	125	235	231	279	188	656	494	150	417
28	313	154	353	125	188	249	287	192	460	283	145	440
29	248	163	239	126	---	263	307	196	281	189	142	447
30	223	161	183	127	---	244	268	159	244	181	141	452
31	208	---	165	127	---	156	---	279	---	173	141	---
TOTAL	7943	5125	6373	5049	4282	4714	5129	5983	12532	9870	4713	5720
MEAN	256	171	206	163	153	152	171	193	418	318	152	191
MAX	477	202	436	330	269	263	307	412	656	510	200	452
MIN	137	144	137	124	111	106	124	136	244	165	122	126
AC-FT	15750	10170	12640	10010	8490	9350	10170	11870	24860	19580	9350	11350

CAL YR 1994 TOTAL 102228 MEAN 280 MAX 1820 MIN 120 AC-FT 202800  
WTR YR 1995 TOTAL 77433 MEAN 212 MAX 656 MIN 106 AC-FT 153600



## NUECES RIVER BASIN

08211500 NUECES RIVER AT CALLEN, TX

LOCATION.--Lat 27°52'34", Long 97°37'32", Nueces County, Hydrologic Unit 12110111, at the Cunningham pumping station in Corpus Christi, 0.4 mi upstream from Calallen Dam, 0.5 mi northwest of Calallen, about 1.4 mi upstream from bridge on Interstate Highway 37, about 1.5 mi upstream from Missouri-Pacific Railroad bridge, and about 8 mi upstream from Nueces Bay.

DRAINAGE AREA.--16,920 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year (operated as a low-flow station only). Maximum annual gage height and discharge were published at this site from October 1983 to September 1989. Gage-height records collected from April 1920 to July 1950 were not published but are filed in the District Office in Austin. Records collected from August 1915 to September 1918 (referenced in WSP 1312) are unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 0.84 ft above sea level. From Aug. 12, 1915, to Mar. 31, 1919, and Apr. 1, 1920, to July 31, 1950, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records poor. Daily discharges are published only for days when instantaneous maximum discharge does not exceed 2,570 ft<sup>3</sup>/s. There are numerous diversions above station for agricultural, municipal, and industrial supply. The cities of Corpus Christi, San Patricio, Robstown, and the Nueces River Water Control and Improvement District No. 3 have a combined withdrawal capacity of 205,500 gallons/minute. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,780 ft<sup>3</sup>/s June 11, 1987 (gage height, 9.25 ft), from extension of rating above 2,500 ft<sup>3</sup>/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft<sup>3</sup>/s Oct. 8 at 0700 hours (gage height, 6.88 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	15	22	34	.00	60	28	24	88	30	.40	9.7
2	21	15	9.3	30	.00	37	12	5.0	86	23	.00	14
3	14	12	21	26	.00	17	6.5	20	69	12	.00	6.9
4	5.7	9.1	13	18	.00	8.4	27	12	105	7.1	.00	.00
5	2.8	15	11	20	6.1	11	28	1.4	122	12	.00	.00
6	2.2	5.9	6.4	29	36	1.8	42	7.0	137	4.9	.00	.00
7	.06	11	17	52	14	30	29	15	143	8.0	.00	.00
8	491	9.6	2.9	44	8.5	28	25	8.1	152	37	.00	.00
9	196	7.2	2.9	40	9.7	29	18	.18	148	32	.00	2.3
10	51	1.1	28	99	8.9	26	6.8	7.4	133	37	.00	10
11	20	2.4	18	167	15	25	16	112	168	27	13	.18
12	8.2	.70	2.9	129	1.5	14	10	220	213	24	42	.00
13	13	24	2.4	56	.28	15	8.6	41	173	26	23	.25
14	19	4.5	20	50	1.8	19	12	9.2	178	25	.27	7.0
15	22	31	15	47	.93	5.4	15	.04	141	48	3.1	14
16	12	21	8.3	31	5.3	.24	15	.00	142	105	1.0	6.6
17	8.3	25	19	64	7.6	.00	6.8	.00	160	99	.36	.64
18	8.1	36	29	27	23	.00	3.7	.00	162	151	.00	.00
19	18	44	7.4	12	14	.00	4.3	.00	163	248	.00	.00
20	32	34	11	.23	1.8	.00	14	.00	168	261	.00	.00
21	93	24	13	3.7	.00	.00	9.9	4.1	157	278	.00	.00
22	166	20	48	2.4	.00	.00	13	1.5	141	276	.00	14
23	186	28	239	.00	.00	.00	25	.14	196	297	5.2	9.4
24	151	20	270	.00	25	.00	14	.27	357	254	15	9.4
25	179	20	330	.00	81	17	13	.00	437	255	12	1.9
26	204	22	338	.00	95	53	30	.00	415	256	15	28
27	177	38	204	.00	80	55	83	.00	405	250	11	217
28	110	5.2	246	.00	92	68	76	.00	299	111	7.5	283
29	44	18	145	3.7	---	86	75	13	84	19	9.3	311
30	45	9.2	69	.55	---	86	90	30	77	.02	4.4	317
31	26	---	46	.00	---	52	---	41	---	.01	.81	---
TOTAL	2356.36	527.90	2214.5	985.58	527.41	743.84	756.6	572.33	5419	3213.03	163.34	1262.27
MEAN	76.0	17.6	71.4	31.8	18.8	24.0	25.2	18.5	181	104	5.27	42.1
MAX	491	44	338	167	95	86	90	220	437	297	42	317
MIN	.06	.70	2.4	.00	.00	.00	3.7	.00	69	.01	.00	.00
AC-FT	4670	1050	4390	1950	1050	1480	1500	1140	10750	6370	324	2500

CAL YR 1994 TOTAL 26104.42 MEAN 71.5 MAX 1050 MIN .00 AC-FT 51780  
WTR YR 1995 TOTAL 18742.16 MEAN 51.3 MAX 491 MIN .00 AC-FT 37180



## 08211520 OSO CREEK AT CORPUS CHRISTI, TX

LOCATION.--Lat 27°42'40", long 97°30'06", Nueces County, Hydrologic Unit 12110202, on left downstream end of bridge on Farm Road 763, 1.5 mi south of intersection of Farm Roads 763 and 665, 1.6 mi downstream from mouth of West Oso Creek, and 1.9 mi southwest of intersection of Farm Road 665 and State Highway 357.

DRAINAGE AREA.--90.3 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1972 to current year.

Water-quality records.--Chemical and biochemical analyses: July 1972 to August 1988. Pesticide analyses: July 1972 to July 1981.

GAGE.--Water-stage recorder. Datum of gage is 1.91 ft below sea level.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. An undetermined amount of water from oil-field operations enters the stream upstream from station at various points.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 24.5 ft occurred in May 1968, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 9	0500	1,970	20.37	Mar. 7	2200	3,880	23.73
Dec. 28	1500	1,220	18.13				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	3.2	2.5	14	2.5	204	3.0	2.5	20	2.9	1.2	7.1
2	1.6	2.9	100	8.7	2.5	34	3.0	2.6	6.3	3.0	1.3	11
3	1.5	2.7	177	32	2.5	8.6	2.9	2.8	3.2	2.6	3.3	3.9
4	1.5	2.6	8.3	8.9	2.4	4.9	3.8	2.8	2.4	2.3	3.9	2.1
5	1.5	2.5	4.0	5.7	2.3	3.9	3.0	2.7	2.1	2.1	8.4	1.7
6	1.6	2.4	3.2	4.9	2.3	3.4	2.9	2.6	2.0	1.9	3.1	1.5
7	1.7	2.4	3.0	4.3	2.4	1530	2.9	2.5	1.9	1.7	1.8	1.4
8	569	2.4	2.7	3.7	2.5	1590	2.8	2.4	1.8	1.7	1.4	1.3
9	1530	2.4	19	3.5	2.5	166	2.8	2.6	1.7	1.5	1.7	1.3
10	587	2.4	12	3.4	2.5	46	2.7	2.8	1.7	1.5	1.9	1.3
11	278	2.4	4.5	3.3	2.7	18	2.8	2.4	3.2	1.4	2.8	1.2
12	120	2.4	3.1	3.2	2.6	9.3	2.6	2.4	3.6	1.5	15	1.2
13	59	2.4	2.7	3.1	2.4	180	2.7	2.3	5.2	1.5	40	1.3
14	20	2.4	2.5	3.2	2.4	90	2.8	2.3	3.1	1.5	31	1.4
15	8.0	2.5	2.4	3.3	2.4	21	3.0	2.2	2.2	1.3	8.6	1.4
16	5.2	2.7	2.3	3.0	2.4	9.2	3.0	2.2	1.8	1.3	3.4	1.4
17	4.2	2.7	14	2.8	2.5	6.4	2.9	2.2	1.7	1.3	2.1	1.4
18	3.7	2.8	134	2.8	2.5	5.2	2.8	2.2	1.8	1.3	1.7	1.5
19	3.5	2.8	24	2.7	2.6	4.4	2.8	2.2	37	1.3	1.5	1.6
20	3.3	2.5	6.1	2.6	2.8	4.1	2.7	2.1	96	1.3	1.4	1.8
21	3.2	2.4	3.4	2.6	2.6	3.8	2.6	2.1	16	2.3	1.3	2.3
22	3.1	2.5	2.8	2.7	2.4	3.6	2.6	2.1	7.0	4.5	1.4	91
23	3.0	2.7	2.5	2.6	2.4	3.5	2.6	2.0	6.2	2.9	1.4	63
24	2.9	2.7	2.4	2.6	2.5	3.4	2.5	2.0	4.4	1.6	2.6	36
25	2.9	2.6	2.3	2.6	2.6	3.3	2.4	2.0	2.7	1.5	1.6	7.7
26	38	2.7	2.2	2.8	2.7	3.1	2.4	2.0	2.4	1.7	1.7	3.8
27	31	2.6	2.3	2.9	2.5	3.1	2.4	2.0	2.4	1.4	1.6	2.8
28	39	2.6	841	2.7	247	3.1	2.4	2.1	2.5	1.2	1.6	2.4
29	25	2.7	370	2.6	---	3.0	2.5	12	3.2	1.2	1.4	2.0
30	7.5	2.7	68	2.6	---	3.0	2.5	41	2.9	1.3	3.3	1.8
31	4.2	---	28	2.5	---	3.0	---	22	---	1.2	5.0	---
TOTAL	3361.7	77.7	1852.2	148.3	314.4	3974.3	82.8	140.1	248.4	55.7	158.4	259.6
MEAN	108	2.59	59.7	4.78	11.2	128	2.76	4.52	8.28	1.80	5.11	8.65
MAX	1530	3.2	841	32	247	1590	3.8	41	96	4.5	40	91
MIN	1.5	2.4	2.2	2.5	2.3	3.0	2.4	2.0	1.7	1.2	1.2	1.2
AC-FT	6670	154	3670	294	624	7880	164	278	493	110	314	515

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1995, BY WATER YEAR (WY)

	MEAN	48.6	20.4	16.6	14.1	23.5	18.4	16.8	35.8	61.8	26.8	24.5	48.8
MAX	355	119	181	130	238	128	96.0	185	379	339	454	228	
(WY)	1974	1982	1992	1984	1982	1995	1990	1993	1993	1976	1980	1979	
MIN	1.26	1.40	1.27	1.53	1.29	.89	1.05	1.71	1.28	1.09	1.07	1.91	
(WY)	1991	1994	1991	1993	1975	1988	1975	1978	1980	1977	1974	1986	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1972 - 1995

ANNUAL TOTAL	6273.4	10673.6	
ANNUAL MEAN	17.2	29.2	
HIGHEST ANNUAL MEAN			29.6
LOWEST ANNUAL MEAN			54.3
HIGHEST DAILY MEAN	1530	Oct 9	3.03
LOWEST DAILY MEAN	1.2	Jul 29	6160
ANNUAL SEVEN-DAY MINIMUM	1.3	Jul 24	.27
INSTANTANEOUS PEAK FLOW			.35
INSTANTANEOUS PEAK STAGE			23.73
ANNUAL RUNOFF (AC-FT)	12440	21170	21470
10 PERCENT EXCEEDS	11	23	21
50 PERCENT EXCEEDS	1.9	2.7	2.4
90 PERCENT EXCEEDS	1.4	1.5	1.2

## RIO GRANDE MAIN STEM

08364000 RIO GRANDE AT EL PASO, TX

LOCATION.--Lat 31°48'10", long 106°32'25", El Paso County, Hydrologic Unit 13030102, at gaging station on the downstream side of the Courchesne Bridge, 5.6 mi upstream from the Santa Fe Street-Juarez Avenue bridge between El Paso, Tex., and Cd. Juarez, Mex., and 1.7 mi upstream from the American Dam.

DRAINAGE AREA.--29,267 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical analyses: February 1930 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
JUN										
01...	0835	1230	1110	8.0	21.0	250	70	74	17	
22...	0755	1440	945	8.1	22.0	210	50	61	15	
JUL										
20...	0800	2520	854	7.8	24.5	200	54	55	14	
AUG										
17...	0815	1480	1330	8.0	24.5	270	93	74	20	
SEP										
21...	0805	960	1540	8.0	22.0	280	120	79	19	
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JUN										
01...	130	4		7.0	180	210	110	0.60	11	671
22...	110	3		6.6	160	180	80	0.60	13	565
JUL										
20...	110	3		6.5	140	170	96	0.60	11	548
AUG										
17...	170	5		7.2	170	250	160	0.60	16	802
SEP										
21...	200	5		7.7	150	300	190	0.70	17	906

RIO GRANDE MAIN STEM

405

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX  
(National stream-quality accounting network)

LOCATION.--Lat 29°46'50", Long 101°45'20", Val Verde County, Hydrologic Unit 13040212, at gaging station 0.1 mi downstream from Terrell-Val Verde County line, 16.9 mi from Langtry, and 597.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--80,742 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: July 1975 to June 1982. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURE: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,110 microsiemens Dec. 4, 1974; minimum daily, 225 microsiemens May 2, 1981.

WATER TEMPERATURE: Maximum daily, 32.0°C June 13, 1977, July 25, 26, 1979, July 4, 1980, and June 8, 1981; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976, and Jan. 18, 1981.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATURATION)	OXYGEN, BIOLOGICAL, 5 DAY (MG/L)	COLIFORM, FECCAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECCAL, KF AGAR (COLS. PER 100 ML)
NOV 29...	1000	550	1620	8.4	14.0	66	9.8	99	1.4	K9	K23
FEB 07...	1042	458	1530	8.4	10.5	90	10.7	101	2.7	K10	53
MAY 24...	1335	2420	516	7.9	23.5	1400	5.4	67	15	K10000	K11000
AUG 15...	1225	1400	1550	8.2	27.0	460	7.3	97	2.3	80	210

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONATE, FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM DIS-SOLVED (MG/L AS Mg)	SODIUM DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS-IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS-IT FIELD (MG/L AS HCO3)	ALKALINITY, WAT DIS TOT IT (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 29...	350	210	93	27	220	5	7.3	2	163	138	370
FEB 07...	320	180	85	26	190	5	6.8	5	167	146	310
MAY 24...	150	70	44	8.9	44	2	4.3	0	94	77	110
AUG 15...	340	140	100	21	200	5	11	0	238	195	280

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 29...	210	--	18	1080	1030	0.480	--	<0.010	0.480	0.480	<0.015
FEB 07...	200	1.2	11	986	920	0.170	0.170	0.030	0.200	0.200	<0.015
MAY 24...	35	0.60	8.9	318	306	0.730	0.730	0.030	0.760	0.760	0.200
AUG 15...	210	1.0	18	980	962	0.460	--	<0.010	0.460	0.460	0.030

DATE	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, ORGANIC (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SEDIMENT, SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DIS-SOLVED (UG/L AS AL)
NOV 29...	0.78	0.30	0.30	0.050	<0.010	<0.010	--	135	200	100	<10
FEB 07...	0.40	0.20	0.20	<0.010	<0.010	<0.010	--	150	185	100	<10
MAY 24...	1.5	0.50	0.70	0.060	<0.010	<0.010	--	2910	19000	99	40
AUG 15...	0.96	0.47	0.50	0.070	0.020	0.020	0.06	789	2980	98	<10

## RIO GRANDE MAIN STEM

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 29...	86	<3	<3	120	2	20	2	1	<1.0	2000	<6
FEB 07...	78	<3	<3	110	<1	<10	1	1	<1.0	2000	6
MAY 24...	55	<3	39	31	4	10	<1	1	<1.0	720	<6
AUG 15...	140	<3	<3	120	1	10	2	<1	<1.0	1700	9

RIO GRANDE BASIN

407

08407500 PECOS RIVER AT RED BLUFF, NM

LOCATION.--Lat 32°04'30", long 104°02'21", in SWqNWqNEq sec.1, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13060011, on right bank at Red Bluff, 0.2 mi downstream from Red Bluff Draw, 1.6 mi northwest of the El Paso Natural Gas (Pecos River) compressor station, 5.2 mi north of the New Mexico-Texas State line, 5.5 mi upstream from Delaware River, and at mile 411.2.

DRAINAGE AREA.--19,540 mi<sup>2</sup>, approximately (contributing area).

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,850.05 ft above sea level.

REMARKS.--No estimated daily discharge. Records good. Flow regulated by many reservoirs and diversion dams. Diversions and ground-water withdrawals upstream from station for irrigation of about 202,000 acres, 1959 determination.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1904 reached a stage of 28.0 ft, from information by Panhandle and Santa Fe Railway Co. (For dates of other historical floods see stations 08404000, 08406500.)

DAY	DAILY MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	96	77	77	98	79	50	38	59	219	63	56
2	57	104	77	77	98	79	57	36	75	188	63	67
3	57	126	78	76	97	80	53	34	68	102	65	72
4	55	176	78	76	94	81	49	32	56	61	60	69
5	72	162	78	77	88	82	45	45	46	50	54	56
6	330	140	78	78	93	83	41	45	41	48	52	55
7	401	119	78	78	92	83	41	41	38	45	57	44
8	402	111	78	81	91	82	38	36	35	42	55	173
9	413	105	76	77	88	89	37	32	32	43	50	126
10	411	100	76	80	74	95	36	31	34	64	48	121
11	409	100	75	78	72	81	32	40	41	50	48	102
12	407	98	75	77	86	82	31	38	40	91	49	127
13	407	99	76	75	89	80	30	35	41	298	52	133
14	407	101	77	73	91	83	32	34	41	333	50	82
15	407	102	78	79	91	77	34	35	37	330	54	110
16	413	94	77	153	93	75	36	46	32	346	51	125
17	415	92	76	165	89	78	36	36	31	363	46	127
18	417	91	75	162	86	82	35	35	32	366	55	95
19	416	90	77	145	83	84	37	38	35	357	54	73
20	414	87	77	126	84	90	36	45	36	351	54	66
21	420	89	77	111	84	89	33	45	42	355	53	63
22	432	87	76	106	82	87	31	42	35	366	53	61
23	430	80	76	103	77	120	33	45	35	372	52	77
24	425	84	77	99	81	98	39	34	41	359	51	83
25	422	88	79	98	82	60	37	43	44	362	55	79
26	406	90	80	99	82	43	32	77	48	360	58	75
27	232	85	79	99	83	36	31	113	47	251	51	66
28	129	84	78	98	81	32	34	103	54	123	57	68
29	101	81	78	98	---	34	36	75	60	73	63	74
30	94	77	79	101	---	32	37	74	279	62	59	63
31	89	---	78	99	---	32	---	66	---	61	54	---
TOTAL	9542	3038	2394	3021	2429	2308	1129	1469	1535	6491	1686	2588
MEAN	308	101	77.2	97.5	86.7	74.5	37.6	47.4	51.2	209	54.4	86.3
MAX	432	176	80	165	98	120	57	113	279	372	65	173
MIN	52	77	75	73	72	32	30	31	31	42	46	44
AC-FT	18930	6030	4750	5990	4820	4580	2240	2910	3040	12870	3340	5130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

	MEAN	278	150	127	114	98.7	70.8	58.7	225	185	113	161	292
MAX	5255	1382	813	703	534	295	681	6954	3181	1273	4210	6521	
(WY)	1942	1942	1942	1942	1942	1942	1942	1941	1941	1941	1966	1941	
MIN	10.0	6.71	8.57	10.7	13.7	7.76	6.38	7.90	4.30	2.55	5.08	5.77	
(WY)	1965	1978	1978	1965	1965	1978	1978	1971	1990	1966	1964	1977	

SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1938 - 1995

ANNUAL TOTAL	33407	37630	
ANNUAL MEAN	91.5	103	156
HIGHEST ANNUAL MEAN			1655
LOWEST ANNUAL MEAN			19.2
HIGHEST DAILY MEAN	526	Jul 21	50700
LOWEST DAILY MEAN	32	Jul 10	.22
ANNUAL SEVEN-DAY MINIMUM	38	Aug 9	.33
INSTANTANEOUS PEAK FLOW			501
INSTANTANEOUS PEAK STAGE			5.72
ANNUAL RUNOFF (AC-FT)	66260	74640	113200
10 PERCENT EXCEEDS	140	262	208
50 PERCENT EXCEEDS	60	77	56
90 PERCENT EXCEEDS	42	36	14

a From rating curve extended above 32,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow.

## RIO GRANDE BASIN

08408500 DELAWARE RIVER NEAR RED BLUFF, NM

LOCATION.--Lat 32°01'23", long 104°03'15", in NEqSWqSeq sec.23, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13070002, near center of channel on downstream side of pier of bridge on U.S. Highway 285, 2.1 mi north of the New Mexico-Texas State line, 3.6 mi southwest of Red Bluff, 3.7 mi upstream from mouth and 14 mi south of Malaga. Mouth at Pecos River mile 405.6.

DRAINAGE AREA.--689 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1912 to September 1913, May 1914 to June 1915, October 1937 to current year. Published as "near Malaga" 1912-13, and as "near Angeles, Tex." 1914-15.

GAGE.--Water-stage recorder. Elevation of gage is 2,900.66 ft above sea level (U.S. Boundary Commission post). Prior to May 1914, at site 3.0 mi upstream at different datum. May 1914 to June 1915, at site 2.5 mi downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. One known upstream diversion. No flow for many days most years.

DAY	DAILY MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.75	1.4	2.0	2.0	1.9	2.0	1.8	.17	22	.00	.00
2	.00	.72	1.5	2.0	2.0	1.9	2.0	1.8	.18	7.7	.00	.00
3	.00	.66	1.5	2.0	2.0	2.0	1.8	1.6	.09	2.8	.00	.00
4	.00	.76	1.6	2.0	1.9	2.0	2.0	1.5	.02	1.4	.00	.00
5	.00	.87	1.6	2.1	2.0	1.9	2.1	1.6	.00	.68	.00	.00
6	.00	.83	1.6	2.1	2.0	1.9	2.0	4.3	.00	.26	.00	.00
7	.00	.89	1.6	1.9	2.0	1.8	1.9	2.8	.00	.05	.00	.00
8	.00	.86	1.6	1.9	2.0	1.8	1.8	1.5	.00	.00	.00	e49
9	.00	.76	1.6	1.8	2.0	1.8	1.7	1.2	.00	.00	.00	e1.7
10	.00	.75	1.7	1.8	2.0	1.8	1.5	1.0	.00	.00	.00	e.81
11	.00	.83	1.7	1.8	2.0	1.8	1.6	.95	.00	.00	.00	e110
12	.00	.86	1.7	1.8	2.0	1.9	1.6	.87	.00	.00	.00	e17
13	.00	.97	1.8	1.8	2.0	1.8	1.7	.78	.00	.00	.00	e9.6
14	.00	.98	1.8	1.8	2.0	1.8	1.7	.69	.00	.00	43	e5.2
15	.00	.98	1.8	1.9	2.0	1.8	1.7	.72	.00	.00	17	e2.5
16	.00	.98	1.8	2.0	2.2	1.8	1.7	.69	.00	.00	23	e8.3
17	.00	1.0	1.8	1.9	2.1	1.9	1.7	.74	.00	.00	16	e6.0
18	.00	1.1	1.8	2.0	2.1	1.9	1.6	.66	.00	.00	12	e2.2
19	.00	1.1	1.9	1.9	1.9	1.9	1.6	.69	.00	.00	7.4	e1.3
20	.00	1.1	1.9	2.0	1.9	1.8	1.6	.57	.00	.00	2.9	e13
21	.00	1.1	1.9	2.0	1.9	1.8	1.7	.39	.59	.00	1.1	e3.0
22	.00	1.1	1.9	2.0	1.9	1.8	1.6	.16	1.6	.00	.37	e3.1
23	.00	1.2	1.9	1.9	1.9	1.8	1.7	.00	1.0	.00	.12	e3.3
24	.00	1.3	2.1	2.0	1.9	1.7	1.9	.00	.16	.00	.02	e1.7
25	.19	1.3	2.1	2.0	1.9	1.6	2.1	.00	9.6	.00	.00	e.85
26	.36	1.3	2.0	2.2	1.9	1.6	2.1	1.2	5.8	.00	.00	e.78
27	.55	1.2	2.0	2.1	1.9	1.6	2.1	.87	1.9	.00	.00	e.92
28	.73	1.2	2.0	2.0	1.8	1.6	2.1	.31	.79	.00	.00	e1.1
29	.74	1.3	2.0	2.0	---	1.7	2.0	.21	9.7	.00	.00	e1.3
30	.73	1.3	2.0	2.0	---	1.7	1.8	.21	62	.00	.00	e1.4
31	.71	---	2.0	2.0	---	1.8	---	.16	---	.00	.00	---
TOTAL	4.01	30.05	55.6	60.7	55.2	55.9	54.4	29.97	93.60	34.89	122.91	244.06
MEAN	.13	1.00	1.79	1.96	1.97	1.80	1.81	.97	3.12	1.13	3.96	8.14
MAX	.74	1.3	2.1	2.2	2.2	2.0	2.1	4.3	62	22	43	110
MIN	.00	.66	1.4	1.8	1.8	1.6	1.5	.00	.00	.00	.00	.00
AC-FT	8.0	60	110	120	109	111	108	59	186	69	244	484

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

	MEAN	29.9	3.55	3.26	3.36	3.15	2.79	5.84	9.79	18.6	14.3	22.3	22.5
MAX	748	18.9	7.99	8.57	8.77	9.44	135	233	281	166	326	303	
(WY)	1956	1979	1987	1987	1987	1987	1954	1941	1938	1952	1966	1978	
MIN	.000	.030	.17	.41	.12	.42	.23	.003	.000	.000	.000	.000	
(WY)	1952	1965	1966	1965	1966	1993	1968	1950	1950	1947	1983	1953	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1938 - 1995

ANNUAL TOTAL	633.88	841.29	
ANNUAL MEAN	1.74	2.30	
HIGHEST ANNUAL MEAN			11.7
LOWEST ANNUAL MEAN			66.1
HIGHEST DAILY MEAN	61	May 22	1.78
LOWEST DAILY MEAN	.00	Jun 24	22000
ANNUAL SEVEN-DAY MINIMUM	.00	Jun 24	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			a81400
ANNUAL RUNOFF (AC-FT)	1260	1670	b27.00
10 PERCENT EXCEEDS	2.4	2.1	7.0
50 PERCENT EXCEEDS	1.3	1.6	2.3
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a From rating curve extended above 6,500 ft<sup>3</sup>/s, on basis of slope-area measurements at gage heights, 12.84 ft, 17.55 ft and 27.0 ft.

b From floodmarks.



RIO GRANDE BASIN  
08410000 RED BLUFF RESERVOIR NEAR ORLA, TX

LOCATION.--Lat 31°54'04", long 103°54'35", Reeves County, Hydrologic Unit 13070001, at right end of Red Bluff Dam on the Pecos River, 2.8 mi upstream from Salt Creek, and 5.2 mi north of Orla.

DRAINAGE AREA.--20,720 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--February 1937 to current year. Monthly contents only for some periods, published in WSP 1312.

GAGE.--Nonrecording gage. Datum of gage is 0.43 ft below sea level.

REMARKS.--Reservoir is formed by a rock-faced earthfill dam 9,200 ft long. The dam was completed and storage began in September 1936. The dam and reservoir are owned and operated by the Red Bluff Water Power Control District. The water is used for power development and for irrigation from Mentone to Grandfalls. The uncontrolled emergency spillway, 790 ft wide, is a cut through natural ground located to the right of right end of dam. The controlled service spillway is equipped with 12 tainter gates that are 25- by 15-ft high. Inflow is regulated by many reservoirs and diversion dams. The capacity curve is based on Geological Survey topographic map and aerial photography, survey of 1986. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam .....	2,856.0	
Crest of emergency spillway.....	2,845.0	324,000
Top of gates (top of conservation pool) .....	2,842.0	289,700
Crest of service spillway and bottom of tainter gates.....	2,827.0	155,700
Lowest gated outlet (invert) .....	2,764.0	2,800

COOPERATION.--Gage height records and capacity curve were furnished by Red Bluff Water Power and Control District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 352,000 acre-ft, Sept. 27, 28, 1941, gage height, 2,846.2 ft, observed on nonrecording gage at service spillway (affected by variable drawdown due to flow through tainter gates); minimum observed, 11,080 acre-ft, May 13, 1948, gage height, 2,781.4 ft.

EXTREMES (AT 0800) FOR CURRENT YEAR.--Maximum contents observed, 90,380 acre-ft, Apr. 3, gage height, 2,815.69 ft; minimum observed, 56,120 acre-ft, Sept. 7, gage height, 2,807.14 ft.

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

2,806.0	52,460	2,814.0	82,630	2,820.0	112,200
2,808.0	59,000	2,816.0	91,830	2,822.0	123,600
2,810.0	66,220	2,818.0	101,700	2,824.0	135,800
2,812.0	74,090				

DAY	DAILY OBSERVATION AT 08:00 VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63450	76430	78800	81720	85520	88360	90280	80800	73810	68220	65850	57430
2	63340	76430	78890	81850	85660	88460	90330	80760	73610	68530	65290	57230
3	63230	76430	78970	81930	85790	88550	90380	80710	73410	68840	64740	56990
4	63120	76520	79060	82020	85930	88640	89670	80450	73210	68840	64190	56760
5	63190	76600	79150	82110	86110	88740	88830	80190	73010	68840	63640	56520
6	63750	76770	79230	82190	86240	88830	88080	79930	72090	68840	63080	56320
7	64300	76940	79320	82280	86330	88930	87240	79670	72760	68760	62600	56120
8	64850	77100	79410	82370	86420	89020	86420	79410	72560	68680	62180	56250
9	65400	77150	79490	82450	86510	89110	85610	79150	72320	68570	61890	56490
10	65960	77190	79580	82540	86600	89200	84800	78890	72000	68450	61650	56830
11	66520	77230	79670	82630	86690	89300	84070	78620	71720	68340	61400	57160
12	67100	77270	79760	82720	86780	89390	83440	78360	71440	68030	61120	57330
13	67680	77310	79840	82810	86870	89490	82810	78070	71120	67680	60840	57330
14	68260	77360	79930	82900	86960	89580	82630	77770	70710	67450	60550	57330
15	68840	77440	80020	82990	87050	89670	82630	77480	70390	67290	60340	57830
16	69420	77520	80100	83080	87150	89720	82500	77190	69950	67370	60130	58340
17	69990	77610	80190	83170	87230	89770	82540	76850	69530	67370	60030	58600
18	71030	77690	80280	83350	87330	89810	82500	76310	69140	67370	59920	58840
19	71640	77770	80360	83530	87430	89860	82450	75970	68910	67450	59820	59010
20	72240	77060	80450	83710	87520	89910	82410	75720	68600	67530	59710	59150
21	72800	77940	80540	83890	87610	89960	82370	75470	68300	67600	59610	59220
22	73290	78020	80630	84070	87710	90000	82240	75220	68030	67680	59500	59290
23	73770	78110	80710	84250	87800	90050	82020	74970	67760	67640	59390	59360
24	74260	78190	80800	84440	87890	90100	81800	74720	67490	67600	59290	59430
25	74760	78280	80890	84570	87990	90140	81580	74470	67220	67570	59080	59500
26	75350	78360	80970	84700	88080	90190	81370	74170	67100	67530	58870	59570
27	76100	78450	81060	84840	88180	90240	81150	73930	66990	67370	58600	59640
28	76270	78540	81190	84980	88270	90240	80930	73810	67060	67060	58340	59710
29	76310	78620	81320	85110	---	90280	80890	73890	66990	66750	58070	59820
30	76350	78710	81450	85250	---	90280	80840	74010	67760	66450	57830	59960
31	76390	---	81580	85380	---	90330	---	74010	---	66140	57600	---
MAX	76390	78710	81580	85380	88270	90330	90380	80800	73810	68840	65850	59960
MIN	63120	76430	78800	81720	85520	88360	80840	73810	66990	66140	57600	56120
(+)	2812.55	2813.10	2813.76	2814.61	2815.24	2815.68	2813.59	2811.98	2810.40	2809.98	2807.59	2808.27
(@)	+12830	+2320	+2870	+3800	+2890	+2060	-9490	-6830	-6250	-1620	-8540	+2360
CAL YR 1994	MAX 109600	MIN 63120	(+) -22420									
WTR YR 1995	MAX 90380	MIN 56120	(@) - 3600									

(+) Gage height, in feet, at end of month.

(@) Change in contents, in acre-feet.

## RIO GRANDE BASIN

08412500 PECOS RIVER NEAR ORLA, TX

LOCATION.--Lat 31°52'21", long 103°49'52", Reeves County, Hydrologic Unit 1300001, on right bank at bridge on Farm Road 652, 5.5 mi downstream from Salt Creek (Screw Bean Arroyo), 5.9 mi northeast of Orla, and 8.5 mi downstream from Red Bluff Reservoir.

DRAINAGE AREA.--21,210 mi<sup>2</sup> approximately (contributing area).

PERIOD OF RECORD.--May 1937 to current year.

REVISED RECORDS.--WSP 928: 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,730.86 ft above sea level. Prior to Nov. 16, 1969, at site 6.9 mi downstream at datum 12.81 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are poor. Most of flow is releases from storage in Red Bluff Reservoir (station 08410000) 8.5 mi upstream. Occasional runoff occurs from draws between dam and station. There are many diversions above Red Bluff Reservoir for irrigation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	e51	e8.6	11	10	8.0	8.5	6.0	116	44	212	137
2	80	e51	e8.5	10	10	8.6	8.6	6.0	116	21	199	136
3	79	e51	e8.5	10	10	9.1	115	71	116	16	199	136
4	64	e51	e8.6	10	10	9.4	318	124	103	14	197	136
5	4.2	e51	e8.8	10	10	9.3	323	116	61	13	197	135
6	6.0	e51	e8.6	11	10	9.2	329	116	59	12	184	135
7	8.2	e51	e8.6	11	9.9	8.5	330	116	63	12	157	134
8	8.4	e51	e8.6	11	9.6	8.6	331	115	114	57	157	173
9	8.4	e51	e8.7	11	10	8.5	332	116	115	58	149	25
10	8.2	e51	8.6	11	10	8.6	330	116	115	57	121	20
11	21	e51	8.9	11	9.8	8.8	331	116	115	76	134	24
12	96	e51	9.2	11	9.8	8.7	331	116	118	178	136	21
13	98	e51	9.2	11	10	8.1	232	116	160	206	136	96
14	94	e51	9.2	11	11	8.2	16	116	161	259	131	98
15	16	e51	9.2	10	11	10	13	126	162	223	118	79
16	9.4	e23	9.2	11	11	10	12	172	157	229	117	33
17	8.6	e11	9.2	11	10	10	11	205	118	224	99	22
18	9.5	e9.5	9.2	11	11	10	9.6	160	116	224	98	23
19	8.7	e9.0	9.2	11	11	10	9.7	159	119	224	98	18
20	8.5	e8.8	10	11	11	9.4	8.9	159	157	225	98	15
21	32	e8.7	9.7	11	10	9.2	27	159	158	230	98	14
22	e80	e8.6	10	11	9.1	9.3	94	160	158	243	98	13
23	e86	e8.6	10	11	8.9	9.2	94	165	155	244	98	13
24	e98	e8.7	11	11	8.5	9.3	95	165	138	252	98	13
25	e82	e8.7	11	11	9.0	9.2	95	164	106	252	103	12
26	e50	e8.7	11	11	8.5	9.0	95	128	59	252	137	12
27	48	e8.7	11	11	8.5	9.1	95	64	58	252	137	12
28	e51	e8.8	11	11	8.0	9.1	87	59	97	252	138	12
29	e51	e8.8	11	10	---	9.3	10	112	65	251	138	13
30	e51	e8.8	11	10	---	9.1	6.5	68	405	251	137	11
31	e51	---	11	10	---	9.1	---	115	---	248	137	---
TOTAL	1400.1	913.4	296.3	333	275.6	281.9	4097.8	3706.0	3760	5099	4256	1721
MEAN	45.2	30.4	9.56	10.7	9.84	9.09	137	120	125	164	137	57.4
MAX	98	51	11	11	11	10	332	205	405	259	212	173
MIN	4.2	8.6	8.5	10	8.0	8.0	6.5	6.0	58	12	98	11
AC-FT	2780	1810	588	661	547	559	8130	7350	7460	10110	8440	3410

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

MEAN	161	70.5	43.5	40.4	46.4	88.7	202	201	230	237	199	241
MAX	5717	1474	838	712	617	288	601	2717	3481	1425	686	6515
(WY)	1942	1942	1942	1942	1942	1955	1942	1941	1941	1941	1941	1941
MIN	1.78	1.38	1.77	.76	.46	.84	1.05	5.86	17.1	8.11	.74	8.70
(WY)	1948	1960	1962	1965	1965	1965	1965	1978	1953	1984	1965	1953

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1937 - 1995

ANNUAL TOTAL	31712.8	26140.1	
ANNUAL MEAN	86.9	71.6	
HIGHEST ANNUAL MEAN			147
LOWEST ANNUAL MEAN			1284
HIGHEST DAILY MEAN	352	405	13.1
LOWEST DAILY MEAN	4.2	4.2	23700
ANNUAL SEVEN-DAY MINIMUM	8.6	8.4	.00
INSTANTANEOUS PEAK FLOW		697	.00
INSTANTANEOUS PEAK STAGE		7.63	23700
ANNUAL RUNOFF (AC-FT)	62900	51850	20.74
10 PERCENT EXCEEDS	257	189	106500
50 PERCENT EXCEEDS	51	23	372
90 PERCENT EXCEEDS	9.2	8.7	35
			5.3

e Estimated

## RIO GRANDE BASIN

411

08412500 PECOS RIVER NEAR ORLA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1937 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1937 to current year.

WATER TEMPERATURE: March 1953 to current year.

REMARKS.--October 1937 to September 1969, this station was published as 08410100 Pecos River below Red Bluff Dam, near Orla. Water-quality station operation transferred from the Texas District to the New Mexico District beginning with the 1993 water year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 29,400 microsiemens May 16, 1978; minimum daily, 1,600 microsiemens June 19, 1984.

WATER TEMPERATURE: Maximum daily, 32.0°C, Aug 4, 1991; minimum daily, 0.0°C, many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 14,800 microsiemens June 28; minimum daily, 3,000 microsiemens June 30.

WATER TEMPERATURE: Maximum daily, 28.0°C, July 5, 6, Aug. 4; minimum daily 5.0°C, Dec 1, Jan. 5, 30.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	
OCT 1994													
26...	1400	50	11400	7.9	--	13.5	695	8.9	98	2700	2600	650	
JAN 1995													
04...	1245	10	12800	8.1	1.0	6.0	698	11.5	106	2700	2600	680	
FEB													
03...	1100	10	12400	7.8	12.0	12.0	702	9.6	101	2600	2500	660	
MAR													
31...	1545	8.5	10600	8.0	17.5	14.5	693	--	--	2500	2400	610	
JUL													
03...	1330	16	12000	8.0	36.5	29.0	687	8.2	124	2700	2600	690	
AUG													
07...	1045	156	10000	7.6	30.0	26.5	694	6.3	89	--	--	--	
DATE		MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 1994													
26...	270	1700	14	44	129	0	106	2300	2800	0.90	15	7840	
JAN 1995													
04...	240	2000	17	34	149	0	122	2200	3300	1.0	11	8540	
FEB													
03...	240	1900	16	33	155	0	127	2200	3100	1.0	10	8220	
MAR													
31...	240	1800	16	34	164	0	134	2100	2800	1.0	8.4	7670	
JUL													
03...	230	1900	16	39	140	0	115	2100	3100	0.90	11	8140	
AUG													
07...	--	--	--	--	118	0	97	--	--	--	--	--	--

08412500 PECOS RIVER NEAR ORLA, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
ONCE DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12100	11900	11200	13000	12100	13000	12100	12200	11800	9100	9800	10800
2	---	11600	---	12800	12300	13000	12500	---	11600	11000	9100	10500
3	11300	11900	11200	---	12000	13200	12500	12200	11500	12100	8900	11000
4	12000	11800	10400	13000	12400	13500	10700	11600	11600	13000	9100	10000
5	12100	11000	11200	11700	12700	---	10200	11600	11500	13200	9000	11100
6	12100	10000	---	12100	12200	14100	10500	11200	11800	13200	9100	11000
7	12600	11000	---	12000	12200	---	10100	11200	10200	13100	9000	10900
8	11200	10200	11200	12900	12200	14100	10100	11400	10200	11500	8900	4000
9	12100	10100	---	12500	12500	14500	---	11400	---	10900	9100	7200
10	12900	10200	11200	12800	12000	13900	10500	11100	9900	11000	9000	7800
11	12300	---	11000	12300	12300	14000	10500	11200	10400	10900	9000	9100
12	12200	10200	10500	12700	---	13900	10100	11400	10400	10600	8900	12500
13	12100	10200	11000	12300	12000	14000	10400	11400	10200	11000	9100	10800
14	12200	10000	11500	---	12000	13500	11100	11200	10100	10600	9100	10400
15	12200	10100	---	12500	12200	12900	12000	11200	10400	10900	9200	9400
16	---	9400	11500	12000	11900	13600	12100	11000	10600	11200	9000	13400
17	12100	10400	---	11900	12000	13100	12200	11600	10900	11000	9100	13200
18	12200	11200	12000	11300	12500	13100	---	11400	10800	11100	9200	12400
19	11500	11200	11500	11300	---	13000	12100	11400	10800	11000	9200	12100
20	12100	11000	11200	11200	12900	---	12200	---	10800	11200	9100	11000
21	12200	---	11800	12000	13000	12800	12200	11400	10600	10100	9200	11900
22	11900	10800	12000	12000	13000	12500	11000	11500	11000	11000	9100	12000
23	11500	10800	12000	12200	13800	12900	11000	11600	11400	11000	8900	12000
24	11000	10800	11800	12400	13900	13000	11000	11400	11000	10800	9100	12000
25	11700	11000	---	12700	13900	12300	10800	11600	11000	10600	9200	11100
26	11100	10800	11500	12200	13400	12400	11200	11600	10800	10500	9300	11900
27	11400	11000	12000	12900	13300	12500	11200	11600	11000	10400	---	11600
28	11900	11000	11800	---	---	12000	11200	11800	14800	10500	9100	11200
29	12000	10600	12000	---	---	12000	11000	11800	10100	11900	9200	12100
30	11800	11100	---	12800	---	12000	11600	11200	3000	10800	9200	---
31	---	---	12500	12900	---	12100	---	11100	---	10900	9200	---
MEAN	11900	10800	11500	12300	12600	13100	11200	11500	10700	11200	9110	10800
MAX	12900	11900	12500	13000	13900	14500	12500	12200	14800	13200	9800	13400
MIN	11000	9400	10400	11200	11900	12000	10100	11000	3000	9100	8900	4000
WTR YR 1995	MEAN 11400 MAX 14800 MIN 3000											

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
ONCE DAILY

[illegible]

## RIO GRANDE BASIN

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08446500 PECOS RIVER NEAR GIRVIN, TX

LOCATION.--Lat 31°06'47", long 102°25'02", Pecos County, Hydrologic Unit 13070008, on right bank 2.1 mi upstream from Comanche Creek, 3.8 mi northwest of Girvin, and 7.2 mi upstream from bridge on U.S. Highway 67.

DRAINAGE AREA.--29,560 mi<sup>2</sup> approximately, for contributing area of supplementary gage 7.2 mi downstream.

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

Water-quality records.--Chemical analyses: October 1939 to June 1941, October 1946 to September 1947, October 1953 to September 1982. Pesticide analyses: October 1968 to September 1974.

GAGE.--Water-stage recorder with concrete control and measuring flume. Datum of gage not determined. Supplementary water-stage recorder, used as regular gage prior to July 17, 1951, is now used only for peaks exceeding about 750 ft<sup>3</sup>/s, 7.2 mi downstream at datum 2,269.65 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flow is largely regulated (70 percent) by Red Bluff Reservoir (station 08410000). There are also numerous diversions above station for irrigation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1932 occurred Oct. 5, 1941.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	35	32	32	30	26	21	13	64	51	33	14
2	36	34	32	32	30	26	19	12	29	30	34	14
3	36	45	32	32	30	26	19	12	21	26	29	14
4	33	37	32	32	30	27	21	12	17	22	24	14
5	29	32	32	32	28	27	25	12	16	221	36	13
6	26	32	32	32	27	27	22	12	15	192	35	13
7	26	32	32	32	27	27	22	11	14	78	23	13
8	25	32	32	32	27	26	22	8.7	13	38	21	13
9	31	32	32	32	27	27	22	9.0	13	62	41	14
10	36	32	32	31	28	27	22	9.0	12	66	42	14
11	37	32	32	31	28	27	23	8.7	13	40	36	14
12	37	42	31	32	28	27	23	8.5	20	31	39	16
13	36	45	31	32	27	27	21	8.2	16	27	43	17
14	36	39	31	30	27	27	19	7.6	14	25	43	16
15	36	32	31	30	28	27	18	6.9	13	23	42	17
16	37	32	32	30	28	27	18	6.6	12	22	40	19
17	37	44	31	30	28	27	17	6.7	11	21	38	54
18	37	44	31	31	28	27	16	6.5	11	19	36	61
19	36	35	31	31	28	26	17	6.4	12	18	33	35
20	35	33	31	30	28	26	17	6.0	14	16	31	28
21	46	32	31	30	27	26	18	5.8	15	16	28	28
22	62	32	31	30	27	26	18	6.1	15	16	24	26
23	49	32	31	30	27	25	18	13	14	15	21	25
24	35	32	31	30	27	24	17	16	14	15	19	24
25	33	38	32	30	27	23	15	17	16	14	17	22
26	33	36	32	30	27	23	15	14	22	13	17	26
27	33	32	32	30	26	24	14	30	27	12	16	34
28	33	32	32	30	26	23	14	33	24	12	15	36
29	33	32	32	30	---	24	14	18	16	18	15	37
30	33	32	32	30	---	24	13	18	66	25	15	35
31	36	---	32	30	---	23	---	55	---	29	14	---
TOTAL	1107	1051	980	956	776	799	560	408.7	579	1213	900	706
MEAN	35.7	35.0	31.6	30.8	27.7	25.8	18.7	13.2	19.3	39.1	29.0	23.5
MAX	62	45	32	32	30	27	25	55	66	221	43	61
MIN	25	32	31	30	26	23	13	5.8	11	12	14	13
AC-FT	2200	2080	1940	1900	1540	1580	1110	811	1150	2410	1790	1400

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	MEAN	211	111	71.3	66.9	56.8	46.2	37.4	48.3	107	49.3	35.4	67.7
MAX	8506	3007	1192	935	769	314	142	538	3556	813	376	1168	
(WY)	1942	1942	1942	1942	1942	1942	1957	1942	1941	1941	1941	1941	
MIN	9.52	13.0	15.7	18.3	14.5	16.7	11.3	7.62	2.84	3.86	4.13	6.05	
(WY)	1980	1974	1984	1984	1982	1966	1985	1985	1983	1964	1969	1983	

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	13231	10035.7	75.8	
ANNUAL MEAN	36.2	27.5	1386	1942
HIGHEST ANNUAL MEAN			16.2	1984
LOWEST ANNUAL MEAN			19400	Oct 5 1941
HIGHEST DAILY MEAN	333	May 13	1.9	Jun 19 1982
LOWEST DAILY MEAN	11	Jul 4	2.3	Jul 1 1983
ANNUAL SEVEN-DAY MINIMUM	12	Jul 1	20000	Oct 5 1941
INSTANTANEOUS PEAK FLOW			20.49	Oct 5 1941
INSTANTANEOUS PEAK STAGE				
ANNUAL RUNOFF (AC-FT)	26240	19910	54920	
10 PERCENT EXCEEDS	47	37	88	
50 PERCENT EXCEEDS	33	27	30	
90 PERCENT EXCEEDS	20	13	11	



## RIO GRANDE BASIN

08447410 PECOS RIVER NEAR LANGTRY, TX  
(National stream-quality accounting network)

LOCATION.--Lat 29°48'10", Long 101°26'45", Val Verde County, Hydrologic Unit 13040212, at gaging station 7.4 mi east of Langtry, and 15.0 mi upstream from confluence with the Rio Grande.

DRAINAGE AREA.--35,179 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: July 1975 to June 1982. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to September 1976, October 1980 to September 1985.

WATER TEMPERATURE: October 1970 to September 1985.

INSTRUMENTATION.--Specific conductance and water temperature were recorded continuously from November 1980 to September 1985.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,000 microsiemens Mar. 21, 22, 1981; minimum daily, 230 microsiemens Oct. 11, 1981.

WATER TEMPERATURE: Maximum daily, 32.5°C June 8, 1981; minimum daily, 1.5°C Dec. 26, 27, 1983.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	
NOV 29...	1355	145	3700	8.3	14.5	0.60	11.5	119	1.0	K4	K6	
FEB 07...	1452	145	4580	8.2	15.0	0.60	11.1	117	0.6	<1	K13	
MAY 25...	1435	286	2090	7.9	24.5	3.3	7.9	100	2.5	180	140	
AUG 16...	1128	114	3610	8.1	28.0	0.60	7.0	95	1.2	K7	84	
DATE		HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 29...	790	660	170	87	520	8	9.0	4	146	128	540	
FEB 07...	850	710	190	90	630	9	10	0	171	140	640	
MAY 25...	460	360	100	50	270	6	6.5	0	120	98	270	
AUG 16...	740	630	150	87	520	8	8.8	0	131	107	500	
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 29...	830	0.80	13	2420	2250	0.460	0.460	0.010	0.470	0.470	0.030	
FEB 07...	1100	0.90	11	2890	2760	0.430	0.430	0.030	0.460	0.460	0.030	
MAY 25...	440	0.60	11	1320	1210	0.820	0.820	0.050	0.870	0.870	0.230	
AUG 16...	850	0.90	12	2310	2200	0.070	--	<0.010	0.070	0.070	0.060	
DATE		NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
NOV 29...	--	--	<0.20	0.010	<0.010	<0.010	<0.010	2	0.78	94	<10	100
FEB 07...	--	--	<0.20	<0.010	<0.010	<0.010	<0.010	4	1.6	40	<10	77
MAY 25...	1.6	0.47	0.70	<0.010	<0.010	<0.010	<0.010	13	10	99	<10	<100
AUG 16...	0.37	0.24	0.30	<0.010	<0.010	<0.010	<0.010	1	0.31	100	10	<100



RIO GRANDE BASIN

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08447410 PECOS RIVER NEAR LANGTRY, TX--Continued  
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 29...	<1	<10	70	<10	5	<1	<1	<1.0	3100	--
FEB 07...	<1	<3	96	<1	7	<1	1	<1.0	3600	26
MAY 25...	<1	60	40	<10	4	<1	<1	<1.0	1700	13
AUG 16...	<1	<10	80	<10	6	<1	<1	<1.0	3100	26

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX  
(Hydrologic benchmark station)

LOCATION.--Lat 29°40'35", long 101°00'00", Val Verde County, Hydrologic Unit 13040302, on left bank 10 mi east of Comstock, and 25.5 mi upstream from mouth.

DRAINAGE AREA.--3,961 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1967 to current year. Sediment analyses: January 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1978 to September 1985.

WATER TEMPERATURE: February 1978 to September 1985.

INSTRUMENTATION.--From August 1980 to September 1985, specific conductance and water temperature were continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 763 microsiemens Oct. 18, 1984; minimum daily, 105 microsiemens Oct. 20, 1983.

WATER TEMPERATURE: Maximum daily, 38.0°C May 6, 1984; minimum daily, 0.0 °C Feb. 1, 2, 1985.

# WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	
NOV 28...	1310	295	409	8.3	15.5	0.30	10.4	109	K2	K18	200	
FEB 06...	1450	324	417	8.4	16.5	0.30	11.8	126	<1	K10	200	
MAY 23...	1325	272	380	8.3	24.0	0.20	10.8	135	K8	K10	180	
AUG 14...	1438	276	372	8.2	28.0	0.40	8.5	115	K4	80	180	
DATE		HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)
NOV 28...	32	57	14	8.2	0.3	1.4	0	205	168	7.5	15	
FEB 06...	9	58	13	8.7	0.3	1.3	5	221	190	7.1	15	
MAY 23...	12	49	13	8.3	0.3	1.3	0	201	164	6.9	15	
AUG 14...	17	49	14	8.9	0.3	1.3	0	200	164	7.8	15	
DATE		FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
NOV 28...	0.30	14	231	226	1.59	1.59	0.010	1.60	1.60	<0.015	<0.20	
FEB 06...	0.30	14	233	239	1.57	1.57	0.030	1.60	1.60	0.020	<0.20	
MAY 23...	0.30	14	214	212	0.980	0.980	0.020	1.00	1.00	0.050	<0.20	
AUG 14...	0.30	17	206	217	0.940	0.940	0.020	0.960	0.960	0.040	<0.20	
DATE		PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. CHARGE, SUSPENDED (T/DAY)	SED. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 28...	<0.010	0.010	<0.010	1	0.80	83	<10	110	<3	5	4	
FEB 06...	<0.010	<0.010	<0.010	2	1.7	95	<10	120	<3	<3	<4	
MAY 23...	<0.010	<0.010	<0.010	7	5.1	45	<10	110	<3	<3	5	
AUG 14...	<0.010	<0.010	<0.010	1	0.75	100	10	120	<3	5	9	

## RIO GRANDE BASIN

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08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued  
(Hydrologic benchmark station)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L)	RA-226 2 SIGMA WATER, DISS, (PCI/L)
NOV 28...	<1	<10	<1	<1	<1.0	490	10	--	--	--	--
FEB 06...	<1	<10	<1	<1	<1.0	520	7	0.29	1.3	<1.0	0.050
MAY 23...	<1	<10	<1	<1	<1.0	460	<6	--	--	--	--
AUG 14...	<1	<10	<1	<1	<1.0	520	8	0.16	0.98	0.0	0.030

## RIO GRANDE MAIN STEM

08450900 RIO GRANDE BELOW AMISTAD DAM NEAR DEL RIO, TX

LOCATION.--Lat 29°25'30", long 101°27'00", Val Verde County, Hydrologic Unit 13080001, 2.2 mi downstream from Amistad Dam and 10 mi northwest of Del Rio.

DRAINAGE AREA.--123,143 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical analyses: July 1968 to current year.

REMARKS.--The flow is controlled largely by releases from Amistad Reservoir. Records of daily mean discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
19...	0650	505	1240	7.9	23.0	270	140	70	22
NOV									
16...	0750	1280	1240	7.9	18.0	290	170	75	24
DEC									
30...	0750	1250	1240	7.9	13.0	270	150	72	22
JAN									
19...	0745	1250	1260	7.9	12.0	290	170	77	24
FEB									
15...	0740	1280	1250	7.9	12.0	280	150	74	23
MAR									
15...	0745	3530	1250	8.1	12.5	290	160	78	24
APR									
19...	0640	3530	1250	7.9	14.0	300	170	83	23
MAY									
17...	0645	388	1290	8.0	17.0	300	160	79	24
JUN									
21...	0640	1550	1280	7.9	19.5	290	160	78	24
JUL									
19...	0645	1450	1270	7.9	22.0	290	160	78	24
AUG									
16...	0645	1280	1260	8.1	23.0	290	160	76	24
SEP									
21...	0645	1380	1260	7.9	25.0	280	160	73	23

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTIT- TUENTS, DIS- SOLVED (MG/L)
OCT									
19...	150	4	6.0	120	260	160	1.1	18	760
NOV									
16...	150	4	5.7	120	260	160	1.1	19	767
DEC									
30...	140	4	5.3	120	260	150	1.1	19	742
JAN									
19...	150	4	5.4	130	250	150	1.1	18	751
FEB									
15...	150	4	5.3	130	250	150	1.1	17	747
MAR									
15...	160	4	5.4	130	260	170	1.1	17	795
APR									
19...	140	4	5.2	130	260	160	1.1	17	770
MAY									
17...	150	4	5.5	130	250	160	0.20	17	767
JUN									
21...	150	4	5.3	130	250	160	1.0	18	767
JUL									
19...	150	4	5.2	130	250	160	1.0	18	767
AUG									
16...	140	4	5.4	130	250	160	0.90	18	752
SEP									
21...	140	4	5.5	120	250	160	1.1	16	738

## RIO GRANDE BASIN

419

08459000 RIO GRANDE AT LAREDO, TX

LOCATION.--Lat 27°29'45", long 99°29'30", Webb County, Hydrologic Unit 13080002, at gaging station 1.1 mi downstream from the highway bridge between Laredo and Nuevo Laredo, Tamaulipas, Mex., and 891.0 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--132,578 mi<sup>2</sup>, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: April 1952, July 1955 to September 1986, October 1989 to current year. Chemical, biochemical, and sediment analyses: January 1973 to September 1986. Pesticide analyses: March to May 1979. Sediment analyses: May 1973 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1954 to September 1986.

WATER TEMPERATURE: February 1973 to August 1976.

REMARKS.--Records of discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletin Nos. 64 and 65.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,690 microsiemens June 1, 1963; minimum daily, 214 microsiemens Sept. 26, 1964.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT									
18...	1040	1680	1170	7.9	27.0	270	140	72	21
NOV									
15...	1115	1520	1240	8.0	13.0	300	170	80	24
DEC									
19...	1145	1700	1080	7.9	16.0	240	140	65	19
JAN									
18...	1135	1840	1220	7.9	13.0	290	170	76	24
FEB									
15...	0940	1790	1250	7.9	13.0	300	160	79	24
MAR									
14...	1120	2540	1290	8.0	19.0	310	170	81	25
APR									
18...	1145	3960	1240	7.9	26.0	280	150	76	23
MAY									
16...	1155	1480	1370	7.7	30.0	310	170	81	26
JUN									
20...	0945	1200	1280	7.9	25.0	280	170	73	24
JUL									
18...	1110	1320	1270	7.8	27.0	280	160	74	24
AUG									
16...	0725	1170	1290	7.9	24.0	290	170	73	26
SEP									
19...	1105	1500	690	7.8	30.0	170	80	49	12

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT									
18...	130	3	6.0	130	240	150	1.0	17	714
NOV									
15...	150	4	5.4	130	260	150	1.0	16	763
DEC									
19...	120	3	6.3	100	230	130	0.90	16	648
JAN									
18...	140	4	4.8	120	250	150	1.0	7.5	725
FEB									
15...	140	4	5.0	130	260	150	1.1	11	751
MAR									
14...	150	4	5.2	130	270	170	1.1	12	795
APR									
18...	140	4	5.1	130	250	160	1.1	12	746
MAY									
16...	160	4	6.1	140	280	170	1.0	18	824
JUN									
20...	150	4	5.4	120	260	160	1.0	13	756
JUL									
18...	150	4	5.3	120	260	160	1.0	18	764
AUG									
16...	150	4	5.4	120	270	170	0.90	18	782
SEP									
19...	64	2	5.2	92	120	73	0.60	11	390

## RIO GRANDE MAIN STEM

08461300 RIO GRANDE BELOW FALCON DAM, TX

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13090001, U.S. Tailrace at Falcon Dam.

DRAINAGE AREA.--159,270 mi<sup>2</sup>, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: July 1955 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 18...	0900	1410	1240	7.7	23.5	260	150	67	22
DEC 21...	1425	530	1270	7.9	17.0	270	160	70	23
JAN 20...	1100	4770	1270	7.9	15.5	290	170	73	25
MAR 14...	0940	1410	1280	8.0	16.0	290	170	74	25
MAY 17...	1300	5230	1300	7.8	24.5	290	170	76	25
JUL 18...	1130	2070	1220	8.3	25.5	250	160	63	23
SEP 21...	1030	1010	1250	7.8	26.5	250	160	65	22

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 18...	150	4	7.0	110	270	160	1.0	16	757
DEC 21...	150	4	6.5	100	270	160	1.0	15	758
JAN 20...	160	4	6.2	110	270	160	1.0	15	777
MAR 14...	160	4	6.0	120	280	160	1.1	14	791
MAY 17...	160	4	6.2	120	270	160	1.0	15	786
JUL 18...	140	4	6.1	95	260	150	0.90	14	714
SEP 21...	150	4	6.7	95	260	160	1.0	13	735



RIO GRANDE MAIN STEM

421

08464700 RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TX

LOCATION.--Lat 26°22'05", long 98°48'20", Starr County, Hydrologic Unit 13090001, at gaging station about 1 mi downstream from Rio Grande City, 3.9 mi downstream from mouth of Rio San Juan, and 1,014.3 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--174,362 mi<sup>2</sup>, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: January 1959 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
OCT 19...	1105	1680	1330	7.4	26.0	270	170	68	24	
NOV 16...	1100	1590	1350	7.7	16.0	290	180	74	25	
DEC 21...	1020	989	1490	7.8	18.0	300	180	77	25	
JAN 20...	1130	5010	1320	7.8	18.0	300	180	77	25	
FEB 15...	1430	3220	1280	7.9	17.0	270	150	70	24	
MAR 16...	0840	1500	1410	7.9	17.0	300	180	78	25	
APR 19...	1230	9920	1230	7.8	23.0	280	160	71	24	
MAY 19...	1035	4240	1320	7.8	26.0	280	170	72	25	
JUN 21...	1030	2540	1290	7.8	26.0	270	160	67	24	
JUL 20...	0945	2280	1240	8.3	25.0	240	160	57	23	
AUG 17...	0955	219	1360	7.8	29.0	260	140	69	21	
SEP 22...	1050	6180	1250	7.6	16.0	270	130	82	15	
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 19...	170	5	7.9	98	280	180	1.0	16	806	
NOV 16...	170	4	6.8	100	280	180	1.0	16	816	
DEC 21...	190	5	6.3	110	300	210	1.0	15	892	
JAN 20...	160	4	6.3	120	280	170	1.0	15	806	
FEB 15...	150	4	6.0	130	280	160	1.1	14	782	
MAR 16...	180	5	6.6	120	300	180	1.1	9.4	851	
APR 19...	160	4	5.9	110	280	160	1.0	13	783	
MAY 19...	160	4	6.5	110	280	160	1.0	14	784	
JUN 21...	160	4	6.3	100	270	160	1.0	12	762	
JUL 20...	150	4	6.4	79	270	170	0.90	5.4	730	
AUG 17...	170	5	6.1	120	250	200	0.70	15	801	
SEP 22...	140	4	8.0	140	210	170	0.60	10	718	

## RIO GRANDE MAIN STEM

08466300 RIO GRANDE NEAR LOS EBANOS, TX

LOCATION.--Lat 26°14'15", long 98°33'49", Hidalgo County, Hydrologic Unit 13090001, on Farm Road 886 at U.S. Border Port of Entry near Los Ebanos and at mile 204.37.

PERIOD OF RECORD.--Chemical analyses: June 1977 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 18...	1000	950	1480	7.8	29.0	300	190	74	27
DEC 13...	1230	4410	1620	7.9	19.5	340	210	88	28
JAN 19...	1230	6290	1290	7.8	17.0	290	170	74	25
MAR 17...	1415	1080	1460	7.9	22.5	320	200	81	28
MAY 15...	0900	21500	1350	7.7	28.0	290	170	74	26
JUL 11...	1315	10700	1260	7.9	31.0	260	160	65	24
SEP 19...	1050	2050	1300	7.9	28.0	260	160	67	23

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 18...	190	5	7.1	110	320	210	1.0	17	910
DEC 13...	200	5	5.9	120	330	220	1.0	16	964
JAN 19...	160	4	6.0	120	280	160	1.0	16	791
MAR 17...	180	4	5.9	120	320	200	1.1	9.2	896
MAY 15...	160	4	6.3	120	290	170	0.90	15	813
JUL 11...	150	4	6.6	100	270	160	0.90	14	750
SEP 19...	150	4	6.6	100	270	180	1.1	13	772

## 08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX

LOCATION.--Lat 26°08'00", long 98°20'05", Hidalgo County, Hydrologic Unit 13090002, at gaging station 0.5 mi downstream from Anzalduas Dam, 12.2 mi from Hidalgo, and 1,077.1 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--176,112 mi<sup>2</sup>, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: March 1959 to current year. Pesticide analyses: October 1967 to July 1972.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1995 are given in International Boundary and Water Commission Water Bulletins Nos. 64 and 65. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,310 microsiemens Feb. 12, 1984; minimum daily, 368 microsiemens Sept. 6, 1987.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,020 microsiemens Sept. 13; minimum daily, 457 microsiemens Sept. 30.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	
OCT 19...	0930	519	1580	7.9	26.0	340	210	88	29	
DEC 21...	0920	370	1350	7.9	20.0	300	180	77	25	
JAN 18...	1420	2390	1290	7.9	18.0	290	170	74	25	
MAR 17...	0920	907	1820	8.0	20.0	390	240	100	34	
MAY 17...	0855	4200	1350	7.9	26.5	300	180	76	27	
JUL 21...	0850	1540	1300	8.0	29.0	270	170	68	25	
AUG 18...	0850	230	1320	8.0	27.0	270	180	67	25	
SEP 22...	0905	632	1460	7.7	27.0	290	190	74	26	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 19...	210	5	7.1	130	330	220	1.0	18	978	
DEC 21...	170	4	6.3	120	290	170	1.0	16	824	
JAN 18...	160	4	4.3	110	280	160	1.0	15	787	
MAR 17...	230	5	6.4	150	360	270	1.1	12	1100	
MAY 17...	170	4	6.2	120	290	170	1.0	15	826	
JUL 21...	160	4	6.5	98	280	170	0.90	13	782	
AUG 18...	160	4	6.6	95	300	200	0.90	15	831	
SEP 22...	180	5	6.8	100	300	210	1.0	14	875	

## RIO GRANDE MAIN STEM

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

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. 1994	21993	1410	874	51900	190	11300	300	17800	320
NOV. 1994	24689	1320	818	54500	180	11900	280	18700	300
DEC. 1994	24955	1200	739	49800	160	10800	250	17100	270
JAN. 1995	40947	1310	807	89200	170	18900	280	30700	300
FEB. 1995	41679	1360	837	94200	180	20200	290	32400	310
MAR. 1995	34227	1400	863	79700	190	17300	300	27300	310
APR. 1995	55978	1290	796	120000	170	25300	270	41400	290
MAY 1995	132740	1340	827	296000	180	63200	280	101800	300
JUNE 1995	47791	1410	872	113000	190	24500	300	38600	320
JULY 1995	62010	1270	786	132000	170	27900	270	45300	290
AUG. 1995	32747	1370	843	74500	180	16100	290	25600	310
SEPT 1995	27378	1230	757	56000	160	11900	260	19200	280
TOTAL	547134	**	**	1211000	**	259000	**	416000	**
WTD.AVG.	1499	1330	820	**	180	**	280	**	300

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1520	1360	1400	1310	1380	1350	1310	1310	1350	1300	1310	656
2	1440	1370	1380	1310	1370	1330	1330	1330	1350	1310	1340	729
3	1350	1320	1370	1290	1360	1340	1300	1320	1350	1280	1360	762
4	1320	---	1370	1300	1400	1380	1290	1330	1380	1320	1340	825
5	1310	1440	1390	1290	1340	1390	1310	1310	1500	1290	1320	892
6	1320	1310	1380	1290	1320	1410	1320	1310	1670	1310	1360	1080
7	1370	1540	1360	1320	1320	1350	1310	1310	1650	1370	1290	1220
8	1470	1760	1330	1320	1320	1400	1360	1330	1660	1380	1570	1250
9	1490	1600	1340	1340	1320	1370	1280	1340	1640	---	1350	1190
10	1420	1420	1340	1360	1320	1420	1300	1330	1670	1270	1320	1220
11	1380	1380	1350	1370	1350	1430	1250	1320	1620	1330	1290	1500
12	1370	---	1360	1340	1350	1450	1290	1320	1560	1410	1290	1640
13	1350	1280	1350	1310	1330	1430	1280	1320	1560	1280	1290	2020
14	1310	1270	1410	1300	1340	1480	1290	1370	1540	1280	1310	1350
15	1110	1300	1530	1280	1330	1450	1290	1370	1480	1170	1350	1370
16	1100	1310	1670	1330	1350	1660	1300	1340	1440	1280	1400	1370
17	1110	1320	---	1320	1360	1820	1300	1360	1410	1300	1390	1380
18	1300	1320	1390	1330	1330	1680	1230	1360	1360	1260	1370	1380
19	1530	1350	1330	1280	1440	1600	1230	1380	1300	1320	1390	1370
20	1580	1350	1320	1300	1430	1550	1280	1370	1030	1340	1360	1440
21	1690	1400	1360	1300	1360	1570	1320	1350	1400	1340	1400	1460
22	1730	1420	---	1300	1350	1500	1280	1370	1510	1300	1420	1500
23	1570	1520	---	1300	1350	1450	1270	1350	1450	1140	1510	1340
24	1430	1480	1330	1310	1330	1480	1290	1320	1400	1310	1570	1140
25	1380	1510	---	1300	1340	1300	1280	1350	1360	1320	1730	562
26	1390	1550	---	1300	1380	1330	1280	1350	1360	1410	1560	461
27	1440	1520	1610	1300	1440	1270	1290	1340	1340	1420	1320	467
28	1510	1490	1360	1300	1390	1310	1310	1340	1370	1430	1040	478
29	1510	1530	1350	1310	---	1270	1320	1340	1370	1360	713	467
30	1500	1470	---	1320	---	1300	1310	1340	1290	1320	532	457
31	1410	---	---	1340	---	1300	---	1340	---	1300	569	---
TOTAL	43710	39890	33380	40670	38000	44370	38800	41520	43370	39450	40364	32976
MEAN	1410	1420	1390	1310	1360	1430	1290	1340	1450	1310	1300	1100
MAX	1730	1760	1670	1370	1440	1820	1360	1380	1670	1430	1730	2020
MIN	1100	1270	1320	1280	1320	1270	1230	1310	1030	1140	532	457
CAL YR 1994	TOTAL 480810	MEAN 1380	MAX 2110	MIN 1100								
WTR YR 1995	TOTAL 476500	MEAN 1340	MAX 2020	MIN 457								

08470400 ARROYO COLORADO AT HARLINGEN, TX  
(National stream-quality accounting network)

LOCATION.--Lat 26°10'24", long 97°42'01", Cameron County, Hydrologic Unit 13090002, on downstream side of northbound service road on U.S. Highways 83 & 77, about 18 mi from point of main floodway that divides into North Floodway and Arroyo Colorado.

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1986 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 03...	1350	192	4930	7.6	26.5	92	8.4	104	2.9	300	300	970
JAN 24...	1030	222	4170	7.9	15.0	89	8.7	86	4.6	370	K80	820
MAR 01...	1100	230	4210	7.8	20.5	79	7.4	82	7.0	K6000	410	890
MAY 22...	1100	316	3560	7.9	27.0	130	6.6	83	2.7	K360	840	680
JUL 24...	1200	173	4710	7.9	29.5	67	9.8	130	5.0	88	290	960
AUG 30...	1045	184	4540	7.8	30.0	85	7.6	101	4.1	600	280	940
DATE		HARD-NESS NONCARB DISSOLV CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 03...		740	230	94	690	10	2.2	0	275	226	230	860
JAN 24...		610	200	78	570	9	10	0	256	M210	210	760
MAR 01...		680	220	82	600	9	11	0	254	208	210	730
MAY 22...		490	160	67	500	8	10	0	227	186	180	660
JUL 24...	--	220	100	690	10	11	--	--	--	--	--	840
AUG 30...		720	210	100	620	9	10	0	273	224	220	830
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 03...		960	1.0	30	3150	3030	4.12	4.12	0.080	4.20	4.20	<0.015
JAN 24...		820	1.1	26	2780	2610	4.51	4.51	0.290	4.80	4.80	0.330
MAR 01...		810	1.0	26	2740	2630	4.18	4.18	0.220	4.40	4.40	0.040
MAY 22...		660	1.1	23	2340	2220	4.84	4.84	0.260	5.10	5.10	0.040
JUL 24...		930	1.0	26	3160	2960	2.52	2.52	0.080	2.60	2.60	<0.015
AUG 30...		910	1.0	27	3010	2860	2.83	2.83	0.070	2.90	2.90	<0.015
DATE		NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
NOV 03...		5.0	0.80	0.80	0.340	0.200	0.180	0.55	246	128	94	<10
JAN 24...		6.2	1.1	1.4	0.430	0.220	0.230	0.71	140	84	97	--
MAR 01...		5.7	1.3	1.3	0.490	0.240	0.210	0.64	209	130	98	<10
MAY 22...		5.6	0.46	0.50	0.160	0.130	0.150	0.46	320	273	93	20
JUL 24...		3.8	1.2	1.2	0.280	0.090	0.070	0.21	274	128	80	--
AUG 30...		3.6	0.70	0.70	0.270	0.240	0.240	0.74	248	123	97	<10

## RIO GRANDE BASIN

08470400 ARROYO COLORADO AT HARLINGEN, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 03...	100	<1	<10	130	10	16	3	2	<1.0	4900	--
JAN 24...	--	--	--	--	--	--	--	--	--	--	--
MAR 01...	<100	<1	10	130	20	15	2 *	2	<1.0	4200	28
MAY 22...	<100	<1	30	120	30	14	2	1	<1.0	3600	37
JUL 24...	--	--	--	--	--	--	--	--	--	--	--
AUG 30...	<100	<1	10	150	20	14	1	1	<1.0	4800	20



## RIO GRANDE MAIN STEM

427

08475000 RIO GRANDE NEAR BROWNSVILLE, TX  
(National Stream-Quality Accounting Network)

LOCATION.--Lat 25°52'35", long 97°27'15", Cameron County, Hydrologic Unit 13090002, at International Boundary and Water Commission gaging station, 1,000 ft downstream from El Jardin pumping plant, 6.8 mi below International Bridge between Brownsville and Matamoros, Tamps., Mex., and 48.8 mi above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical analyses: January 1932, March 1943 to February 1944, February 1966 to September 1974.  
Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: May 1975 to May 1982. Sediment analyses: February 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1943 to February 1944, April 1967 to September 1983.

WATER TEMPERATURE: 1966-69, 1970-75, 1977-83.

SUSPENDED-SEDIMENT DISCHARGE: February 1966 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,130 microsiemens May 29, 1972; minimum daily, 337 microsiemens Sept. 3, 1967.  
WATER TEMPERATURE: Maximum daily, 35.0°C on several days during summer months of 1982 and 1983; minimum daily, 8.0°C Jan. 10, 1967.

SEDIMENT CONCENTRATION: Maximum daily mean, 6,000 mg/L Feb. 28, 1983; minimum daily mean, 4 mg/L Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.

SEDIMENT LOAD: Maximum daily, 181,000 tons Feb. 28, 1983; minimum daily, 0.12 tons Aug. 26, 1983.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV												
03...	1210	39	1850	8.0	26.5	24	8.5	105	4.0	720	K30	450
JAN												
24...	0840	179	1400	8.3	16.0	25	10.1	101	4.1	200	K80	310
MAR												
01...	0900	243	1570	7.8	22.0	17	9.8	--	4.6	K130	K210	350
MAY												
22...	0900	21	1430	8.3	27.0	19	8.1	102	3.0	180	K68	300
JUL												
24...	1330	6.4	1400	8.5	32.0	25	7.3	100	3.6	42	66	270
AUG												
30...	0815	1020	1600	8.2	30.5	20	7.8	104	5.6	>1200	1300	340

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	ALKA- LINITY WAT DIS FIX END FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV											
03...	260	120	35	200	4	7.2	0	224	183	180	340
JAN											
24...	190	82	25	170	4	6.2	0	146	120	120	300
MAR											
01...	200	91	29	180	4	6.4	0	178	146	150	320
MAY											
22...	180	78	26	180	5	6.1	0	146	120	120	310
JUL											
24...	160	69	24	170	4	7.2	0	140	115	110	280
AUG											
30...	220	90	28	180	4	7.5	0	154	126	130	320

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
NOV											
03...	260	0.80	17	1140	1090	--	--	<0.010	--	<0.050	<0.015
JAN											
24...	190	1.1	14	898	862	--	--	<0.010	--	<0.050	<0.015
MAR											
01...	210	1.0	14	992	941	--	--	<0.010	--	<0.050	<0.015
MAY											
22...	190	1.1	14	914	879	--	--	<0.010	--	<0.050	<0.015
JUL											
24...	200	0.90	14	874	836	--	--	<0.010	--	<0.050	<0.015
AUG											
30...	240	0.90	15	986	959	0.050	0.050	0.030	0.080	0.080	<0.015

## RIO GRANDE MAIN STEM

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued  
(National Stream-Quality Accounting Network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 03...	0.80	0.80	0.80	0.110	<0.010	<0.010	--	93	9.8	77	20
JAN 24...	0.80	0.80	0.80	0.120	0.010	0.030	0.09	41	20	100	<10
MAR 01...	0.80	0.80	0.80	0.110	0.010	<0.010	--	32	21	100	<10
MAY 22...	0.50	0.50	0.50	0.060	<0.010	<0.010	--	48	2.7	99	<10
JUL 24...	0.80	0.80	0.80	0.090	0.020	<0.010	--	49	0.85	95	<10
AUG 30...	1.2	1.1	1.1	0.210	0.080	0.060	0.18	46	127	97	10
DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 03...	130	<3	<3	64	2	10	2	<1	<1.0	2100	<6
JAN 24...	97	<3	<3	66	1	<10	<1	<1	<1.0	1600	<6
MAR 01...	110	<3	<3	65	2	<10	1	<1	<1.0	1800	7
MAY 22...	110	<3	5	70	<1	<10	1	1	<1.0	1600	7
JUL 24...	100	<3	3	57	<1	10	2	<1	<1.0	1400	8
AUG 30...	120	<3	6	61	<1	10	<1	<1	<1.0	1600	8

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, the U.S. Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. 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 1995

Station no.	Station name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Colorado River Basin						
08129500	Dove Creek Spring nr Knickerbocker, Tex.	Lat 31°11'06", long 100°43'51", Irion County, at headquarters ranchhouse, 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† 1959-95	10-17-94 01-09-95 03-07-95 04-19-95 06-28-95 09-27-95	7.54 7.35 7.15 7.36 7.39 13.1
08143900	Springs at Fort McKavett, Tex.	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	--	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-95	10-24-94 01-10-95 04-20-95 05-23-95 07-11-95 09-28-95	23.3 24.7 25.5 24.7 20.2 21.2
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, 1959-95	01-11-95 03-16-95 05-23-95 08-10-95 09-29-95	10.9 11.3 11.7 8.97 8.27
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.	--	1939, 1952, 1956, 1959-95	10-24-94 01-10-95 04-20-95 05-18-95 07-11-95 09-28-95	19.8 21.0 19.7 17.7 15.6 37.5
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, 1959-95	10-24-94 01-10-95 04-20-95 05-18-95 07-11-95 09-28-95	21.0 18.4 16.6 17.7 15.5 24.1
08155400	Barton Creek above Barton Springs at Austin, Tex.	Lat 30°15'48", long 97°46'19", Travis County, upstream from upper dam of Barton Creek swimming pool in Zilker Park and upstream from all springs known as Barton Springs at Austin.	125	1919-95	10-06-94 07-13-95	0 2.48
08158806	Bear Creek at FM 1826 near Driftwood, Tex.	Lat 30°09'34", long 97°57'18", Hays County, at bridge on Farm Road 1826, about 7.9 mi southwest of Oak Hill.	5.49	1993-95	03-16-93 12-16-94 12-16-94 01-11-95 04-05-95 04-05-95	1.89 9.34 7.17 4.46 50.1 23.9
08164350	Navidad River near Speaks, Tex.	Lat 29°19'18", long 96°42'32", Lavaca County on Farm Road 530, 100 ft downstream from Ragsdale Creek, and 4.6 mi north of Speaks.	--	1981-89, 1995	10-21-94 10-25-94 02-06-95 04-03-95 04-07-95 07-20-95 09-14-95	1590 129 38.4 56.2 2490 9.76 4.32
08164370	Navidad River at Morales, Tex.	Lat 29°08'08", long 96°44'41", Jackson County, on County Road 283, 1.2 mi northeast of Morales.	--	1994-95	08-10-94 10-24-94 11-22-94 02-01-95 04-06-95 05-23-95 07-20-95 09-22-95	18.2 294 50.4 61.8 2930 31.0 15.5 4.31

See footnotes at end of table.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record station during water year 1995—Continued

Station no.	Station name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements						
					Date	Discharge (ft <sup>3</sup> /s)					
Guadalupe River Basin											
08166140	Guadalupe River above Bear Creek at Kerrville, Tex.	Lat 30°40'10", long 99°11'42", Kerr County, 600 ft downstream from Goat Creek, 900 ft upstream from Bear Creek and Bear Creek Crossing, and 2.4 mi east of intersection of State Highways 27 and 39 in Ingram.	--	1978-86, 1995	12-06-94	85.9					
					02-03-95	92.1					
					03-29-95	128					
					05-24-95	109					
					07-26-95	61.8					
					09-08-95	48.2					
08168000	Hueco Springs near New Braunfels, Tex.	Lat 29°45'33", long 98°08'23", Comal County, two springs located 400 and 500 ft west of the Guadalupe River, 600 ft downstream from the mouth of Elm Creek, and 4.2 mi north of New Braunfels.	--	1944-95	10-05-94	18.9					
					01-03-95	83.3					
					01-24-95	30.3					
					02-08-95	25.2					
					03-31-95	21.2					
					05-25-95	42.8					
					07-27-95	21.5					
					09-11-95	10.1					
08177818	San Antonio Springs at San Antonio, Tex.	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrandt Street in San Antonio.	--	1951-52, 1959-62, 1972, 1974-77, 1979-95	01-23-95	17.7					
					04-28-95	0					
					05-26-95	0					
					06-30-95	0					
					07-28-95	0					
					08-31-95	0					
					09-29-95	0					
08178090	San Pedro Springs at San Antonio, Tex.	Lat 29°26'42", long 98°30'06", Bexar County, at San Pedro Park in San Antonio.	--	1933-35, 1951-52, 1958-61, 1966, 1971, 1974-77, 1979-95	02-08-95	6.50					
					04-25-95	5.66					
					05-26-95	2.96					
					06-30-95	4.43					
					08-31-95	0.40					
					Nueces River Basin						
					08204000	Leona River spring flow near Uvalde, Tex.	Lat 29°09'15", long 99°44'35", Uvalde County, at old road crossing on White's Ranch, 2.0 mi downstream from Cooks Slough, and 4.7 mi southeast of Uvalde.	--	1935-65†, 1966-95	10-04-94	22.2
										12-08-94	34.9
01-03-95	35.1										
03-09-95	29.3										
05-04-95	24.0										
06-30-95	16.9										
08-18-95	13.6										
Rio Grande Basin											
08425500	Phantom Lake Spring near Toyahvale, Tex.	Lat 30°09'15", long 103°50'43", Jeff Davis County, 375 ft downstream from source of spring, 3.5 mi southwest of Toyahvale, and 7.0 mi southwest of Bahmorhea.	--	1931-33†, 1942-66†, 1967-95	10-13-94	1.75					
					03-09-95	1.43					
					04-27-95	1.14					
					07-06-95	1.04					
					09-14-95	1.04					
08427000	Giffin Springs at Toyahvale, Tex.	Lat 30°56'51", long 103°47'19", Reeves County, 2,000 ft northwest of post office in Toyahvale.	--	1919, 1922-23, 1925, 1932-33†, 1941-86, 1988-95	10-13-94	3.57					
					03-09-95	2.63					
					04-27-95	4.66					
					07-06-95	4.59					
					09-14-95	3.04					
					Las Moras Springs at Brackettville, Tex. b/						
08456300	Las Moras Springs at Brackettville, Tex. b/	Lat 29°18'33", long 100°25'13", Kinney County, in spring-flow pool at Brackettville, 160 ft south of U.S. Highway 90, and 1,550 ft upstream from bridge on Brackettville-Fort Clark Road.	--	1896, 1899-1900, 1902, 1904-06, 1910, 1912, 1925, 1928, 1951-95	10-11-94	33.8					
					11-08-94	26.8					
					12-13-94	18.8					
					01-10-95	20.4					
					02-14-95	14.5					
					03-14-95	18.0					
					04-11-95	12.5					
					05-09-95	10.3					
					07-11-95	12.2					
					08-10-95	3.02					
					09-15-95	6.30					

† Operated as a continuous-record station.

b Records furnished by the International Boundary and Water Commission.

## Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), the data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occurring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

## Annual maximum stage and (or) discharge during water year 1995

Station name	Location	Period of record	Water Year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)
Guadalupe River Basin								
Guadalupe River at New Braunfels, Tex. 08169500	Lat 29°41'52", long 98°06'23", Comal County, Comal Mills in New Braunfels and 0.4 mi upstream from IH-35. Drainage area is 1,652 mi <sup>2</sup> .	1988† 1902, 1915-27† 1974-95	05-05-93 05-18-94 05-30-95	15.11 -- --	14,200 -- --	09-10-21	28.60	56,600
Guadalupe River at Gonzales, Tex. 08173900	Lat 29°29'49", long 97°27'17", Gonzales County, at Gonzales Hydro Station in Gonzales and 1.4 mi upstream from U.S. Highway 183. Drainage area is unknown.	1977-95	06-01-95	--	--	05-05-87	34.70	52,000
San Antonio River at Navarro Street, San Antonio, Tex. 08177900	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*639.31	--	08-08-74	*642.77	--
San Antonio River at Dolorosa Street, 08177920	Lat 29°25'24", long 98°29'32", Bexar County, downstream Dolorosa Street in San Antonio. Drainage area is unknown.	1980-95	10-08-94	631.98	--	09-06-80	*632.06	--
San Pedro Creek at Santa Rosa Street, San Antonio, Tex. 08178100	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*638.99	--	07-16-90	*648.38	--
Martinez Creek at Fredericksburg Rd., San Antonio, Tex. 08178350	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*682.14	--	09-27-73	*683.84	--
Alazan Creek at West Martin Street, San Antonio, Tex. 08178400	Lat 29°25'51", long 98°30'51", Bexar County, at bridge on West Martin Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*638.37	--	08-03-92	*644.20	--
Apache Creek at S. Zarzamora St., San Antonio, Tex. 08178450	Lat 29°24'47", long 98°31'42", Bexar County, at bridge on South Zarzamora Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*628.91	--	09-27-73	*643.74	--
San Pedro Creek at Furnish Street, San Antonio, Tex. 08178500	Lat 29°24'22", long 98°30'38", Bexar County, at bridge on Furnish Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*606.50	--	06-04-86	*616.28	--
San Antonio River at Ashley Street (Berg's Mill) San Antonio, Tex. 08178550	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio. Drainage area is unknown.	1973-95	10-08-94	*519.37	--	07-16-90	*522.94	--
Nueces River Basin								
Rutledge Hollow at 7th Street, Poteet, Tex. 08207220	Lat 29°02'07", long 98°34'18", Atascosa County, in city of Poteet at 7th Street, and 2.0 mi above Atascosa River. Drainage area is 9.74 mi <sup>2</sup> .	1979-95	06-29-95	*419.41	--	07-17-90	*424.89	--
Atascosa River at U.S. Highway 281, Pleasanton, Tex. 08207300	Lat 28°57'44", long 98°28'51", Atascosa County, at bridge on U.S. Highway 281 in Pleasanton. Drainage area is unknown.	1973-95	09-01-95	*344.69	--	06-28-93	*352.84	--
San Fernando Creek Basin								
Tranquitas Creek at Kingsville, Tex. 08212300	Lat 27°31'33", long 95°52'02", Kleberg County, at bridge on U.S. Highway 77 Business Route in Kingsville, 4.9 mi above San Fernando Creek, and 5.9 mi downstream from Tranquitas Dam. Drainage area is 48.5 mi <sup>2</sup> .	1965-82, 1984-95	10-08-94	2.23	--	08-10-80	6.88	--

\* Elevation, in feet.

† Operated as a continuous-record station.

See footnotes at end of table.

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 1995

Station no.	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Colorado River Basin						
Clear Creek near Menard	San Saba River	Lat 30°54'13", long 99°55'27", Menard County, at bridge on U.S. Highway 190, about 9 mi west of Menard.	--	1984-95	10-24-94 01-10-95 04-20-95 05-23-95	17.5 23.0 21.8 16.8
Colorado River at Winchell 08138000	Colorado River	Lat 31°28'04", long 99°09'43", McCulloch-Brown County line 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.	13,788	1924-34†, 1939-93†, 1994-95	10-26-94 01-12-95 04-10-95 05-24-95 07-25-95	86.4 13.3 124 16.3 13.2
Tanner Spring near Telegraph	South Llano River	Lat 30°15'45", long 99°56'03", Edwards County, about 5.6 mi south of Telegraph, Kimble County, and 18.6 mi southwest of Junction, at mouth	--	1939, 1962, 1989-95	10-24-94 01-10-95 04-20-95 05-18-95 07-11-95	11.5 11.8 11.6 11.0 7.47
Rio Grande Basin						
Mud Springs 1/	Mud Creek	Lat 29°27'10", long 100°37'30", Kinney County, on Mays Ranch about 16 mi northwest of Brackettville.	--	1939-41, 1952-53, 1962, 1965-95	10-11-94 11-08-94 12-13-94 01-10-95 02-14-95 03-14-95 04-11-95 05-09-95 07-11-95 08-10-95 09-15-95	8.6 9.4 9.7 9.4 7.8 7.6 5.7 4.7 4.6 3.4 3.1
Pinto Springs 1/	Pinto Creek	Lat 29°24'10", long 100°27'15", Kinney County, on C.C. Belcher Ranch 7.5 mi northwest of Brackettville.	--	1939-41, 1952-53, 1965-95	10-11-94 11-08-94 12-13-94 04-11-95 05-09-95 07-11-95 08-10-95	0 0.6 0.2 0 0 0 0

† Operated as a continuous-record station.

1/ Measurements by International Boundary and Water Commission.



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## CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	$2.54 \times 10^1$	millimeter
	$2.54 \times 10^{-2}$	meter
foot (ft)	$3.048 \times 10^{-1}$	meter
mile (mi)	$1.609 \times 10^0$	kilometer
<i>Area</i>		
acre	$4.047 \times 10^3$	square meter
	$4.047 \times 10^{-1}$	square hectometer
	$4.047 \times 10^{-3}$	square kilometer
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer
<i>Volume</i>		
gallon (gal)	$3.785 \times 10^0$	liter
	$3.785 \times 10^0$	cubic decimeter
	$3.785 \times 10^{-3}$	cubic meter
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter
	$3.785 \times 10^{-3}$	cubic hectometer
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeter
	$2.832 \times 10^{-2}$	cubic meter
cubic-foot-per-second day [(ft <sup>3</sup> /s) d]	$2.447 \times 10^3$	cubic meter
	$2.447 \times 10^{-3}$	cubic hectometer
acre-foot (acre-ft)	$1.233 \times 10^3$	cubic meter
	$1.233 \times 10^{-3}$	cubic hectometer
	$1.233 \times 10^{-6}$	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second
	$2.832 \times 10^1$	cubic decimeter per second
	$2.832 \times 10^{-2}$	cubic meter per second
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second
	$6.309 \times 10^{-2}$	cubic decimeter per second
	$6.309 \times 10^{-5}$	cubic meter per second
million gallons per day (Mgal/d)	$4.381 \times 10^1$	cubic decimeter per second
	$4.381 \times 10^{-2}$	cubic meter per second
<i>Mass</i>		
ton (short)	$9.072 \times 10^{-1}$	megagram or metric ton

*Sea level:* In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.



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