Water Resources Data
Texas
Water Year 2003

Volume 5. Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Basins

By Susan C. Gandara

Water-Data Report TX-03-5

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

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
Gale A. Norton, Secretary

U.S. Geological Survey
Charles G. Groat, Director

2004

U.S. Geological Survey
8027 Exchange Drive
Austin, Texas 78754-4733
512-927-3500

Information about the USGS, Texas District is available on the Internet at http://tx.usgs.gov/

Information about all USGS reports and products is available by calling 1-888-ASK-USGS or on the Internet via the World Wide Web at http://www.usgs.gov/

Additional earth science information is available by accessing the USGS home page at http://www.usgs.gov/

PREFACE

This edition of the annual hydrologic data report of Texas is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by Federal, State, local agencies, and the private sector for developing and managing land and water resources in Texas which are contained in 6 volumes:

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

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

Mike E. Dorsey
Addis M. Miller III
Jimmy G. Pond
Timothy H. Raines
Debra A. Sneck-Fahrer
John W. Unruh
Ken VanZandt

The following individuals contributed to the collection, processing and preparation of the data:

Houston Subdistrict Office

Cindy Billington
Dexter W. Brown
J. Pat Bruchmiller
Mike R. Burnich
Al Campodonico
Jeff W. East
Shawn M. French
Lee B. Goldstein
Jimmy E. Hopkins
Mark C. Kasmarek
Patrick O. Keefe
Christina Kela
Wesley D. Meehan
Edna M. Paul
Elizabeth A. Roach
Joseph Sullivan
J. Gilbert Stuart

Austin Field Office

Joseph T. Bentley
Michael G. Canova
Trixie A. DeLisle
Michael L. Greenslate
Venezia Muniz
Randy A. Samuelson
Jonathan W. Snatic
Milton W. Sunvison
K. Craig Weiss

Wichita Falls Field Office

Randal S. Alexander
Stanley Baldys
Monti M. Haynie
Laith P. Hairell
David M. Holmes
Jackie D. Kelly
Heather L. Null
Michael T. Pettibon
Keith R. Snider

San Antonio Subdistrict Office

James M. Briers
Amy R. Clark
Allen L. Furlow
Jon R. Gilhousen
Ken C. Grimm
C.A. Hartmann, Jr.
Chiquita S. Lopez
Stephanie L. Marr
Vidal A. Mendoza
Robert T. Meyer
Michael B. Nyman
Cassi L. Otero
Diana E. Pedraza
Jorge O. Pena
Brian L. Petri
Richard N. Slattery
Douglas E. Thomas
Mark A. Warzecha
John F. Wojcik

Fort Worth Field Office

Jack D. Benton
Dana A. Blanchette
Martin J. Danz
Judith H. Donohue
Wilfredo Garcia-Garcia
Anthony J. McGlone
Roger K. Trader
David V. Tudor

San Angelo Field Office

Joe G. Beauchamp
Cary D. Carman
Hector H. Garza
Henry Jacques, Jr.
Lawanna M. Kiser
Richard L. Nichols
James B. Schiller
Tim E. Teagarden

This report was prepared in cooperation with the State of Texas and other agencies under the supervision of Jayne E. May, District Data Chief.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY ***(Leave blank)***

2. REPORT DATE
March 2004

3. REPORT TYPE AND DATES COVERED
Annual--Oct. 1, 2002, to Sept. 30, 2003

4. TITLE AND SUBTITLE
Water Resources Data--Texas, Water Year 2003, Volume 5
Guadalupe River, Nueces River, Rio Grande River Basins
and Intervening Coastal Basins

5. FUNDING NUMBERS

6. AUTHOR(S)
S.C. Gandara

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Geological Survey, Water Resources Division
Texas District
8027 Exchange Dr.
Austin, TX 78754-4733

8. PERFORMING ORGANIZATION REPORT NUMBER
USGS-WDR-TX-03-5

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Geological Survey, Water Resources Division
Texas District
8027 Exchange Dr.
Austin, TX 78754-4733

10. SPONSORING / MONITORING AGENCY REPORT NUMBER
USGS-WDR-TX-03-5

11. SUPPLEMENTARY NOTES
Prepared in cooperation with Federal, State, and local agencies.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
No restriction on distribution.
This report may be purchased from
National Technical Information Service
Springfield, VA 22161

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

Water-resources data for the 2003 water year for Texas are presented in six volumes, and consist of records of stage, discharge, and water quality of streams and canals; stage, contents, and water-quality of lakes and reservoirs; and water levels and water quality of ground-water wells. Volume 5 contains records for water discharge at 84 gaging stations; stage only at 6 gaging stations; stage and contents at 6 lakes and reservoirs; water quality at 28 gaging stations; and data for 18 partial-record stations comprised of 1 flood-hydrograph, 10 low-flow, 4 crest-stage, and 3 miscellaneous stations. Also included are lists of discontinued surface-water discharge or stage-only stations and discontinued surface-water-quality stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and local agencies in Texas. Records for a few pertinent stations in the bordering States also are included.

14. SUBJECT TERMS
*Texas, *hydrologic data, *surface water, *water quality, flow rate, gaging stations, lakes, reservoirs, chemical analyses, sediments, water temperature, sampling sites.

15. NUMBER OF PAGES
432

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT
Unclassified

18. SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

19. SECURITY CLASSIFICATION OF ABSTRACT
Unclassified

20. LIMITATION OF ABSTRACT

CONTENTS

	Page
Preface	iii
Report documentation page	iv
List of surface-water stations, in downstream order, by which records are published	vi
List of discontinued surface-water discharge or stage-only stations	ix
List of discontinued surface-water-quality stations	xxv
Introduction	1
Cooperation	2
Summary of hydrologic conditions	2
Streamflow	2
Water quality	5
Downstream order and station number	6
Special networks and programs	6
Explanation of stage- and water-discharge records	7
Data collection and computation	7
Data presentation	8
Station manuscript	8
Peak discharge greater than base discharge	8
Data table of daily mean values	8
Statistics of monthly mean data	8
Summary statistics	8
Identifying estimated daily discharge	10
Accuracy of field data and computed results	10
Other data records available	10
Explanation of water-quality records	11
Collection and examination of data	11
Water analysis	11
Surface-water-quality records	11
Classification of records	11
Accuracy of the records	11
Arrangement of records	12
On-site measurements and sample collection	12
Water temperature	12
Sediment	12
Laboratory measurements	12
Data presentation	12
Remarks codes	13
Water Quality-Control Data	14
Blank samples	14
Reference samples	14
Replicate samples	15
Spike samples	15
Access to USGS water data	15
Definition of terms	16
Publications of techniques of water-resources investigations	28
Gaging-station records	32
Discharge at partial-record stations and miscellaneous sites	389
Low-flow partial-record stations	389
Crest-stage partial-record stations	391
Discharge measurements at miscellaneous sites	392
Index	393

ILLUSTRATIONS

Figure	1. Area of Texas covered by volume 5 and location of selected streamflow stations in volume 5	3
	2. Monthly mean discharges at four long-term hydrologic index stations during 2003 water year and median of the monthly mean discharges for 1971-2000 water years	4
	3. Map showing location of gaging stations in the Guadalupe River Basin	32
	4. Map showing location of gaging stations in the San Antonio River Basin	33
	5. Map showing location of gaging stations in the San Antonio inset of the San Antonio River Basin	34
	6. Map showing location of gaging stations in the Copano, Mission and Aransas River Basins	188
	7. Map showing location of gaging stations in the Nueces River Basin	198
	8. Map showing location of gaging stations in the Oso Creek and San Fernando Creek River Basins	314
	9. Map showing location of gaging stations in the first section of the Rio Grande Basin	322
	10. Map showing location of gaging stations in the second section of the Rio Grande Basin	364

TABLES

Table	1. Streamflow at four selected stations	5

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; (p) precipitation.]

	Station number	Page
WESTERN GULF OF MEXICO BASINS		
GUADALUPE RIVER BASIN		
Guadalupe River:		
North Fork Guadalupe River near Hunt (d)	08165300	36
Guadalupe River at Hunt (d)	08165500	38
Johnson Creek near Ingram (d)	08166000	40
Guadalupe River above Bear Creek at Kerrville (d)	08166140	42
Guadalupe River at Kerrville (d)	08166200	44
Guadalupe River at Comfort (d)	08167000	46
Guadalupe River near Spring Branch (d)	08167500	48
Canyon Lake near New Braunfels (e)	08167700	50
Guadalupe River at Sattler (d)	08167800	52
Guadalupe River above Comal River at New Braunfels (d)	08168500	54
Comal River:		
Panther Canyon at New Braunfels (c) (t)	08168700	56
Comal Springs at New Braunfels (d)	08168710	58
Comal River at New Braunfels (d)	08169000	60
Guadalupe River at New Braunfels (e)	08169500	62
San Marcos River Tributary at Sessions Road, San Marcos (c) (t)	08169948	64
San Marcos Springs at San Marcos (d)	08170000	66
San Marcos River at San Marcos (d)	08170500	68
Blanco River at Wimberley (d)	08171000	70
Blanco River near Kyle (d)	08171300	72
San Marcos River at Luling (d)	08172000	74
Plum Creek at Lockhart (d)	08172400	76
Plum Creek near Luling (d)	08173000	78
Guadalupe River at Gonzales (d)	08173900	80
Peach Creek below Dilworth (d)	08174600	82
Sandies Creek near Westhoff (d)	08175000	84
Guadalupe River at Cuero (d)	08175800	86
Guadalupe River at Victoria (d)	08176500	88
Coleto Creek:		
Fifteenmile Creek near Weser (d)	08176550	90
Coleto Creek at Arnold Road Crossing near Schroeder (d)	08176900	92
Perdido Creek at Farm to Market Road 622 near Fannin (d)	08177300	94
Coleto Creek Reservoir near Victoria (e)	08177400	96
Coleto Creek near Victoria (d)	08177500	98
Guadalupe River near Bloomington (e)	08177520	100
SAN ANTONIO RIVER BASIN		
San Antonio River:		
Olmos Creek at Dresden Drive, San Antonio (d)	08177700	102
San Antonio River at San Antonio (e)	08178000	104
San Antonio River at Mitchell Street, San Antonio (d)	08178050	106
San Antonio River at Loop 410 at San Antonio (d)	08178565	108
Salado Creek at Wilderness Road at San Antonio (d)	08178585	110
Elm Waterhole Creek Tributary at San Antonio (c) (t)	08178627	112
Salado Creek at Loop 410 at San Antonio (d)	08178700	116
Salado Creek at Loop 13 at San Antonio (d) (c) (t)	08178800	118
Medina River at Bandera (d)	08178880	124
Medina Lake near San Antonio (e)	08179500	126
Medina Canal near Riomedina (d)	08180000	128
Diversion Lake near Riomedina (e)	08180010	130
Medina River near Riomedina (d)	08180500	132
Medina River near Macdona (d) (c) (t)	08180700	134
Medina River near Somerset (d)	08180800	142
Leon Creek:		
Leon Creek at Scenic Loop Road near Leon Springs (c) (t)	08180945	144
Leon Creek at Hausman Road at San Antonio (c) (t)	08180947	146
Leon Creek at Prue Road at San Antonio (c) (t)	08181050	148
Helotes Creek at Helotes (d) (c) (t) (b)	08181400	152
Leon Creek at Interstate Highway 35 at San Antonio (d)	08181480	156
Medina River at San Antonio (d)	08181500	158

	Station number	Page
WESTERN GULF OF MEXICO BASINS--Continued		
GUADALUPE RIVER BASIN--Continued		
San Antonio River:		
San Antonio River near Elmendorf (d) (c) (t) (s)	08181800	160
San Antonio River near Falls City (d)	08183500	174
Cibolo Creek at Interstate Highway 10 above Boerne (d)	08183850	176
Cibolo Creek at Selma (d)	08185000	178
Cibolo Creek near Falls City (d)	08186000	180
San Antonio River at Goliad (d)	08188500	182
Guadalupe-Blanco River Authority Calhoun Canal Pump Station near Long Mott (d)	08188600	184
Guadalupe River near Tivoli (e)	08188800	186
COPANO CREEK BASIN		
Copano Creek near Refugio (d)	08189200	190
MISSION RIVER BASIN		
Mission River:		
Medio Creek near Beeville (d)	08189300	192
Mission River at Refugio (d)	08189500	194
ARANSAS RIVER BASIN		
Aransas River near Skidmore (d)	08189700	196
NUECES RIVER BASIN		
Nueces River at Laguna (d)	08190000	200
West Nueces River near Brackettville (d)	08190500	202
Nueces River below Uvalde (d)	08192000	204
Nueces River near Asherton (d)	08193000	206
Nueces River at Cotulla (d)	08194000	208
San Casimiro Creek near Freer (d)	08194200	210
Nueces River near Tilden (d) (c) (t)	08194500	212
Frio River at Concan (d) (c) (t)	08195000	218
Dry Frio River near Reagan Wells (d)	08196000	222
Frio River below Dry Frio River near Uvalde (d)	08197500	224
Sabinal River near Sabinal (d)	08198000	226
Sabinal River at Sabinal (d)	08198500	228
Hondo Creek near Tarpley (d)	08200000	230
Hondo Creek at King Waterhole near Hondo (d)	08200700	232
Seco Creek at Miller Ranch near Utopia (d)	08201500	234
Seco Creek at Rowe Ranch near D'Hanis (d)	08202700	236
Leona River near Uvalde (d)	08204005	238
Frio River near Derby (d)	08205500	240
Frio River at Tilden (d) (c) (t)	08206600	242
San Miguel Creek near Tilden (d)	08206700	248
Choke Canyon Reservoir near Three Rivers (e) (c) (t) (s)	08206900	250
Choke Canyon Reservoir (Outlet Works Channel) near Three Rivers (d)	08206910	278
Atascosa River near McCoy (d)	08207500	280
Atascosa River at Whitsett (d)	08208000	282
Nueces River near Three Rivers (d) (c) (t)	08210000	284
Nueces River at George West (e)	08210100	290
Lake Corpus Christi near Mathis (e) (c) (t) (s)	08210500	292
Nueces River near Mathis (d)	08211000	308
Nueces River at Bluntzer (d)	08211200	310
Nueces River at Calallen (d)	08211500	312
OSO CREEK BASIN		
Oso Creek at Corpus Christi (d)	08211520	316
SAN FERNANDO CREEK BASIN		
San Fernando Creek at Alice (d)	08211900	318
COASTAL BASIN		
Los Olmos Creek near Falfurias (d)	08212400	320
RIO GRANDE BASIN		
Rio Grande below Rio Conchos near Presidio (c) (t) (s)	08374200	324
Sanderson Creek at Sanderson (e)	08376300	328
Rio Grande at Foster Ranch near Langtry (c) (t) (s)	08377200	332
Red Bluff Reservoir near Orla (e)	08410000	336
Pecos River near Orla (d) (c) (t)	08412500	338

	Station number	Page
WESTERN GULF OF MEXICO BASINS--Continued		
RIO GRANDE BASIN--Continued		
Rio Grande:		
Pecos River:		
Toyah Creek:		
Giffin Springs at Toyahville (d)	08427000	342
Limpia Creek above Fort Davis (e)	08431700	346
Barilla Draw near Saragosa (d)	08433000	350
Pecos River near Girvin (d)	08446500	354
Independence Creek near Sheffield (d)	08447020	356
Pecos River near Langtry (c) (t) (s)	08447410	360
Rio Grande below Amistad Dam near Del Rio (c) (t) (s)	08450900	366
Rio Grande at Pipeline Crossing below Laredo (d) (c) (t) (s)	08459200	370
Rio Grande below Falcon Dam (c) (t) (s)	08461300	376
Arroyo Colorado at Harlingen (c) (t) (s)	08470400	380
Rio Grande near Brownsville (c) (t) (s)	08475000	384

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

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

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Punta De Agua Creek near Channing (d)	07227448	3,568	1968-73
East Cheyenne Creek Tributary near Channing (e)	07227460	1.60	1965-74
Canadian River at Tascosa (d)	07227470	18,536	1969-77
Tecovas Creek Tributary near Bushland (e)	07227480	2.5	1966-74
Dixon Creek near Borger (d)	07227920	134	1974-89
Palo Duro Creek near Canyon (e)	07229700	982	1942-54
White Woman Creek Tributary near Darrouzett (e)	07234150	4.03	1966-74
Tierra Blanca Creek above Buffalo Lake near Umbarger (d)	07295500	1,968	1939-54, 1967-73
Buffalo Lake near Umbarger (e)	07296000	2,075	1938-54
Prairie Dog Town Fork Red River near Canyon (d)	07297500	3,369	1924-26, 1938-49
Middle Tule Draw near Tulia (e)	07297920	313	1967-74
North Tule Draw at Reservoir near Tulia (d)	07298000	189	1939-40, 1941-73
Rock Creek Tributary near Silverton (d)	07298150	13.7	1966-74
Tule Creek near Silverton (d)	07298200	1,150	1964-86
Mulberry Creek near Brice (d)	07299000	534	1949-51
Prairie Dog Town Fork Red River near Lakeview (d)	07299200	6,792	1963-80
Little Red River near Turkey (d)	07299300	139	1968-81
Prairie Dog Town Fork Red River near Estelline (d)	07299500	7,293	1924-25, 1938-47
Prairie Dog Town Fork Red River below Mountain Creek near Estelline (e)	07299505	7,341	1974-77
Prairie Dog Town Fork Red River above Jonah Creek near Estelline (e)	07299510	7,533	1974-77
Jonah Creek at Weir near Estelline (d)	07299512	65.50	1974-82
Jonah Creek below Weir near Estelline (d)	07299514	66.60	1974-76
Jonah Creek at mouth near Estelline (d)	07299516	76	1974-76
Salt Creek near Estelline (d)	07299530	142	1974-79
Buck Creek near Wellington (e)	07299550	210	1951-64
Red River near Quanah (d)	07299570	8,321	1960-82
North Groesbeck Creek Tributary near Kirkland (d)	07299575	0.16	1966-74
Wanders Creek at Odell (e)	07299750	199	1949-50, 1952-89
Salt Fork Red River near Clarendon (d)	07299850	457	1960-64
Lelia Lake Creek near Hedley (e)	07299900	86	1951-70
Salt Fork Red River near Hedley (e)	07299930	744	1951, 1956-62
Oklahoma Draw Tributary near Hedley (e)	07299940	1.1	1965-74
Sweetwater Creek near Wheeler (e)	07301400	164	1951-64
Doodlebug Creek near Wheeler (e)	07301405	0.19	1967-73
Elm Creek near Shamrock (e)	07303300	N/A	1947-89
Quitaque Creek near Quitaque (d)	07307500	293	1945-59
North Pease River near Childress (d)	07307600	1,434	1973-79
North Pease River near Kirkland (e)	07307660	N/A	1973-79
Roaring Springs near Roaring Springs (e)	07307700	N/A	1937, 1943-95
Cottonwood Creek Tributary near Afton (e)	07307720	0.68	1967-74
Middle Pease River near Paducah (d)	07307750	1,086	1973-79
Middle Pease River near Paducah (d)	07307760	1,123	1980-82
Middle Pease River near Kirkland (e)	07307780	1,250	1973-79
Canal Creek near Crowell (e)	07307950	49.0	1968-70, 1978-79

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Pease River near Crowell (d)	07308000	3,037	1924-47
Plum Creek near Vernon (e)	07308220	4.99	1967-74
China Creek near Electra (e)	07308400	37	1967-76
North Fork Wichita River near Crowell (d)	07311622	591	1971-76
Middle Fork Wichita River near Truscott (d)	07311648	161	1971-76
South Fork Wichita River near Guthrie (d)	07311780	239	1952-54, 1956-57 1971-76
South Fork Wichita River at Ross Ranch near Benjamin (d)	07311790	499	1971-79
Wichita River at State Highway 25 near Kamay (d)	07312130	2,182	1996-2000
Beaver Creek Tributary near Crowell (e)	07312140	3.43	1966-74
Wolf Creek near Iowa Park (e)	07312300	8.5	1966-74
North Fork Little Wichita River Tributary near Archer City (e)	07314200	0.10	1966-74
Little Wichita River near Henrietta (d)	07315000	1,037	1953-79
Little Wichita River near Ringgold (d)	07315400	1,350	1959-65
Farmers Creek near Saint Jo (e)	07315550	0.82	1966-74
Mineral Creek near Sadler (d)	07316200	26	1968-77
Sandy Creek near Sadler (e)	07316230	24	1968-74
Lake Texoma near Denison (e)	07331500	39,719	1942-93, 2000
Bois D'Arc Creek near Randolph (d)	07332600	72	1963-85
Cooper Creek near Bonham (e)	07332602	6.21	1966-74
Sanders Creek near Chicota (d)	07335400	175	1968-86
Little Pine Creek near Kanawha (d)	07336750	75.40	1969-80
Pecan Bayou near Clarksville (d)	07336800	100	1962-77
Red River near DeKalb (d)	07336820	47,348	1967-98
McKinney Bayou near Leary (e)	07336940	3.33	1966-73
Barkman Creek near Leary (e)	07336950	31.5	1958-64
Nelson Branch near Leonard (e)	07342450	0.22	1966-74
South Sulphur River near Commerce (d)	07342470	189	1980-91
Cuthand Creek near Bogata (d)	07343300	69	1964-74
Dial Branch near Bagwell (e)	07343350	1.00	1966-74
White Oak Creek near Mt. Vernon (e)	07343480	434	1966, 1969-75
White Oak Creek below Talco (d)	07343800	579	1938-50
Buck Creek near Cookville (e)	07343900	0.78	1966-74
Sulphur River near Darden (d)	07344000	2,774	1924-56
Sulphur River near Texarkana (d)	07344210	3,443	1980-85
Big Cypress Creek near Winnsboro (d)	07344482	27.2	1974-92
Dragoo Creek near Mt. Pleasant (e)	07344490	4.27	1967-74
Williamson Creek near Pittsburg (e)	07344600	7.11	1967-74
Boggy Creek near Daingerfield (d)	07345000	72	1943-77
Ellison Creek Reservoir near Lone Star (e)	07345500	37	1943-62, 1974-89
Cypress Creek Tributary near Jefferson (e)	07346010	0.51	1966-74
Taylor Branch near Smithland (e)	07346072	0.73	1966-74
Big Cypress Creek near Karnack (e)	07346085	2,174	1980-85
Frazier Creek near Linden (d)	07346140	48.0	1965-91
Sabine River near Emory (d)	08017500	888	1952-73
Burnett Branch near Canton (e)	08017700	0.33	1966-74
Grand Saline Creek near Grand Saline (d)	08018200	91.4	1968-73
Burke Creek near Yantis (d)	08018730	33.10	1979-89
Dry Creek near Quitman (e)	08018950	63.6	1968-75
Lake Winnsboro near Winnsboro (d)	08019300	27.1	1962-86
Big Sandy Creek near Hawkins (e)	08019430	196	1980-82
Prairie Creek near Gladewater (d)	08020200	48.90	1968-77
Sabine River near Longview (d)	08020500	2,947	1904-07, 1924-33
Rabbit Creek at Kilgore (d)	08020700	75.80	1964-77

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Grace Creek Tributary at Longview (e)	08020800	5.05	1967-74
Mill Creek near Henderson (d)	08020960	20.30	1979-81
Mill Creek near Longview (d)	08020980	47.90	1979-81
Tiawichi Creek near Longview (d)	08020990	62.70	1978-81
Cherokee Bayou near Elderville (d)	08021000	120	1940-49
Lake Cherokee near Longview (e)	08021500	158	1951-83
Sabine River near Tatum (d)	08022000	3,493	1939-78,
" " " " (e)			1979-82
Redmon Branch near Hallesville (e)	08022010	0.46	1966-74
Eight Mile Creek near Tatum (e)	08022050	106	1962-71
Martin Creek near Tatum (d)	08022070	148	1974-96
Martin Creek near Beckville (e)	08022080	192	1962-71
Murvaul Bayou near Gary (d)	08022300	134	1958-83
Socagee Creek near Carthage (d)	08022400	82.60	1962-73
Tenaha Creek near Shelbyville (d)	08023200	97.80	1952-81
Dorsey Branch near Milam (e)	08024290	0.70	1967-74
Patroon Bayou near Milam (e)	08024300	130	1952-54,
			1959-63
Sabine River near Milam (d)	08024400	6,508	1924-25,
			1939-68
Palo Gaucho Bayou near Hemphill (d)	08024500	123	1952-65
Housen Bayou near Yellowpine (e)	08025250	92.1	1952-54,
			1957,
			1959-63
Sandy Creek near Yellowpine (e)	08025300	135	1952-54,
			1957,
			1959-63
Mill Creek near Burkeville (d)	08025307	17.6	1974-79
Little Cow Creek below McGraw Creek near Burkeville (e)	08026500	112	1952-58
Moore Branch near Newton (e)	08028505	3.77	1967-74
Nichols Creek near Buna (e)	08029750	54.4	1959-64
Cypress Creek near Buna (d)	08030000	69.20	1952-83
Adams Bayou Tributary near Deweyville (e)	08030700	12.4	1966-74
Bethlehem Branch near Van (e)	08031100	1.09	1966-74
Kickapoo Creek near Brownsboro (d)	08031200	232	1962-89
Neches River near Reese (d)	08031500	851	1924-27
Hurricane Creek Tributary near Palestine (e)	08032100	0.39	1966-74
One Arm Creek near Maydelle (e)	08032250	6.01	1967-74
Squirrel Creek near Elkhart (e)	08032300	1.57	1967-74
Neches River near Alto (d)	08032500	1,945	1944-79
Piney Creek Tributary near Pennington (e)	08033250	1.17	1967-74
Piney Creek near Groveton (d)	08033300	79	1962-89
Shawnee Creek Tributary near Huntington (e)	08033450	0.52	1966-74
Greenwood Creek Tributary near Colmesneil (e)	08033480	0.15	1966-74
Bowles Creek near Selman City (e)	08033600	14.5	1968-85
Striker Creek near Summerfield (d)	08033700	146	1941-49
Striker Creek Reservoir near New Salem (e)	08033800	148	1941-49
East Fork Angelina River near Cushing (d)	08033900	158	1964-89
Mud Creek at Ponta (d)	08035000	475	1924-27
Angelina River near Lufkin (d)	08037000	1,600	1924-34,
			1939-79
Bayou Lanana at Nacogdoches (d)	08037050	31.3	1965-86,
			1988-93
Gingham Branch near Mt. Enterprise (e)	08037300	0.90	1967-74
Arenoso Creek near San Augustine (d)	08037500	75.30	1938-40
Angelina River near Zavalla (d)	08038500	2,892	1952-65
Ayish Bayou at San Augustine (d)	08039000	15.80	1924-25
Angelina River at Horger (d)	08039500	3,486	1928-51,
			1967-73
Little Sandy Creek Tributary near Jasper (e)	08039900	0.46	1967-74

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Drakes Branch near Spurger (e)	08041400	5.03	1967-74
West Fork Double Bayou near Anahuac (e)	08042550	4.43	1967-74
North Creek SWS No. 28-A near Jermyn (e)	08042650	6.82	1972-80
North Creek near Jacksboro (d)	08042700	21.60	1956-80
Beans Creek at Wizard Wells (e)	08042900	29.60	1993-95
West Fork Trinity River at Bridgeport (d)	08043100	1,113	1984-89
West Fork Trinity River at Bridgeport (d)	08043500	1,147	1908-30
Big Sandy Creek near Bridgeport (d)	08044000	333	1937-95
Garrett Creek near Paradise (e)	08044135	52.5	1992-95
Salt Creek near Paradise (e)	08044140	52.7	1992-95
Walker Creek near Boyd (e)	08044200	2.95	1965-74
West Fork Trinity River at Lake Worth, Fort Worth (d)	08045500	2,069	1924-34
Clear Fork Trinity River near Aledo (d)	08046000	251	1947-75
Marine Creek at Fort Worth (d)	08048500	16.80	1950-58
Sycamore Creek at I.H. 35W, Fort Worth (d)	08048520	17.70	1970-76
Sycamore Creek Trib. above Seminary South, Fort Worth (d)	08048530	0.97	1970-76
Sycamore Creek Trib. at I.H. 35W, Fort Worth (d)	08048540	1.35	1970-76
Dry Branch at Fain Street at Fort Worth (d)	08048600	2.15	1969-76
Big Fossil Creek at Haltom City (d)	08048800*	52.8	1959-73
Little Fossil Creek at I.H. 820, Fort Worth (e)	08048820	5.64	1969-73
Little Fossil Creek at Mesquite Street, Fort Worth (d)	08048850	12.30	1969-76
Deer Creek Tributary near Crowley (e)	08048900	5.86	1967-74
Village Creek at Kennedale (d)	08048980	100	1986-89
Village Creek near Handley (d)	08049000	126	1925-30
Big Bear Creek near Grapevine (d)	08049550	29.6	1967-79
Trigg Branch at DFW Airport near Euless (d)	08049565	1.73	1983-87
Mountain Creek near Cedar Hill (d)	08049600	119	1961-84
Mountain Creek near Duncanville (e)	08049900	225	1971-90
Mountain Creek near Grand Prairie (d)	08050000	273	1925-33
Elm Fork Trinity River SWS 6-O near Muenster (e)	08050200	0.77	1957-73
Elm Fork Trinity River near Muenster (d)	08050300	46	1957-73
Elm Fork Trinity River near Sanger (d)	08050500	381	1949-85
Isle Du Bois Creek near Pilot Point (d)	08051000	266	1949-85
Elm Fork Trinity River near Pilot Point (d)	08051130	692	1985-92
Elm Fork Trinity River above Aubrey (e)	08051190	684	1981-89
Elm Fork Trinity River near Denton (d)	08052000	1,084	1924-27
Lake Dallas near Lake Dallas (e)	08052500	1,165	1929-57
Little Elm Creek SWS #10 near Gunter (e)	08052630	2.10	1966-72
Little Elm Creek near Celina (d)	08052650	46.70	1966-76
Hickory Creek at Denton (d)	08052780	129	1985-87
Indian Creek at Hebron Parkway at Carrollton (d)	08053010	15.0	1987-90
Furneaux Creek at Josey Lane at Carrollton (d)	08053030	4.10	1987-90
Hutton Branch at Broadway at Carrollton (e)	08053090	9.10	1987-90
Jones Valley Creek Tributary near Forestburg (e)	08053100	1.70	1966-74
Denton Creek near Roanoke (d)	08054000	621	1924-28, 1939-55
Gamble Branch near Argyle (e)	08054200	0.50	1965-74
Denton Creek near Grapevine (d)	08055000	705	1948-91
Joe's Creek at Royal Lane, Dallas (e)	08055580	1.94	1973-78
Joes Creek near Dallas (e)	08055600	7.4	1964-79
Bachman Branch at Dallas (d)	08055700	10	1964-79
Turtle Creek at Dallas (d)	08056500	7.98	1952-80, 1984-91
Coombs Creek at Sylvan Avenue, Dallas (e)	08057020	4.75	1965-78
Cedar Creek at Bonnie View Road, Dallas (e)	08057050	9.42	1965-78
White Rock Creek at Keller Springs Road, Dallas (d)	08057100	29.40	1961-79
Spanky Branch at McCallum Lane at Dallas (e)	08057120	6.77	1962-78
Rush Branch at Arapaho Road, Dallas (e)	08057130	1.22	1973-78
Newton Creek at Interstate Highway 635, Dallas (e)	08057135	5.91	1974-78

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Cottonwood Creek at Forest Lane, Dallas (e)	08057140	8.50	1962-78
Floyd Branch at Forrest Lane, Dallas (e)	08057160	4.17	1962-78
White Rock Creek at White Rock Lake, Dallas (d)	08057300	100	1963-79
Ash Creek at Highland Road, Dallas (e)	08057320	6.92	1963-78
Forney Creek at Lawnview Avenue, Dallas (e)	08057340	1.84	1963-72
White Rock Creek at Scyene Road, Dallas (d)	08057400	122	1963-79
Trinity River below Dallas (d)	08057410	6,278	1956-98
Elm Creek at Seco Boulevard, Dallas (e)	08057415	1.25	1973-78
Fivemile Creek at Kiest Boulevard, Dallas (e)	08057418	7.65	1974-78
Fivemile Creek at US Highway 77 West, Dallas (e)	08057420	14.30	1965-78
Woody Branch at US Highway 77 West, Dallas (e)	08057425	10.30	1965-78
Fivemile Creek at Lancaster Road, Dallas (e)	08057430	37.90	1965-78
White Branch at Interstate Highway 635, Dallas (e)	08057440	2.53	1974-78
Trinity River near Wilmer (d)	08057448	6,387	1998-2002
Tenmile Creek at State Highway 342 at Lancaster (d)	08057450	52.80	1970-79
Honey Creek SWS #11 near McKinney (e)	08057500	2.14	1952-73
Honey Creek SWS #12 near McKinney (e)	08058000	1.26	1952-77
Honey Creek near McKinney (d)	08058500	39	1951-73
East Fork Trinity River near McKinney (d)	08059000	190	1949-75
Arls Branch near Westminster (e)	08059200	0.52	1965-74
Sister Grove Creek near Princeton (d)	08059500	113	1949-75
East Fork Trinity River above Pilot Grove near Lavon (d)	08060000	324	1949-53
East Fork Trinity River near Lavon (d)	08061000	773	1954-89
East Fork Trinity River near Rockwall (d)	08061500	840	1924-54
Duck Creek at Buckingham Road, Garland (e)	08061620	8.05	1969-76
Duck Creek near Garland (d)	08061700	31.6	1958-93
South Mesquite Creek at State Highway 352, Mesquite (e)	08061920	13.40	1969-76
South Mesquite Creek at Mercury Road near Mesquite (d)	08061950	23	1969-79
Cedar Creek Reservoir Spillway Outflow near Trinidad (d)	08062650	1,007	1966-82
Bachelor Creek near Terrell (e)	08062850	13.0	1967-74
Kings Creek near Kaufman (d)	08062900	233	1963-87
Lacey Fork near Mabank (d)	08062980	118	1983-84
Cedar Creek near Mabank (d)	08063000	733	1939-66
South Twin Creek near Eustace (d)	08063003	27.40	1983-84
Red Oak Branch near Eustace (e)	08063005	0.90	1966-74
Cedar Creek at Trinidad (d)	08063020	1,011	1965-71
Briar Creek Tributary near Corsicana (e)	08063180	0.72	1966-74
Pin Oak Creek near Hubbard (d)	08063200	17.60	1956-72
Richland Creek near Richland (d)	08063500	734	1939-88
Alvarado Branch near Alvarado (e)	08063550	0.84	1966-74
Kings Branch near Reagor Springs (e)	08063620	0.62	1966-74
Chambers Creek near Corsicana (d)	08064500	963	1939-84
Richland Creek near Fairfield (d)	08064600	1,957	1972-83
Saline Branch Tributary near Bethel (e)	08064630	0.22	1967-74
Catfish Creek near Tennessee Colony (d)	08064800	207	1962-89
Mayes Branch near Latexo (e)	08065320	4.26	1967-74
Trinity River near Midway (d)	08065500	14,450	1939-71
Caney Creek near Madisonville (d)	08065700	112	1963-77
Nelson Creek near Riverside (e)	08065950	86.4	1949, 1965, 1970-74
Harmon Creek near Huntsville (e)	08065975	89.2	1973-81
West Carolina Creek near Oakhurst (e)	08066050	15.2	1949, 1966-73
White Rock Creek near Trinity (e)	08066100	222	1974-85
White Rock Creek near Trinity (e)	08066130	228	1966-74
Tantaboque Creek near Trinity (e)	08066140	61.3	1966-73
Caney Creek near Groveton (e)	08066145	41.4	1966-73
Brushy Creek near Onalaska (d)	08066150	29.1	1966-70
Rocky Creek near Onalaska (e)	08066180	40.6	1966-73

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Livingston Reservoir outflow weir near Goodrich (d)	08066191	16,583	1969-94
Long King Creek near Goodrich (d)	08066210	220	1972-81
Bluff Creek Tributary near Livingston (e)	08066280	0.62	1965-74
Big Creek near Shepherd(e)	08066400	38.80	1966-89
Gaylor Creek near Moss Hill (e)	08066800	32.3	1966-73
Devers Canal near Liberty (d)	08067080	N/A	1972-82
Goose Creek near McNair (e)	08067520	6.7	1963-65,
Welch Branch near Huntsville (e)	08067550	2.35	1965-74
Lake Conroe near Montgomery (e)	08067580	445	1973-76
Lake Conroe at Outflow Weir near Conroe (d)	08067610	445	1974, 1977-89
Caney Creek near Dobbin (d)	08067700	40.40	1963-65
Landrum Creek Tributary near Montgomery (e)	08067750	0.13	1965-74
Lake Creek near Conroe (e)	08067900	291	1969-89
West Fork San Jacinto River near Porter (e)	08068100	970	1970-76
Mill Creek Tributary near Dobbin (e)	08068300	4.07	1967-73
Swale No. 8 at Woodlands (e)	08068438	0.55	1975-76, 1980-88
Spring Creek at Spring (d)	08068520	419	1975-95
Spring Creek near Humble (e)	08068600	435	1971-76
Cypress Creek at Sharp Road near Hockley (d)	08068700*	80.7	1975-85
Cypress Creek near Cypress (e)	08068750*	138	1971-76
Cypress Creek at Stuebner-Airline Road near Westfield (d)	08068900*	248	1982-87
Cypress Creek near Humble (e)	08069200	319	1971-76
West Fork San Jacinto River near Humble (d)	08069500	1,741	1929-54
Bear Creek near Cleveland (e)	08069850	1.46	1967-73
Caney Creek near New Caney (e)	08070600	178	1970-76
Peach Creek near New Caney (e)	08071100	155	1970-76
Tarkington Bayou near Dayton (e)	08071200	142	1964-76
Luce Bayou near Huffman (e)	08071300	226	1971-76
San Jacinto River near Huffman (d)	08071500	2,800	1937-53
Buffalo Bayou at Clodine (e)	08072400	84.2	1974-85
Bettina Street Ditch at Houston (e)	08073630	1.37	1979-85
Stony Brook Street Ditch at Houston (e)	08073750	0.50	1967-72
Bering Ditch at Woodway Drive, Houston (e)	08073800	2.77	1965-73
Cole Creek at Guhn Road at Houston (e)	08074100	7.05	1964-72
Bingle Road Storm Sewer at Houston (e)	08074145	0.21	1980-88
Cole Creek at Deihl Road at Houston (d)	08074150*	7.50	1964-86
Brickhouse Gully at Clarblak Street at Houston (e)	08074200	2.56	1965-83
Brickhouse Gully at Costa Rica Street at Houston (d)	08074250*	11.4	1964-81
Lazybrook Street Storm Sewer, Houston (e)	08074400	0.13	1978-88
Little Whiteoak Bayou at Houston (e)	08074550	20.9	1971-79
Buffalo Bayou at Main St., Houston (d)	08074600	469	1962-94
Buffalo Bayou at McKee Street, Houston (d)	08074610	469	1992-2000
Buffalo Bayou at 69th Street, Houston (e)	08074700	476	1961-86
Brays Bayou at Addicks-Clodine Rd., Houston (e)	08074750	0.87	1974-77
Brays Bayou at Alief Road, Alief (e)	08074760*	12.9	1977-85
Keegans Bayou at Keegans Road near Houston (e)	08074780*	7.47	1964-71
Keegans Bayou at Roark Road near Houston (d)	08074800*	13.0	1964-85
Bintliff Ditch at Bissonnet Street, Houston (e)	08074850	4.38	1968-82
Willow Waterhole Bayou at Landsdowne Street, Houston (e)	08074900	3.81	1965-72
Hummingbird Street Ditch at Mullins Street, Houston (e)	08074910	0.32	1979-84
Brays Bayou at Scott Street, Houston (e)	08075100	106	1971-81
Sims Bayou at Carlsbad Street, Houston (e)	08075300	3.81	1964-72
Sims Bayou at MLK Blvd., Houston (e)	08075470	48.4	1978-89
Sims Bayou at Houston (d)	08075500*	63.0	1953-95
Berry Bayou at Gilpin Street, Houston (e)	08075550	2.87	1965-84
Berry Bayou Tributary at Globe Street, Houston (e)	08075600	1.58	1965-72
Berry Bayou at Galveston Road, Houston (e)	08075700	4.86	1965-72

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Hunting Bayou Tributary at Cavalcade Street, Houston (e)	08075750	1.20	1965-72
Hunting Bayou at Falls Street, Houston (e)	08075760	2.75	1964-84
Halls Bayou at Deertrail Street at Houston (e)	08076200	8.69	1965-84
Carpenters Bayou at Cloverleaf (e)	08076900	25.8	1964, 1971-93
Clear Creek near Pearland (d)	08077000	38.8	1944-45, 1946-60, 1963-94
Clear Creek Tributary at Hall Road, Houston (e)	08077100	1.31	1965-86
Clear Creek at Friendswood (d)	08077540	99.6	1994-97
Cowart Creek near Friendswood (e)	08077550	18	1965-74
Clear Creek near Friendswood (e)	08077600*	126	1966-94
Armand Bayou near Genoa (e)	08077620	18.2	1968, 1971-73
Highland Bayou at Hitchcock (e)	08077700	15.6	1963-82
Highland Bayou Tributary near Texas City (e)	08077750	1.97	1966-73
Highland Bayou near Texas City (e)	08077780	20.8	1965-88
Flores Bayou near Danbury (e)	08078700	23.3	1967-72
Oyster Creek near Angleton (d)	08079000	171	1945-80
North Fork Double Mountain Fork Brazos River at Lubbock (d)	08079500	5,300	1940-49,
North Fork Double Mountain Fork Brazos River above Buffalo Springs nr Lubbock (e)	08079530	29.3	1952-54, 1957, 1962, 1967-76
Buffalo Springs Lake near Lubbock (e)	08079550	236	1967-77
Barnum Springs Draw near Post (e)	08079570	4.99	1965-73
North Fork Double Mountain Fork Brazos River near Post (d)	08079575	438	1984-93
Rattlesnake Creek near Post (e)	08079580	2.75	1966-74
Double Mountain Fork Brazos River near Rotan (d)	08080000	8,536	1950-51
Guest-Flowers Draw near Aspermont (e)	08080510	3.02	1965-74
McDonald Creek near Post (d)	08080540	103	1966-78
Callahan Draw near Lockney (e)	08080750	37.5	1966-77
White River near Crosbytown (e)	08080800	529	1951-64
White River below falls near Crosbytown (e)	08080900	529	1951-64
Salt Fork Brazos River at Farm Road 1081 near Clairemont (e)	08080916	1,135	1968-77
Red Mud Creek near Spur (e)	08080918	65.1	1967-74
Salt Fork Brazos River at State Highway 208 near Clairemont (e)	08080940	1,357	1968-77
Duck Creek near Girard (d)	08080950	431	1965-89
Salt Fork Brazos River at U.S. Highway 380 near Jayton (e)	08080959	1,797	1968-77
Salt Fork Brazos River near Peacock (d)	08081000	4,619	1950-51, 1965-86
Short Croton Creek at mouth near Jayton (e)	08081050	18.1	1959-82
Croton Creek below Short Croton Creek near Jayton (e)	08081100	250	1959-82
Croton Creek near Jayton (d)	08081200	290	1959-86
Salt Croton Creek at Weir D near Aspermont (e)	08081400	55.5	1957-76
Haystack Creek at Weir E near Aspermont (e)	08081450	15.1	1957-77
Salt Croton Creek near Aspermont (d)	08081500	64.30	1957-77
Stinking Creek near Aspermont (d)	08082100	88.80	1966-83
North Croton Creek near Knox City (d)	08082180	251	1965-86
North Elm Creek near Throckmorton (e)	08082900	3.58	1965-77
Elm Creek near Profitt (e)	08082950	275	1969-85
Brazos River near Graham (d)	08083000	16,830	1916-20
Clear Fork Brazos River at Hawley (d)	08083240	1,416	1968-89
Mulberry Creek near Hawley (d)	08083245	205	1968-89
Elm Creek near Abilene (d)	08083300	133	1964-79
Little Elm Creek near Abilene (d)	08083400	39.10	1964-79
Elm Creek at Abilene (d)	08083430	422	1980-83
Cedar Creek at Abilene (d)	08083470	119	1971-84
Paint Creek near Haskell (d)	08085000	914	1950-51
Humphries Draw near Haskell (e)	08085300	3.51	1965-77

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Clear Fork Brazos River at Crystall Falls (d)	08086000	4,323	1922-29
Hubbard Creek near Sedwick (d)	08086015	128	1964-66
Hubbard Creek at Highway 380 near Moran (e)	08086020	152	1963-76
Deep Creek near Putnam (e)	08086030	33.8	1963-66
Brushy Creek near Putnam (e)	08086040	27.6	1963-66
Mexia Creek near Putnam (e)	08086045	67.0	1963-66
Hubbard Creek near Albany (d)	08086100	454	1962-75
Salt Prong Hubbard Creek below Lake McCarty near Albany (e)	08086110	45.5	1963-66
Salt Prong Hubbard Creek at U.S. 380 near Albany (d)	08086120	61	1964-68
Cook Creek near Albany (e)	08086130	11.3	1963-76
North Fork Hubbard Creek near Albany (d)	08086150	39.3	1963-90
Salt Prong Hubbard Creek near Albany (d)	08086200	115	1962-63
Snailum Creek near Albany (d)	08086210	22.90	1964-66
Big Sandy Creek near Eolian (e)	08086220	91.4	1963-76
Battle Creek near Putnam (e)	08086230	32.0	1963-66
Battle Creek near Moran (d)	08086235	108	1967-68
Battle Creek near Eolian (e)	08086240	137	1963-66
Pecan Creek at FM 1853 near Eolian (e)	08086250	6.95	1963-66
Pecan Creek near Eolian (d)	08086260	26.40	1967-75
Big Sandy Creek near Breckenridge (e)	08086300	288	1962-75
Hubbard Creek near Breckenridge (d)	08086500	1,089	1955-86
Clear Fork Brazos River near Crystal Falls (e)	08087000	5,658	1916-20, 1928-51
Clear Fork Brazos River near Eliasville (d)	08087300	5,697	1916-20, 1924-25, 1928-51, 1962-82
Salt Creek at Olney (d)	08088100	11.80	1958-77
Salt Creek near Newcastle (d)	08088200	120	1958-60
Briar Creek near Graham (d)	08088300	24.20	1958-89
Brazos River at Farm Road 1287 near Graham (e)	08088420	13,432	1970-77
Big Cedar Creek near Ivan (d)	08088450	97	1965-89
Brazos River at Morris Sheppard Dam near Graford (d)	08088600	14,030	1990-94
Elm Creek Tributary near Graford (e)	08089100	1.10	1965-74
Palo Pinto Creek near Santo (d)	08090500	573	1925, 1951-76
Cidwell Branch near Granbury (e)	08090850	3.37	1966-73
Morris Branch near Bluff Dale (e)	08091200	0.06	1965-73
Panther Branch near Tolar (e)	08091700	7.82	1966-74
Nolan River at Blum (d)	08092000*	282.0	1924-87
Brazos River near Whitney (d)	08093000	17,648	1939-74
Bond Branch near Hillsboro (e)	08093200	0.36	1965-74
Hackberry Creek at Hillsboro (d)	08093250	57.9	1980-92
Hackberry Creek below Hillsboro (e)	08093260	86.8	1980-92
Cobb Creek near Abbott (d)	08093400	12.40	1967-79
Aquilla Creek near Aquilla (d)	08093500#	308	1939-2001
Aquilla Creek at RR bridge near Aquilla (e)	08093530	345	1976-85
Aquilla Creek at Farm Road 2114 near Aquilla (e)	08093540	351	1976-85
Aquilla Creek at Farm Road and 1858 near Ross (e)	08093560	392	1976-85
Aquilla Creek at Farm Road 933 near Ross (e)	08093580	397	1976-85
North Bosque River at Stephenville (d)	08093700	95.90	1958-79
Green Creek SWS #1 near Dublin (d)	08094000	4.19	1955-77
Green Creek near Alexander (d)	08094500	45.40	1958-73
South Bosque River near McGregor (e)	08095220	15.9	1967-73
Willow Branch at McGregor (e)	08095250	2.52	1966-73
Middle Bosque River near McGregor (d)	08095300*	182.0	1959-86
Hog Creek near Crawford (d)	08095400*	78.0	1959-86
South Bosque River near Speegleville (d)	08095500	386	1924-30
Bosque River near Waco (d)	08095600*	1,656	1960-82
Box Branch at Robinson (e)	08096550	0.34	1965-73

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Cow Bayou SWS No. 4 (inflow) near Bruceville (e)	08096800	5.04	1958-75
Cow Bayou at Mooreville (d)	08097000	83.50	1958-75
Brazos River near Marlin (d)	08097500	30,211	1939-51
Deer Creek at Chilton (d)	08098000	84.50	1934-36
Leon River near De Leon (d)	08099100*	479.0	1960-87
Sabana River Tributary near De Leon (e)	08099350	0.48	1966-74
Leon River near Hasse (d)	08099500	1,261	1939-91
Eidson Creek near Hamilton (e)	08100100	2.91	1965-73
Bermuda Branch near Gatesville (e)	08100400	0.50	1966-73
Hoffman Branch near Hamilton (e)	08100800	5.56	1966-74
Cowhouse Creek near Killeen (d)	08101500	667	1925, 1939-42
Nolan Creek at Belton (d)	08102600	112	1974-82
School Branch near Lampasas (e)	08102900	0.90	1966-73
Fleece Branch near Lampasas (e)	08103450	1.08	1965-74
Lampasas River at Youngsport (d)	08104000	1,240	1924-80
Lampasas River near Belton (d)	08104100*	1,321	1963-89
Salado Creek above Salado (e)	08104290*	134	1985-88
Salado Creek below Salado Springs (d)	08104310*	136	1985-87
N. Fork San Gabriel River upstream from State Highway 418 at Georgetown (e)	08104795*	271	1985-88
North Fork San Gabriel River at Georgetown (d)	08104800	268	1964-68
South Fork San Gabriel River near Bertram (e)	08104850	8.9	1967-74
San Gabriel River at Georgetown (d)	08105000*	405	1924-25, 1934-73, 1984-87
Berry Creek at State Hwy. 971 near Georgetown (d)	08105200*	117	1985-87
San Gabriel River near Weir (d)	08105300*	563	1977-90
San Gabriel River near Circleville (d)	08105400	599	1924-34, 1967-77
Avery Branch near Taylor (e)	08105900	3.52	1966-73
Brushy Creek at Coupland (d)	08106000	205.0	1924-26
Brushy Creek near Rockdale (d)	08106300	505	1967-80
San Gabriel River near Rockdale (d)	08106310	1,359	1975-92
Big Elm Creek near Temple (d)	08107000	74.70	1934-36
Big Elm Creek near Buckholts (d)	08107500	171	1934-36
North Elm Creek near Ben Arnold (d)	08108000	32.20	1935-36
North Elm Creek near Cameron (d)	08108200	44.80	1963-73
Little Branch near Bryan (e)	08108800	0.14	1966-73
Brazos River near Bryan (d)	08109000	39,515	1899-1903, 1918-92
Brazos River near College Station (d)	08109500	30,033	1899-1902, 1918-25
Yegua Creek near Somerville (d)	08110000	1,009	1924-92
Brazos River at Washington (e)	08110200	41,192	1966-95
Plummers Creek at Mexia (e)	08110350	4.42	1965-73
Navasota River near Groesbeck (d)	08110400	311	1965-79
Navasota River near Bryan (d)	08111000	1,454	1951-94, 1994-97
Navasota River near College Station (d)	08111010	1,809	1977-85
Burton Creek at Villa Maria Road, Bryan (d)	08111025	1.33	1968-70
Hudson Creek near Bryan (d)	08111050	1.94	1968-70
Winkleman Creek near Brenham (e)	08111100	0.75	1965-73
Piney Creek near Bellville (e)	08111600	30.7	1948, 1955, 1958, 1964-89
West Fork Mill Creek near Industry (e)	08111650	15.3	1964-89
Brazos River near San Felipe (d)	08112000	35,100	1939-57
Brazos River near Wallis (e)	08112200	44,700	1974-75
Brazos River Authority Canal A near Fulshear (d)	08112500	N/A	1932-54,

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
			1958-73
Richmond Irrigation Co. Canal near Richmond (d)	08113500	N/A	1932-54, 1956-78
Brazos River near Juliff (d)	08114500	45,084	1949-69
Seabourne Creek near Rosenberg (e)	08114900	5.78	1968-74
Fairchild Creek near Needville (d)	08115500	26.20	1947-55
Big Creek near Guy (d)	08116000	116	1947-50
Dry Creek near Rosenberg (d)	08116400	8.65	1959-79
Dry Creek near Richmond (d)	08116500	12.20	1947-50, 1957-58
San Bernard River near West Columbia (e)	08117700	766	1949, 1971-77
Mound Creek Tributary at Guy (e)	08117800	1.48	1966-73
Big Boggy Creek near Wadsworth (d)	08117900	10.30	1970-77
Bull Creek near Ira (d)	08118500	26.30	1948-54, 1959-62
Colorado River below Bull Creek near Ira (e)	08118600	3,524	1975-78
Bluff Creek near Ira (d)	08119000	42.60	1948-65
Bluff Creek at mouth near Ira (e)	08119100	44.1	1975-78
Colorado River near Ira (d)	08119500	3,483	1948-52, 1959-89
Colorado river near Cuthburt (d)	08120700	3,912	1965-2002
Morgan Creek near Westbrook (d)	08121500	273	1954-63
Graze Creek near Westbrook (d)	08122000	21.70	1954-59
Morgan Creek near Colorado City (d)	08122500	313	1947-49
Champlin Creek near Colorado City (d)	08123500	198	1948-59
Sulphur Springs Draw near Wellman (e)	08123620	41.80	1966-74
Beals Creek above Big Spring (d)	08123650	9,319	1959-79
Beals Creek at Big Spring (d)	08123700	9,341	1957-59
Beals Creek near Coahoma (d)	08123720	9,383	1983-88
Coahoma Draw Tributary near Big Spring (e)	08123750	2.38	1966-74
Bull Creek Tributary near Forsan (e)	08123760	0.4	1966-74
Colorado River near Silver (d)	08123900	14,997	1957-70
Bitter Creek near Silver (e)	08123920	4.3	1967-74
Salt Creek Tributary near Hylton (e)	08125450	0.25	1966-74
Fish Creek Tributary near Hylton (e)	08126300	0.25	1966-71
Colorado River at Ballinger (d)	08126500	16,413	1907-79
Dry Creek near Christoval (e)	08127100	0.79	1965-73
South Concho Irrigation Co. Canal at Christoval (d)	08127500	N/A	1940-83
Middle Concho River near Tankersley (d)	08128500	2,653	1930-61
Spring Creek above Tankersley (d)	08129300*	424.7	1961-95
Dove Creek Springs near Knickerbocker (d)	08129500*	N/A	1944-58
Dove Creek at Knickerbocker (d)	08130500*	226	1961-95
Spring Creek near Tankersley (d)	08131000	699	1930-60
South Concho River above Pecan Creek near San Angelo (e)	08131300	470	1963-84
Tom Green Co. WCID No. 1 Canal near San Angelo (d)	08131600	N/A	1963-81
South Concho River at San Angelo (d)	08132500	3,866	1932-53
Quarry Creek near Sterling City (e)	08133300	3.25	1965-73
North Concho River at Sterling City (d)	08133500*	588.0	1939-87
Broome Creek near Broome (e)	08133800	0.29	1965-73
Nolke Station Creek near San Angelo (e)	08134300	0.59	1965-73
Gravel Pit Creek near San Angelo (e)	08134400	0.19	1965-74
North Concho River at San Angelo (d)	08135000	1,525	1916-31, 1947-90
Concho River near Veribest (e)	08136150	5,610	1970-74, 1998-2000
Puddle Creek near Veribest (e)	08136200	12.0	1966-73
Frog Pond Creek near Eden (e)	08136300	1.96	1967-73
Mukewater Creek SWS No. 10A near Trickham (e)	08136900	15.3	1965-72

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Mukewater Creek SWS No. 9 near Trickham (e)	08137000	4.02	1961-72
Mukewater Creek at Trickham (d)	08137500	70	1951-73
Deep Creek SWS No. 3 near Placid (e)	08139000	3.42	1954-60
Deep Creek near Mercury (d)	08139500	43.90	1954-73
Deep Creek SWS No. 8 near Mercury (e)	08140000	5.14	1952-71
Dry Prong Deep Creek near Mercury (d)	08140500	8.31	1951-71
Lake Clyde near Clyde (e)	08140600	36.9	1970-85
Pecan Bayou near Cross Cut (d)	08140700	532	1968-79
Jim Ned Creek near Coleman (d)	08140800	333	1965-80
McCall Branch near Coleman (e)	08141100	2.17	1966-73
Hords Creek near Valera (d)	08141500	54.20	1947-91
Hords Creek at Coleman (d)	08142000	107	1941-70
Brown County WID No. 1 Canal near Brownwood (d)	08142500	N/A	1950-83
Pecan Bayou at Brownwood (d)	08143500	1,660	1917-18, 1924-83
Brown Creek Tributary near Goldthwaite (e)	08143700	2.48	1966-73
Noyes Canal at Menard (d)	08144000	N/A	1924-83
Brady Creek near Eden (d)	08144800	101	1962-85
Brady Creek Tributary near Brady (e)	08145100	4.05	1967-73
Lake Buchanan near Burnet (e)	08148000	31,910	1937-90
Llano River Tributary near London (e)	08150200	0.58	1966-73
Stone Creek Tributary near Art (e)	08150900	0.40	1966-73
Llano River near Castell (d)	08151000	3,747	1924-39
Johnson Creek near Valley Spring (e)	08151300	5.66	1967-73
Little Flatrock Creek near Marble Falls (e)	08152700	3.20	1966-74
Spring Creek near Fredericksburg (e)	08152800	15.20	1967-73
Pedernales River at Stonewall (d)	08153000	647	1924-34
Cane Branch at Stonewall (e)	08153100	1.37	1965-71
Pedernales River near Spicewood (d)	08154000	1,294	1924-39
Lake Travis near Austin (d)	08154500	38,755	1940-90
Colorado River below Mansfield Dam, Austin (d)	08154510	38,755	1975-90
West Bull Creek at Loop 360 near Austin (e)	08154750	6.77	1976-82
Bull Creek at FM 2222, Austin (e)	08154760	30.4	1975-78
Bee Creek at West Lake Drive near Austin (e)	08154950	3.28	1980-82
Barton Creek near Camp Craft Road near Austin (d)	08155260	109	1982-89
Skunk Hollow Creek below Pond 1 at Austin (e)	08155370	0.12	1982-84
West Bouldin Creek at Riverside Drive, Austin (e)	08155550	3.12	1976-82
Shoal Creek at Steck Avenue, Austin (e)	08156650	2.79	1975-82
Shoal Creek at Northwest Park at Austin (d)	08156700	6.52	1975-84
Shoal Creek at White Rick Drive, Austin (e)	08156750	12.30	1975-82
Waller Creek at 38th Street, Austin (d)	08157000	2.31	1955-80
Waller Creek at 23rd Street, Austin (d)	08157500	4.13	1955-80
East Bouldin Creek at South 1st Street, Austin (d)	08157600	2.4	1997-2001
Blunn Creek near Little Stacey Park, Austin	08157700	1.2	1997-2001
Boggy Creek at US Highway 183, Austin	08158050	13.1	1977-86 1994-2001
Walnut Creek at Farm-Market 1325 near Austin (e)	08158100	12.60	1975-88
Walnut Creek at Dessau Road, Austin (e)	08158200	26.20	1975-88
Ferguson Branch at Springdale Road, Austin (e)	08158300	1.63	1978-82
Little Walnut Creek at Georgian Drive, Austin (e)	08158380	5.22	1975-88
Little Walnut Creek at IH 35, Austin (e)	08158400	5.57	1975-82
Little Walnut Creek at Manor Road, Austin (e)	08158500	12.1	1975-82
Walnut Creek at Southern Pacific Railroad bridge, Austin (e)	08158640	53.5	1975-86
Onion Creek at Buda (e)	08158800	166	1961-78,
" " " (d)			1979-83, 1992-95
Bear Creek at Farm-Market Road 1626 near Manchaca (e)	08158820	24.0	1979-83
Little Bear Creek at Farm-Market Road 1626 near Manchaca (d)	08158825	21.0	1979
Slaughter Creek at FM 2304 near Austin (e)	08158860	23.1	1978-83
Boggy Creek (South) at Circle S Road, Austin (e)	08158880	3.58	1976-88

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Fox Branch near Oak Hill (e)	08158900	0.12	1965-73
Williamson Creek at Oak Hill (d)	08158920	6.30	1978-93
Williamson Creek at Jimmy Clay Road, Austin (d)	08158970	27.60	1975-85
Onion Creek below Del Valle (e)	08159100	339	1962-75
Wilbarger Creek near Pflugerville (d)	08159150	4.6	1963-80
Big Sandy Creek near McDade (d)	08159165	38.70	1979-85
Big Sandy Creek near Elgin (d)	08159170	63.80	1979-85
Dogwood Creek near McDade (e)	08159180	0.53	1980-85
Dogwood Creek at Highway 95 near McDade (e)	08159185	5.03	1980-85
Reeds Creek near Bastrop (e)	08159450	5.22	1967-73
Dry Creek at Buescher Lake near Smithville (d)	08160000	1.48	1940-66
Colorado River at La Grange (d)	08160500	40,430	1939-55
Colorado River above Columbus (d)	08160700	41,403	1983-85
Dry Branch Tributary near Altair (e)	08161580	0.68	1966-73
Little Robin Slough near Matagorda (e)	08162530	3.4	1969
Cashs Creek near Blessing (e)	08162650	14.8	1969-77
East Carancahua Creek near Blessing (e)	08162700	81.2	1968, 1970-83
West Carancahua Creek near Laward (e)	08162800	57.1	1970-76
Navidad River near Speaks (d)	08164350	437	1982-89, 1995-2000
Navidad River at Morales (d)	08164370	549	1995-2000
Navidad River near Ganado (d)	08164500	826	1939-80
Guadalupe River above Kerrville (e)	08166150	488	1976-79
Turtle Creek Tributary near Kerrville (e)	08166300	0.46	1966-74
Guadalupe River near Comfort (d)	08166500	762	1918-32
Rebecca Creek near Spring Branch (d)	08167600	10.90	1960-79
Blieders Creek at New Braunfels (e)	08168600	16.0	1962-89
Panther Canyon at New Braunfels (e)	08168700	0.73	1962-89
Trough Creek near New Braunfels (e)	08168720	0.48	1966-74
W.P. Dry Comal Creek Tributary near New Braunfels (e)	08168750	0.32	1966-74
Dry Comal Creek at New Braunfels (e)	08168800	N/A	1962-74
Walnut Branch near Seguin (e)	08169750	5.46	1967-74
East Pecan Branch near Gonzales (e)	08169850	0.24	1965-74
San Marcos River at San Marcos (d)	08169950	83.7	1915-21
West Elm Creek near Niederwald (e)	08172100	0.44	1965-74
San Marcos River at Ottine (d)	08173500	1,249	1915-43
Guadalupe River below Cuero (d)	08176000	4,923	1903-07, 1916-19, 1921-36
Irish Creek near Cuero (e)	08176200	15.5	1967-74
Three Mile Creek near Cuero (e)	08176600	0.48	1966-74
Coleto Creek Reservoir inflow (Guadalupe diversion) near Schroeder (d)	08176990	357	1980-94
Coleto Creek near Schroeder (d)	08177000	369	1930-34, 1953-79
Olmos Creek Tributary at FM 1535 at Savano Park (e)	08177600	0.33	1969-81
Olmos Reservoir at San Antonio (e)	08177800	32.4	1968-71, 1976-89. 1992-95
San Antonio River at Woodlawn Avenue, San Antonio (e)	08177860	36.4	1989-95
San Antonio River at Dolorosa, San Antonio (d)	08177920	N/A	1980-86
Alazan Creek at St. Cloud Street, San Antonio (e)	08178300	3.26	1969-79
San Pedro Creek at Furnish St., San Antonio (d)	08178500*	2.60	1916-29
Harlandale Creek at W. Harding Street, San Antonio (e)	08178555	2.43	1977-81
Panther Springs Creek at FM 2696 near San Antonio (e)	08178600	9.54	1969-77
Lorence Creek at Thousand Oaks Blvd., San Antonio (e)	08178620	4.05	1980-84
West Elm Creek at San Antonio (e)	08178640	2.45	1976-88
East Elm Creek at San Antonio (e)	08178645	2.33	1976-81
Salado Creek Tributary at Bitters Road, San Antonio (e)	08178690	0.26	1969-81

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Salado Creek at Rittman Road, San Antonio (e)	08178720	137.1	1968-81
Salado Creek Tributary at Bee Street, San Antonio (e)	08178736	0.45	1970-77
Salado Creek at E. Houston Street, San Antonio (e)	08178740	181	1968-81
Salado Creek at U.S. Highway 87, San Antonio (e)	08178760	186	1968-81
Salado Creek at Southcross Blvd., San Antonio (e)	08178780	188	1968-81
Bandera Creek Tributary near Bandera (e)	08178900	0.27	1966-74
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 River Tributary near Pipe Creek (e)	08179200	0.30	1966-74
Medina River at La Coste (d)	08180640	805	1987-2000
Medio Creek at Pearsall Road, San Antonio (e)	08180750	47.9	1987-95
Leon Creek Tributary at FM 1604, San Antonio (e)	08181000	5.57	1968-80
French Creek Tributary near Helotes (e)	08181200	1.08	1966-74
Ranch Creek near Helotes (d)	08181410		1978
Leon Creek Tributary at Kelly Air Force Base (d)	08181450	1.19	1969-79
Calaveras Creek SWS No. 6 (inflow) near Elmendorf (e)	08182400	7.01	1957-77
Calaveras Creek near Elmendorf (d)	08182500	77.20	1954-71
San Antonio River at Calaveras (d)	08183000	1,786	1918-25
Cibolo Creek near Boerne (d)	08183900	68.4	1963-95
Cibolo Creek near Bulverde (d)	08184000	198	1946-66
Cibolo Creek above Bracken (d)	08184500	250	1946-51
Cibolo Creek at Sutherland Springs (d)	08185500	665	1924-29
Ecleto Creek near Runge (d)	08186500	239	1962-89
Escondido Creek SWS No. 1 (inflow) near Kenedy (e)	08187000	3.29	1955-73
Escondido Creek at Kenedy (d)	08187500	72.40	1954-73
Escondido Creek SWS No. 11 (inflow) near Kenedy (e)	08187900	8.45	1959-77
Dry Escondido Creek near Kenedy (d)	08188000	9.43	1954-59
Baugh Creek at Goliad (e)	08188400	3.02	1966-74
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	10,280	1975-82
Olmos Creek Tributary near Skidmore (e)	08189600	0.58	1966-73
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
Plant Creek near Tilden (e)	08194550	0.36	1965-74
Nueces River at Simmons (d)	08194600	8,561	1965-77
Frio River at Knippa (d)	08195700	N/A	1953
Dry Frio River at Knippa (d)	08196500	179	1953
East Elm Creek near Sabinal (e)	08198900	10.6	1967-74
Frio River near Frio Town (d)	08199700	1,460	1924-27
Hondo Creek near Hondo (d)	08200500	132	1953-64
Bone Creek near Hondo (e)	08200900	0.19	1965-74
Seco Creek near Utopia (d)	08202000	53.20	1952-61
Seco Creek Reservoir inflow near Utopia (d)	08202450	59.5	1991-98
Seco Creek near D'Hanis (d)	08202500	87.40	1952-64
Parkers Creek Reservoir (d)	08202800	10.0	1991-99
Leona River Tributary near Uvalde (e)	08203500	1.21	1966-74
Leona River Spring Flow near Uvalde (d)	08204000*	1.21	1939-65 1966-2002
Leona River near Divot (d)	08204500	565	1924-29
Frio River at Calliham (d)	08207000	5,491	1925-26, 1932-81
Rutledge Hollow Creek near Poteet (e)	08207200	9.33	1966-74
Rutledge Hollow at 7th Street, Poteet (d)	08207220	N/A	1979-2000
Atascoas River at U.S. Highway 281, Pleasanton (d)	08207300	N/A	1973-2000
Atascosa River near McCoy (d)	08207500	530	1951-57
Lucas Creek near Pleasanton (e)	08207700	32.80	1966-73
Ramirena Creek near George West (d)	08210300	84.40	1968-72

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Lagarto Creek near George West (d)	08210400	155	1972-89
Nueces River below Mathis (d)	08211100	16,726	1966-67
Rincon Bayou Channel near Calallen (d)	08211503	N/A	1996-2000
Pintas Creek Tributary near Banquete (e)	08211550	3.28	1966-74
Hamon Creek near Freer (e)	08211600	0.73	1965-73
San Diego Creek at Alice (d)	08211800	319	1964-89
Lake Alice at Alice (e)	08211850	150	1965-86
San Fernando Creek near Alice (d)	08212000	518	1962-63
North Las Animas Creek Tributary near Freer (e)	08212320	0.07	1969-74
Rio Grande at Vinton Bridge near Anthony (d)	08363840	28,680	1969-74
Northgate Reservoir at El Paso (e)	08365540	6.89	1973-75
Range Reservoir at El Paso (e)	08365545	11.89	1973-75
Franklin Canal at El Paso (d)	08365550	N/A	1969-72
McKelligon Canyon at El Paso (d)	08365600	2.30	1958-77
Government Ditch at El Paso (d)	08365800	6.40	1958-77
Rio Grande at Jaurez, MX (d)	08366000	29,350	1938-56
Riverside Canal near Socorro (d)	08366400	37,830	1969-72
Rio Grande at Island Station near El Paso (d)	08366500	29,743	1938-60
Rio Grande at Tornillo Branch near Fabens (d)	08367000	N/A	1924-38
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
Rio Grande at County Line Station near El Paso (d)	08369500	30,610	1938-60
Camo Rice Arroyo Tributary near Fort Hancock (e)	08370200	2.35	1966-74
Wild Horse Creek Tributary near Van Horn (e)	08370800	0.74	1966-73
Cibolo Creek near Presidio (d)	08373200	276	1971-77
Rio Grande above Presidio (lower Station) (d)	08373500	N/A	1901-13, 1924-54
Rio Grande at Langtry (d)	08377500	84,795	1900-14, 1920, 1924-60
Rio Grande Tributary near Langtry (e)	08377600	0.32	1966-74
Delaware River Tributary near Orla (e)	08407800	1.6	1966-74
Pecos River near Angeles (d)	08409500	20,540	1914-37
Salt Screwbean Draw near Orla (d)	08411500	464	1939-41, 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	1922-25, 1939-57, 1964-90
Ward County WID No. 3 Canal near Barstow (d)	08415000	N/A	1939-57, 1964-90
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, 1964-90
Pecos River at Pecos (d)	08420500	22,100	1898-1907, 1914-15, 1922-26, 1939-55
Madera Canyon near Toyahvale (d)	08424500	53.80	1932-49
Phantom Lake Spring near Toyahvale (d)	08425500*	N/A	1932-34, 1942-66
San Solomon Springs at Toyahvale (d)	08427500*	N/A	1932-34, 1941-65
West Sandia Spring at Balmorhea (d)	08429000	N/A	1932-33
East Sandia Spring at Balmorhea (d)	08430000	N/A	1932-33
Toyah Creek near Pecos (d)	08431000	1,024	1940-41, 1944-45

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Salt Draw near Pecos (d)	08431500	1,882	1939-41, 1944-45
Limpia Creek below Fort Davis (d)	08431800	227	1962-77
Limpia Creek near Fort Davis (d)	08432000	303	1925-32
Toyah Creek below Toyah Lake near Pecos (d)	08434000	3,709	1939-51
Grandfalls-Big Valley Canal near Barstow (d)	08435000	N/A	1922-26, 1939-57, 1964-76
Pecos River below Barstow (d)	08435500	25,980	1939-41
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, 1964-90
Courtney Creek Tributary near Fort Stockton (e)	08436800	0.44	1966-74
Pecos County WID No. 2 Canal near Imperial (d)	08437500	N/A	1940-57, 1964-90
Lake Leon Tributary near Fort Stockton (e)	08437550	1.59	1966-74
Pecos County WID No. 3 Canal near Imperial (d)	08437600	N/A	1940-57, 1964-90
Monument Draw Tributary at Pyote (e)	08437650	178	1966-74
Ward County WID No. 2 Canal near Grand Falls (d)	08437700	N/A	1939-57, 1964-90
Pecos River near Grand Falls (d)	08438100	27,810	1916-26
Pecos River below Grand Falls (d)	08441500	27,820	1921-26, 1939-56
Three Mile Mesa Creek near Fort Stockton (e)	08444400	1.04	1966-74
Comanche Springs at Fort Stockton (d)	08444500	N/A	1936-64
Pecos River near Sheffield (d)	08447000	31,600	1922-25, 1940-49
Howards Creek Tributary near Ozona (e)	08447200	7.53	1967-73
Pecos River near Shumla (d)	08447400	35,162	1955-60
Pecos River near Comstock (d)	08447500	35,298	1900-54
Goodenough Springs near Comstock (e)	08448500	N/A	1929-60
Sonora Field Creek at Sonora (e)	08448800	2.60	1965-71
Devils River near Juno (d)	08449000	2,730	1925-49, 1964-73
Devils River near Comstock (d)	08449300	3,903	1955-58
Rough Canyon Tributary near Del Rio (e)	08449470	7.90	1967-73
Devils River near Del Rio (d)	08449500	4,185	1900-14, 1924-57
Evans Creek Tributary near Del Rio (e)	08449600	0.39	1966-73
Devils River near mouth, Del Rio (d)	08450500	4,305	1954-60
Rio Grande near Del Rio (d)	08452500	123,303	1900-15, 1920, 1924-54
San Felipe Creek near Del Rio (e)	08453000	46.0	1931-60
Zorro Creek near Del Rio (e)	08453100	10.0	1966-74
East Perdido Creek near Brackettville (e)	08454900	3.39	1965-74
Pinto Creek near Del Rio (d)	08455000	249	1929-69, 1971-72
Rio Grande at San Antonio Crossing (d)	08458700	129,226	1952-60
Arroyo San Bartolo at Zapata (e)	08459600	0.61	1966-74
Rio Grande near Zapata (d)	08460500	163,344	1932-53
International Falcon Reservoir near Falcon Heights (d)	08461200	N/A	1953-60
Rio Grande at Roma (d)	08462500	166,464	1900-13, 1923-54

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Rio Grande near Rio Grande City (d)	08465500	180,941	1932-54
Rio Grande Tributary near Rio Grande City (e)	08466100	1.20	1966-74
Rio Grande Tributary near Sullivan City (e)	08466200	0.40	1966-74
North Floodway South of McAllen (d)	08468000	N/A	1928-60
South Floodway South of McAllen (d)	08470000	N/A	1929-60
Rio Grande at Hildalgo (d)	08471500	176,100	1928-32, 1935, 1939, 1941-51
Rio Grande near Progreso Bridge (d)	08473300	176,228	1953-60
Rio Grande near San Beniot (d)	08473700	176,304	1953-60
Rio Grande at Matamoros, MX (d)	08474500	182,211	1900-13, 1923-54
Rio Grande near Brownsville (d)	08475000	176,333	1935-50

The following stations were discontinued as continuous-record surface-water-quality stations prior to the 2000 water year. Daily records of specific conductance, temperature, sediment, color, pH, dissolved oxygen, or chloride were collected and published for the record shown for each station.

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

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Canadian River at Tascosa	07227470	19,200	SC, T, Cl	1948-53,
		18,536	SC, T, pH, Cl	1969-77
Canadian River near Canadian	07228000	22,866	SC, T	1974-81
Prairie Dog Town Fork Red River near Wayside	07297910	4,221	SC, T	1969-81
Tule Creek near Silverton	07298200	1,150	SC, T, pH, Cl	1968-69
Prairie Dog Town Fork Red River near Brice	07298500	6,082	SC, pH, Cl, S	1949-51,
			T	1950-51
Mulberry Creek near Brice	07299000	534	SC, pH, Cl, S	1949-51
Prairie Dog Town Fork Red River near Lakeview	07299200	6,792	SC, T	1968-80,
			S	1979-80
Little Red River near Turkey	07299300	139	SC, T	1968-81,
			S	1979-81
Jonah Creek at Weir near Estelline	07299512	65.50	SC	1974-82
Jonah Creek below Weir near Estelline	07299514	66.60	SC	1974-76
Salt Creek near Estelline	07299530	142	SC	1974-79
Prairie Dog Town Fork Red River near Childress	07299540	7,725	SC, T	1968-82,
				1994-97
Salt Fork Red River near Hedley	07299930	868	SC, T, pH, Cl	1956-61
North Pease River near Childress	07307600	1,434	SC, T	1973-79
Middle Pease River near Paducah	07307750	1,086	SC	1973-79,
			T	1973-79,
			S	1994-97
Middle Pease River near Paducah	07307760	1,128	SC	1980-82,
			T	1980
Pease River near Childress	07307800	2,754	SC, T	1968-82,
				1994-97
Pease River near Crowell	07308000	3,037	SC	1942-43
Pease River near Vernon	07308200	3,488	SC, T	1999
Red River near Burkburnett	07308500	20,570	SC, T	1968-81
North Fork Wichita River near Paducah	07311600	540	SC, T	1968-76
North Fork Wichita River near Crowell	07311622	591	SC	1971-76
Middle Fork Wichita River near Truscott	07311648	161	SC	1970-76
Truscott Brine Lake near Truscott	07311669	26.2	SC, T	1985-90
North Fork Wichita River near Truscott	07311700	937	SC, T	1969-92
South Fork Wichita River near Guthrie	07311780	239	SC	1970-76
South Fork Wichita River at Ross Ranch near Guthrie	07311790	499	SC	1971-79,
			Cl	1988-97,
			S	1978-79
Beaver Creek near Electra	07312200	652	SC,T	1969-70
				1996-2002
Wichita River at State Highway 25 near Kamay	07312130	2,182	SC, T	1996-2002
Wichita River at Wichita Falls	07312500	3,140	SC, T	1981-89,
				1996-2002
Wichita River near Charlie	07312700	3,439	SC, T	1967-81,
				1996-2002
Little Wichita River near Archer City	07314500	481	SC	1953-55,
			T	1953-54
Little Wichita River near Henrietta	07314900	1,037	SC, DO	1999
Little Wichita River near Henrietta	07315000	1,037	SC, T, pH, Cl	1953-56,
			S, T	1959-66,

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
East Fork Little Wichita River near Henrietta	07315200	178	T	1954
Little Wichita River near Ringgold	07315400	1,350	SC, pH, Cl	1959-62
Red River near Gainesville	07316000	30,872	SC, Cl	1944-46,
			SC, T, pH, Cl	1953-63,
			SC, T	1967-89,
Red River at Denison Dam near Denison	07331600	39,720	SC	1944-89,
			T	1945-89
Little Pine Creek near Kanawha	07336750	75.40	T	1980
Red River near De Kalb	07336820	47,348	SC, T	1968-91
Middle Sulphur River near Commerce	07342480	44.1	Cl, pH	1987-2001
South Sulphur River near Cooper	07342500	527	SC, T, pH, Cl	1959-66,
				1968-72,
			SC, T	1973-89
Sulphur River near Talco	07343200	1,365	SC, T, pH, Cl	1966-72,
			SC, T	1973-91
White Oak Creek near Talco	07343500	494	SC, T, pH, Cl	1966-72,
			SC, T	1973-91
Sulphur River near Darden	07344000	2,774	SC, T, pH, Cl	1947-50
Big Cypress Creek near Pittsburg	07344500	366	SC, T, pH, Cl	1968-72,
			SC, T	1973-89
Little Cypress Creek near Jefferson	07346070	675	SC, T, pH, Cl	1968-72,
			SC, T	1973-91
Sabine River near Emory	08017500	888	SC, T, pH, Cl	1952-54
Grand Saline Creek near Grand Saline	08018200	91.40	SC, T, pH, Cl	1968-73
Sabine River near Mineola	08018500	1,357	SC, T, pH, Cl	1968-72,
			SC, T	1973-92
Lake Fork Creek near Quitman	08019000	585	SC, T, pH, Cl	1968-72,
			SC, T	1973-89
Big Sandy Creek near Big Sandy	08019500	231	SC, T, S	1985-86
Sabine River near Beckville	08022040	3,589	SC, T	1952-98
Sabine River below Toledo Bend near Burkeville	08026000	7,482	SC, T	1969-86,
			C	1969-75
Sabine River near Bon Wier	08028500	8,229	SC, T, C	1969-84
Sabine River near Ruliff	08030500	9,329	SC	1945,
				1947-98
			T	1947-98
			pH, DO	1968-75,
			C	1970-76,
			Cl	1968
Cow Bayou near Mauriceville	08031000	83.30	SC, T, pH, Cl	1952-54,
			SC, T	1954-56
Neches River near Neches	08032000	1,145	SC, T	1974-91
Neches River near Alto	08032500	1,945	SC, T	1950-69
Neches River near Diboll	08033000	2,724	SC, T	1970-81
Neches River near Rockland	08033500	3,636	SC	1941-42,
				1946-47
Angelina River near Lufkin	08037000	1,600	SC, T, pH, Cl	1955-78,
			SC, T	1955-
Attoyac Bayou near Chireno	08038000	503	SC, T	1984-99
Sam Rayburn Reservoir near Jasper	08039300	3,449	SC, T	1964-84,
				1993-99
Angelina River below Sam Rayburn Dam near Jasper	08039400	3,449	SC, T	1964-79
Angelina River at SH 63 near Ebenezer	08039500	3,435	SC, T	1994-99
Village Creek near Kountze	08041500	860	SC, T	1968-70
Pine Island Bayou near Sour Lake	08041700	336	SC, T, pH, Cl	1968-72,
			SC, T	1973-89
Big Sandy Creek near Bridgeport	08044000	333	SC, T, S	1968-77,
Lake Worth above Fort Worth	08045400	2,064	pH, Cl	

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Clear Fork Trinity River at Fort Worth	08047500	518	SC, pH, Cl	1949-52,
			T	1948-62
Village Creek at Everman	08048970	84.5	SC, pH, T, DO	1990
Lake Arlington at Arlington	08049200	143	SC, pH, T, DO	1989-2002
Elm Fork Trinity River SWS # 6-0 near Muenster	08050200	0.77	S	1957-66
Elm Fork Trinity River near Muenster	08050300	46	SC	1967-68,
			T	1957-58,
				1966-68,
			S	1957-68
Clear Creek near Sanger	08051500	295	SC, T, S	1968-77
Little Elm Creek near Celina	08052650	46.70	SC	1967-75,
			T, S	1966-75
Little Elm Creek near Aubrey	08052700	75.50	SC	1967-75,
			T, S	1967-75
Elm Fork Trinity River near Lewisville	08053000	1,673	SC	1982-86,
			T	1976-86
White Rock Creek at Greenville Avenue, Dallas	08057200	66.4	SC, pH, T, DO	1997-2000
Trinity River below Dallas	08057410	6,278	SC, T	1968-2000,
			S	1972-75,
				1998-2000
			Cl	1970-81,
				1998-99
Lavon Lake near Lavon	08060500	770	SC,T,CL	1969-74,
				1975,82,
				1995-99
Duck Creek near Garland	08061700	31.6	SC, pH, T, DO	1988-89
East Fork Trinity River above Seagoville	08061970	1,183	SC, T, pH, DO	1987-93
East Fork Trinity River at Seagoville	08061980	1,224	SC, pH, T, DO	1987-96
East Fork Trinity River near Crandall	08062000	1,256	SC, T	1968-1981,
				1987-2000
			pH, DO	1977,
				1986-2000
			Cl	1964-81,
				1986-2000
Trinity River at Trinidad	08062700	8,538	SC, T	1967-81
				1986-2000
			pH, DO	1967-81,
				1986-2000
			Cl	1966-94
			S	1978-94
Cedar Creek near Mabank	08063000	733	SC, T, pH, Cl	1956-57
Pin Oak Creek near Hubbard	08063200	17.60	SC	1967-72,
			T	1957-60,
				1965-72,
			S	1957-60,
				1962-72
Richland Creek near Richland	08063500	734	SC, T, pH, Cl	1968-69,
			SC, T	1983-89
Chambers Creek near Corsicana	08064500	963	SC, T, pH, Cl	1961-70
Richland Creek near Fairfield	08064600	1,957	SC, T, pH, Cl	1956-66,
				1972,
			SC, T	1973-83
Trinity River near Oakwood	08065000	12,833	SC, T, pH, Cl	1948-54,
			SC, T, S	1977-81
Bedias Creek near Madisonville	08065800	321	SC, T	1985-87,
			S	1986
Long King Creek at Livingston	08066200	141	SC, T, pH, Cl	1963-72
Trinity River near Goodrich	08066250	16,844	SC, T	1970-73

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Trinity River near Moss Bluff	08067100	17,738	SC, pH, Cl	1950-65
Old River near Cove	08067200	19.0	SC, pH, Cl	1950-65,
			T	1965
Trinity River at Anahuac	08067300	17,912	SC, pH, Cl	1950-65
Cedar Bayou near Crosby	08067500	69.4	SC, pH, Cl	1971-79
West Fork San Jacinto River near Conroe	08068000	828	SC, T	1962-90,
			DO	1979-81
Panther Branch near Spring	08068450	34.50	S	1975-76
West Fork San Jacinto River near Humble	08069500	1,741	SC, Cl	1945-46
East Fork San Jacinto River near New Caney	08070200	388	SC,T	1984-99
San Jacinto River near Huffman	08071500	2,800	SC	1945-54,
			T	1949-54
Buffalo Bayou at West Belt Drive at Houston	08073600	307	SC, T	1979-81
Buffalo Bayou at Houston	08074000	358	SC, pH, T, DO	1986-2000
			Cl	1969-81
Whiteoak Bayou at Main Street, Houston	08074598	127	SC, T, DO	1992-97
Buffalo Bayou at Main Street, Houston	08074600	469	SC, T, DO	1986-92
Buffalo Bayou at McKee Street, Houston	08074610	469	SC, T, DO	1992-2000
			pH	1998-2000
Sims Bayou at Houston	08075500	63.0	SC, T, DO	1994-97
Chocolate Bayou near Alvin	08078000	87.70	SC, T	1978-81
North Fork Double Mountain Fork Brazos River near Post	08079575	438	SC, T	1984-93
Double Mountain Fork Brazos River near Rotan	08080000	8,536	SC, T	1950-51
Double Mountain Fork Brazos River near Aspermont	08080500	8,796	SC, T, S	1949-51
			SC, T	1957-95
				1996-2002
McDonald Creek near Post	08080540	103	SC, T	1964-78
Salt Fork Brazos River near Peacock	08081000	4,619	SC, T	1950-51,
				1965-86
Croton Creek near Jayton	08081200	290	SC, T	1961-80
Salt Croton Creek near Aspermont	08081500	64.30	SC	1969-77,
			T	1972-73
Salt Fork Brazos River near Aspermont	08082000	5,130	SC, T, pH, Cl	1949-51,
			SC, T	1957-82
Stinking Creek near Aspermont	08082100	88.80	T	1950,
			SC, T	1966-69
North Croton Creek near Knox City	08082180	251	SC, T	1966-86
Brazos River at Seymour	08082500	15,538	SC, T	1960-95
				1996-2002
Medina River near Somerset	08082800	967	SC, T, Cl	1998-2000
Clear Fork Brazos River at Hawley	08083240	1,416	SC, T	1968-79,
				1982-84
Clear Fork Brazos River at Nugent	08084000	2,199	SC, T, pH, Cl	1948-53
California Creek near Stamford	08084800	478	SC, T	1963-79
Paint Creek near Haskell	08085000	914	SC, T	1950-5
Clear Fork Brazos River at Fort Griffin	08085500	3,988	SC, T, S	1950-51,
			SC, T	1968-79,
				1982-84
Hubbard Creek near Sedwick	08086015	128	SC, T	1964-66
Deep Creek at Moran	08086050	228	SC, T	1963-75
Hubbard Creek near Albany	08086100	454	SC, T	1962-75
Salt Prong Hubbard Creek at U.S. Highway 380 near Albany	08086120	61	SC, T	1964-68
North Fork Hubbard Creek near Albany	08086150	39.30	SC, T	1964-90
Salt Prong Hubbard Creek near Albany	08086200	115	SC, T	1962-63
Snailum Creek near Albany	08086210	22.90	SC, T	1964-66
Battle Creek near Moran	08086235	108	SC, T	1967-68
Pecan Creek near Eolian	08086260	26.40	SC, T	1967-75

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Big Sandy Creek near Breckenridge	08086300	288	SC, T	1962-77
Hubbard Creek near Breckenridge	08086500	1,089	SC, T	1955-75
Clear Fork Brazos River at Eliasville	08087300	5,697	SC, T	1962-82
Brazos River near South Bend	08088000	22,673	SC, Cl	1942-48,
			SC, T	1978-81
Salt Creek at Olney	08088100	11.80	SC, T	1958-60
Salt Creek near Newcastle	08088200	120	SC, T	1958-60
Brazos River at Morris Sheppard Dam near Graford	08088600	23,596	SC	1942-91,
			T	1950-55,
				1966-91
Brazos River near Dennis	08090800	25,237	SC, T	1971-95
Brazos River at Whitney Dam near Whitney	08092600	27,189	SC, T	1947-97
Aquilla Creek above Aquilla	08093360	255	SC, T	1980-83
Aquilla Creek near Aquilla	08093500	308	SC, T	196066,
				1968-82
Bosque River near Waco	08095600	1,656	SC, T	1998-2002
Brazos River near Highbank	08098290	30,436	T	1968-84
Leon River near Eastland	08098500	235	SC, T	1950-53
Leon River near Hasse	08099500	1,261	SC, T	1980-82,
				1990-97
Leon River near Belton	08102500	3,542	T	1957-72
South Fork Rocky Creek near Briggs	08103900	33.30	S	1963-65
Lampasas River at Youngsport	08104000	1,240	SC, T	1961-64
Little River near Little River	08104500	5,228	SC, T	1965-73,
				1980-82
Little River near Cameron	08106500	7,065	SC, T	1959-97
San Gabriel River near Weir	08105300	563	T	1977-82
San Gabriel River at Laneport	08105700	738	T	1977-82
Brazos River at State Highway 21 near Bryan	08108700	39,049	SC, T	1961-65
Brazos River near Bryan	08109000	39,515	SC, T	1966
Brazos River near College Station	08109500	39,599	SC, T	1961-84
Yegua Creek near Somerville	08110000	1,009	SC, T	1961-67
Navasota River above Groesbeck	08110325	239	SC, T	1968-89
Navasota River near Groesbeck	08110400	311	SC, T	1968-78
Navasota River near Easterly	08110500	968	SC	1942-43,
				1947
Navasota River near Bryan	08111000	1,454	SC, T	1959-81,
			S	1976-81
Brazos River near Richmond	08114000	45,107	S	1966-86,
			SC	1942-95,
			T	1951-95
Brazos River near Rosharon	08116650	45,399	SC, T	1969-80
Brazos River at Harris Reservoir near Angleton	08116700	44,000	SC	1962-77,
			T	1967-77
Brazos River at Brazoria Reservoir near Brazoria	08117200	44,000	SC	1962-77,
			T	1967-77
San Bernard River near Boling	08117500	727	SC, T	1978-81
Colorado River above Bull Creek near Knapp	08118200	N/A	SC, T, Cl	1950-52
Bull Creek near Ira	08118500	26.30	SC, T, pH, Cl	1950-51
Bluff Creek near Ira	08119000	42.60	SC, T, pH, Cl	1950
Colorado River near Ira	08119500	3,483	SC, T	1950-52,
				1959-70,
				1975-82,
			Cl	1951-52
Deep Creek near Dunn	08120500	198	SC, T	1953-54
Colorado River near Cuthbert	08120700	3,912	SC, T	1965-99
				2001-02

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
Morgan Creek near Westbrook	08121500	273	T	1954-55
Graze Creek near Westbrook	08122000	21.70	T	1954-55
Morgan Creek near Colorado City	08122500	313	T	1947-49
Lake Colorado City near Colorado City	08123000	340	T	1954-55
Beals Creek above Big Spring	08123650	9,319	SC, T	1973-78
Beals Creek near Big Spring	08123700	9,341	SC, T	1956-57
Beals Creek near Coahoma	08123720	9,383	SC, T	1983-88
Colorado River near Silver	08123900	14,997	SC, T	1957-68
Colorado River at Robert Lee	08124000	15,307	SC, T, pH, Cl	1948-51,
			S	1949-51
Oak Creek near Blackwell	08126000	209	SC, T	1950
Colorado River at Ballinger	08126500	16,413	SC, T	1961-79,
			S	1978-79
Pecan Bayou at Brownwood	08143500	1,660	SC, T	1948-49
Pecan Bayou near Mullin	08143600	2,073	SC, T	1968-91
San Saba River near San Saba	08145500	N/A	SC, T	1962-65
San Saba River at San Saba	08146000	3,046	SC	1962-69,
			T	1963-70
Colorado River near San Saba	08147000	37,217	SC, T	1947-92,
			S	1951-62
Llano River at Llano	08151500	4,197	SC, T	1979-81
Lake Austin at Austin	08154900	38,240	SC, T	1965-80
Barton Creek below Barton Springs at Austin	08155505	125	SC, T,	1965,
				1975-83,
				1989-91,
				1994-97
Waller Creek at 23rd Street at Austin	08157500	4.13	T	1955-60
East Bouldin Creek at South 1st Street, Austin	08157600	2.4	Cl	1997-2000
Blunn Creek near Little Stacey Park, Austin	08157700	1.2		1997-2001
Boggy Creek at US Highway 183, Austin	08158050	13.1	C	1977-86
			C, T	1994-2001
Colorado River at Austin	08158000	39,009	SC, T	1948-91
Colorado River above Columbus	08160700	41,403	SC, T	1983-86
Colorado River at Columbus	08161000	41,640	SC	1967-73,
			T	1957-59,
				1961-68
			S	1957-73
Colorado River at Wharton	08162000	42,003	SC	1945-92,
			T	1946-48,
Lavaca River near Edna	08164000	817	SC, T	1978-81
Navidad River near Speaks	08164350	437	SC, T, pH, Cl	1996-97
Navidad River near Ganado	08164500	826	SC, T	1960-80
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	1977-78
Plum Creek near Luling	08173000	309	SC, T	1968-86
Sandies Creek near Westhoff	08175000	549	S	1966
			Cl	1962-99
Guadalupe River at Victoria	08176500	5,198	SC	1946-81,
			T	1951-81
Coleto Creek Reservoir (Condenser No. 1) near Fannin	08177360	414	T	1980-94
Coleto Creek Reservoir (outflow) near Victoria	08177410	494	T	1980-94
Olmos Creek at Dresden Drive, San Antonio	08177700	21.2	SC, pH, T, DO	1969-99
			S	1973
San Antonio River at San Antonio	08178000	41.8	SC, T	1991-92,
				1996-97
San Antonio River at Mitchell Street, San Antonio	08178050	42.4	SC, pH, T, DO	1992-99

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record (water years)
San Antonio River at Loop 410 at San Antonio	08178565	125	SC, pH, T, DO	1987-2000
Medina River near Macdona	08180700	885	SC, pH, T, DO	1998-2000
Medina River at La Coste	08180640	805	SC, pH, T, DO	1987-95
Medio Creek at Pearsall Rd. at San Antonio	08180750	47.9	SC, pH, T, DO	1987-95
Ingram Road Outfall at Leon Creek Tributary at San Antonio	08181410	0.02	SC, pH, T, DO	1994-2000
Leon Creek at Interstate Highway 35 at San Antonio	08181480	219	SC, pH, T, DO	1985-2000
Medina River at San Antonio	08181500	1,317	SC, pH, T, DO	1987-2000
			Cl	1965-2000
San Antonio River near Falls City	08183500	2,113	SC, pH, T, DO	1987-96
Cibolo Creek near Falls City	08186000	827	SC, T	1969-91
Escondido Creek SWS #1 near Kenedy	08187000	3.29	S	1955-65
Guadalupe River at Tivoli	08188800	10,128	SC, T	1966-82
Mission River at Refugio	08189500	690	SC, T	1961-81
Nueces River at Cotulla	08194000	5,171	SC	1942
Frio River at Calliham	08207000	5,491	SC, T	1968-81
Nueces River at Bluntzer	08211000	16,772	SC, T	1948-91
Los Olmos Creek near Falfurrias	08212400	480	SC, T	1975-81
Rio Grande at El Paso	08364000	29,267	SC, pH, T, DO	1930-2000
Rio Grande at Fort Quitman	08370500	31,944	SC, T	1975-78.
Rio Grande at Foster Ranch near Langtry	08377200	80,742	SC, T	1975-81
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	1940,
				1944
Salt Draw near Pecos	08431500	1,882	SC	1940,
				1944
Toyah Creek below Toyah Lake near Pecos	08434000	3,709	SC	1940-50,
			Cl	1940
Pecos River below Grand Falls	08441500	27,820	SC	1939-42,
				1947-56
Pecos River near Girvin	08446500	29,560	SC	1940-41,
				1947,
				1954-82
			T	1954-59,
				1964-82
Pecos River near Sheffield	08447000	31,600	SC	1940-41,
				1947
Pecos River near Langtry	08447410	35,179	SC, T	1971-76,
				1981-85
Devils River at Pafford Crossing near Comstock	08449400	3,961	SC, T	1978-85
Rio Grande at Laredo	08459000	132,578	SC	1975-86,
			T	1974-76
Rio Grande at Roma	08462500	166,464	SC	1942-43
Rio Grande at Fort Ringgold, Rio Grande City	08464700	174,362	SC, pH, T	1959-2000
Rio Grande near Los Ebanos	08466300	N/A	SC, pH, T	1977-2000
Rio Grande at Mission Pumping Plant	08468000	171,800	SC	1945-50
Rio Grande below Anzalduas Dam	08469200	176,112	SC, pH, T	1967-72,
				1959-2000
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,
			SC, T	1967-83
			S	1966-83

THIS PAGE IS INTENTIONALLY BLANK

WATER RESOURCES DATA—TEXAS, 2003

VOLUME 5

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 six volumes of this report series entitled "Water Resources Data - Texas."

This report series includes records of stage, discharge, and water quality of streams and canals; stage, contents, and water quality of lakes and reservoirs and water levels and water quality of ground water wells. Volume 5 contains records for water discharge at 84 gaging stations; stage only at 6 gaging stations; stage and contents at 6 lakes and reservoirs; and water quality at 25 gaging stations. Also included are data for 18 partial-record stations comprised of 1 flood-hydrograph, 10 low-flow, 4 crest-stage, and 3 miscellaneous measurement stations. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating Federal, State, and City agencies in Texas.

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

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

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official U.S. Geological Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water Data Report TX-03-5." For archiving and general distribution, the reports for the 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161 (703)) 605-6000.

Additional information, including the current prices, for ordering specific reports may be obtained from the Texas District Chief at the address given on the back of the title page or by telephone (512) 927-3500.

COOPERATION

Federal agencies that assisted the U.S. Geological Survey in the collection of data in this report in the form of funds or services in water year 2003 are:

- Corps of Engineers, U.S. Army.
- International Boundary and Water Commission United States and Mexico, U.S. Section.
- National Park Service
- 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 (TWDB), 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 Aquifer Authority; 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 Office of Emergency Management; Harris County Flood Control District: Houston-Galveston Area Council; Lavaca-Navidad River Authority; Lower Colorado River Authority; Lower Neches Valley Authority; 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 of Texas; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio River Authority; San Antonio Water System; San Jacinto River Authority; Somervell County Water District; Tarrant Regional Water District; Texas Soil & Water Conservation Board; Texas Department of Transportations; Texas Natural Resources Conservation Commission; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Colorado 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.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

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

Streamflow across the State averaged normal during water year 2003.

Conservation storage in 77 selected reservoirs throughout the State, with a combined conservation capacity of 34,485,000 acre-feet, remained at 77 percent from the end of September 2002 to the end of September 2003. Records from these reservoirs indicate that storage increased in 25, decreased in 48, and remained the same in 4.

The area for which water resources data are presented in volume 5 includes the Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Basins. The area described in volume 5 and the location of selected streamflow-gaging stations in the area are shown in figure 1.

Streamflow

Monthly mean streamflow was normal in most streams in Texas during the 2003 water year. Comparisons of monthly mean and annual mean discharges in the 2003 water year, with median values for the period 1971-2000, were made for the following four representative index stations in Texas: the Neches River near Rockland (08033500) in southeastern Texas, the North Bosque River near Clifton (08095000) in east central Texas; the North Concho River near Carlsbad (08134000) in west central Texas, and the Guadalupe River near Spring Branch (08167500) in south central Texas (fig. 2).

Annual mean streamflow for the Guadalupe River near Spring Branch was 460 ft^3/s for the 2003 water year or 176 percent of 267 ft^3/s for the reference period 1971-2000. The 2003 water year monthly mean discharges for the Guadalupe River near Spring Branch were above the normal range (greater than 75 percent of the median monthly discharge for the reference period during the months of October, November, December, January, February, and March, and below the normal range (less than 25 percent of the median monthly discharge for the

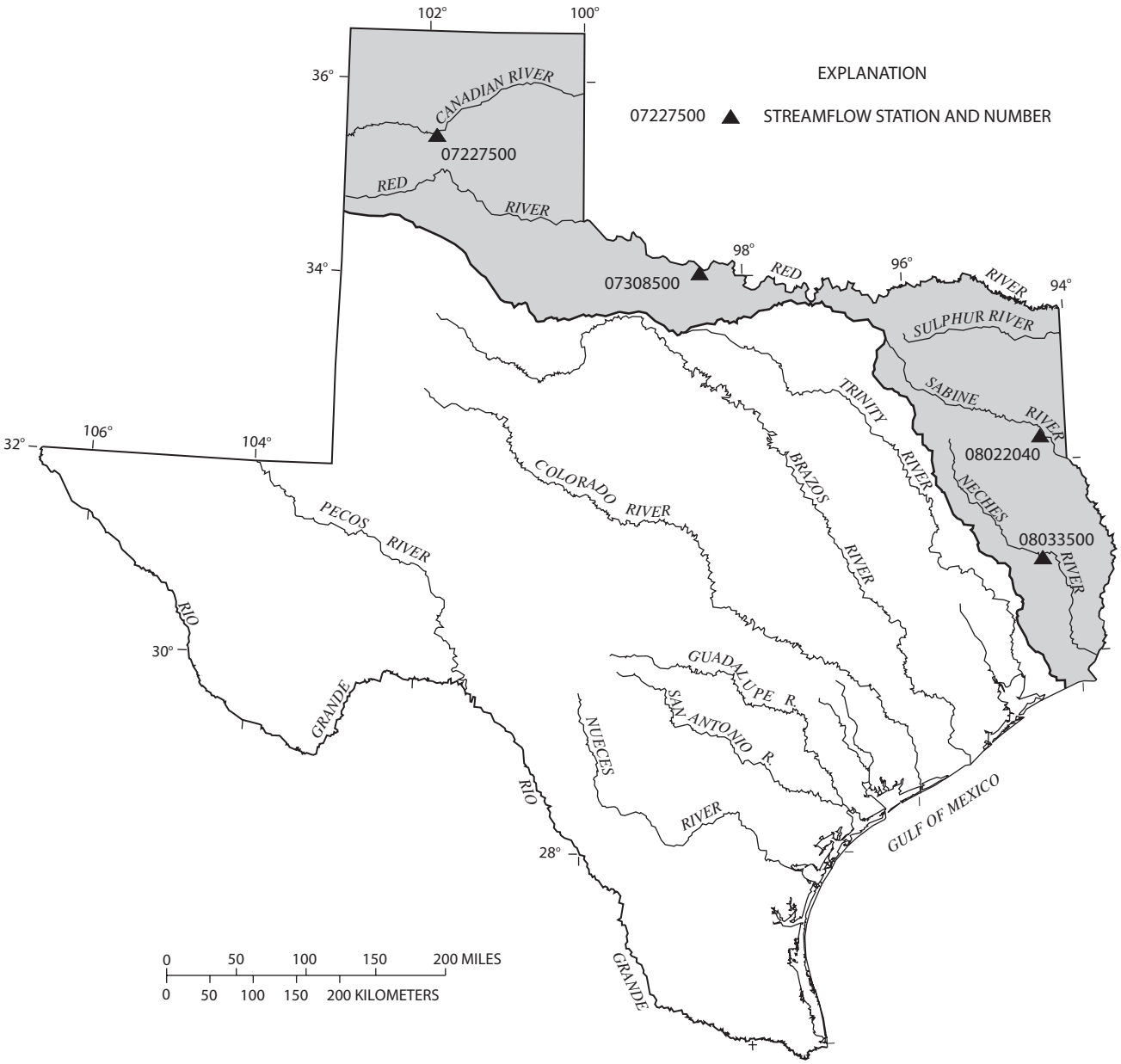
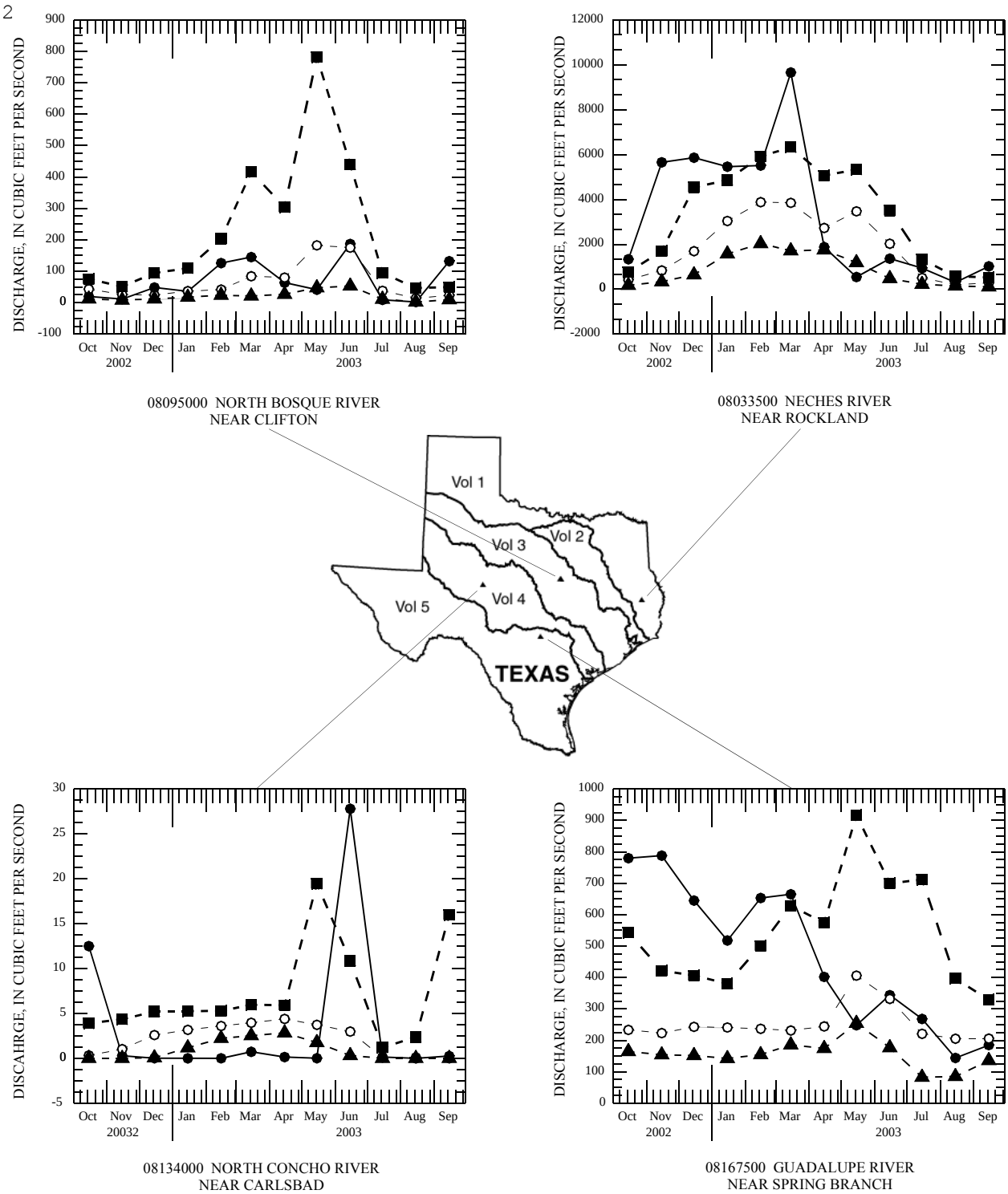


Figure 1. Area of Texas covered by volume 5 (shaded) and location of selected streamflow stations in volume 5.



EXPLANATION

—●— **MONTHLY MEAN DISCHARGE FOR 2003 WATER YEAR**

---○--- **MEDIAN OF MONTHLY MEAN DISCHARGE FOR 1971-2000 WATER YEARS**

---▲--- **25 PERCENT QUARTILE**

---■--- **75 PERCENT QUARTILE**

Figure 2. Monthly mean discharges at four long-term hydrologic index stations during 2003 water year and median of the monthly mean discharges for 1971-2000 water years.

reference period) during May. Monthly mean discharges for other months were within the normal range.

Annual mean streamflow for the Neches River near Rockland was 3,285 cubic feet per second (ft^3/s) for the 2003 water year, or 181 percent of 1,811 ft^3/s for the reference period 1971-2003. The 2003 water year monthly mean discharges were above the normal range (greater than 75 percent of the median monthly discharge for the reference period) during the months of October, November, December, January, March, and September, and below the normal range (less than 25 percent of the median monthly discharge for the reference period) during May. Monthly mean discharges for other months were within the normal range.

Annual mean streamflow for the North Bosque River near Clifton was 67.6 ft^3/s for the 2003 water year, or 112 percent of 60.6 ft^3/s for the reference period 1971-2000. the 2003 water year monthly mean discharges for the North Bosque River near Clifton were above the normal range (greater than 75 percent of the median monthly discharge for the reference period) during the month of September, and below the normal range (less than 25 percent of the median monthly discharge for the reference period) during the months of May and July. Monthly mean discharges for other months were within the normal range.

Annual mean streamflow for the North Concho River near Carlsbad was 3.48 ft^3/s for the 2003 water year, or 170 percent of 2.05 ft^3/s for the reference period 1971-2000. The 2003 water year monthly mean discharges for the North Concho River near Carlsbad were above the normal range (greater than 75 percent of the median monthly discharge for the reference period) during the months of October and June, and below the normal range (less than 25 percent of the median monthly discharge for the reference period) during the months of January, February, March, April, and May. Monthly mean discharges for other months were within the normal range.

Conservation storage in 8 selected reservoirs in this area of the State, with a total combined conservation capacity of 5,244,000 acre-feet, increased from 47 percent of capacity at the end of September 2002 to 54 percent of capacity at the end of September 2003. Records from these reservoirs indicate that storage increased in 5, decreased in 2, and remained the same in 1 during the water year.

Water Quality

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

Table 1. Streamflow at four selected stations

Station no. and name		Discharge during 2003 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
Guadalupe River Basin							
08167500	Guadalupe River near Spring Branch, TX 1/	2,910	119	469	i160,000	0	367 (1922-2003)
08176500	Guadalupe River at Victoria, TX	58,500	953	3,564	i466,000	14	1,956 (1935-2003)
Nueces River Basin							
08210000	Nueces River near Three Rivers, TX	14,500	38	954	141,000	0	717 (1949-2003)
Rio Grande Basin							
08446500	Pecos River near Girvin, TX	163	3.6	15.8	k20,000	1.9	68.9 (1939-2003)

1/ Hydrologic index station.
i From indirect measurement of peak flow.
k From supplementary gage.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, hydrologic-station records in USGS reports have been listed in order of downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary entering between two main-stream stations is listed between those stations. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is located with respect to the stream to which it is immediately tributary is indicated by an indention in that list of stations in the front of this report. Each indentation represents one rank. This downstream order and system of indentation indicates which stations are on tributaries between any two stations and the rank of the tributary on which each station is located.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These station numbers are in the same downstream order used in this report. In assigning a station number, 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 composed of both types of stations. Gaps are consecutive. The complete 8-digit (or 10-digit) number for each station such as 09004100, which appears just to the left of the station name, includes a 2-digit part number "09" plus the 6-digit (or 8-digit) downstream order number "004100." In areas of high station density, an additional two digits may be added to the station identification number to yield a 10-digit number. The stations are numbered in downstream order as described above between stations of consecutive 8-digit numbers.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from *http://water.usgs.gov/hbn/*.

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia Rivers so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment (NAWQA) Program; (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program may be accessed from *http://water.usgs.gov/nasqan/*.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a network of monitoring sites that provide continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead Federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as data from the individual sites, may be accessed from *http://bqs.usgs.gov/acidrain/*.

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

Assessment activities are being conducted in 42 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 is 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 water-resources managers to use in making decisions and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and Federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key Federal, State, and local water-resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program may be accessed from *http://water.usgs.gov/nawqa/*.

The USGS National Streamflow Information Program (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and databases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from *http://water.usgs.gov/nsip/*.

EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS

Data Collection and Computation

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and volume of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that is either downloaded electronically in the field to a laptop computer or similar device or is transmitted using telemetry such as GOES satellite, land-line or cellular-phone modems, or by radio transmission. Measurements of discharge are made with a current meter or acoustic Doppler current profiler, using the general methods adopted by the USGS. These methods are described in standard textbooks, USGS Water-Supply Paper 2175, and the Techniques of Water-Resources Investigations of the United States Geological Survey (TWRIs), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

The stage-discharge relation at some stream-gaging stations is affected by backwater from reservoirs, tributary streams, or other sources. Such an occurrence 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 at some distance from the base gage.

An index velocity is measured using ultrasonic or acoustic instruments at some stream-gaging stations and this index velocity is used to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relation is then used to calculate average discharge.

At some stations, 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.

At some stream-gaging stations in the northern United States, the stage-discharge relation is affected by ice in the winter; therefore, computation of the discharge in the usual manner is impossible. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter-discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge from other stations in the same or nearby basins.

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

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

For some stream-gaging stations, periods of time occur when no gage-height record is obtained or the recorded gage height is faulty and cannot be used to compute daily discharge or contents. Such a situation can happen when the recorder stops or otherwise fails to operate properly, the intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated on the basis of

recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records from other stations in the same or nearby basins. Likewise, lake or reservoir volumes may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

Data Presentation

The records published for each continuous-record surface-water discharge station (stream-gaging station) consist of five parts: (1) the station manuscript or description; (2) the data table of daily mean values of discharge for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period, by water year; (4) 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; and (5) a hydrograph of discharge.

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 follow that clarify information presented under the various headings of the station description.

LOCATION.—Location information is obtained from the most accurate maps available. The location of the gaging station 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 term indicates the time period for which records have been published 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 its flow reasonably can be considered equivalent to flow at the present station.

REVISED RECORDS.—If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

GAGE.—The type of gage in current use, the datum of the current gage referred to a standard datum, 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 either will be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily discharge table. (See section titled Identifying Estimated Daily Discharge.) Information is presented relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, the outlet works and spillway, and the purpose and use of the reservoir.

COOPERATION.—Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.—Information here documents 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 USGS.

REVISIONS.—Records are revised if errors in published records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://water.usgs.gov/nwis/nwis*). Users are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent data updates. Updates to NWISWeb are made on an annual basis.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because no current or, possibly, future station manuscript would be published for these stations 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 District Office (address given on the back of the title page of this report) to determine if the published records were revised after the station was discontinued. If, however, the data for a discontinued station were obtained by computer retrieval, the data would be current. 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 stage-capacity table when daily volumes are given.

Peak Discharge Greater than Base Discharge

Tables of peak discharge above base discharge are included for some stations where secondary instantaneous peak discharge data are used in flood-frequency studies of highway and bridge design, flood-control structures, and other flood-

related projects. The base discharge value is selected so an average of three peaks a year will be reported. This base discharge value has a recurrence interval of approximately 1.1 years or a 91-percent chance of exceedence in any 1 year.

Data Table of Daily Mean Values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed TOTAL gives the sum of the daily figures for each month; the line headed MEAN gives the arithmetic average flow in cubic feet per second for the month; and the lines headed MAX and MIN give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month is 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). Values for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if extensive regulation or diversion is in effect or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir volumes are given. These values are identified by a symbol and a corresponding footnote.

Statistics of Monthly Mean Data

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

Summary Statistics

A table titled SUMMARY STATISTICS follows the statistics of monthly mean data tabulation. This table consists of four columns with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, WATER YEARS __-__, will consist of all of the station records within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript. 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 heading. When the dates of occurrence do not fall within the selected water years listed in the heading, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration-curve statistics and runoff data also are given. Runoff data may be omitted if extensive regulation or diversion of flow is in effect in the drainage basin.

The following summary statistics data are provided with each continuous record of discharge. Comments that 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.

ANNUAL MEAN.—The arithmetic mean for the individual daily mean discharges for the year noted or for the designated period.

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.

MAXIMUM PEAK FLOW.—The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the

maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.—The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, 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 equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

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

Inches (INCHES) indicate 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 table lists annual maximum stage and discharge at crest-stage stations, and the second table lists discharge measurements at low-flow 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 often made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for a 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. This identification is shown either by flagging individual daily values with the letter “e” and noting in a table footnote, “e–Estimated,” or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of Field Data and Computed Results

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

The degree of accuracy of the records is stated in the REMARKS in the station description. “Excellent” indicates that about 95 percent of the daily discharges are within 5 percent of the true value; “good” within 10 percent; and “fair,” within 15 percent. “Poor” indicates that daily discharges have less than “fair” accuracy. Different accuracies may be attributed to different parts of a given record.

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

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, values 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 Data Records Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the District office (see address that is shown on the back of the title page of this report).

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Surface-water samples for analysis usually are collected at or near stream-gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

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

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

Water Analysis

Most of the methods used for collecting and analyzing water samples are described in the TWRIs. A list of TWRIs is provided in this report.

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 at several verticals to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

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 (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values (and sometimes mean or median values) for each constituent measured, and are based on 15-minute or 1-hour intervals of recorded data beginning at 0000 hours and ending at 2400 hours for the day of record.

SURFACE-WATER-QUALITY RECORDS

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because discharge data is useful in the interpretation of surface-water quality. Records of surface-water quality in this report 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 *continuous-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 continuous- or partial-record station, where 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 *continuous records* as used in this report and *continuous recordings* that refer to a continuous graph or a series of discrete values recorded at short intervals. 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.

Accuracy of the Records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made. Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

Rating classifications for continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than; %, percent; mg/L, milligram per liter; pH unit, standard pH unit]

Measured physical property	Rating			
	Excellent	Good	Fair	Poor
Water temperature	≤ ±0.2 °C	> ±0.2 to 0.5 °C	> ±0.5 to 0.8 °C	> ±0.8 °C
Specific conductance	≤ ±3%	> ±3 to 10%	> ±10 to 15%	> ±15%
Dissolved oxygen	≤ ±0.3 mg/L	> ±0.3 to 0.5 mg/L	> ±0.5 to 0.8 mg/L	> ±0.8 mg/L
pH	≤ ±0.2 unit	> ±0.2 to 0.5 unit	> ±0.5 to 0.8 unit	> ±0.8 unit
Turbidity	≤ ±5%	> ±5 to 10%	> ±10 to 15%	> ±15%

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 is assuring that the data obtained represent the naturally occurring quality of the water. To ensure this, certain measurements, such as water temperature, pH, and dissolved oxygen, must be made on site when the samples are taken. To assure that measurements made in the laboratory also represent the naturally occurring water, carefully prescribed procedures must 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 TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1-A9. These TWRIs are listed in this report. Also, detailed information on collecting, treating, and shipping samples can be obtained from the USGS District office (see address that is shown on the back of title page in 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 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 section.

During periods of rapidly changing flow or rapidly changing concentration, samples may be 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 are collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, 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

Samples for biochemical oxygen demand (BOD) and indicator bacteria are analyzed locally. All other samples are analyzed in the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chapter C1. Methods used by the USGS laboratories are given in the TWRIs, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These methods are consistent with ASTM standards and generally follow ISO standards.

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, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of “daily values” of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information 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 information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

DRAINAGE AREA.—See Data Presentation information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

PERIOD OF RECORD.—This indicates the time periods for which published water-quality records for the station are available. The 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 USGS by a cooperating organization are identified here.

EXTREMES.—Maximums and minimums are given only for parameters measured daily or more frequently. For parameters measured weekly or less frequently, true maximums or minimums may not have been obtained. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.—Records are revised if errors in published water-quality records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://waterdata.usgs.gov/nwis*). Users of USGS water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent updates. Updates to the NWISWeb are made on an annual basis.

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

Remarks Codes

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

Printed Output	Remark Code
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
V	Analyte was detected in both the environmental sample and the associated blanks
M	Presence of material verified but not quantified

Printed Output	Value-Qualifier Code
b	Value was extrapolated below
c	See laboratory coment
d	Diluted sample: method hi range exceeded
e	See field comment
i	Result may be affected by interference
k	Counts outside the acceptable range
m	Highly var comp using method, ? prec
n	Below the NVD
o	Result determined by alternate method
p	Value reported is preferred
q	Insufficient sample received
r	Value verified by rerun, same method
t	Below the long-term MDL
v	Analyte detected in laboratory blank
@	Holding time exceeded
+	Improper preservation

Printed Output	Null Value-Qualifier Code
e	Required equipment not functional or available
i	Required sample type not received
l	Analysis discarded: lab QC failure
m	Results sent by separate memo
q	Sample discharded: holding time exceeded
r	Sample ruined in preparation
u	Unable to determine - matrix interference

Dissolved Trace-Element Concentrations

***NOTE**:--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (µg/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 nan-

ograms per liter (ng/L). Data above the µg/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network Procedures

***NOTE**:--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820-7495 (217-333-7873).

Water-Quality Control Data

The USGS National Water Quality Laboratory collects quality-control data on a continuing basis to evaluate selected analytical methods to determine long-term method detection levels (LT-MDLs) and laboratory reporting levels (LRLs). These values are re-evaluated each year on the basis of the most recent quality-control data and, consequently, may change from year to year.

This reporting procedure limits the occurrence of false positive error. Falsely reporting a concentration greater than the LT-MDL for a sample in which the analyte is not present is 1 percent or less. Application of the LRL limits the occurrence of false negative error. The chance of falsely reporting a non-detection for a sample in which the analyte is present at a concentration equal to or greater than the LRL is 1 percent or less.

Accordingly, concentrations are reported as less than LRL for samples in which the analyte was either not detected or did not pass identification. Analytes detected at concentrations between the LT-MDL and the LRL and that pass identification criteria are estimated. Estimated concentrations will be noted with a remark code of "E." These data should be used with the understanding that their uncertainty is greater than that of data reported without the E remark code.

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

Blank Samples

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

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

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

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

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

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

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

Preservation blank—A blank solution that is treated with the sampler preservatives used for an environmental sample.

Reference Samples

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

Replicate Samples

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

Concurrent samples—A type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating the collection of samples into two or more compositing containers.

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

Split sample—A type of replicate sample in which a sample is split into subsamples, each subsample contemporaneous in time and space.

Spike Samples

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

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed from http://water.usgs.gov.

Water-quality data and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each Water Discipline District Office (See address that is shown on the back of the title page of this report.)

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, and precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units. Other glossaries that also define water-related terms are accessible from http://water.usgs.gov/glossaries.html.

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

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

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

Adjusted discharge is discharge data that have been mathematically adjusted (for example, to remove the effects of a daily tide cycle or reservoir storage).

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. (See also "Biomass" and "Dry weight")

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

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. 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.)

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that purposely is 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 collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

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

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas 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.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Bedload is material in transport that primarily is supported by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to the top of the bedload sampler nozzle (an elevation ranging from 0.25 to 0.5 foot). These particles are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

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

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

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

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This also is called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton and periphyton organisms with a blue pigment in addition to a green pigment called chlorophyll. Blue-green algae can cause nuisance water-quality conditions in lakes and slow-flowing rivers; however, they are found commonly in streams throughout the year. The abundance of blue-green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (mm^3/mL). The abundance of blue-green algae in periphyton samples is given in cells per square centimeter ($cells/cm^2$) or biovolume per square centimeter (mm^3/cm^2). (See also "Phytoplankton"and "Periphyton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved-solids content of the pore water, and the lithology and porosity of the rock.

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada's first order level network in 1928.

Cell volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are used frequently in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (mm^3) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

sphere $4/3\ \pi r^3$ cone $1/3\ \pi r^2 h$ cylinder $\pi r^2 h$.

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159….

From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cells/volume refers to the number of cells of any organism that 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 volume, and generally are reported as cells or units per milliliter (mL) or liter (L).

Cfs-day (See "Cubic foot per second-day")

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

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

Clostridium perfringens *(C. perfringens)* is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and the presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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.

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, 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 saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [$(ft^3/s)/d$]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables numerically are equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

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

Daily mean suspended-sediment concentration is the time-weighted mean concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "Sediment" and "Suspended-sediment concentration")

Daily record station is a site where data are collected with sufficient frequency to develop a record of one or more data

values per day. The frequency of data collection can range from continuous recording to data collection on a daily or near-daily basis.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data usually are downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or Universal Transverse Mercator (UTM) coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

Diatoms *(Bacillariophyta)* are unicellular or colonial algae with a siliceous cell wall. The abundance of diatoms in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of diatoms in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, and so forth, within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved solids concentration in water is the quantity of dissolved material in a sample of water. It 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, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

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

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, 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. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria commonly are found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis, Streptococcus feacium, Streptococcus avium,* and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that generally are considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli *(E. coli)* are bacteria present in the intestine and feces of warmblooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) value of a concentration is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an E code will be reported with the value. If the analyte is identified qualitatively as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an E code even though the measured value is greater than the MDL. A value reported with an E code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<). For bacteriological data, concentrations are reported as estimated when results are based on non-ideal colony counts.

Euglenoids (*Euglenophyta*) are a group of algae that usually are free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are 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 plus or minus 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. (See also "Bacteria")

Fecal streptococcal bacteria are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 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. (See also "Bacteria")

Fire algae (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum is not an actual physical object, the datum is usually defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term "stage," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae *(Chlorophyta)* are unicellular or colonial algae with chlorophyll pigments similar to those in terrestrial green plants. Some forms of green algae produce mats or floating "moss" in lakes. The abundance of green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (mm^3/mL). The abundance of green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter (mm^3/cm^2). (See also "Phytoplankton" and "Periphyton")

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat typically are made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

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

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA Web site:*
http://www.co-ops.nos.noaa.gov/tideglos.html

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum\frac{(n)(a)}{N},$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

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

Inch (IN., in.), in reference to streamflow, as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were distributed uniformly on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year, on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) generally is equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. The LRL replaces the term 'nondetection value' (NDV).

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L},$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, l is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e \frac{I}{I_o}.$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike-sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA Web site:*
http://www.co-ops.nos.noaa.gov/tideglos.html

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also "Discharge")

Mean high or **low tide** is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

Measuring point (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

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

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

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Method of Cubatures is a method of computing discharge in tidal estuaries based on the conservation of mass equation.

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

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

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

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

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

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

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

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD 29) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It formerly was called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations**,** it does not necessarily represent local mean sea level at any particular place. *See NOAA Web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88* (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

Nekton are the consumers in the aquatic environment and consist of large, free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

North American Vertical Datum of 1988 (NAVD 88) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian**,** Mexican, and United States first-order terrestrial leveling networks.

Open or **screened interval** is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or **volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

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.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are

important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method uses the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) 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, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, 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.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or **percent of total** 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, weight, mass, or volume.

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

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

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

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed “acidic,” and solutions with a pH greater than 7.0 are termed “basic.” Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They usually are 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 commonly are known as algae. (See also “Plankton”)

Picocurie (PC, pCi) is one-trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

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

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.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

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 (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. The carbon method defines 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 with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. The oxygen method defines 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. (See also "Primary productivity")

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

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

Recoverable from bed (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. (See also "Bed material")

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See "Recurrence interval")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment 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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

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. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See "Gage height")

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

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.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2 mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0	no gravel or larger substrate	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

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

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as 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 suspended water-sediment sample that is retained on a 0.45-micrometer 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 directly analyzing the suspended mate-rial collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

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 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. 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 directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

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

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial 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:	Arthropeda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	*Hexagenia*
Species:	*Hexagenia limbata*

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table descriptions 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 resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (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, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric ton per day.

Total is the amount of a given constituent in a representative whole-water (unfiltered) 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 at least 95 percent of the constituent in the sample.)

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also "Bacteria")

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume")

Total recoverable is the amount of a given constituent in a whole-water sample after a 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 for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross sec-

tion, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution because of the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to USEPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of path length of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

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

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS 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, 2003, is called the "2003 water year."

Watershed (See "Drainage basin")

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.

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals titled the "Techniques of Water-Resources Investigations" that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals 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. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at http://water.usgs.gov/pubs/twri/. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal

Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone "1-888-ASK-USGS" for current prices, and refer to the title, book number, section number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Other products can be viewed online at http://www.usgs.gov/sales.html, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at *http://mac.usgs.gov/isb/pubs/forms/*. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

1–D1. *Water temperature—Influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS–TWRI book 1, chap. 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, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

2–D1. *Application of surface geophysics to ground-water investigations,* by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.

2–D2. *Application of seismic-refraction techniques to hydrologic studies,* by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

2–E1. *Application of borehole geophysics to water-resources investigations,* by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.

2–E2. *Borehole geophysics applied to ground-water investigations,* by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

2–F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3–A1. *General field and office procedures for indirect discharge measurements,* by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. 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, chap. A2. 1967. 12 p.

3–A3. *Measurement of peak discharge at culverts by indirect methods,* by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.

3–A4. *Measurement of peak discharge at width contractions by indirect methods,* by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.

3–A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.

3–A6. *General procedure for gaging streams,* by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.

3–A7. *Stage measurement at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.

3–A8. *Discharge measurements at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.

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, chap. A9. 1989. 27 p.

3–Al0. *Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.

3–A11. *Measurement of discharge by the moving-boat method,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.

3–A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.

3–A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.

3–A14. *Use of flumes in measuring discharge,* by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.

3–A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.

3–A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.

3–A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.

3–A18. *Determination of stream reaeration coefficients by use of tracers,* by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.

3–A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.

3–A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.

3–A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

3–B1. *Aquifer-test design, observation, and data analysis,* by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.

3–B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS–TWRI book 3, chap. 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, chap. B3. 1980. 106 p.

3–B4. *Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.

3–B4. *Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems,* by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.

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

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

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

3–B8. *System and boundary conceptualization in ground-water flow simulation,* by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

3–C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.

3–C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.

3–C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4–A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.

4–A2. *Frequency curves,* by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.

4–A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at http://water.usgs.gov/pubs/twri/twri4a3/. (Accessed August 30, 2002.)

Section B. Surface Water

4–B1. *Low-flow investigations,* by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.

4–B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.

4–B3. *Regional analyses of streamflow characteristics,* by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

4–D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 p.

Book 5. Laboratory Analysis

Section A. Water Analysis

5–A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.

5–A2. *Determination of minor elements in water by emission spectroscopy,* by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.

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

5–A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.

5–A5. *Methods for determination of radioactive substances in water and fluvial sediments,* by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS–TWRI book 5, chap. A5. 1977. 95 p.

5–A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments,* by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

5–C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 p.

Book 6. Modeling Techniques

Section A. Ground Water

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

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

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, chap. A3. 1993. 136 p.

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, chap. A4. 1992. 108 p.

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

6–A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A6. 1996. 125 p.

6–A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

7–C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments,* by

P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS–TWRI book 7, chap. 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, chap. 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, chap. C3. 1981. 110 p.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8–A1. *Methods of measuring water levels in deep wells,* by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.

8–A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

8–B2. *Calibration and maintenance of vertical-axis type current meters,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations

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

9–A1. *National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.

9–A2. *National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.

9–A3. *National field manual for the collection of water-quality data: Cleaning of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.

9–A4. *National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

9–A5. *National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

9–A7. *National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.

9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.

9–A9. *National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

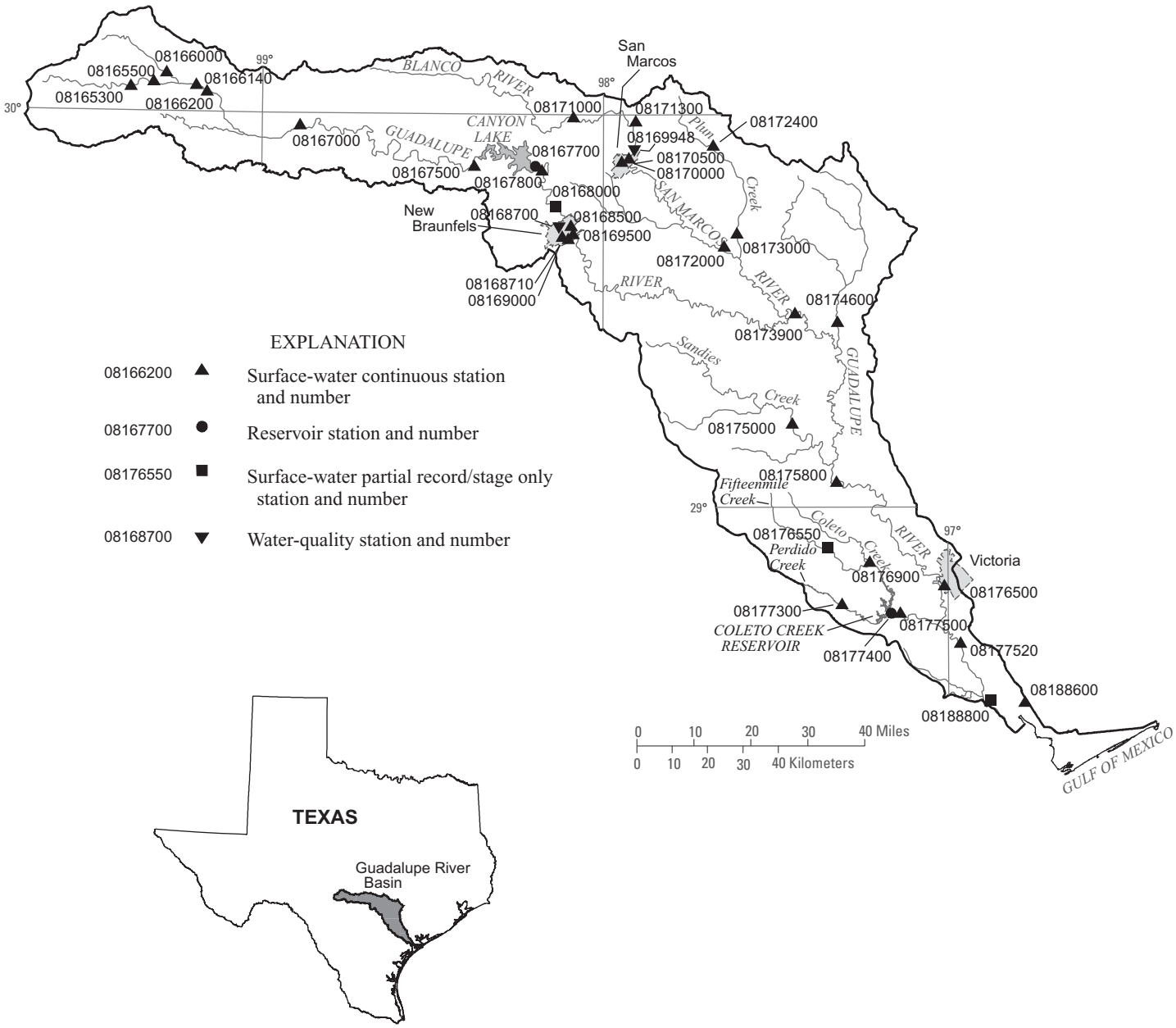


Figure 3.--Map showing location of gaging stations in the Guadalupe River Basin

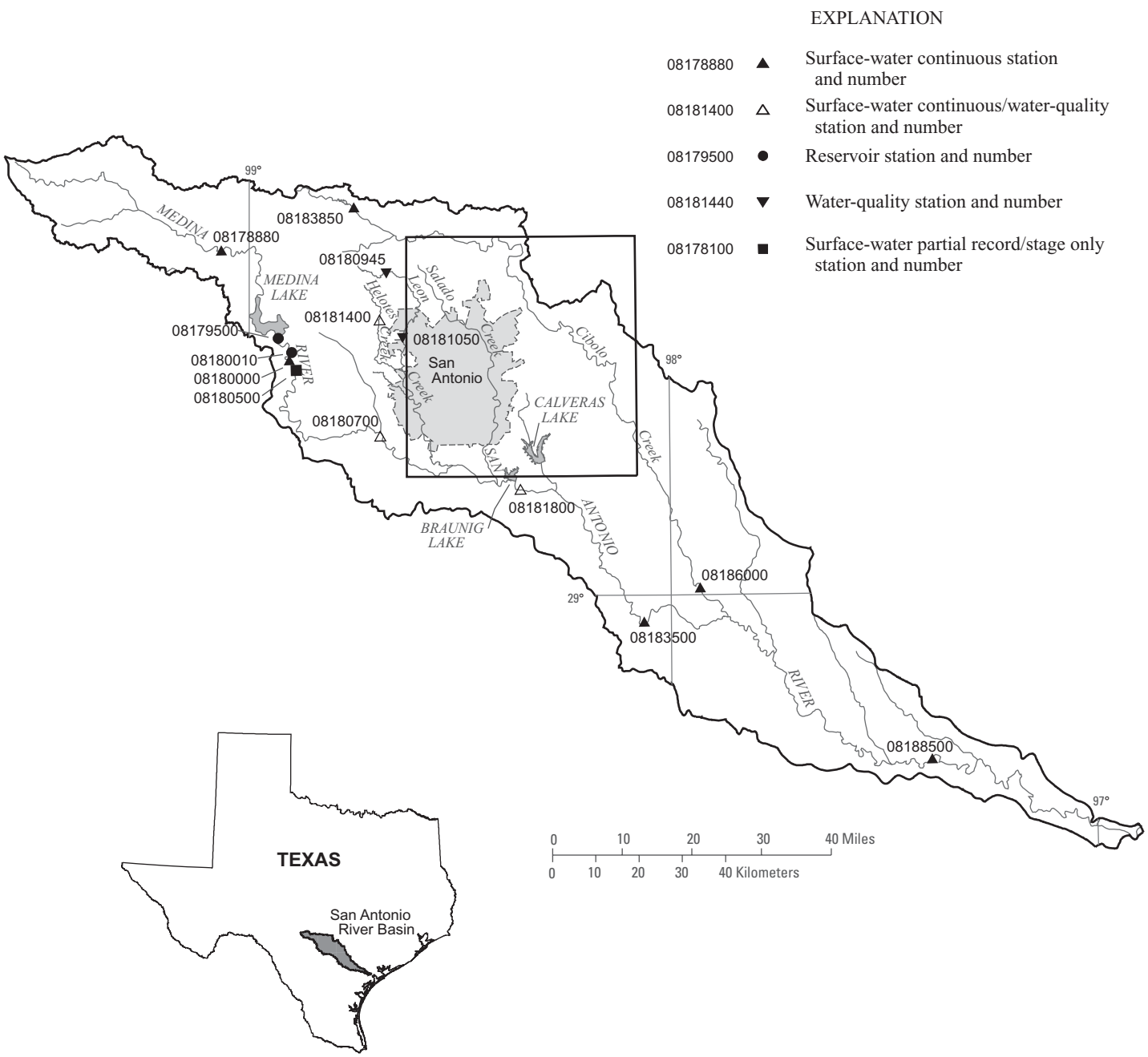
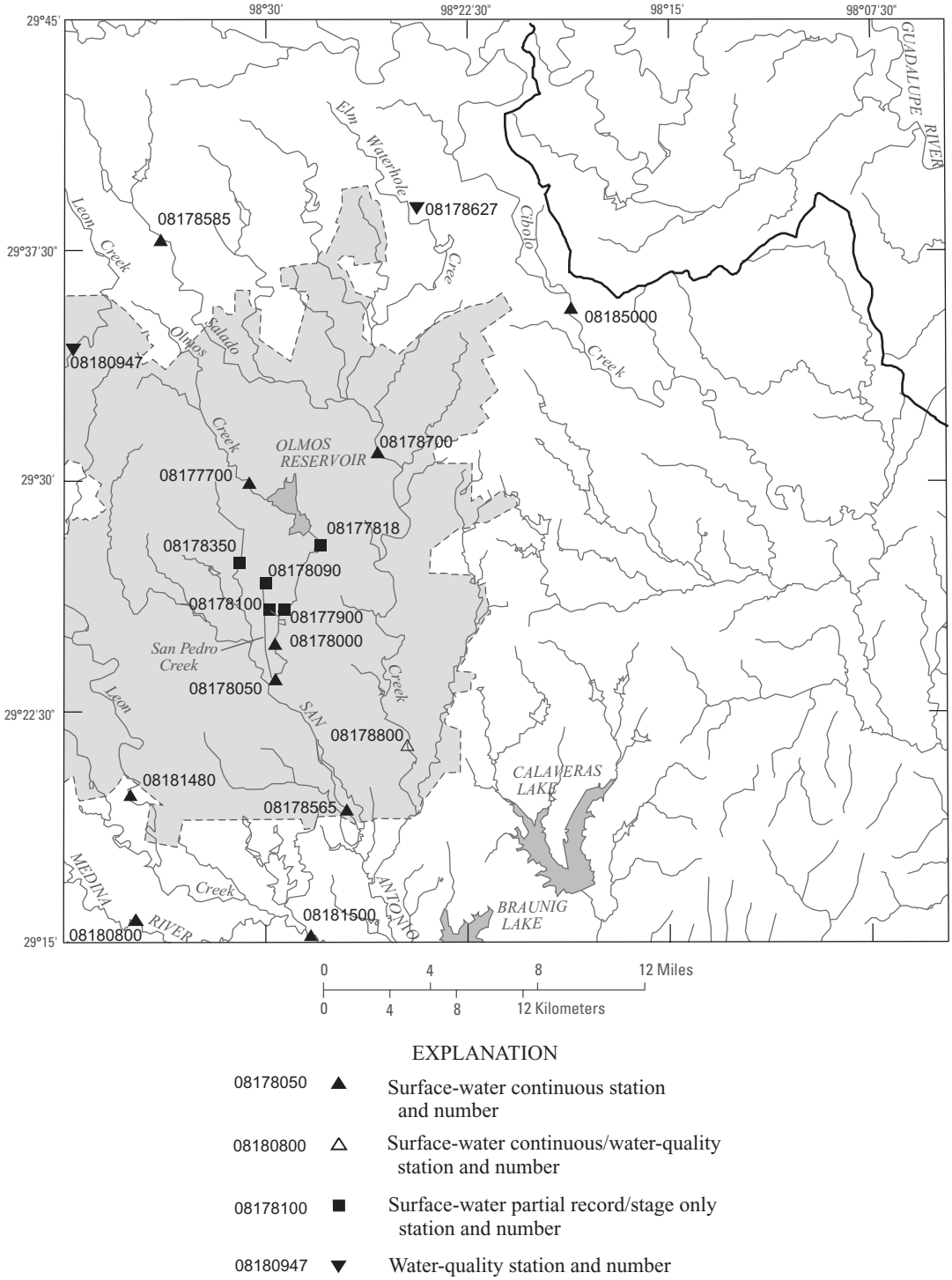


Figure 4.--Map showing location of gaging stations in the San Antonio River Basin



EXPLANATION

08178050	▲	Surface-water continuous station and number
08180800	△	Surface-water continuous/water-quality station and number
08178100	■	Surface-water partial record/stage only station and number
08180947	▼	Water-quality station and number

Figure 5.--Map showing location of gaging stations in the San Antonio inset of the San Antonio River Basin

08165300 North Fork Guadalupe River near Hunt, TX 36
08165500 Guadalupe River at Hunt, TX 38
08166000 Johnson Creek near Ingram, TX 40
08166140 Guadalupe River above Bear Creek at Kerrville, TX 42
08166200 Guadalupe River at Kerrville, TX 44
08167000 Guadalupe River at Comfort, TX 46
08167500 Guadalupe River near Spring Branch, TX 48
08167700 Canyon Lake near New Braunfels, TX 50
08167800 Guadalupe River at Sattler, TX 52
08168000 Hueco Springs near New Braunfels, TX 389
08168500 Guadalupe River above Comal River at New Braunfels, TX 54
08168700 Panther Canyon at New Braunfels, TX 56
08168710 Comal Springs at New Braunfels, TX 58
08169000 Comal River at New Braunfels, TX 60
08169500 Guadalupe River at New Braunfels, TX 62
08169948 San Marcos River Tributary at Sessions Road, San Marcos, TX 64
08170000 San Marcos Springs at San Marcos, TX 66
08170500 San Marcos River at San Marcos, TX 68
08171000 Blanco River at Wimberley, TX 70
08171300 Blanco River near Kyle, TX 72
08172000 San Marcos River at Luling, TX 74
08172400 Plum Creek at Lockhart, TX 76
08173000 Plum Creek near Luling, TX 78
08173900 Guadalupe River at Gonzales, TX 80
08174600 Peach Creek below Dilworth, TX 82
08175000 Sandies Creek near Westhoff, TX 84
08175800 Guadalupe River at Cuero, TX 86
08176500 Guadalupe River at Victoria, TX 88
08176550 Fifteenmile Creek near Weser, TX 90
08176900 Coleto Creek at Arnold Road Crossing near Schroeder, TX 92
08177300 Perdido Creek at Farm to Market Road 622 near Fannin, TX 94
08177400 Coleto Creek Reservoir near Victoria, TX 96
08177500 Coleto Creek near Victoria, TX 98
08177520 Guadalupe River near Bloomington, TX 100
08177700 Olmos Creek at Dresden Drive, San Antonio, TX 102
08177818 San Antonio Springs at San Antonio, TX 389
08177900 San Antonio River at Navarro Street, San Antonio, TX 391
08178000 San Antonio River at San Antonio, TX 104
08178050 San Antonio River at Mitchell Street, San Antonio, TX 106
08178090 San Pedro Springs at San Antonio, TX 389
08178100 San Pedro Creek at Santa Rosa Street, San Antonio, TX 391
08178350 Martinez Creek at Fredericksburg Road, San Antonio, TX 391
08178565 San Antonio River at Loop 410 at San Antonio, TX 108
08178585 Salado Creek at Wilderness Road at San Antonio, TX 110
08178627 Elm Waterhole Creek Tributary at San Antonio, TX 112
08178700 Salado Creek at Loop 410 at San Antonio, TX 116
08178800 Salado Creek at Loop 13 at San Antonio, TX 118
08178880 Medina River at Bandera, TX 124
08179500 Medina Lake near San Antonio, TX 126
08180000 Medina Canal near Riomedina, TX 128
08180010 Diversion Lake near Riomedina, TX 130
08180500 Medina River at Riomedina, TX 132
08180700 Medina River near Macdona, TX 134
08180800 Medina River near Somerset, TX 142
08180945 Leon Creek at Scenic Loop Road near Leon Springs, TX 144
08180947 Leon Creek at Hausman Road at San Antonio, TX 146
08181050 Leon Creek at Prue Road at San Antonio, TX 148
08181400 Helotes Creek at Helotes, TX 152
08181480 Leon Creek at Interstate Highway 35 at San Antonio, TX 156
08181500 Medina River at San Antonio, TX 158
08181800 San Antonio River near Elemendorf, TX 160
08183500 San Antonio River near Falls City, TX 174
08183850 Cibolo Creek at Interstate Highway 10 above Boerne, TX 176
08185000 Cibolo Creek at Selma, TX 178
08186000 Cibolo Creek near Falls City, TX 180
08188500 San Antonio River at Goliad, TX 182
08188600 GBRA Calhoun Canal Pump Station near Long Mott, TX 184
08188800 Guadalupe River near Tivoli, TX 186

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^2.

PERIOD OF RECORD.--Aug. 1967 to current year. Low-flow records not equivalent prior to June 7, 1989 because of undetermined channel flow loss between present and former site 0.58 mi upstream.

REVISED RECORDS.--WRD TX-74-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 1,800.10 ft above NGVD of 1929. Prior to June 7, 1989, at site 0.58 mi upstream at same datum. Satellite telemeter at station.

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

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^3/s, by slope-area measurements, combined flow of North Fork Guadalupe River 5.0 mi upstream and Bear Creek 2.0 mi upstream from mouth, and adjusted for difference in drainage area.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	34	33	30	28	28	31	31	22	25	18	21
2	32	36	33	29	28	29	30	31	22	23	18	19
3	31	36	36	30	28	e30	29	31	26	21	18	19
4	31	36	36	29	28	31	29	30	29	21	18	18
5	31	36	35	29	28	30	29	30	29	22	18	18
6	31	40	35	30	28	29	29	29	23	24	17	18
7	33	42	36	32	28	28	31	29	25	25	17	18
8	125	40	36	31	28	28	30	27	25	23	17	18
9	73	37	41	29	28	28	30	20	25	22	18	18
10	52	32	39	30	27	28	26	24	30	21	19	18
11	47	35	39	32	30	30	27	27	31	23	18	18
12	47	37	35	31	30	30	28	26	28	21	19	20
13	44	37	37	31	29	29	29	25	28	21	20	20
14	43	33	38	30	29	28	28	25	32	20	18	20
15	39	36	35	30	28	28	29	24	34	20	18	22
16	36	35	34	30	28	29	29	24	32	21	18	21
17	32	33	38	29	27	28	28	23	30	21	18	20
18	33	35	36	28	29	29	29	23	29	20	18	21
19	35	36	36	28	29	29	30	23	28	20	17	21
20	36	35	38	32	33	30	30	23	27	19	16	20
21	34	36	31	31	34	30	29	23	27	19	17	20
22	35	37	30	30	33	32	29	24	29	20	17	20
23	34	35	33	30	31	34	31	24	23	20	16	20
24	49	34	32	29	30	32	33	24	26	22	18	20
25	42	35	31	29	30	31	31	24	25	20	23	19
26	38	36	34	29	30	30	31	24	25	19	21	20
27	37	35	31	28	29	29	31	28	25	19	20	21
28	36	35	30	29	28	28	31	25	26	19	19	20
29	36	35	28	30	---	28	36	24	26	19	18	19
30	35	35	31	28	---	27	33	23	25	19	18	19
31	36	---	32	28	---	30	---	23	---	19	20	---
TOTAL	1275	1074	1069	921	816	910	896	791	812	648	565	586
MEAN	41.1	35.8	34.5	29.7	29.1	29.4	29.9	25.5	27.1	20.9	18.2	19.5
MAX	125	42	41	32	34	34	36	31	34	25	23	22
MIN	31	32	28	28	27	27	26	20	22	19	16	18
AC-FT	2530	2130	2120	1830	1620	1800	1780	1570	1610	1290	1120	1160
CFSM	0.24	0.21	0.20	0.18	0.17	0.17	0.18	0.15	0.16	0.12	0.11	0.12
IN.	0.28	0.24	0.24	0.20	0.18	0.20	0.20	0.17	0.18	0.14	0.12	0.13

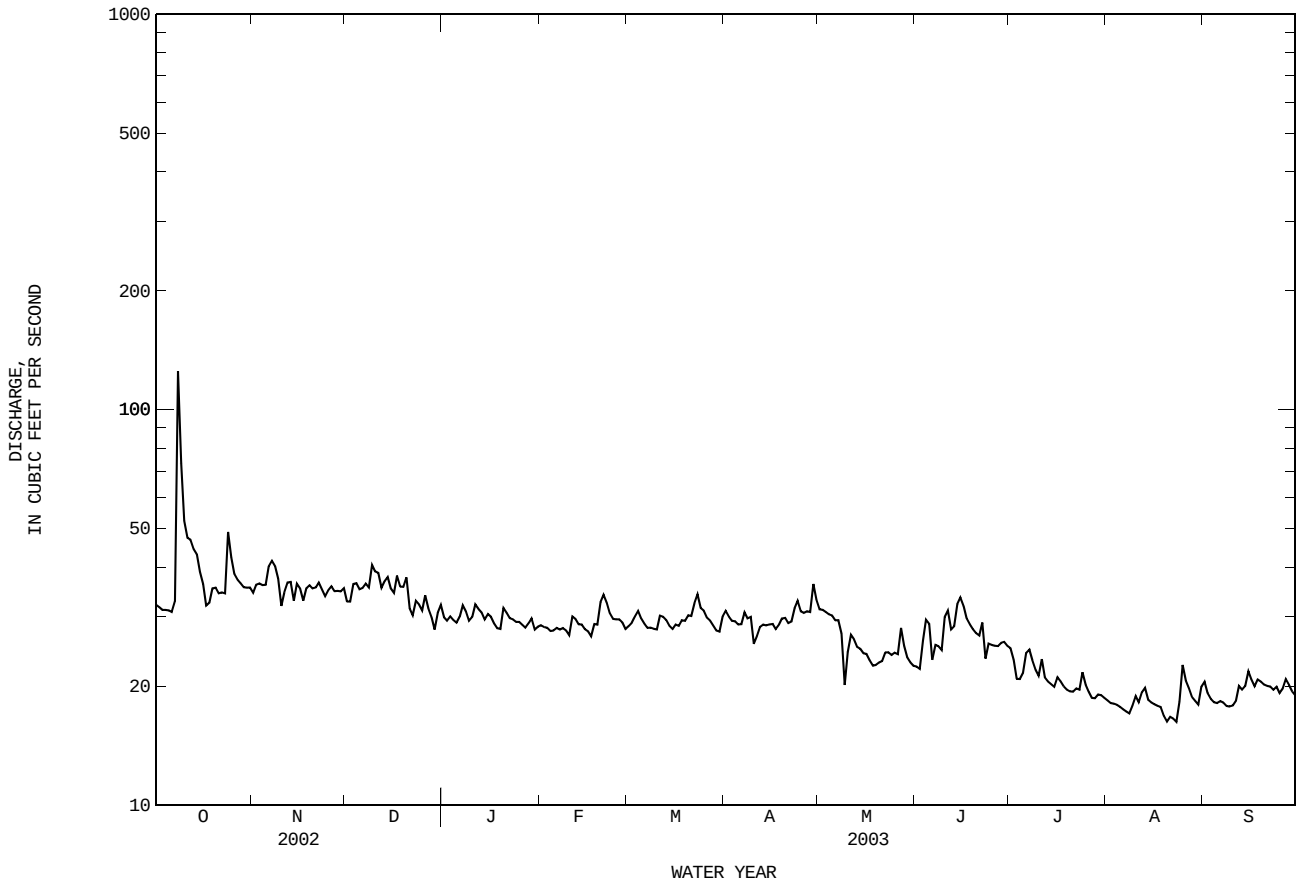
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	68.6	42.3	42.6	31.9	30.7	29.9	39.1	41.1	42.2	40.0	50.7	37.8
MAX	529	289	296	113	108	144	351	149	278	465	452	198
(WY)	1986	2002	1985	1968	1992	1992	1977	1990	1981	1987	1978	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
(WY)	1984	1984	1990	1990	1984	1971	1971	1971	1971	1971	1984	1984

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	14608		10363			
ANNUAL MEAN	40.0		28.4		41.6	
HIGHEST ANNUAL MEAN					103	1987
LOWEST ANNUAL MEAN					13.4	1984
HIGHEST DAILY MEAN	1180	Jul 5	125	Oct 8	14900	Oct 19 1985
LOWEST DAILY MEAN	19	Jul 3	16	Aug 20	6.6	May 30 1969
ANNUAL SEVEN-DAY MINIMUM	23	May 8	17	Aug 17	8.3	Jun 7 1971
MAXIMUM PEAK FLOW			313	Oct 8	57000	Oct 19 1985
MAXIMUM PEAK STAGE			3.26	Oct 8	a29.81	Oct 19 1985
ANNUAL RUNOFF (AC-FT)	28970		20560		30160	
ANNUAL RUNOFF (CFSM)	0.24		0.17		0.25	
ANNUAL RUNOFF (INCHES)	3.22		2.28		3.35	
10 PERCENT EXCEEDS	44		36		48	
50 PERCENT EXCEEDS	35		29		24	
90 PERCENT EXCEEDS	29		19		15	

e Estimated
a From floodmark.

08165300 North Fork Guadalupe River near Hunt, TX--Continued



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^2.

PERIOD OF RECORD.--Oct. 1941 to Sept. 1949 (daily mean discharge below base), Aug. 1951 to Sept. 1964 (periodic discharge measurements only), Apr. 1965 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,722.70 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. There are numerous diversions for irrigation above station, amounts unknown.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft, July 2, 1932, from information by local resident (discharge, 206,000 ft^3/s, determined by slope-area measurement 4.5 mi downstream from gage).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

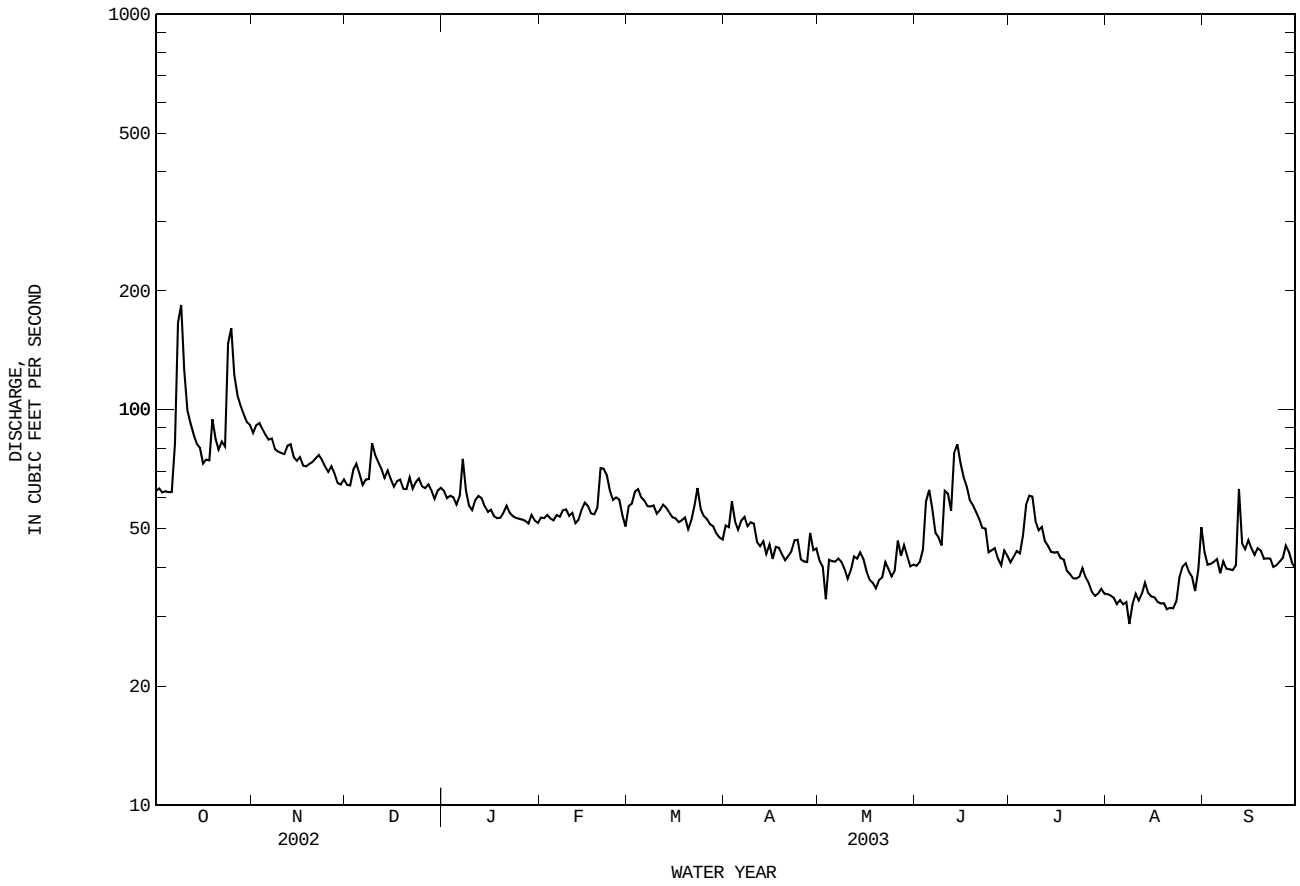
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	87	65	62	53	57	51	42	40	41	34	44
2	63	91	64	60	53	58	51	40	41	42	34	41
3	62	93	71	61	54	62	59	33	44	44	33	41
4	62	89	73	60	53	63	52	42	59	43	32	41
5	62	86	69	58	53	60	50	41	63	48	33	42
6	62	84	65	61	54	59	52	41	56	58	32	39
7	82	85	67	75	54	57	54	42	49	61	33	41
8	166	79	67	62	56	57	51	41	48	60	29	40
9	184	78	82	57	56	57	52	39	45	52	32	40
10	126	78	77	56	54	55	52	37	62	50	34	39
11	100	77	74	59	55	56	46	39	61	51	33	40
12	93	81	71	61	52	58	45	43	56	47	34	63
13	87	82	67	60	53	56	46	42	78	45	37	46
14	82	76	70	57	56	55	43	44	82	44	34	44
15	80	74	67	55	58	53	46	42	74	44	34	47
16	73	76	64	56	57	53	42	39	68	44	34	45
17	75	72	66	54	55	52	45	37	64	42	33	43
18	75	72	67	53	54	53	45	36	59	42	32	45
19	95	73	63	53	57	53	43	35	57	39	32	44
20	84	74	63	55	71	50	42	37	55	38	31	42
21	79	75	67	57	71	52	43	38	53	37	32	42
22	83	77	63	55	68	57	44	41	50	37	31	42
23	81	75	66	54	63	63	47	40	50	38	33	40
24	147	72	67	53	59	56	47	38	44	40	38	40
25	161	70	64	53	60	54	42	39	44	38	40	41
26	122	72	63	53	59	53	41	47	45	36	41	42
27	109	69	65	52	54	51	41	43	42	35	39	45
28	103	65	62	52	51	51	49	45	40	34	38	44
29	97	65	60	54	---	49	44	43	44	34	35	41
30	93	67	62	52	---	48	45	40	43	35	39	40
31	92	---	63	52	---	47	---	41	---	34	50	---
TOTAL	2942	2314	2074	1762	1593	1705	1410	1247	1616	1333	1076	1284
MEAN	94.9	77.1	66.9	56.8	56.9	55.0	47.0	40.2	53.9	43.0	34.7	42.8
MAX	184	93	82	75	71	63	59	47	82	61	50	63
MIN	62	65	60	52	51	47	41	33	40	34	29	39
AC-FT	5840	4590	4110	3490	3160	3380	2800	2470	3210	2640	2130	2550

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)

MEAN	113	83.1	73.0	61.4	62.2	63.1	73.9	82.9	80.2	84.1	102	69.1
MAX	677	538	322	151	213	257	570	286	551	956	992	312
(WY)	1986	2002	1985	1968	1992	1992	1977	1994	1987	1987	1978	1980
MIN	33.4	34.0	35.3	31.1	30.4	28.8	28.6	21.1	17.0	14.9	14.6	17.1
(WY)	1966	1966	1966	1966	1966	1966	1984	1984	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	34462		20356			
ANNUAL MEAN	94.4		55.8		79.5	
HIGHEST ANNUAL MEAN					223	1987
LOWEST ANNUAL MEAN					27.6	1984
HIGHEST DAILY MEAN	6130	Jul 5	184	Oct 9	22200	Jul 17 1987
LOWEST DAILY MEAN	35	May 7	29	Aug 8	8.2	Jul 17 1984
ANNUAL SEVEN-DAY MINIMUM	37	Jun 20	32	Aug 3	9.4	Jul 12 1984
MAXIMUM PEAK FLOW			407	Oct 8	108000	Jul 17 1987
MAXIMUM PEAK STAGE			8.81	Oct 8	28.38	Jul 17 1987
ANNUAL RUNOFF (AC-FT)	68360		40380		57610	
10 PERCENT EXCEEDS	91		78		96	
50 PERCENT EXCEEDS	64		53		49	
90 PERCENT EXCEEDS	45		37		29	

08165500 Guadalupe River at Hunt, TX--Continued



08166000 Johnson Creek near Ingram, TX

LOCATION.--Lat 30°06'00", long 99°16'58", Kerr County, Hydrologic Unit 12100201, on right bank 1.6 mi upstream from Henderson Branch, 3.4 mi northwest of Ingram, 3.8 mi upstream from mouth, and 9.2 mi northwest of Kerrville.

DRAINAGE AREA.--114 mi^2.

PERIOD OF RECORD.--Oct. 1941 to Nov. 1959, Oct. 1961 to Sept. 1993, Apr. 1999 to current year.
Water quality records.--Chemical data: June 1952 to July 1966.

REVISED RECORDS.--WSP 1058: 1942-45. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,721.30 ft above NGVD of 1929. Satellite telemeter at station.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35 ft, July 2, 1932, from information by local resident: discharge 138,000 ft^3/s, by slope-area measurement at point 0.5 mi downstream from the Heart of the Hills State Fish Hatchery and 6 or 7 mi upstream from gage. Flood of June 14, 1935 reached a stage of 31 or 32 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	31	21	22	24	25	11	15	13	e13	11	29
2	41	44	21	21	24	26	12	18	13	12	10	20
3	40	39	26	21	24	28	11	17	14	12	10	17
4	42	37	30	20	21	26	15	18	27	12	9.8	17
5	43	32	21	20	21	24	21	17	27	19	11	16
6	44	30	20	22	24	23	19	18	23	23	11	26
7	64	30	21	21	26	24	16	17	16	20	11	18
8	71	28	23	21	27	24	19	16	15	19	10	15
9	51	27	55	21	25	23	22	16	14	15	14	16
10	24	25	37	23	24	21	33	15	24	12	14	18
11	18	25	28	21	27	26	34	16	19	12	13	17
12	17	26	25	28	25	28	39	14	16	11	13	35
13	16	29	22	28	24	22	34	14	22	11	16	22
14	17	29	22	23	24	20	33	15	35	10	14	20
15	44	29	23	23	20	19	35	17	50	9.7	14	20
16	56	27	23	21	16	19	32	15	31	12	12	17
17	40	25	24	21	16	18	28	13	24	13	12	17
18	39	25	25	21	18	26	28	14	19	12	12	17
19	69	25	22	22	28	17	27	14	17	11	12	17
20	54	24	20	22	53	17	25	14	14	10	11	16
21	48	22	22	23	43	16	23	13	15	9.8	9.5	17
22	55	23	22	23	38	29	25	14	14	10	9.2	17
23	58	23	24	21	28	31	28	15	14	7.9	10	16
24	112	24	24	19	25	19	29	13	13	10	20	15
25	31	22	21	22	27	24	23	12	13	9.9	23	16
26	22	21	21	23	26	15	21	21	13	8.8	31	16
27	20	17	22	24	25	14	20	16	13	8.2	21	19
28	36	19	22	24	23	21	20	13	13	8.5	15	17
29	38	20	23	26	---	11	21	13	15	8.7	13	16
30	34	21	25	24	---	10	20	14	e13	8.8	15	15
31	29	---	23	24	---	11	---	14	---	11	42	---
TOTAL	1314	799	758	695	726	657	724	471	569	370.3	449.5	554
MEAN	42.4	26.6	24.5	22.4	25.9	21.2	24.1	15.2	19.0	11.9	14.5	18.5
MAX	112	44	55	28	53	31	39	21	50	23	42	35
MIN	16	17	20	19	16	10	11	12	13	7.9	9.2	15
AC-FT	2610	1580	1500	1380	1440	1300	1440	934	1130	734	892	1100

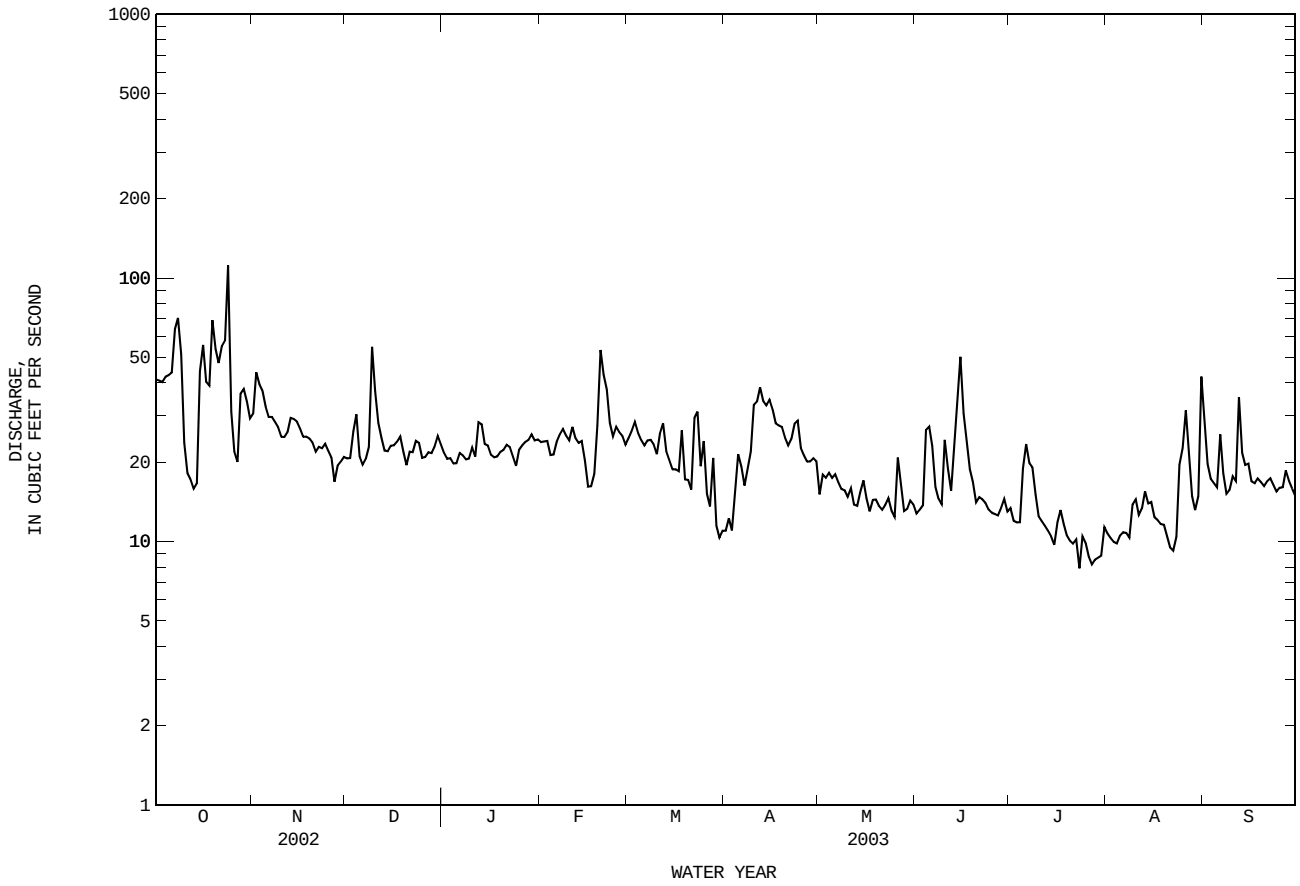
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2003h, BY WATER YEAR (WY)

MEAN	36.1	26.3	23.0	21.2	21.2	20.1	24.1	25.4	26.4	21.3	34.8	21.1
MAX	361	245	178	97.8	114	108	195	101	165	188	726	71.0
(WY)	1986	2001	1985	1968	1992	1992	1977	1977	1987	1987	1978	1974
MIN	4.80	5.17	5.44	5.31	6.05	5.27	4.20	5.54	2.84	1.16	1.13	3.02
(WY)	1952	1957	1955	1956	1952	1956	1954	1953	1956	1954	1954	1954

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1942 - 2003h	
ANNUAL TOTAL	14443.4		8086.8			
ANNUAL MEAN	39.6		22.2		24.7	
HIGHEST ANNUAL MEAN					79.0	1978
LOWEST ANNUAL MEAN					4.78	1954
HIGHEST DAILY MEAN	3020	Jul 5	112	Oct 24	17200	Aug 3 1978
LOWEST DAILY MEAN	6.3	Jun 15	7.9	Jul 23	0.40	Jul 26 1956
ANNUAL SEVEN-DAY MINIMUM	7.7	Jun 19	8.9	Jul 23	0.59	Jul 23 1956
MAXIMUM PEAK FLOW			242	Oct 24	95900	Oct 4 1959
MAXIMUM PEAK STAGE			1.76	Oct 24	a24.25	Oct 4 1959
ANNUAL RUNOFF (AC-FT)	28650		16040		17860	
10 PERCENT EXCEEDS	44		34		38	
50 PERCENT EXCEEDS	27		21		15	
90 PERCENT EXCEEDS	17		12		6.0	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08166000 Johnson Creek near Ingram, TX--Continued



08166140 Guadalupe River above Bear Creek at Kerrville, TX

LOCATION.--Lat 30°04'10", long 99°11'42", Kerr County, Hydrologic Unit 12100201, on left bank 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.

DRAINAGE AREA.--494 mi^2.

PERIOD OF RECORD.--Apr. 1978 to June 1986 (daily mean discharge below base), Dec. 1994 to Mar. 1999 (periodic discharge measurements only), Apr. 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,623.20 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Numerous diversions for irrigation above station, amounts unknown.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 34.1 ft, July 2, 1932, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

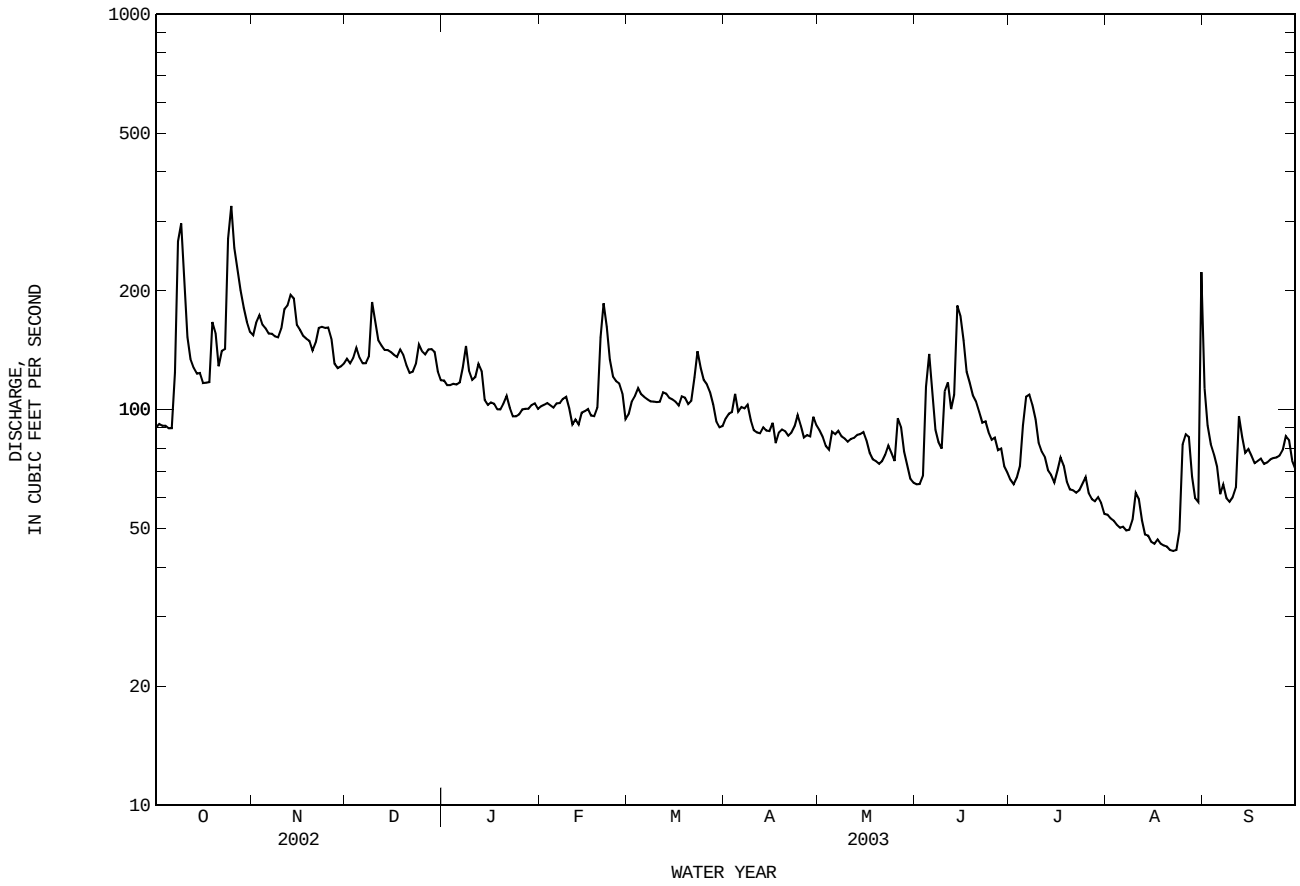
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	154	135	119	102	98	95	89	65	67	54	113
2	92	166	131	116	103	105	98	85	65	65	53	91
3	91	173	135	115	104	108	99	81	68	67	52	82
4	91	164	144	116	103	113	110	79	114	72	51	77
5	90	161	135	116	101	110	99	88	139	91	50	72
6	90	156	131	117	104	108	102	87	113	108	51	61
7	124	156	131	128	104	106	101	88	89	109	50	65
8	267	153	136	145	107	105	103	86	83	103	50	60
9	296	152	187	126	108	105	94	85	80	95	53	59
10	212	161	168	119	101	105	89	83	111	83	62	60
11	153	180	150	121	92	105	88	84	117	78	60	64
12	134	184	145	131	95	111	87	85	100	76	53	96
13	128	195	142	125	92	110	90	86	109	70	48	85
14	123	191	142	106	98	107	89	87	183	68	48	78
15	124	164	140	103	99	106	88	88	173	66	46	80
16	117	159	138	104	100	105	93	84	150	70	46	77
17	117	154	136	104	97	103	82	78	125	76	47	73
18	118	151	142	100	96	108	88	75	117	72	46	74
19	167	149	137	100	101	107	89	74	109	66	45	75
20	156	141	130	104	153	103	88	73	105	63	45	73
21	129	148	124	108	186	105	86	74	99	63	44	74
22	141	161	125	101	162	121	88	77	93	62	44	75
23	143	162	131	96	134	141	91	81	93	63	44	76
24	271	161	146	96	121	128	97	78	88	65	49	76
25	328	161	141	97	118	119	91	74	84	68	82	77
26	257	151	138	100	117	116	85	95	85	62	87	79
27	227	131	142	101	110	111	86	90	79	59	85	86
28	200	127	142	101	95	103	86	78	80	59	68	84
29	181	129	140	103	---	93	96	73	72	60	60	74
30	167	131	125	104	---	90	91	67	69	58	58	71
31	158	---	119	101	---	91	---	65	---	55	223	---
TOTAL	4982	4726	4308	3423	3103	3346	2769	2517	3057	2239	1854	2287
MEAN	161	158	139	110	111	108	92.3	81.2	102	72.2	59.8	76.2
MAX	328	195	187	145	186	141	110	95	183	109	223	113
MIN	90	127	119	96	92	90	82	65	65	55	44	59
AC-FT	9880	9370	8540	6790	6150	6640	5490	4990	6060	4440	3680	4540

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	226	295	145	124	117	117	103	97.9	92.1	181	68.2	83.4
MAX	576	499	187	169	167	181	146	125	135	628	117	146
(WY)	2001	2002	2002	2001	2001	2001	2001	2001	1999	2002	2002	2001
MIN	60.5	66.9	73.4	73.0	74.2	71.0	72.9	80.9	62.6	41.8	32.3	33.4
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2002	2000	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	58797		38611			
ANNUAL MEAN	161		106		139	
HIGHEST ANNUAL MEAN					197	2001
LOWEST ANNUAL MEAN					63.3	2000
HIGHEST DAILY MEAN	8000	Jul 5	328	Oct 25	13000	Oct 23 2000
LOWEST DAILY MEAN	51	Jun 23	44	Aug 21	28	Sep 7 2000
ANNUAL SEVEN-DAY MINIMUM	52	Jun 20	45	Aug 17	29	Sep 6 2000
MAXIMUM PEAK FLOW			503	Aug 31	56000	Oct 23 2001
MAXIMUM PEAK STAGE			4.62	Aug 31	32.79	Aug 3 1978
ANNUAL RUNOFF (AC-FT)	116600		76580		100300	
10 PERCENT EXCEEDS	178		156		183	
50 PERCENT EXCEEDS	119		100		93	
90 PERCENT EXCEEDS	76		62		54	

08166140 Guadalupe River above Bear Creek at Kerrville, TX--Continued



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.

DRAINAGE AREA.--510 mi^2.

PERIOD OF RECORD.--July 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,601.00 ft above NGVD of 1929. Prior to Apr. 4, 1989, at site 300 ft upstream, and on opposite bank at datum 1.0 ft lower. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in 1986, at least 10% of contributing drainage area has been regulated. Numerous diversions for irrigation above station, amounts unknown.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum estimated discharge, 196,000 ft^3/s, July 2, 1932 (estimated gage height, 39 ft).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	172	130	122	103	113	103	89	65	72	61	122
2	99	183	125	115	104	123	105	83	63	70	58	98
3	101	189	133	115	104	e124	105	79	65	73	57	83
4	98	185	148	116	102	132	116	73	133	76	59	77
5	98	176	137	116	101	127	102	82	168	110	58	79
6	96	166	129	115	102	122	99	79	133	120	56	72
7	145	166	128	123	101	118	98	82	97	129	54	75
8	288	161	135	140	105	115	98	81	85	130	53	72
9	342	154	188	121	105	113	95	76	81	119	56	69
10	234	150	173	113	105	113	94	74	124	101	66	71
11	181	149	154	114	103	113	93	73	131	93	64	79
12	160	150	146	129	105	116	90	75	113	89	60	121
13	151	154	138	129	102	116	94	78	124	83	61	112
14	148	150	137	120	108	111	91	74	186	81	62	95
15	147	142	138	116	104	109	88	74	182	77	61	95
16	137	146	135	113	103	109	94	71	161	82	58	91
17	132	142	132	113	100	108	83	62	131	87	56	84
18	132	136	135	107	97	117	85	59	121	85	52	84
19	185	139	129	105	100	111	92	59	107	77	49	86
20	172	139	124	106	175	102	89	57	102	71	47	83
21	148	138	128	109	203	102	84	58	95	69	52	83
22	174	143	127	108	179	125	88	61	87	67	46	83
23	167	142	126	105	151	139	96	68	82	67	44	83
24	323	139	130	105	136	130	102	65	79	69	47	80
25	395	134	126	105	129	120	96	59	72	73	87	79
26	272	138	124	107	128	113	85	91	75	67	95	81
27	231	139	124	109	125	110	85	87	67	62	94	86
28	212	133	124	107	113	106	85	81	83	62	72	89
29	201	130	123	106	---	104	98	76	76	64	61	85
30	188	127	123	105	---	102	92	69	75	64	57	77
31	177	---	121	104	---	102	---	66	---	63	252	---
TOTAL	5628	4512	4170	3518	3293	3565	2825	2261	3163	2552	2055	2574
MEAN	182	150	135	113	118	115	94.2	72.9	105	82.3	66.3	85.8
MAX	395	189	188	140	203	139	116	91	186	130	252	122
MIN	94	127	121	104	97	102	83	57	63	62	44	69
AC-FT	11160	8950	8270	6980	6530	7070	5600	4480	6270	5060	4080	5110

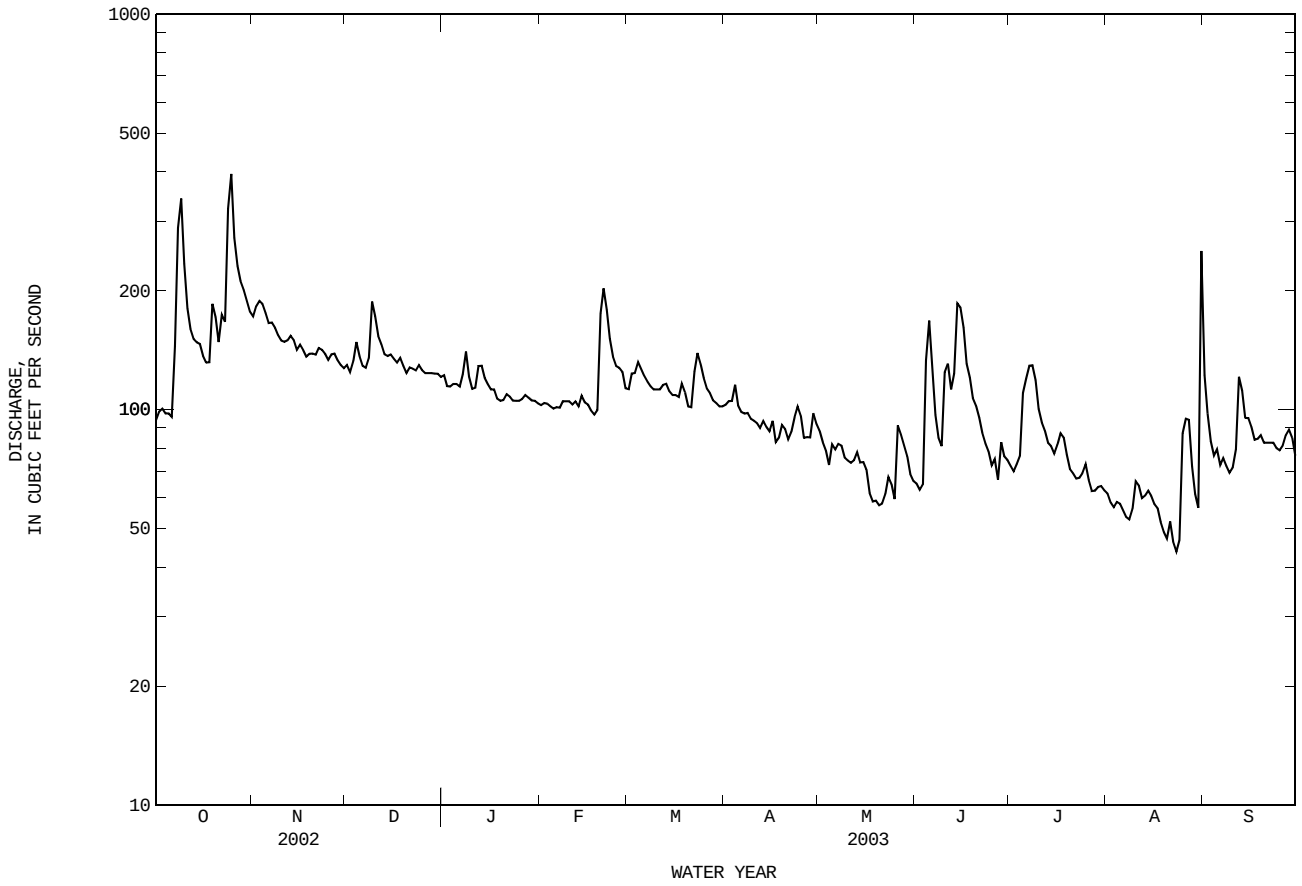
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2003, BY WATER YEAR (WY)

MEAN	163	180	149	125	149	154	123	156	198	228	104	113
MAX	676	718	572	282	555	547	329	313	1088	1572	281	256
(WY)	2001	2002	1992	1992	1992	1992	1992	1994	1987	1987	1987	1986
MIN	59.7	63.7	64.1	56.6	59.4	57.1	46.9	55.6	40.1	27.3	30.0	34.9
(WY)	2000	2000	1990	1996	1996	2000	2000	1996	1996	1996	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 2003	
ANNUAL TOTAL	63365		40116			
ANNUAL MEAN	174		110		154	
HIGHEST ANNUAL MEAN					399	1987
LOWEST ANNUAL MEAN					55.8	2000
HIGHEST DAILY MEAN	9740	Jul 5	395	Oct 25	36100	Jul 17 1987
LOWEST DAILY MEAN	46	Jun 26	44	Aug 23	17	Aug 7 1996
ANNUAL SEVEN-DAY MINIMUM	47	Jun 20	48	Aug 18	19	Aug 4 1996
MAXIMUM PEAK FLOW			576	Oct 24	i141000	Jul 17 1987
MAXIMUM PEAK STAGE			2.68	Oct 24	a37.72	Jul 17 1987
ANNUAL RUNOFF (AC-FT)	125700		79570		111500	
10 PERCENT EXCEEDS	184		154		218	
50 PERCENT EXCEEDS	121		104		96	
90 PERCENT EXCEEDS	75		64		50	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08166200 Guadalupe River at Kerrville, TX--Continued



08167000 Guadalupe River at Comfort, TX

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.

DRAINAGE AREA.--839 mi^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 NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Since 1956, at least 10% of contributing drainage area has been regulated. There are many small diversions above station for irrigation. No flow at times.

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 Texas Department of Transportation. Flood of July 16, 1900, reached about the same stage as that of July 1, 1932, from information by local residents. Maximum stage since at least 1848, that of Aug. 2, 1978.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	229	622	408	316	238	371	259	162	76	106	120	276
2	224	682	405	307	238	373	264	159	72	97	114	178
3	225	729	409	293	242	384	261	150	78	93	104	138
4	220	748	458	300	228	386	255	143	158	100	103	119
5	210	724	434	299	223	387	256	137	393	193	95	116
6	210	648	410	292	233	364	241	135	367	358	91	169
7	607	640	395	288	227	348	243	135	217	272	90	106
8	990	622	394	303	231	338	235	138	155	262	81	98
9	800	607	674	311	236	332	233	128	132	279	88	90
10	628	588	548	280	229	327	227	122	213	217	104	85
11	505	563	477	268	220	322	223	120	271	181	109	84
12	432	553	443	331	215	333	217	117	214	164	98	235
13	419	562	413	357	220	338	209	119	214	150	101	194
14	394	555	397	318	227	319	210	118	409	135	97	155
15	383	551	395	295	233	314	207	113	543	121	98	145
16	366	560	386	283	214	312	206	107	376	147	93	131
17	335	518	372	270	205	308	207	99	288	151	88	118
18	330	507	367	265	202	339	193	91	239	141	90	113
19	687	492	357	261	202	335	197	85	210	127	82	113
20	557	491	336	258	527	297	195	79	185	114	72	110
21	475	482	339	259	862	282	183	77	167	104	71	112
22	765	473	339	257	620	314	179	79	150	97	71	110
23	676	483	356	246	500	404	189	83	136	219	70	103
24	1130	467	366	238	437	366	195	85	125	235	72	98
25	1290	460	343	243	421	339	190	81	115	168	78	96
26	978	459	334	257	410	342	176	119	108	151	127	95
27	852	453	327	256	403	317	162	135	106	133	141	102
28	786	441	329	254	386	290	157	115	101	127	142	103
29	743	431	334	252	---	268	157	103	175	121	107	98
30	678	424	339	244	---	262	169	92	119	119	94	85
31	642	---	332	243	---	261	---	83	---	117	264	---
TOTAL	17766	16535	12216	8644	8829	10272	6295	3509	6112	4999	3155	3775
MEAN	573	551	394	279	315	331	210	113	204	161	102	126
MAX	1290	748	674	357	862	404	264	162	543	358	264	276
MIN	210	424	327	238	202	261	157	77	72	93	70	84
AC-FT	35240	32800	24230	17150	17510	20370	12490	6960	12120	9920	6260	7490

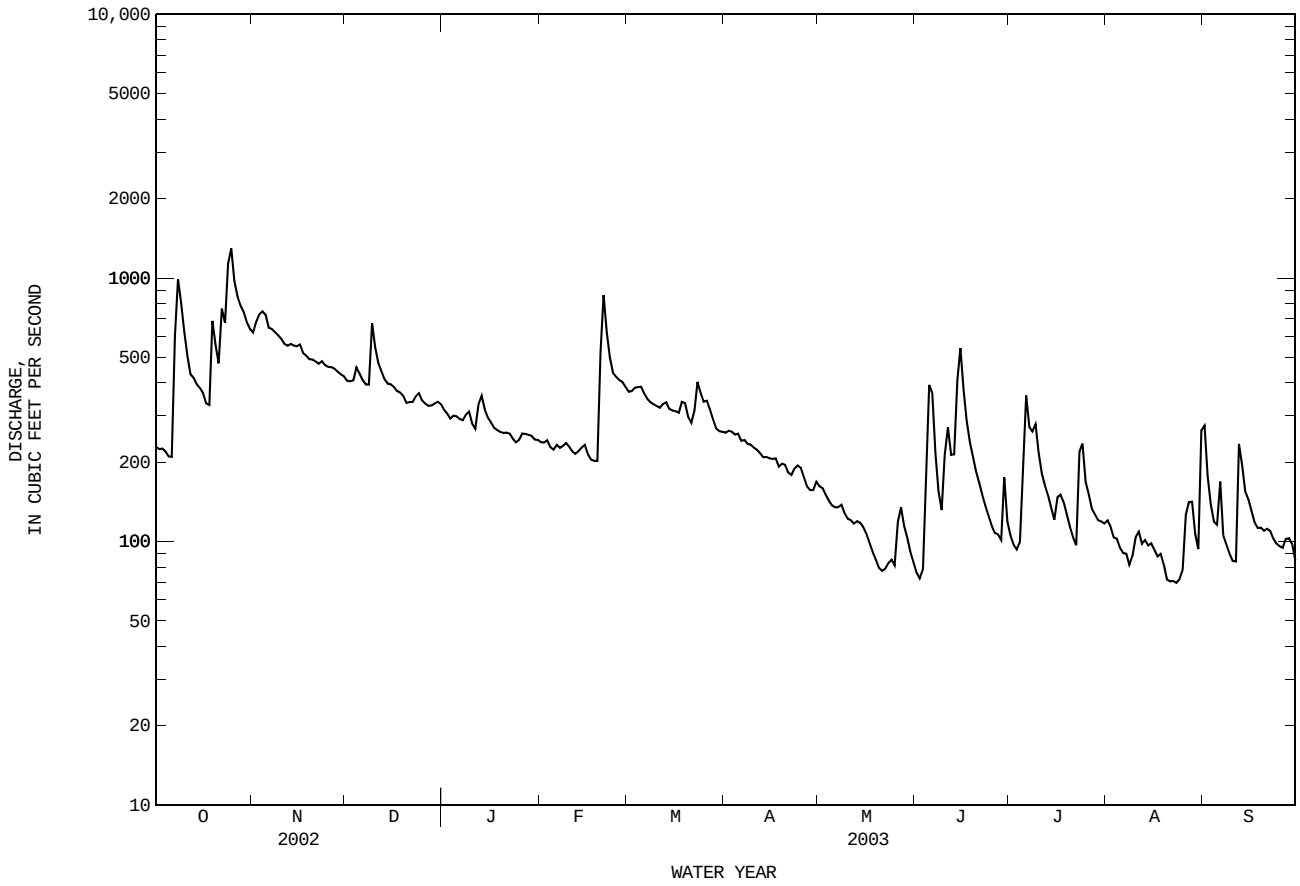
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	278	193	208	180	222	217	235	284	282	249	217	152
MAX	2417	1277	2700	987	1728	1559	1598	1122	2820	5809	4782	575
(WY)	1986	2001	1992	1992	1992	1992	1977	1975	1987	2002	1978	1978
MIN	0.000	3.63	10.5	16.8	24.4	16.6	13.2	14.9	0.097	0.000	0.000	0.000
(WY)	1957	1957	1957	1957	1957	1956	1955	1956	1956	1956	1954	1954

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	283179		102107			
ANNUAL MEAN	776		280		227	
HIGHEST ANNUAL MEAN					894	1992
LOWEST ANNUAL MEAN					14.5	1956
HIGHEST DAILY MEAN	42600	Jul 5	1290	Oct 25	74200	Aug 2 1978
LOWEST DAILY MEAN	45	Jun 26	70	Aug 23	0.00	Aug 31 1952
ANNUAL SEVEN-DAY MINIMUM	50	Jun 20	74	Aug 19	0.00	Aug 31 1952
MAXIMUM PEAK FLOW			3950	Oct 7	240000	Aug 2 1978
MAXIMUM PEAK STAGE			9.00	Oct 7	a40.90	Aug 2 1978
ANNUAL RUNOFF (AC-FT)	561700		202500		164600	
10 PERCENT EXCEEDS	745		545		380	
50 PERCENT EXCEEDS	228		235		114	
90 PERCENT EXCEEDS	89		97		27	

a From floodmark.

08167000 Guadalupe River at Comfort, TX--Continued



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^2.

PERIOD OF RECORD.--June 1922 to current year.
Water-quality records.--Chemical data: Oct. 1942 to Sept. 1945, Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995, Apr. 1996 to Apr. 1998. Biochemical data: Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995, Apr. 1996 to Apr. 1998. Sediment data: Apr. 1996 to Apr. 1998.

REVISED RECORDS.--WSP 1562: 1923-24, 1926, 1927-28(M), 1929, 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 948.10 ft above NGVD of 1929. Prior to Jan. 14, 1981, at site 220 ft downstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Since 1956, at least 10% of contributing drainage area has been regulated. Several small diversions above station for irrigation. No flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	884	563	615	427	825	502	319	196	234	176	177
2	368	876	554	572	424	801	503	316	193	219	171	263
3	366	1030	553	558	425	789	500	316	228	210	170	206
4	366	1080	563	545	417	799	497	313	245	209	162	182
5	359	1180	579	543	406	787	486	307	313	229	157	168
6	349	1060	556	541	408	768	477	289	499	384	152	181
7	331	970	535	525	403	735	456	292	438	507	148	199
8	990	942	531	516	398	711	441	287	331	403	145	168
9	947	919	710	529	405	696	429	275	279	380	143	156
10	845	899	920	539	406	681	429	278	261	373	137	152
11	661	855	764	511	394	671	425	264	292	331	145	147
12	550	806	740	543	387	673	420	252	351	298	165	166
13	494	768	706	619	386	681	405	248	493	278	156	225
14	474	766	656	613	393	670	394	249	622	265	147	238
15	464	765	636	575	403	653	395	246	697	254	146	215
16	438	738	633	552	390	651	391	241	724	261	144	199
17	418	719	646	529	373	632	386	233	494	296	142	190
18	398	713	662	516	367	615	381	225	414	278	138	186
19	583	703	624	505	365	645	377	217	366	257	134	194
20	984	682	625	502	1440	607	369	209	339	244	130	181
21	671	673	584	497	1730	572	358	201	311	230	125	196
22	629	654	563	497	1760	577	355	201	292	217	120	189
23	1150	642	812	482	1190	633	354	200	276	207	119	181
24	1530	638	808	466	1000	664	358	203	261	261	127	176
25	2190	629	675	464	939	625	350	200	246	292	122	171
26	1690	630	656	473	908	686	339	200	241	228	121	170
27	1350	626	636	468	891	638	329	215	227	210	129	167
28	1180	610	621	458	855	581	321	247	229	201	151	167
29	1090	591	624	447	---	536	313	226	226	195	156	168
30	1010	579	626	438	---	513	312	214	238	185	148	163
31	935	---	620	431	---	508	---	206	---	178	141	---
TOTAL	24185	23627	19981	16069	18290	20623	12052	7689	10322	8314	4467	5541
MEAN	780	788	645	518	653	665	402	248	344	268	144	185
MAX	2190	1180	920	619	1760	825	503	319	724	507	176	263
MIN	331	579	531	431	365	508	312	200	193	178	119	147
AC-FT	47970	46860	39630	31870	36280	40910	23910	15250	20470	16490	8860	10990

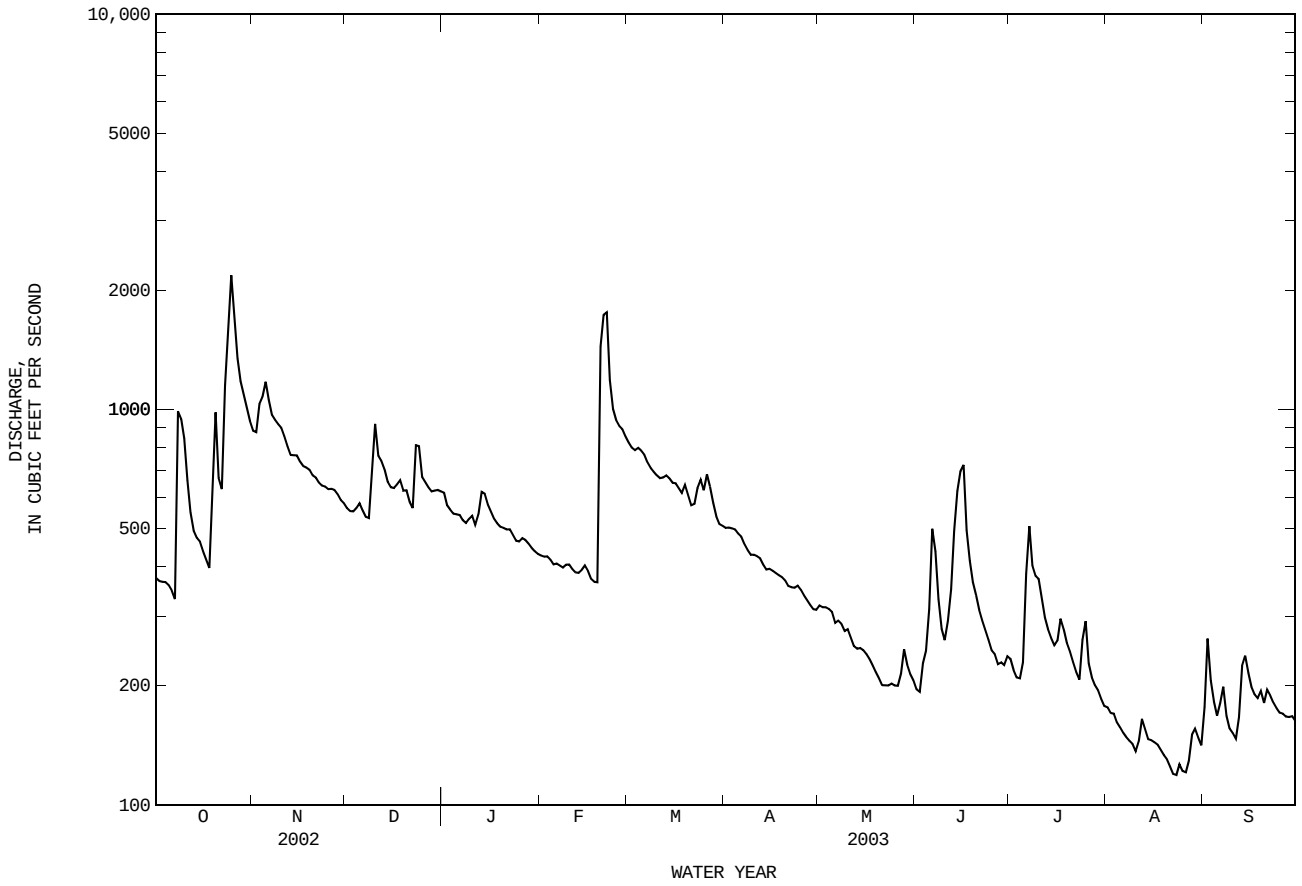
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2003, BY WATER YEAR (WY)

MEAN	356	280	318	297	368	366	386	500	560	436	238	295
MAX	1584	2053	4927	1903	4164	3306	2417	2216	6329	10530	4980	4055
(WY)	1982	2001	1992	1992	1992	1992	1977	1992	1987	2002	1978	1936
MIN	5.91	11.1	6.48	10.9	29.3	16.8	6.11	19.3	0.000	0.000	0.25	0.29
(WY)	1952	1957	1957	1957	1956	1956	1956	1956	1956	1956	1954	1954

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1922 - 2003	
ANNUAL TOTAL	478892		171160			
ANNUAL MEAN	1312		469		367	
HIGHEST ANNUAL MEAN					1819	1992
LOWEST ANNUAL MEAN					13.3	1956
HIGHEST DAILY MEAN	60000	Jul 5	2190	Oct 25	76500	Aug 3 1978
LOWEST DAILY MEAN	66	Jun 26	119	Aug 23	0.00	Aug 19 1951
ANNUAL SEVEN-DAY MINIMUM	68	Jun 22	123	Aug 21	0.00	Aug 31 1951
MAXIMUM PEAK FLOW			2910	Feb 20	i160000	Aug 3 1978
MAXIMUM PEAK STAGE			7.16	Feb 20	a45.25	Aug 3 1978
ANNUAL RUNOFF (AC-FT)	949900		339500		266000	
10 PERCENT EXCEEDS	1210		810		665	
50 PERCENT EXCEEDS	418		406		157	
90 PERCENT EXCEEDS	117		168		34	

i From indirect measurement of peak flow.
a From floodmark.

08167500 Guadalupe River near Spring Branch, TX--Continued
(Hydrologic index station)



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^2.

PERIOD OF RECORD.--July 1962 to Sept. 2000 (U.S. Army Corps of Engineers furnished contents), Oct. 2000 to Sept. 2001 (contents), Oct. 2002 to current year. Prior to Oct. 1970, published as "Canyon Reservoir".

Water-quality records.--Chemical data: Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995. Biochemical data: Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Sept. 24, 1964, nonrecording gage at present site and datum. Satellite telemeter at station.

REMARKS.--Records good. 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 Aug. 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 dam is owned by the U.S. Army Corps of Engineers. The lake was built for water conservation and flood control. Small diversions above the lake for irrigation. Conservation pool storage is 378,852 acre-ft. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	974.0
Crest of spillway	943.0
Top of conservation pool	908.6
Lowest gated outlet (invert)	775.0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 831,800 acre-ft, July 6, 2002, elevation, 950.28 ft; minimum observed since conservation pool first reached in Apr. 1968, 311,200 acre-ft, Nov. 24, 1984, elevation, 899.85 ft.

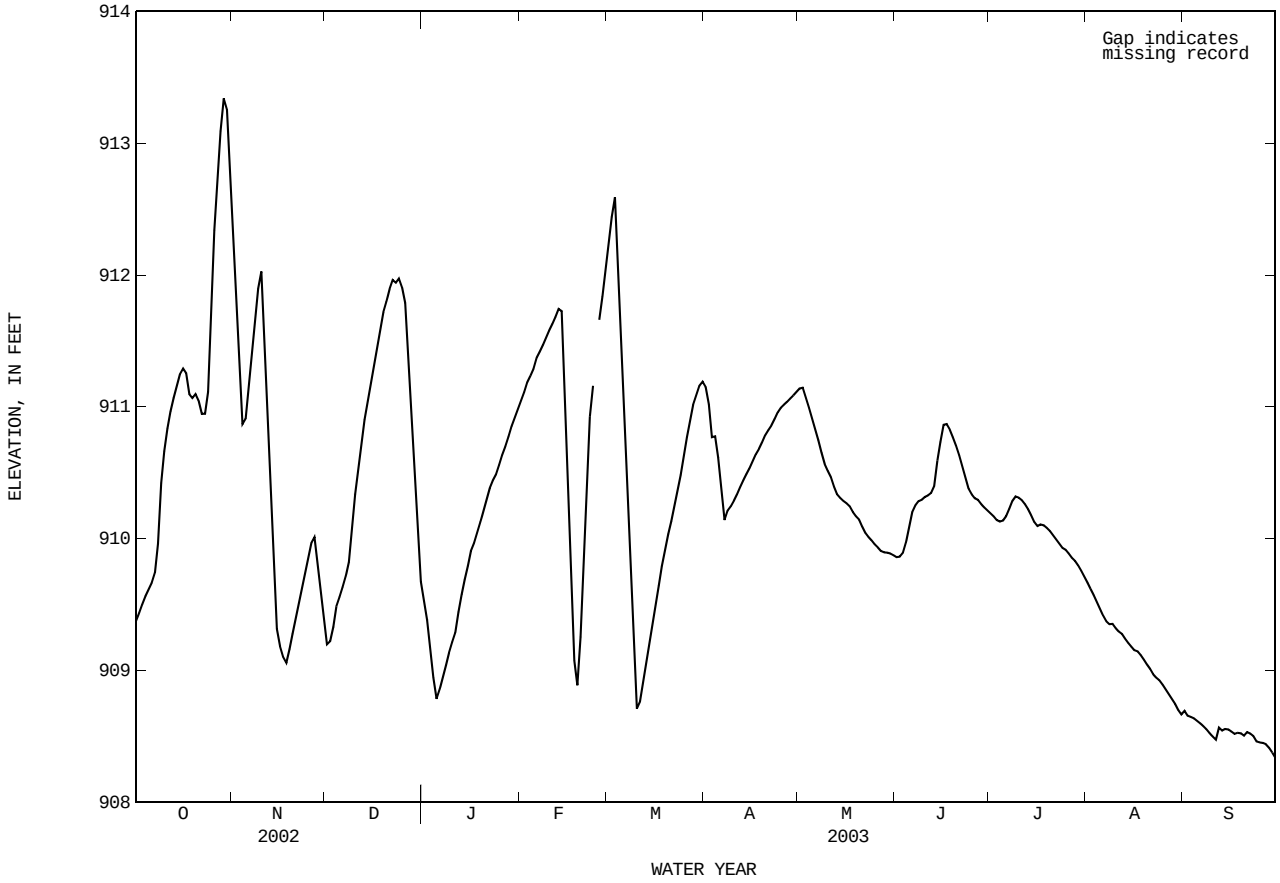
EXTREMES FOR CURRENT YEAR.--Maximum elevation, 913.38 ft, Oct. 29; minimum elevation, 908.32 ft, Sept. 30.

ELEVATION, IN FEET (NGVD), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	909.37	912.22	909.20	909.52	911.04	912.25	911.15	911.14	909.86	910.19	909.66	908.69
2	909.44	911.69	909.22	909.38	911.11	912.44	911.02	911.14	909.86	910.17	909.62	908.66
3	909.50	911.22	909.33	909.16	911.18	912.59	910.77	911.07	909.89	910.14	909.57	908.65
4	909.56	910.87	909.48	908.94	911.23	912.16	910.78	910.99	909.97	910.13	909.52	908.64
5	909.61	910.91	909.56	908.78	911.29	911.60	910.61	910.91	910.09	910.14	909.47	908.62
6	909.66	911.16	909.63	908.86	911.37	911.02	910.36	910.83	910.20	910.17	909.42	908.60
7	909.74	911.43	909.72	908.95	911.42	910.43	910.14	910.75	910.25	910.23	909.37	908.58
8	909.96	911.66	909.82	909.04	911.47	909.83	910.21	910.65	910.28	910.29	909.35	908.55
9	910.42	911.90	910.10	909.13	911.52	909.23	910.24	910.57	910.29	910.32	909.35	908.52
10	910.66	912.03	910.33	909.21	911.58	908.71	910.29	910.52	910.31	910.31	909.32	908.50
11	910.84	911.59	910.53	909.29	911.63	908.76	910.33	910.47	910.33	910.29	909.29	908.47
12	910.96	911.02	910.72	909.44	911.68	908.92	910.39	910.40	910.35	910.26	909.28	908.57
13	911.07	910.43	910.90	909.58	911.74	909.09	910.44	910.34	910.40	910.22	909.24	908.54
14	911.16	909.83	911.05	909.69	911.73	909.23	910.49	910.31	910.59	910.18	909.21	908.55
15	911.25	909.31	911.18	909.79	911.16	909.37	910.53	910.29	910.73	910.13	909.18	908.55
16	911.29	909.18	911.32	909.91	910.45	909.51	910.59	910.27	910.86	910.09	909.15	908.54
17	911.26	909.10	911.46	909.97	909.72	909.64	910.64	910.25	910.87	910.11	909.14	908.52
18	911.10	909.06	911.59	910.04	909.07	909.79	910.68	910.20	910.83	910.10	909.12	908.53
19	911.07	909.16	911.72	910.13	908.89	909.92	910.73	910.17	910.77	910.08	909.08	908.52
20	911.10	909.28	911.80	910.21	909.25	910.03	910.78	910.14	910.71	910.06	909.04	908.50
21	911.05	909.38	911.89	910.30	910.00	910.13	910.82	910.09	910.63	910.03	909.01	908.53
22	910.95	909.48	911.96	910.38	910.55	910.25	910.86	910.04	910.55	909.99	908.97	908.52
23	910.95	909.60	911.94	910.44	910.92	910.36	910.91	910.01	910.46	909.96	908.94	908.50
24	911.11	909.72	911.97	910.49	911.16	910.48	910.96	909.99	910.38	909.93	908.92	908.46
25	911.78	909.84	911.90	910.56	---	910.62	910.99	909.96	910.34	909.92	908.89	908.45
26	912.34	909.97	911.79	910.64	911.66	910.77	911.02	909.93	910.31	909.89	908.85	908.45
27	912.75	910.01	911.37	910.70	911.84	910.89	911.04	909.90	910.29	909.85	908.82	908.44
28	913.09	909.82	910.91	910.77	912.05	911.02	911.06	909.90	910.26	909.83	908.78	908.41
29	913.34	909.61	910.45	910.85	---	911.09	911.09	909.89	910.24	909.80	908.75	908.38
30	913.26	909.40	910.03	910.92	---	911.16	911.11	909.89	910.21	909.76	908.70	908.34
31	912.77	---	909.67	910.98	---	911.19	---	909.87	---	909.71	908.67	---
MEAN	911.05	910.33	910.73	909.87	---	910.40	910.70	910.35	910.37	910.07	909.15	908.53
MAX	913.34	912.22	911.97	910.98	---	912.59	911.15	911.14	910.87	910.32	909.66	908.69
MIN	909.37	909.06	909.20	908.78	---	908.71	910.14	909.87	909.86	909.71	908.67	908.34

CAL YR 2002 MAX 949.58 MIN 908.34
WTR YR 2003 MAX 913.34 MIN 908.34

08167700 Canyon Lake near New Braunfels, TX--Continued



08167800 Guadalupe River at Sattler, 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^2.

PERIOD OF RECORD.--Mar. 1960 to current year.
Water-quality records.--Chemical data: Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995. Biochemical data: Oct. 1980 to Sept. 1982, Oct. 1989 to Aug. 1995. Water temperature: June 1984 to Sept. 1987.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Since 1964, at least 10% of contributing drainage area has been regulated. Small diversions above station for irrigation. No flow July 31 to Aug. 6, 1964 (result of closure of Canyon Dam). No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--3 years (water years 1961-63) 288 ft^3/s (208,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1960-63).--Maximum discharge , 20,800 ft^3/s Oct. 29, 1960 (gage height, 12.20 ft); no flow July 31 to Aug. 6, 1962.

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e160	e2740	e1300	e1000	215	186	975	206	194	289	304	315
2	e160	e2740	e305	e1200	215	185	1890	439	194	291	304	273
3	e160	e2740	e305	e1300	216	2020	1450	639	194	292	302	209
4	e160	e2690	e305	e1300	218	5370	406	640	197	292	299	208
5	e160	e1450	e305	e760	218	5360	1860	639	202	294	299	209
6	e160	e507	e305	e220	215	5330	1850	640	199	296	298	208
7	e160	e479	e305	e220	215	5310	969	647	196	295	254	208
8	e160	e456	e315	e220	215	5290	66	647	195	296	208	208
9	e160	e445	e377	e220	215	5280	213	559	195	327	208	208
10	e160	e988	e370	209	215	2990	213	484	199	435	208	209
11	e156	e2890	e354	210	217	193	213	488	199	435	209	210
12	e157	e2890	e355	218	219	188	213	489	197	433	208	219
13	e157	e2880	e352	214	218	186	212	441	232	430	208	210
14	e157	e2890	e351	213	2210	186	211	321	295	430	209	210
15	e157	e2250	e347	214	5280	185	212	322	297	431	208	210
16	e157	e961	e344	214	5250	183	211	323	387	390	209	210
17	e279	e976	e344	212	5230	183	212	322	622	304	209	210
18	e814	e905	e344	213	3390	182	212	322	623	303	208	212
19	e875	e475	e338	214	690	182	213	324	625	303	208	211
20	e952	e429	e328	215	216	181	210	328	625	303	208	211
21	e1010	e430	e325	215	203	181	209	328	619	303	208	214
22	e1260	e430	e475	215	196	181	210	304	614	304	208	211
23	e1230	e315	e927	214	192	179	210	276	614	304	211	211
24	e1310	e315	e846	214	189	179	209	279	492	304	210	224
25	e609	e315	e844	215	189	180	208	279	374	304	209	238
26	e535	e315	e1230	215	188	179	208	279	374	304	209	214
27	e503	e315	e2100	215	187	179	206	244	344	306	208	213
28	e481	e1300	e2100	215	187	179	206	197	292	305	210	212
29	e640	e1300	e2100	215	---	178	206	196	292	304	235	212
30	e1780	e1300	e2080	215	---	176	206	194	289	304	303	212
31	e2740	---	e1750	215	---	175	---	192	---	304	310	---
TOTAL	17559	39116	22426	11149	26608	41136	14089	11988	10371	10215	7289	6529
MEAN	566	1304	723	360	950	1327	470	387	346	330	235	218
MAX	2740	2890	2100	1300	5280	5370	1890	647	625	435	310	315
MIN	156	315	305	209	187	175	66	192	194	289	208	208
AC-FT	34830	77590	44480	22110	52780	81590	27950	23780	20570	20260	14460	12950

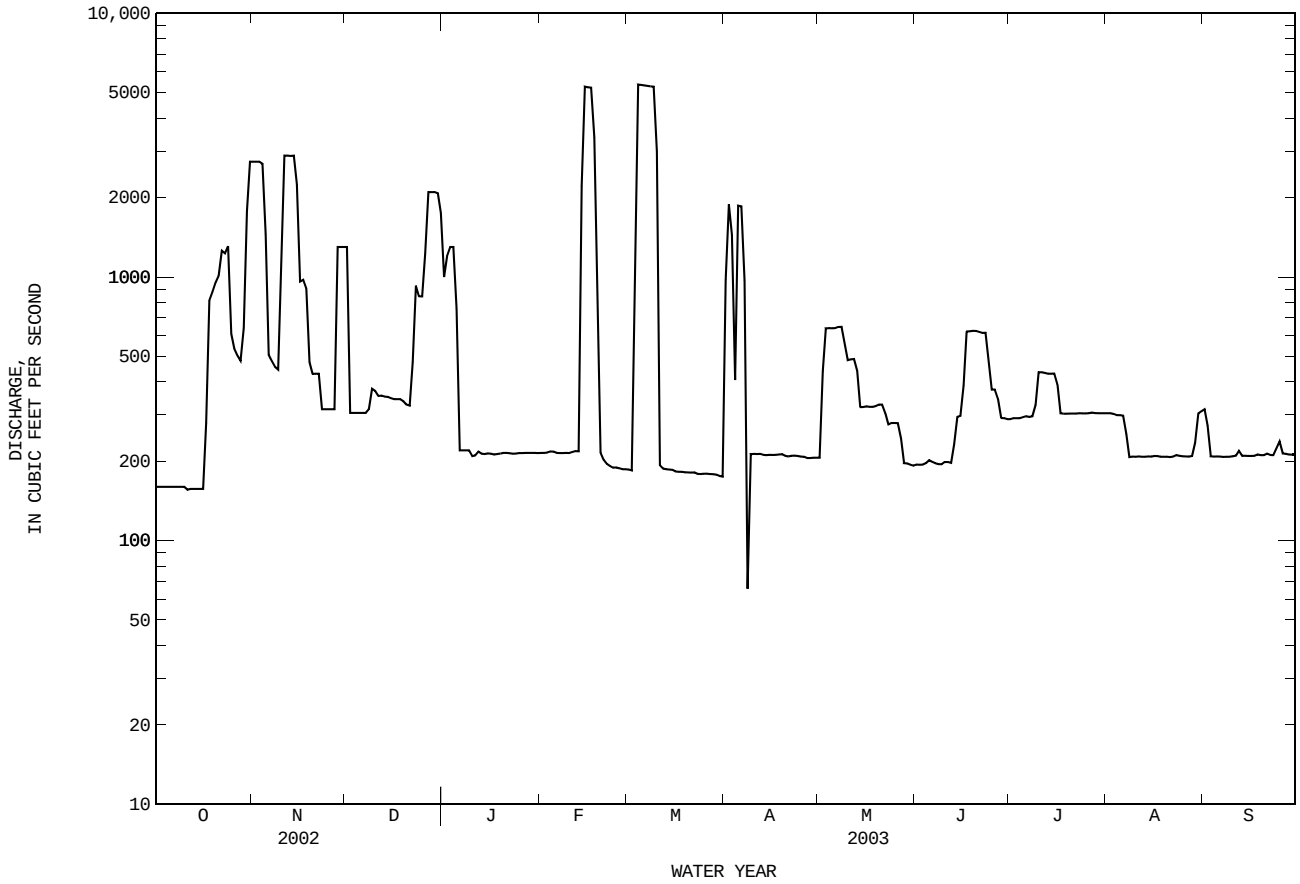
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003z, BY WATER YEAR (WY)

MEAN	315	466	385	450	439	531	516	497	627	776	528	371
MAX	1317	2151	2121	4437	2089	3949	3705	2318	2783	6577	3854	2844
(WY)	1987	2001	1999	1992	1992	1992	1992	1992	1992	2002	1978	2002
MIN	43.1	66.2	41.4	60.4	13.5	71.7	45.6	47.1	40.6	22.3	35.1	28.9
(WY)	1964	1976	1966	1964	1965	1988	1971	1971	1984	1984	1984	1984

08167800 Guadalupe River at Sattler, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003z	
ANNUAL TOTAL	516197		218475			
ANNUAL MEAN	1414		599		492	
HIGHEST ANNUAL MEAN					1900	1992
LOWEST ANNUAL MEAN					72.9	1984
HIGHEST DAILY MEAN	49700	Jul 6	5370	Mar 4	49700	Jul 6 2002
LOWEST DAILY MEAN	103	Jun 25	66	Apr 8	0.80	Jan 29 1965
ANNUAL SEVEN-DAY MINIMUM	116	Jun 23	157	Oct 10	1.2	Sep 24 1984
MAXIMUM PEAK FLOW			5420	Mar 3	i70000	Jul 6 2002
MAXIMUM PEAK STAGE			8.19	Mar 3	a36.36	Jul 6 2002
ANNUAL RUNOFF (AC-FT)	1024000		433300		356600	
10 PERCENT EXCEEDS	3840		1300		822	
50 PERCENT EXCEEDS	352		279		224	
90 PERCENT EXCEEDS	153		186		78	

e Estimated
z Period of regulated streamflow.
i From indirect measurement of peak flow.
a From floodmark.



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^2.

PERIOD OF RECORD.--Dec. 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 NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records poor. Since 1964, at least 10% of contributing drainage area has been regulated. Small diversions for irrigation above this station. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--36 years (water years 1928-63), 364 ft^3/s (263,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1928-63).--Maximum discharge, 101,000 ft^3/s June 15, 1935 (gage height, 32.95 ft); minimum, no flow July 8-9, July 17 to Aug. 20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 38 ft July 8, 1869, and in Dec. 1913, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	3150	1470	1250	371	383	e709	387	302	397	387	470
2	191	3160	449	1340	371	378	e2070	555	304	395	388	415
3	191	3170	379	1530	367	e1220	e1630	814	309	396	388	274
4	191	3110	379	1520	363	e5530	e1000	814	303	400	387	275
5	191	1710	379	1240	359	e5530	e2050	814	359	415	387	261
6	191	709	379	390	363	e5510	e2040	814	350	424	380	264
7	191	621	379	379	358	e5480	e1340	810	307	419	371	264
8	191	595	382	379	356	e5470	e305	805	301	423	302	264
9	191	579	451	374	356	e5460	e385	751	313	428	301	264
10	191	1180	451	371	353	e420	e385	626	299	545	303	264
11	187	3170	433	371	352	416	384	620	303	551	309	293
12	187	3150	432	403	355	356	383	621	301	550	313	634
13	187	3140	429	406	355	356	387	612	299	545	303	352
14	187	3120	427	403	e1260	356	387	451	451	535	284	315
15	187	2590	423	399	e5470	356	386	439	480	539	282	305
16	187	1330	419	395	e5450	356	387	436	448	541	282	284
17	414	1270	419	395	e5450	356	387	436	747	424	282	275
18	1210	1190	419	392	e4440	356	386	436	748	416	282	276
19	1200	660	412	387	e1390	356	387	436	749	413	282	277
20	1220	538	400	387	430	356	387	434	748	410	281	e274
21	1260	527	395	387	405	356	382	427	748	403	276	e273
22	1570	527	562	387	395	356	379	419	745	403	273	e270
23	1560	404	1080	379	395	349	380	381	740	403	270	e268
24	1660	387	1060	371	395	349	381	379	685	403	270	e298
25	824	387	1050	377	395	350	387	384	494	402	270	e290
26	689	387	1500	379	395	e349	387	384	488	398	268	e273
27	641	709	2430	375	395	e349	387	368	489	402	264	e271
28	611	1520	2420	374	394	e349	389	296	409	398	264	e269
29	797	1520	2430	371	---	e349	389	295	406	395	264	e266
30	2080	1520	2460	371	---	e349	391	296	401	392	290	263
31	3150	---	2130	371	---	e349	---	295	---	390	343	---
TOTAL	21918	46030	26828	16853	31738	42855	19627	16035	14026	13555	9546	9041
MEAN	707	1534	865	544	1134	1382	654	517	468	437	308	301
MAX	3150	3170	2460	1530	5470	5530	2070	814	749	551	388	634
MIN	187	387	379	371	352	349	305	295	299	390	264	261
AC-FT	43470	91300	53210	33430	62950	85000	38930	31810	27820	26890	18930	17930

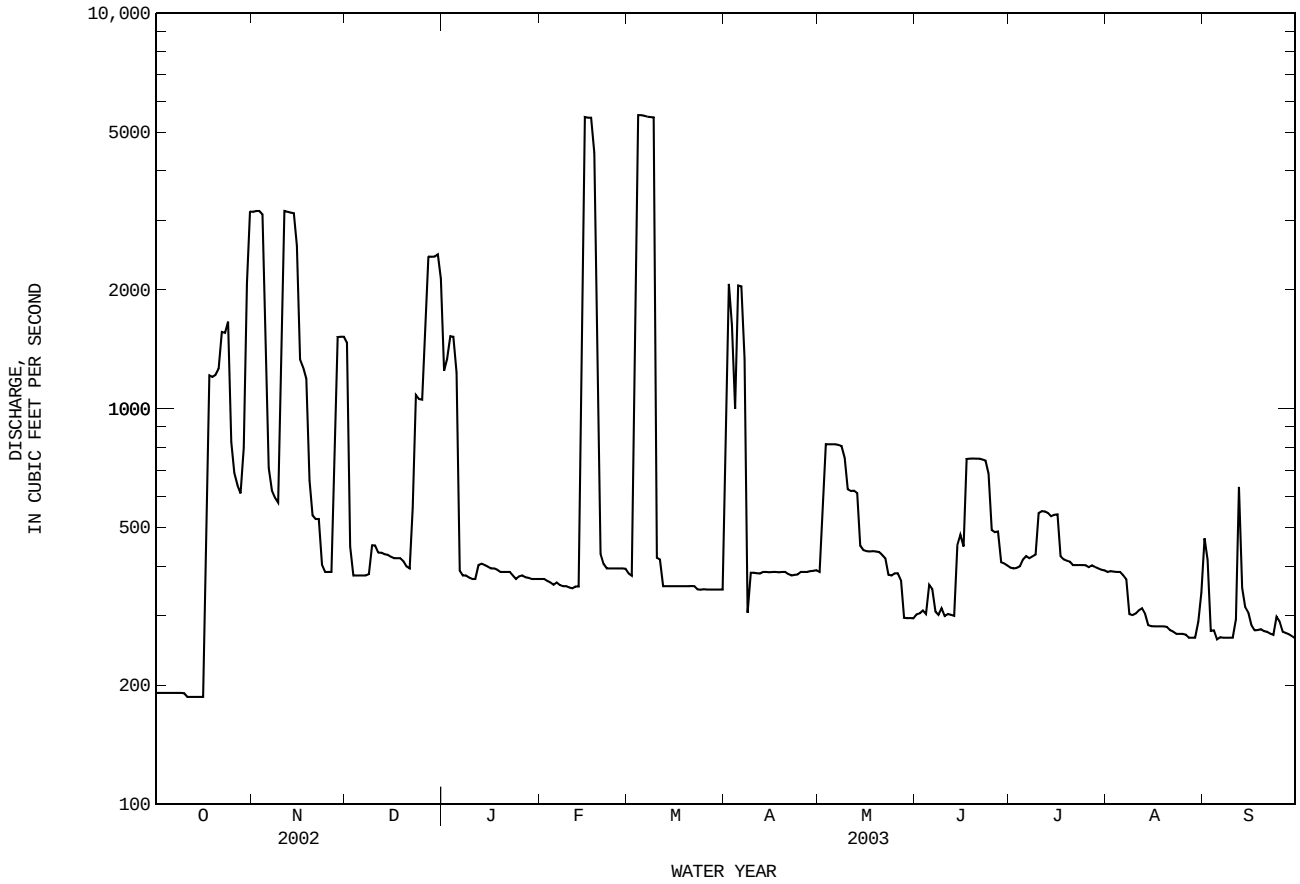
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003z, BY WATER YEAR (WY)

MEAN	428	542	469	541	539	623	600	616	745	891	607	452
MAX	2033	2410	2233	4704	2379	4254	3826	2450	2948	8372	3866	3674
(WY)	1999	2001	1999	1992	1992	1992	1992	1992	1992	2002	1978	2002
MIN	39.0	85.4	67.9	71.2	106	98.0	57.5	59.3	47.4	24.8	36.9	38.5
(WY)	1964	1964	1964	1964	1990	1971	1971	1971	1984	1984	1996	1984

08168500 Guadalupe River above Comal River at New Braunfels, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003z	
ANNUAL TOTAL	650717		268052			
ANNUAL MEAN	1783		734		588	
HIGHEST ANNUAL MEAN					2057	1992
LOWEST ANNUAL MEAN					84.9	1984
HIGHEST DAILY MEAN	62600	Jul 6	5530	Mar 4	62600	Jul 6 2002
LOWEST DAILY MEAN	139	Jun 26	187	Oct 11	2.6	Sep 28 1984
ANNUAL SEVEN-DAY MINIMUM	160	Jun 22	188	Oct 10	2.7	Sep 25 1984
MAXIMUM PEAK FLOW			e5590	Mar 4	i142000	Oct 17 1998
MAXIMUM PEAK STAGE			6.67	Mar 4	a35.57	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	1291000		531700		426100	
10 PERCENT EXCEEDS	4940		1520		1020	
50 PERCENT EXCEEDS	449		390		306	
90 PERCENT EXCEEDS	191		273		104	

e Estimated
z Period of regulated streamflow.
i From indirect measurement of peak flow.
a From floodmark.



08168700 Panther Canyon at New Braunfels, TX

LOCATION.--Lat 29°42'47", long 98°08'14", Comal County, Hydrologic Unit 12100202, on right bank, 5 ft above Comal Springs, 50 ft upstream of Comal River, in Landa Park, 0.8 mi south of Loop 337.

DRAINAGE AREA.--0.73 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: July 2002 to current year.
BIOCHEMICAL DATA: July 2002 to current year.
PESTICIDE DATA: July 2002 to current year.

INSTRUMENTATION.--Water stage recorder. Discharge-activated automatic sampler. Tipping bucket raingage. Telephone telemeter at station.

REMARKS.--Water-quality samples and associated discharge and precipition data were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper- ature, water, deg C (00010)	Storm water dis- charge, Mgal/d (81395)	Elapsed time of storm, hours (00135)	Precip- itation dura- tion of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal strep- tococci KF MF, col/ 100 mL (31673)	Precip- itation total, inches/ storm (82381)	Residue total at 105 deg. C, sus- pended, mg/L (00530)
OCT													
21-22	2243	108	8.0	--	4.7	3.5	30.0	30	--i	--q	--q	1.1	152
JUN													
05-05	0905	114	7.9	19.5	6.7	3.1	206	40	<5.6	--	--	3.0	43
05...	1000	--	--	--	--	--	--	--	--	63000	E110000k	--	--
SEP													
11-12	2138	89	7.7	--	6.7	8.7	481	50+c	<2.0	--	--	3.8	132
12...	0000	--	--	--	--	--	--	--	--	18000	33000	--	--

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitro- gen, water, unfltrd mg/L (00600)	Organic nitro- gen, water, unfltrd mg/L (00605)	Organic nitro- gen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phos- phorus, water, unfltrd mg/L (00665)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Cyanide water unfltrd mg/L (00720)	Phen- olic com- pounds, water, unfltrd ug/L (32730)	Oil and grease, water, unfltrd freon extract mg/L (00556)
OCT													
21-22	.58	.189	2.1	1.4	.44	.63	1.5	.27	.09	12.1	<.01	<16	E3n
JUN													
05-05	1.40	.098	2.3	.79	.40	.50	.89	.19	.12	9.5	<.01	<16	<7
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
11-12	.78	<.049	2.7	--	--	.34	1.9	.37	.12	18.7	<.01	<16+c	<7
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Alum- inum, water, fltrd, ug/L (01106)	Anti- mony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryll- ium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chrom- ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Lead, water, unfltrd recover -able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Mangan- ese, water, fltrd, ug/L (01056)	Molyb- denum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)
OCT													
21-22	5	<.30	6	<.06	<.04	<.8	.08	1.5	9	E.06	1.2	E.2	.68
JUN													
05-05	8	<.30	8	<.06	<.04	<.8	.17	1.5	3	.27	2.4	E.2	1.00
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
11-12	4	<.30	6	<.06	<.04	<.8	.08	2.0	14	E.06n	1.2	<.3	.47
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

08168700 Panther Canyon at New Braunfels, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Silver, water, fltrd, ug/L (01075)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Aldrin, water, unfltrd ug/L (39330)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Diel-drin, water, unfltrd ug/L (39380)	Endrin, water, unfltrd ug/L (39390)	Hepta-chlor, water, unfltrd ug/L (39410)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Lindane water, unfltrd ug/L (39340)	Toxa-phene, water, unfltrd ug/L (39400)
OCT											
21-22	<.20	1	.04	<.002	<.1	<.002	<.002	<.002	<.003	<.0020	<1
JUN											
05-05	<.20	2	.04	<.002	<.1	<.002	<.002	<.002	<.003	<.0020	<1
05...	--	--	--	--	--	--	--	--	--	--	--
SEP											
11-12	<.20	1	.02	<.002	<.1	<.002	<.002	<.002	<.003	<.0020	<1
12...	--	--	--	--	--	--	--	--	--	--	--

Remark codes used in this report:
  < -- Less than
  E -- Estimated value

Value qualifier codes used in this report:
  + -- Improper preservation
  c -- See laboratory comment
  k -- Counts outside acceptable range
  n -- Below the NDV

Null value qualifier codes used in this report:
  i -- Required sample type not received
  q -- Sample discarded: holding time exceeded

08168710 Comal Springs 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.--Not applicable. This is a springflow station.

PERIOD OF RECORD.--Dec. 1927 to Sept. 1932 (fragmentary daily springflow discharges), Oct. 1932 to current year. Records of daily springflow discharges prior to Oct. 1995, obtained by applying modified Institute of Hydrology base-flow separation program BFI 4.02 to entire period of record of Comal River at New Braunfels (station 08169000), are available in files of the U.S. Geological Survey. Periodic discharge measurements made in 1882, 1896-1906, 1910-11, 1915, 1921, and 1924-30 were published as miscellaneous measurements (some years published as "Comal River").

GAGE.--Water-stage recorder. Prior to Jan. 7, 1928, nonrecording gage at same site. Concrete control since Oct. 3, 1955. Datum of gage is 582.80 ft above NGVD of 1929. Datum originally 0.19 ft lower was revised to current level effective Oct. 1, 1936.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Springflow is equal to flow at Comal River at New Braunfels (station 08169000) except during periods of local runoff. During periods of local runoff, springflow is separated from river flow using modified Institute of Hydrology base-flow separation program BFI 4.02. All days with springflow separations, and all days in which river flow were estimated are flagged as estimated springflow days. Comal Springs emerge from the Edwards and associated limestones in the Balcones Fault Zone about 1.0 mi upstream. Flow is affected at times by cleanup operations by the city of New Braunfels at Landa Park Lake. No flow June 13 to Nov. 3, 1956.

DISCHARGE (SEPARATION BY MODEL), CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	385	420	442	460	439	438	418	395	356	362	370	357
2	384	e428	441	454	435	438	419	394	357	363	372	354
3	384	436	442	454	436	e440	419	395	355	360	370	e358
4	385	e440	e446	453	434	443	416	396	e360	365	367	362
5	384	e443	450	453	436	435	418	395	e365	e367	368	360
6	385	e447	445	452	440	429	418	393	370	e369	366	360
7	384	451	442	452	436	427	419	393	373	371	363	361
8	387	447	451	451	437	429	413	393	370	e374	361	359
9	e396	447	e452	450	438	427	413	390	369	e377	366	358
10	402	447	e453	446	437	425	411	390	373	380	367	362
11	390	444	454	447	435	423	411	391	372	375	365	e370
12	388	444	460	e449	435	422	409	390	370	379	364	e369
13	388	444	459	e452	434	422	410	389	e373	376	367	e373
14	389	449	450	454	434	420	411	387	e376	372	362	e376
15	389	448	447	451	433	420	408	384	e379	369	364	380
16	389	444	447	452	433	419	407	378	382	e376	367	380
17	389	445	447	450	432	419	403	383	380	e384	364	377
18	390	442	447	449	433	419	405	385	382	391	364	e380
19	396	440	447	447	434	418	406	377	378	390	361	384
20	393	440	447	447	e436	420	406	375	377	388	355	386
21	396	440	447	446	e438	420	406	371	381	384	355	e387
22	e400	440	447	446	e451	420	405	370	381	387	352	e388
23	e404	441	e454	443	455	420	405	366	376	e383	e357	389
24	e408	442	e461	441	444	420	405	370	374	379	362	385
25	e412	439	468	444	443	422	401	371	371	381	359	385
26	e416	440	459	444	440	420	404	367	365	383	358	386
27	420	440	461	443	438	420	400	363	364	381	356	386
28	421	442	459	443	438	418	395	362	367	377	351	385
29	417	442	460	443	---	419	395	360	368	374	351	385
30	419	441	465	440	---	419	395	360	362	376	354	383
31	421	---	e462	439	---	418	---	360	---	369	354	---
TOTAL	12311	13253	14012	13895	12254	13149	12251	11793	11126	11662	11212	11225
MEAN	397	442	452	448	438	424	408	380	371	376	362	374
MAX	421	451	468	460	455	443	419	396	382	391	372	389
MIN	384	420	441	439	432	418	395	360	355	360	351	354
AC-FT	24420	26290	27790	27560	24310	26080	24300	23390	22070	23130	22240	22260

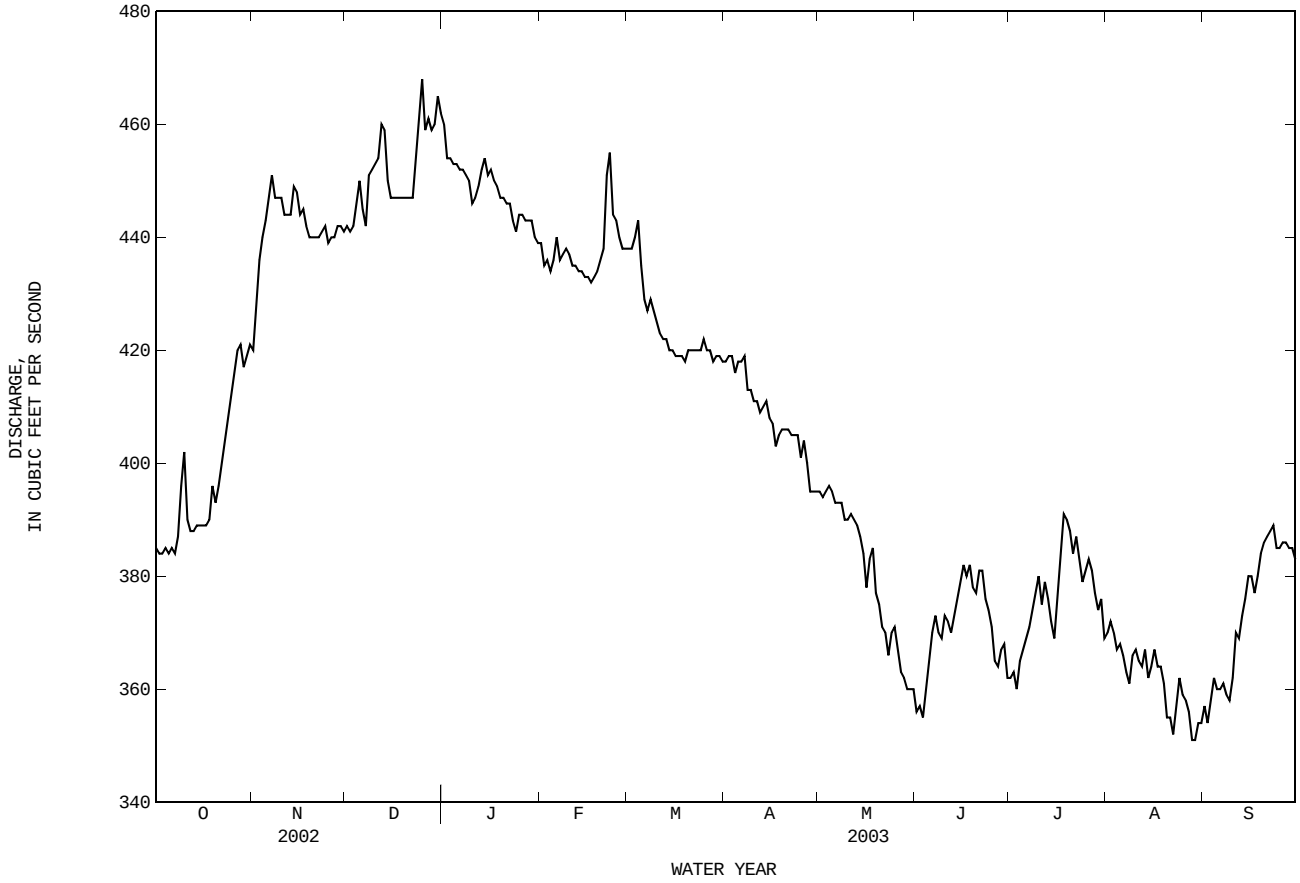
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2003, BY WATER YEAR (WY)

MEAN	275	289	299	304	305	303	298	295	286	271	256	263
MAX	465	450	452	448	446	477	474	456	481	465	465	427
(WY)	1974	1974	2003	2003	1992	1992	1992	1992	1992	1992	1992	1992
MIN	0.000	21.5	35.6	51.1	49.5	65.4	41.5	27.8	3.67	0.000	0.000	0.000
(WY)	1957	1957	1957	1957	1957	1957	1956	1956	1956	1956	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1933 - 2003	
ANNUAL TOTAL	138529		148143			
ANNUAL MEAN	380		406		287	
HIGHEST ANNUAL MEAN					406	2003
LOWEST ANNUAL MEAN					45.5	1956
HIGHEST DAILY MEAN	468	Dec 25	468	Dec 25	534	Oct 14 1973
LOWEST DAILY MEAN	247	Jun 27	351	Aug 28	0.00	Jun 13 1956
ANNUAL SEVEN-DAY MINIMUM	255	Jun 22	354	Aug 27	0.00	Jun 13 1956
ANNUAL RUNOFF (AC-FT)	274800		293800		207900	
10 PERCENT EXCEEDS	444		449		387	
50 PERCENT EXCEEDS	385		404		304	
90 PERCENT EXCEEDS	314		363		170	

e Estimated

08168710 Comal Springs at New Braunfels, TX--Continued



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^2 of contributing surface drainage, however, most of the time flow is solely from Comal Springs.

PERIOD OF RECORD.--Dec. 1927 to Sept. 1932 (daily mean discharges below base, and stage-discharge relation is not affected by backwater from Guadalupe River), Oct. 1932 to current year.
Water-quality records.--Chemical data: Apr. 1996 to Apr. 1998. Biochemical data: Apr. 1996 to Apr. 1998. Sediment data: Apr. 1996 to Apr. 1998.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Prior to Jan. 7, 1928, nonrecording gage at same site. Concrete control since Oct. 3, 1955. Datum of gage is 582.80 ft above NGVD of 1929. Datum originally 0.19 ft lower was revised to current level effective Oct. 1, 1936. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Entire flow of river is from Comal Springs except during periods of local runoff. Comal Springs emerge from the Edwards and associated limestones in the Balcones Fault Zone about 1.0 mi upstream. 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. These structures control runoff from 74.6 mi^2 above station. Stage-discharge relation is affected at times by backwater from the Guadalupe River.

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).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	385	420	442	460	439	438	418	395	356	362	370	357
2	384	431	441	454	435	438	419	394	357	363	372	354
3	384	436	442	454	436	450	419	395	355	360	370	376
4	385	1250	467	453	434	443	416	396	367	365	367	362
5	384	727	450	453	436	435	418	395	464	377	368	360
6	385	469	445	452	440	429	418	393	370	379	366	360
7	384	451	442	452	436	427	419	393	373	371	363	361
8	387	447	451	451	437	429	413	393	370	392	361	359
9	411	447	655	450	438	427	413	390	369	393	366	358
10	402	447	483	446	437	425	411	390	373	380	367	362
11	390	444	454	447	435	423	411	391	372	375	365	399
12	388	444	460	478	435	422	409	390	370	379	364	540
13	388	444	459	481	434	422	410	389	380	376	367	387
14	389	449	450	454	434	420	411	387	414	372	362	387
15	389	448	447	451	433	420	408	384	413	369	364	380
16	389	444	447	452	433	419	407	378	382	425	367	380
17	389	445	447	450	432	419	403	383	380	408	364	377
18	390	442	447	449	433	419	405	385	382	391	364	386
19	396	440	447	447	434	418	406	377	378	390	361	384
20	393	440	447	447	557	420	406	375	377	388	355	386
21	396	440	447	446	502	420	406	371	381	384	355	405
22	427	440	447	446	482	420	405	370	381	387	352	405
23	523	441	552	443	455	420	405	366	376	396	378	389
24	1060	442	579	441	444	420	405	370	374	379	362	385
25	574	439	468	444	443	422	401	371	371	381	359	385
26	429	440	459	444	440	420	404	367	365	383	358	386
27	420	440	461	443	438	420	400	363	364	381	356	386
28	421	442	459	443	438	418	395	362	367	377	351	385
29	417	442	460	443	---	419	395	360	368	374	351	385
30	419	441	465	440	---	419	395	360	362	376	354	383
31	421	---	470	439	---	418	---	360	---	369	354	---
TOTAL	13299	14372	14490	13953	12470	13159	12251	11793	11311	11802	11233	11509
MEAN	429	479	467	450	445	424	408	380	377	381	362	384
MAX	1060	1250	655	481	557	450	419	396	464	425	378	540
MIN	384	420	441	439	432	418	395	360	355	360	351	354
AC-FT	26380	28510	28740	27680	24730	26100	24300	23390	22440	23410	22280	22830

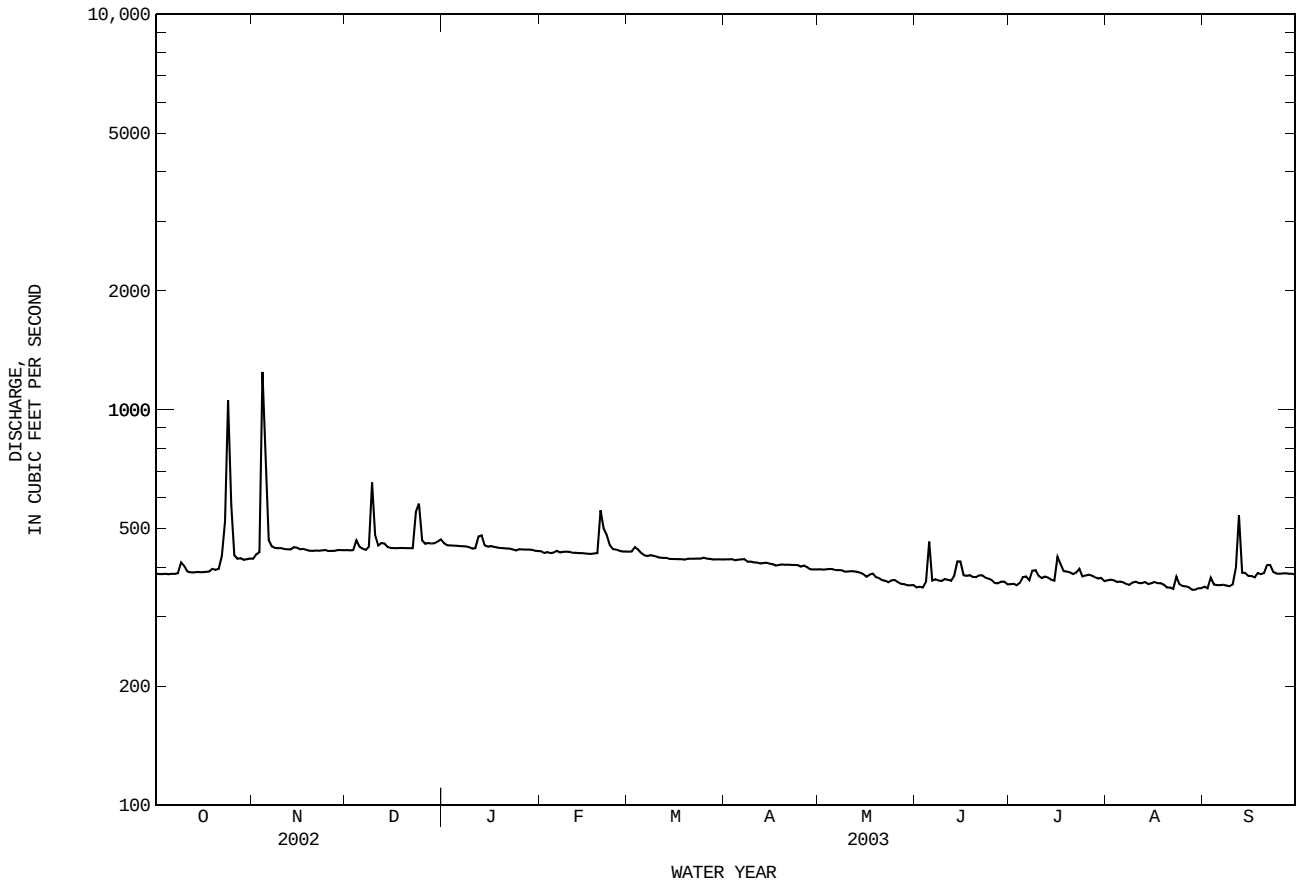
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2003, BY WATER YEAR (WY)

MEAN	304	297	306	310	311	306	310	324	301	290	258	279
MAX	1662	486	467	499	527	536	531	939	520	1336	466	663
(WY)	1999	1975	2003	1968	1992	1992	1977	1972	1987	2002	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

08169000 Comal River at New Braunfels, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1933 - 2003	
ANNUAL TOTAL	171272		151642			
ANNUAL MEAN	469		415		300	
HIGHEST ANNUAL MEAN					482	1999
LOWEST ANNUAL MEAN					50.9	1956
HIGHEST DAILY MEAN	13400	Jul 5	1250	Nov 4	22000	Oct 17 1998
LOWEST DAILY MEAN	247	Jun 27	351	Aug 28	5.5	Jun 7 1956
ANNUAL SEVEN-DAY MINIMUM	255	Jun 22	354	Aug 27	8.5	Jun 2 1956
MAXIMUM PEAK FLOW			2460	Nov 4	73500	Oct 17 1998
MAXIMUM PEAK STAGE			7.93	Nov 4	a39.28	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	339700		300800		217000	
10 PERCENT EXCEEDS	450		452		396	
50 PERCENT EXCEEDS	386		408		306	
90 PERCENT EXCEEDS	316		364		172	

a From floodmark.



08169500 Guadalupe River at New Braunfels, TX

LOCATION.--Lat 29°41'52", long 98°06'23", Comal County, Hydrologic Unit 12100202, in second floor of abandoned turbine building at Comal Mills, 300 ft downstream from Missouri Pacific Railroad, 0.4 miles upstream from IH-35, 0.7 mile downstream from mouth of Comal River, 23.7 mi downstream from Canyon Lake, and at mile 279.3.

DRAINAGE AREA.--1,652 mi^2, of which 1,432 mi^2 is above Canyon Dam.

PERIOD OF RECORD.--Jan. 1915 to Dec. 1927 (daily mean discharge), Apr. 1974 to Sept. 1999 (annual peak discharge), Oct. 1999 to current year (daily mean stage).
Water-quality records.--Chemical data: Oct. 1982 to Feb. 1998.

GAGE.--Water-stage recorder. Datum of gage is 572.55 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records poor. Interruptions in the record were due to malfunction of the instrument. Since reactivation of gage in 1974, at least 10% of the contributing drainage area has been regulated. Small diversions for irrigation above this station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--12 years (water years 1916-27), 751 ft^3/s (544,100 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1915-28).--Maximum discharge, 56,600 ft^3/s, Sept. 10, 1921, gage height, 28.60 ft; minimum discharge 270 ft^3/s, July 20, 1918.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 222,000 ft^3/s, Oct. 17, 1998, gage height, 38.54 ft, from indirect measurement of peak flow.

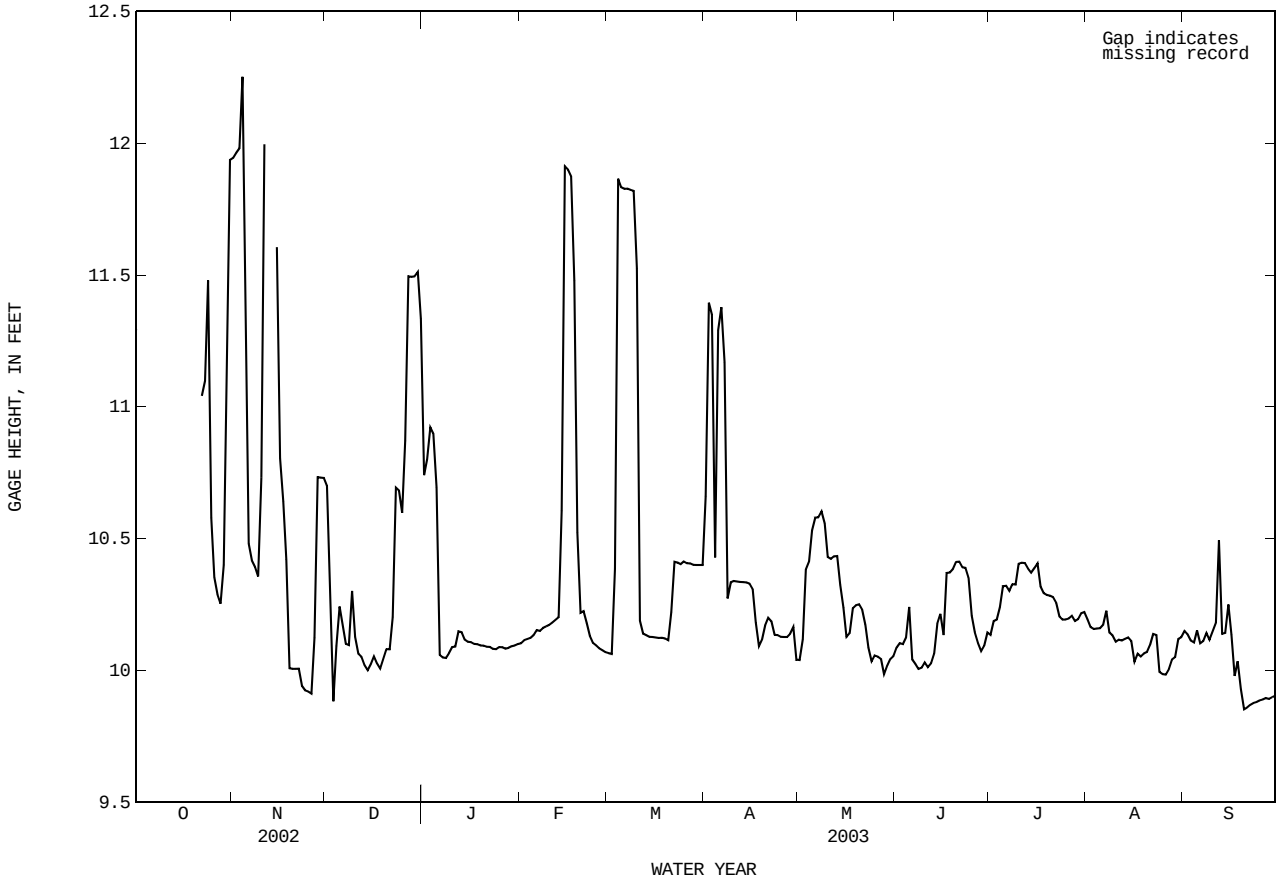
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 39.5 ft, Aug. 1869 and in Dec. 1913, from information by local residents. Maximum discharge, 101,000 ft^3/s, June 15, 1935 (gage height unknown).

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 12.88 ft, Nov. 4; minimum gage height, 9.78 ft, Sept. 22.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.95	10.70	10.74	10.10	10.07	10.66	10.04	10.09	10.13	10.19	10.15
2	---	11.96	10.24	10.80	10.11	10.06	11.39	10.12	10.10	10.19	10.16	10.14
3	---	11.98	9.88	10.92	10.12	10.38	11.35	10.38	10.10	10.19	10.16	10.11
4	---	12.25	10.09	10.90	10.12	11.87	10.43	10.41	10.12	10.24	10.16	10.11
5	---	11.37	10.24	10.69	10.13	11.83	11.29	10.53	10.24	10.32	10.16	10.15
6	---	10.48	10.18	10.06	10.15	11.83	11.38	10.58	10.04	10.32	10.17	10.10
7	---	10.42	10.10	10.05	10.15	11.83	11.17	10.58	10.02	10.30	10.23	10.11
8	---	10.39	10.10	10.05	10.16	11.82	10.27	10.60	10.01	10.33	10.14	10.14
9	---	10.36	10.30	10.07	10.17	11.82	10.33	10.56	10.01	10.33	10.13	10.12
10	---	10.73	10.13	10.09	10.17	11.53	10.34	10.43	10.03	10.40	10.11	10.15
11	---	12.00	10.06	10.09	10.18	10.19	10.34	10.42	10.01	10.41	10.12	10.18
12	---	---	10.05	10.15	10.19	10.14	10.34	10.43	10.03	10.41	10.11	10.49
13	---	---	10.02	10.14	10.20	10.13	10.33	10.43	10.06	10.39	10.12	10.14
14	---	---	10.00	10.12	10.61	10.13	10.33	10.32	10.18	10.37	10.12	10.14
15	---	11.61	10.02	10.11	11.91	10.13	10.33	10.24	10.21	10.39	10.11	10.25
16	---	10.80	10.05	10.11	11.90	10.12	10.31	10.13	10.13	10.41	10.03	10.14
17	---	10.64	10.03	10.10	11.88	10.12	10.18	10.14	10.37	10.32	10.06	9.98
18	---	10.42	10.01	10.10	11.48	10.12	10.09	10.24	10.37	10.29	10.05	10.03
19	---	10.01	10.04	10.09	10.52	10.12	10.12	10.25	10.38	10.29	10.06	9.93
20	---	10.01	10.08	10.09	10.22	10.11	10.17	10.25	10.41	10.28	10.07	9.85
21	---	10.01	10.08	10.09	10.22	10.22	10.20	10.23	10.41	10.28	10.10	9.86
22	11.04	10.01	10.20	10.09	10.18	10.41	10.19	10.17	10.39	10.26	10.14	9.87
23	11.10	9.94	10.69	10.08	10.13	10.41	10.13	10.09	10.39	10.20	10.13	9.88
24	11.48	9.92	10.68	10.08	10.10	10.40	10.13	10.03	10.35	10.19	9.99	9.88
25	10.58	9.92	10.60	10.09	10.09	10.41	10.13	10.06	10.21	10.19	9.99	9.89
26	10.35	9.91	10.87	10.09	10.08	10.41	10.13	10.05	10.15	10.20	9.98	9.89
27	10.29	10.12	11.50	10.08	10.08	10.41	10.13	10.04	10.10	10.21	10.00	9.89
28	10.25	10.73	11.49	10.09	10.07	10.40	10.14	9.98	10.07	10.19	10.04	9.89
29	10.40	10.73	11.49	10.09	---	10.40	10.16	10.02	10.09	10.19	10.05	9.90
30	11.35	10.73	11.51	10.09	---	10.40	10.04	10.04	10.14	10.22	10.12	9.90
31	11.94	---	11.33	10.10	---	10.40	---	10.05	---	10.22	10.13	---
MEAN	---	---	10.41	10.21	10.41	10.60	10.42	10.25	10.17	10.28	10.10	10.04
MAX	---	---	11.51	10.92	11.91	11.87	11.39	10.60	10.41	10.41	10.23	10.49
MIN	---	---	9.88	10.05	10.07	10.06	10.04	9.98	10.01	10.13	9.98	9.85

08169500 Guadalupe River at New Braunfels, TX--Continued



08169948 San Marcos River Tributary at Sessoms Road, San Marcos, TX

LOCATION.-- Lat 29°53'25", long 97°56'11", Hays County, Hydrologic Unit 12100203, on left bank of concrete-lined drainage channel along Sessoms Road, 600 ft upstream of San Marcos River, 0.10 mi northwest of Loop 82, 1.4 mi west of Interstate Highway 35.

DRAINAGE AREA.--0.47 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Jan. 2002 to current year.
BIOCHEMICAL DATA: Jan. 2002 to current year.
PESTICIDE DATA: Jan. 2002 to current year.

INSTRUMENTATION.--Water stage recorder. Discharge-activated automatic sampler. Tipping bucket raingage. Telephone telemeter at station.

REMARKS.--Water-quality samples and associated discharge and precipitation data were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Storm water discharge, Mgal/d (81395)	Elapsed time of storm, hours (00135)	Precipitation duration of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal streptococci KF MF, col/ 100 mL (31673)	Precipitation total, inches/ storm (82381)	Residue total at 105 deg. C, suspended, mg/L (00530)	Nitrite + nitrate water fltrd, mg/L as N (00631)
SEP													
12-12	2101	76	7.7	7.1	2.9	67.0	40+c	3.7	--	--	1.9	459d	.60
12...	2200	--	--	--	--	--	--	--	19000	45000	--	--	--

Date	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Cyanide water unfltrd mg/L (00720)	Phenolic compounds, water, unfltrd ug/L (32730)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Aluminum, water, fltrd, ug/L (01106)
SEP													
12-12	.071	2.0	1.4	.28	.35	1.4	.65	.10	13.6	<.01	<16+c	<7	10
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Lead, water, unfltrd recoverable, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)
SEP													
12-12	E.21n	6	<.06	<.04	E.5n	.16	1.2	20	.09	1.8	1.2	.97	<.20
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Aldrin, water, unfltrd ug/L (39330)	Chlordane, technical, water, unfltrd ug/L (39350)	Dieldrin, water, unfltrd ug/L (39380)	Endrin, water, unfltrd ug/L (39390)	Heptachlor, water, unfltrd ug/L (39410)	Heptachlor epoxide water unfltrd ug/L (39420)	Lindane water, unfltrd ug/L (39340)	Toxaphene, water, unfltrd ug/L (39400)
SEP										
12-12	Mn	.06	<.002	<.1	.005	<.002	<.002	<.003	<.0020	<1
12...	--	--	--	--	--	--	--	--	--	--

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
+ -- Improper preservation
c -- See laboratory comment
d -- Diluted sample: method hi range exceeded
n -- Below the NDV

THIS PAGE IS INTENTIONALLY BLANK

08170000 San Marcos Springs at San Marcos, TX

LOCATION.--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.--Not applicable. This is a springflow station.

PERIOD OF RECORD.--May 1956 to current year. Records prior to Oct. 1997 published as "San Marcos River Springflow at San Marcos".

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 557.67 ft above NGVD of 1929. May 1956 to Sept. 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 NGVD of 1929. Oct. 1988 to Sept. 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 NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Springflow is equal to flow at San Marcos River at San Marcos (station 08170500) except during periods of local runoff. Springflow is separated from runoff using modified Institute of Hydrology base-flow separation program BFI 4.02. Selected springflow values computed using the program are revised on the basis of further examination of the base-flow records. The springflow for all days with springflow separations and all days in which the river flow was estimated, are shown as estimated. San Marcos Springs emerge from the Edwards and associated limestones about 1.1 mi upstream from Interstate Highway 35, in the Balcones Fault Zone.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	272	321	320	313	304	294	257	224	228	199	183
2	279	272	322	320	312	304	293	258	e222	228	198	186
3	277	268	323	318	312	310	293	259	221	228	196	185
4	280	e298	e322	320	311	308	294	259	e222	230	196	186
5	278	e344	321	320	310	306	292	257	e234	229	197	184
6	276	357	323	317	313	306	288	255	e244	227	e198	186
7	e273	356	322	316	310	307	287	256	242	225	200	185
8	e271	355	324	319	311	304	283	256	240	e227	197	183
9	e269	350	e325	318	313	303	284	255	237	230	196	e184
10	268	346	326	318	312	301	285	252	236	230	196	184
11	270	341	324	319	312	299	286	252	235	228	198	e188
12	269	339	329	e319	310	300	284	253	232	228	197	e191
13	264	337	323	319	313	301	283	252	e232	226	195	195
14	266	337	320	321	315	299	281	251	232	223	197	198
15	264	334	319	322	314	298	280	249	233	224	195	196
16	261	332	318	318	312	298	279	249	230	222	e195	198
17	260	332	317	318	312	297	277	247	228	220	198	197
18	257	332	317	318	311	296	275	244	229	220	194	199
19	e256	334	313	317	311	295	274	240	229	219	192	196
20	255	332	311	316	e310	295	273	238	e231	215	195	195
21	258	331	312	317	310	296	275	238	234	212	195	198
22	259	329	309	315	310	296	272	238	231	213	192	194
23	e260	329	e312	312	307	296	273	238	229	212	191	195
24	e265	327	316	312	303	295	274	241	233	211	191	194
25	e275	325	315	311	302	295	272	239	229	211	191	194
26	280	327	316	312	303	295	270	237	229	210	190	e194
27	283	326	317	312	304	296	265	230	228	208	189	194
28	283	325	317	314	305	292	262	230	227	e206	188	192
29	e280	324	318	313	---	291	260	229	226	205	188	e194
30	278	323	321	314	---	291	259	227	227	198	186	196
31	276	---	319	313	---	291	---	227	---	198	186	---
TOTAL	8371	9834	9892	9818	8681	9265	8367	7613	6926	6791	6016	5744
MEAN	270	328	319	317	310	299	279	246	231	219	194	191
MAX	283	357	329	322	315	310	294	259	244	230	200	199
MIN	255	268	309	311	302	291	259	227	221	198	186	183
AC-FT	16600	19510	19620	19470	17220	18380	16600	15100	13740	13470	11930	11390

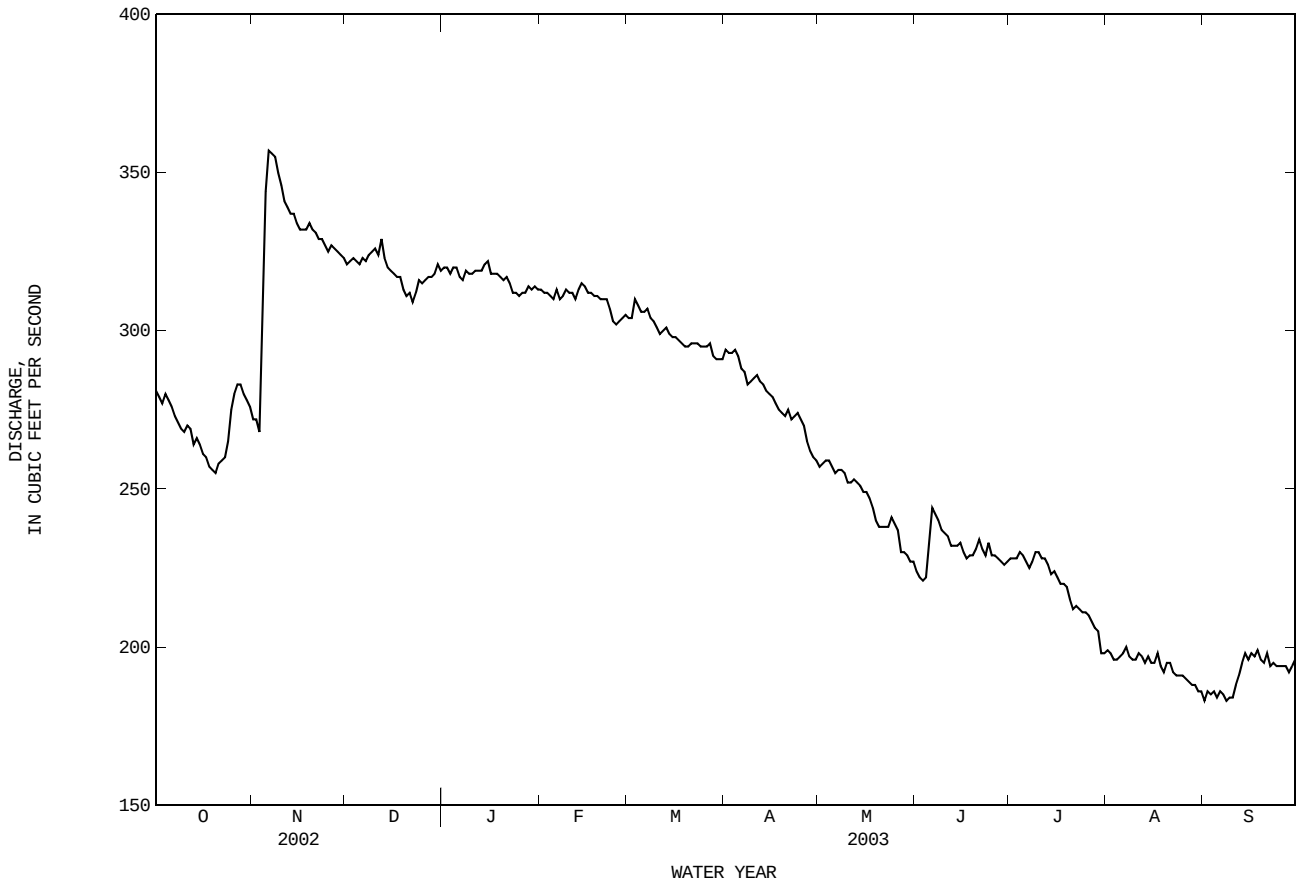
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY)

MEAN	157	166	171	173	176	176	174	182	190	182	166	159
MAX	275	372	355	382	418	445	427	407	415	381	315	292
(WY)	1999	1999	1999	1992	1992	1992	1992	1992	1992	1992	1992	2002
MIN	64.6	70.3	72.0	74.3	72.4	89.3	98.1	99.3	63.6	54.5	53.5	59.1
(WY)	1957	1957	1957	1957	1957	1964	1964	1984	1956	1956	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	98819		97318			
ANNUAL MEAN	271		267		173	
HIGHEST ANNUAL MEAN					331	1992
LOWEST ANNUAL MEAN					92.0	1964
HIGHEST DAILY MEAN	357	Nov 6	357	Nov 6	451	Mar 12 1992
LOWEST DAILY MEAN	157	Jun 28	183	Sep 1	46	Aug 15 1956
ANNUAL SEVEN-DAY MINIMUM	159	Jun 23	185	Sep 4	50	Aug 10 1956
ANNUAL RUNOFF (AC-FT)	196000		193000		125700	
10 PERCENT EXCEEDS	322		322		256	
50 PERCENT EXCEEDS	286		273		162	
90 PERCENT EXCEEDS	191		195		105	

e Estimated

08170000 San Marcos Springs at San Marcos, TX--Continued



08170500 San Marcos River at San Marcos, TX

LOCATION.--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.--47 mi^2 of contributing surface drainage, however, most of the time flow is solely from San Marcos Springs.

PERIOD OF RECORD.--July 1915 to Sept. 1921 (daily mean discharges below base discharge), May to Sept. 1956, Oct. 1994 to current year. Periodic measurements were made outside period of record since Nov. 14, 1894, and were published as miscellaneous measurements.

REVISED RECORDS.--WSP 1923: Drainage area. WDR 1998: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 557.67 ft above NGVD of 1929. July 1915 to Jan. 1916, nonrecording gage at site 0.5 mi upstream from Interstate Highway 35, and Mar. 1916 to Sept. 1921, water-stage recorder about 0.7 mi downstream from Interstate Highway 35; datum relations unknown. May to Sept. 1956, water-stage recorder 0.7 mi downstream from Interstate Highway 35 and 2.1 mi upstream from Blanco River, at datum 536.82 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Entire flow of river is from San Marcos Springs except during periods of local runoff. San Marcos Springs emerge from the Edwards and associated limestones about 1.1 mi upstream from Interstate Highway 35, in the Balcones Fault Zone.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	272	321	320	313	304	294	257	224	228	199	183
2	279	272	322	320	312	304	293	258	226	228	198	186
3	277	268	323	318	312	310	293	259	221	228	196	185
4	280	416	330	320	311	308	294	259	226	230	196	186
5	278	375	321	320	310	306	292	257	287	229	197	184
6	276	357	323	317	313	306	288	255	248	227	204	186
7	281	356	322	316	310	307	287	256	242	225	200	185
8	295	355	324	319	311	304	283	256	240	234	197	183
9	276	350	348	318	313	303	284	255	237	230	196	187
10	268	346	326	318	312	301	285	252	236	230	196	184
11	270	341	324	319	312	299	286	252	235	228	198	228
12	269	339	329	327	310	300	284	253	232	228	197	206
13	264	337	323	319	313	301	283	252	240	226	195	195
14	266	337	320	321	315	299	281	251	232	223	197	198
15	264	334	319	322	314	298	280	249	233	224	195	196
16	261	332	318	318	312	298	279	249	230	222	199	198
17	260	332	317	318	312	297	277	247	228	220	198	197
18	257	332	317	318	311	296	275	244	229	220	194	199
19	264	334	313	317	311	295	274	240	229	219	192	196
20	255	332	311	316	332	295	273	238	235	215	195	195
21	258	331	312	317	310	296	275	238	234	212	195	198
22	259	329	309	315	310	296	272	238	231	213	192	194
23	263	329	339	312	307	296	273	238	229	212	191	195
24	309	327	316	312	303	295	274	241	233	211	191	194
25	280	325	315	311	302	295	272	239	229	211	191	194
26	280	327	316	312	303	295	270	237	229	210	190	198
27	283	326	317	312	304	296	265	230	228	208	189	194
28	283	325	317	314	305	292	262	230	227	208	188	192
29	284	324	318	313	---	291	260	229	226	205	188	198
30	278	323	321	314	---	291	259	227	227	198	186	196
31	276	---	319	313	---	291	---	227	---	198	186	---
TOTAL	8474	9983	9950	9826	8703	9265	8367	7613	7003	6800	6026	5810
MEAN	273	333	321	317	311	299	279	246	233	219	194	194
MAX	309	416	348	327	332	310	294	259	287	234	204	228
MIN	255	268	309	311	302	291	259	227	221	198	186	183
AC-FT	16810	19800	19740	19490	17260	18380	16600	15100	13890	13490	11950	11520

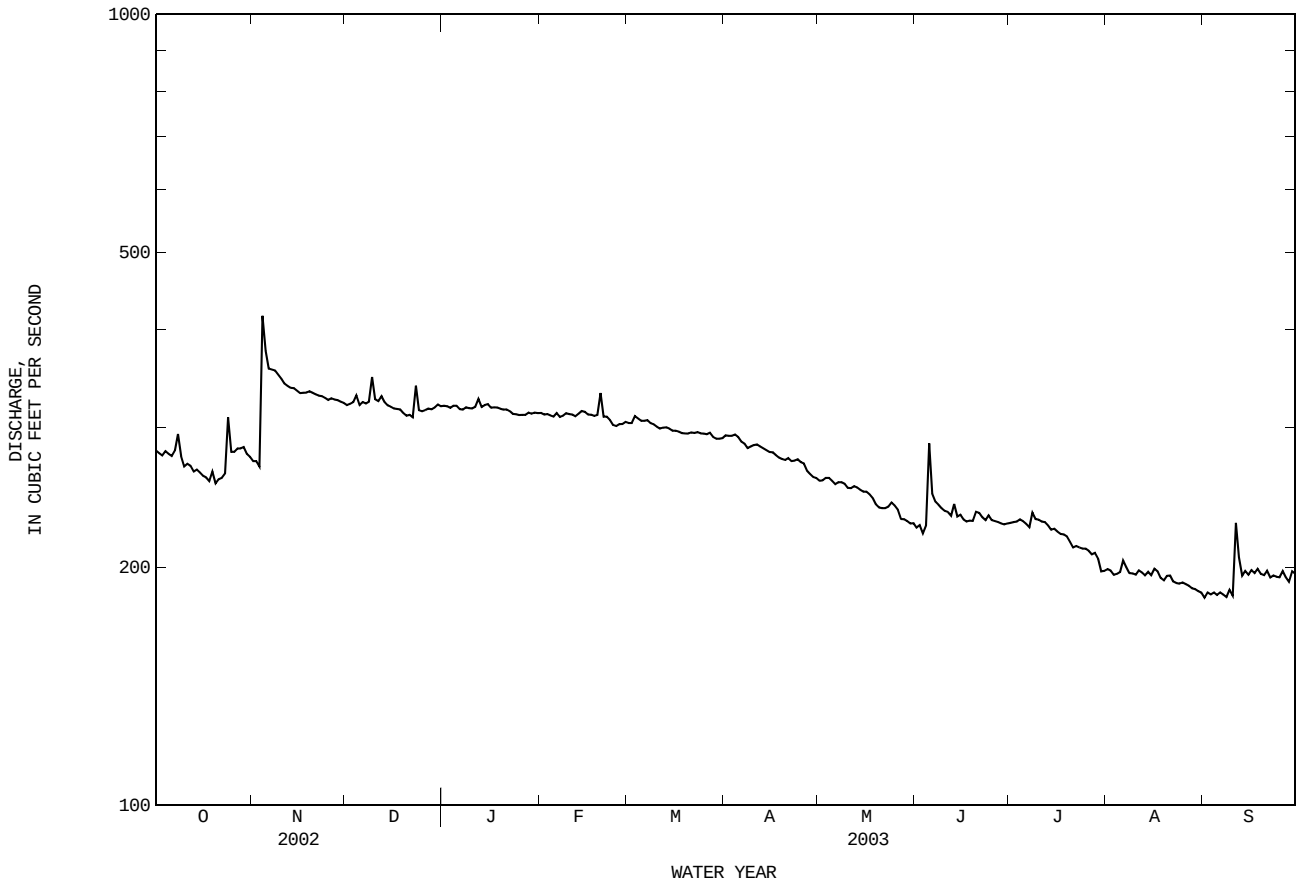
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

MEAN	224	213	208	204	197	194	186	177	194	201	181	181
MAX	729	373	355	317	311	299	279	246	308	332	310	293
(WY)	1999	1999	1999	2003	2003	2003	2003	2003	1997	2002	2002	2002
MIN	107	93.1	91.5	99.0	98.2	108	101	99.6	94.4	84.4	84.2	109
(WY)	1997	1997	1997	1997	1997	1996	1996	1996	1996	1996	1996	1996

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995 - 2003	
ANNUAL TOTAL	100372		97820			
ANNUAL MEAN	275		268		197	
HIGHEST ANNUAL MEAN					274	1999
LOWEST ANNUAL MEAN					110	1996
HIGHEST DAILY MEAN	668	Jul 2	416	Nov 4	6200	Oct 17 1998
LOWEST DAILY MEAN	157	Jun 28	183	Sep 1	76	Aug 15 1996
ANNUAL SEVEN-DAY MINIMUM	160	Jun 23	185	Sep 1	77	Aug 15 1996
MAXIMUM PEAK FLOW			770	Sep 11	i21500	Oct 17 1998
MAXIMUM PEAK STAGE			7.58	Sep 11	a21.29	Oct 17 1998
INSTANTANEOUS LOW FLOW			162	Jul 30	71	Nov 18 1996
ANNUAL RUNOFF (AC-FT)	199100		194000		142500	
10 PERCENT EXCEEDS	323		323		309	
50 PERCENT EXCEEDS	288		276		180	
90 PERCENT EXCEEDS	191		196		108	

i From indirect measurement of peak flow.
a From floodmark.

08170500 San Marcos River at San Marcos, TX--Continued



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^2.

PERIOD OF RECORD.--Aug. 1924 to Sept. 1926, June 1928 to current year.
Water-quality records.--Chemical data: Apr. 1962 to Sept. 1979, Feb. 1988 to Sept. 1993, Apr. 1996 to Apr. 1998. Biochemical data: Jan. 1974 to Sept. 1979, Feb. 1988 to Sept. 1993, Apr. 1996 to Apr. 1998. Pesticide data: Jan. 1974 to Sept. 1979, Feb. 1988 to Sept. 1993, Apr. 1996 to Apr. 1998. Sediment data: Nov. 1965 to Apr. 1966, Apr. 1996 to Apr. 1998. Water temperature: Dec. 1976 to Sept. 1978.

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 NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. There are many small diversions above 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	398	230	341	212	498	227	133	100	93	82	77
2	88	406	223	326	209	484	224	132	105	92	82	72
3	87	521	224	312	208	476	222	131	108	92	81	69
4	86	742	236	307	200	482	220	134	126	95	80	67
5	84	784	225	302	195	459	215	133	125	98	78	68
6	84	617	215	295	201	440	211	131	123	102	77	70
7	97	553	209	284	197	421	204	130	123	98	76	69
8	163	522	212	278	193	406	197	127	121	114	75	67
9	160	497	647	276	193	395	190	126	117	115	81	65
10	135	472	532	267	193	382	183	125	117	112	78	66
11	122	440	426	259	186	373	182	123	112	108	77	65
12	115	408	415	297	183	371	182	122	107	105	77	79
13	111	384	464	339	180	366	178	121	117	103	80	66
14	114	375	410	313	183	350	173	120	147	99	87	70
15	110	361	391	299	183	338	172	119	192	96	83	73
16	106	339	382	286	179	333	169	117	158	105	82	69
17	105	325	374	274	173	328	167	114	149	99	81	70
18	102	317	364	265	171	324	164	111	131	96	80	73
19	253	305	345	263	169	319	164	110	121	97	78	66
20	380	293	325	261	1840	302	162	110	116	94	77	64
21	262	286	320	260	1400	291	160	108	112	91	76	72
22	433	277	312	251	964	288	159	108	110	89	75	67
23	468	268	524	241	686	292	159	107	107	88	74	65
24	1320	263	545	235	593	286	158	105	103	87	74	65
25	1190	254	410	235	577	277	155	105	100	87	74	63
26	762	267	383	239	557	274	150	104	98	92	71	66
27	639	282	370	235	548	266	143	104	97	91	69	63
28	567	260	358	232	518	256	140	103	96	90	67	59
29	516	245	354	228	---	242	137	103	95	86	67	58
30	464	239	368	222	---	232	135	103	94	85	68	58
31	423	---	367	215	---	233	---	101	---	84	65	---
TOTAL	9635	11700	11160	8437	11291	10784	5302	3620	3527	2983	2372	2021
MEAN	311	390	360	272	403	348	177	117	118	96.2	76.5	67.4
MAX	1320	784	647	341	1840	498	227	134	192	115	87	79
MIN	84	239	209	215	169	232	135	101	94	84	65	58
AC-FT	19110	23210	22140	16730	22400	21390	10520	7180	7000	5920	4700	4010

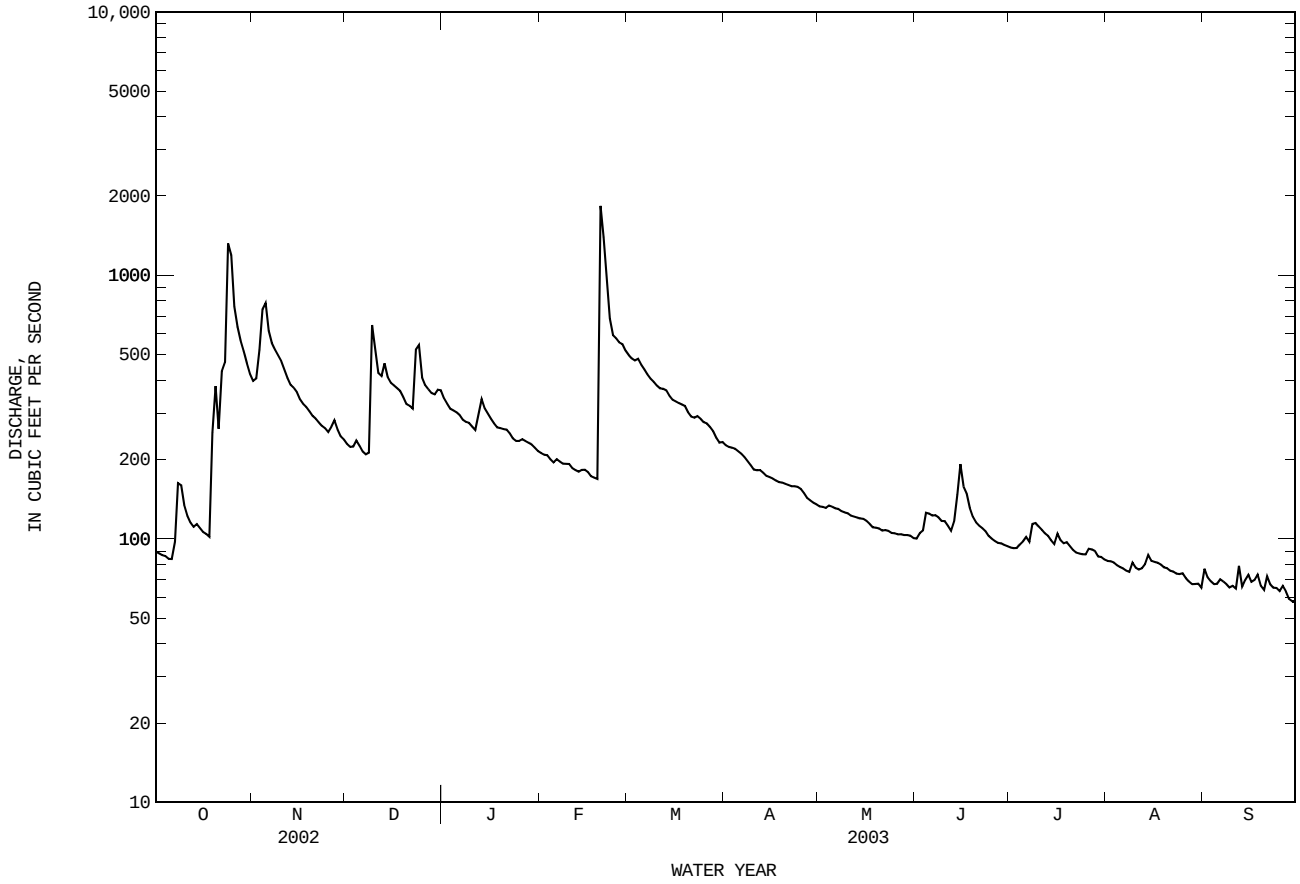
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2003h, BY WATER YEAR (WY)

MEAN	117	116	127	127	166	156	177	212	227	140	51.8	88.2
MAX	1322	1236	1364	1134	1401	977	953	1470	2308	3130	201	1413
(WY)	1999	2002	1992	1968	1992	1992	1957	1929	1997	2002	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

08171000 Blanco River at Wimberley, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1924 - 2003h	
ANNUAL TOTAL	164302		82832			
ANNUAL MEAN	450		227		141	
HIGHEST ANNUAL MEAN					566	1992
LOWEST ANNUAL MEAN					6.45	1956
HIGHEST DAILY MEAN	23800	Jul 5	1840	Feb 20	36900	Sep 11 1952
LOWEST DAILY MEAN	42	Jun 24	58	Sep 29	0.70	Jul 17 1956
ANNUAL SEVEN-DAY MINIMUM	43	Jun 22	62	Sep 24	0.79	Aug 12 1956
MAXIMUM PEAK FLOW			5010	Feb 20	i113000	May 28 1929
MAXIMUM PEAK STAGE			9.19	Feb 20	a33.30	May 28 1929
ANNUAL RUNOFF (AC-FT)	325900		164300		102500	
10 PERCENT EXCEEDS	548		440		286	
50 PERCENT EXCEEDS	131		164		55	
90 PERCENT EXCEEDS	62		74		13	

h See PERIOD OF RECORD paragraph.
i From indirect measurement of peak flow.
a From floodmark.



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^2.

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 NGVD of 1929 (levels by U.S. Army Corps of Engineers). Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known regulation. 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 Blanco River at Wimberley (station 08171000). No flow at times.

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^3/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (discharge, 115,000 ft^3/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	425	212	374	199	607	231	104	e66	45	27	20
2	65	419	204	349	196	584	220	101	e66	43	24	25
3	63	561	205	331	194	572	218	100	e66	43	23	23
4	62	1030	220	322	184	575	216	100	e67	45	22	22
5	58	1140	206	314	180	546	211	99	e67	41	21	21
6	57	825	193	306	188	516	207	97	e66	40	20	22
7	59	710	186	292	179	488	198	97	65	38	19	23
8	103	654	188	281	179	465	187	92	64	41	20	22
9	178	612	612	279	176	451	177	89	58	53	22	21
10	135	573	692	267	184	436	169	87	59	47	26	21
11	109	523	496	256	165	420	163	87	58	44	21	27
12	99	477	467	310	157	418	166	82	54	40	18	51
13	90	442	519	359	155	414	162	84	57	38	18	30
14	96	429	463	346	158	395	157	81	105	35	32	26
15	93	410	429	316	157	375	154	83	151	32	27	30
16	86	383	417	304	162	369	150	e81	120	34	23	26
17	83	361	405	285	155	363	146	e81	109	45	20	26
18	82	348	392	274	140	359	144	e80	88	34	21	30
19	153	332	370	271	139	349	144	e79	75	33	22	29
20	409	317	343	270	1560	331	144	e79	67	32	23	27
21	296	301	332	266	1850	314	138	e79	63	30	26	30
22	385	288	325	256	1320	309	134	e78	60	29	29	28
23	478	274	429	239	897	308	136	e78	57	28	28	25
24	1090	265	739	231	758	306	134	e77	55	27	24	24
25	1670	254	457	231	743	296	127	e75	51	23	21	23
26	944	255	412	235	697	294	122	e74	49	24	17	23
27	777	279	393	232	682	280	116	e75	47	32	16	23
28	680	261	378	228	642	267	111	e74	47	35	24	21
29	605	235	370	223	---	248	108	e71	47	29	27	19
30	528	225	409	214	---	239	108	e71	46	27	22	18
31	464	---	423	206	---	234	---	e68	---	27	17	---
TOTAL	10063	13608	11886	8667	12396	12128	4798	2603	2050	1114	700	756
MEAN	325	454	383	280	443	391	160	84.0	68.3	35.9	22.6	25.2
MAX	1670	1140	739	374	1850	607	231	104	151	53	32	51
MIN	57	225	186	206	139	234	108	68	46	23	16	18
AC-FT	19960	26990	23580	17190	24590	24060	9520	5160	4070	2210	1390	1500
CFSM	0.79	1.10	0.93	0.68	1.07	0.95	0.39	0.20	0.17	0.09	0.05	0.06
IN.	0.91	1.23	1.07	0.78	1.12	1.10	0.43	0.24	0.19	0.10	0.06	0.07

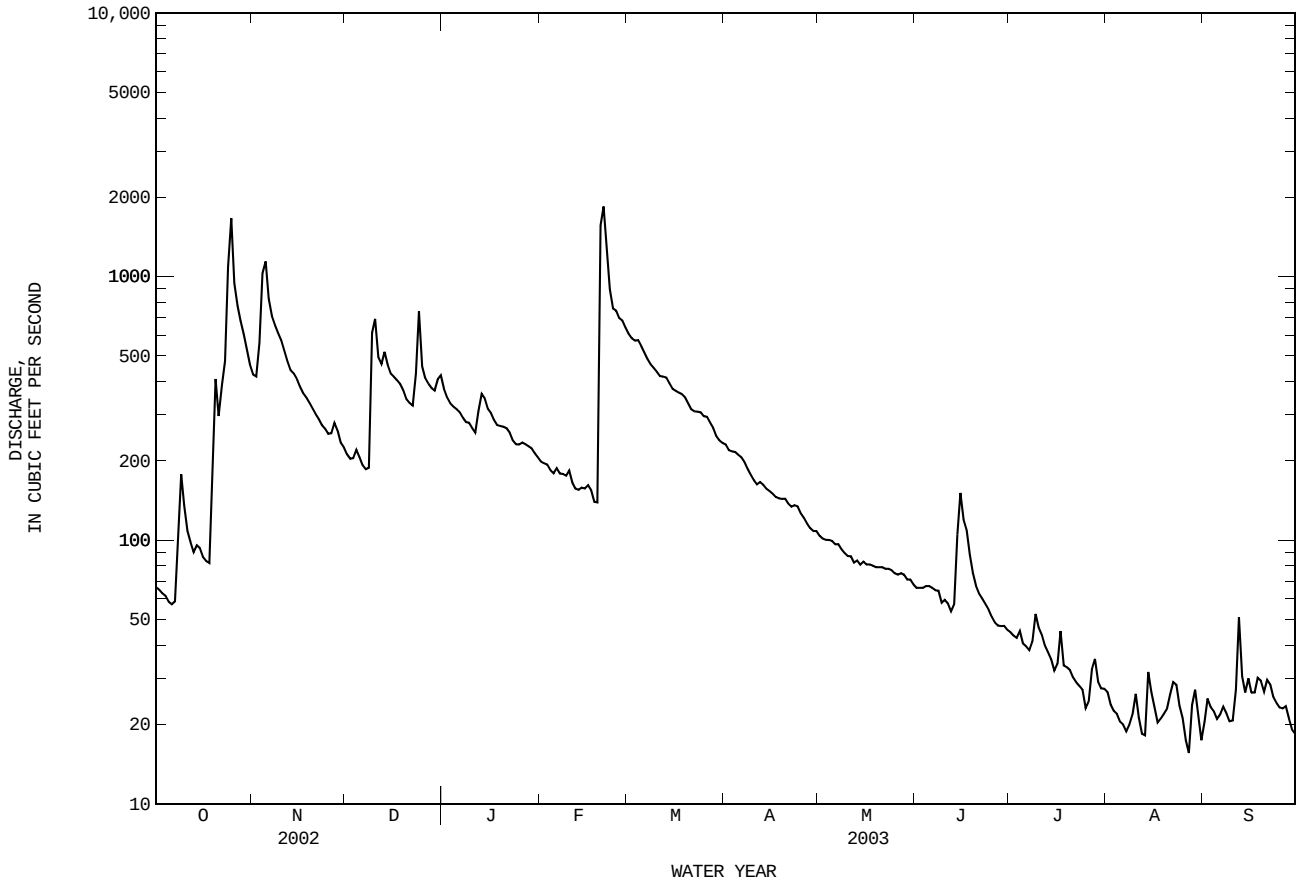
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY)

MEAN	154	154	167	158	203	178	182	229	300	164	45.1	55.1
MAX	1646	1179	1775	1319	1511	1078	906	1148	2459	3068	196	348
(WY)	1999	2002	1992	1968	1992	1992	1977	1958	1997	2002	1973	1986
MIN	0.000	0.000	0.000	0.000	0.000	0.14	0.000	1.96	0.000	0.000	0.000	0.000
(WY)	1964	1964	1964	1957	1990	2000	2000	1964	1956	1956	1956	1956

08171300 Blanco River near Kyle, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	159980.0		80769			
ANNUAL MEAN	438		221		166	
HIGHEST ANNUAL MEAN					625	1992
LOWEST ANNUAL MEAN					3.44	2000
HIGHEST DAILY MEAN	20100	Jul 5	1850	Feb 21	26000	Oct 17 1998
LOWEST DAILY MEAN	4.0	Jun 25	16	Aug 27	0.00	Jun 1 1956
ANNUAL SEVEN-DAY MINIMUM	5.8	Jun 23	20	Aug 26	0.00	Jun 1 1956
MAXIMUM PEAK FLOW			4710	Feb 20	i105000	Oct 17 1998
MAXIMUM PEAK STAGE			12.97	Feb 20	a36.30	May 2 1958
ANNUAL RUNOFF (AC-FT)	317300		160200		120500	
ANNUAL RUNOFF (CFSM)	1.06		0.54		0.40	
ANNUAL RUNOFF (INCHES)	14.44		7.29		5.48	
10 PERCENT EXCEEDS	612		491		342	
50 PERCENT EXCEEDS	114		144		54	
90 PERCENT EXCEEDS	26		24		2.0	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.



08172000 San Marcos River at Luling, TX

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.

DRAINAGE AREA.--838 mi^2.

PERIOD OF RECORD.--Apr. 1939 to current year.
Water-quality records.--Chemical data: Feb. 1944 to Feb. 1959, Sept. 1961 to Apr. 1966, Nov. 1968 to Aug. 1999. Pesticide data: June 1986 to May 1999. Sediment data: Oct. 1960 to Apr. 1966.

REVISED RECORDS.--WSP 958: 1940. WSP 1312: 1940(M), 1945(M), 1947(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 322.05 ft above NGVD of 1929. Prior to Oct. 21, 1988, at site 390 ft downstream at same datum. Satellite telemeter at station.

REMARKS.-Records fair except those for estimated daily discharges, which are poor. Flow is affected at times by discharge from the flood-detention pools of 18 floodwater-retarding structures. These structures control runoff from 105 mi^2 in the Town, Sink, and York Creeks drainage basins.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft in 1869 or 1870, from information by Texas Department of Transportation. Flood of May 29, 1929, reached a stage of 37.1 ft and is the second highest known.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	511	1210	e799	1200	691	1090	700	447	315	270	210	205
2	508	1120	e794	982	685	1050	702	453	310	265	204	203
3	504	1120	e790	899	674	1510	681	460	347	262	201	219
4	497	3600	e3970	859	652	1660	669	461	363	280	198	215
5	496	11500	1600	830	642	1220	656	461	373	302	196	210
6	495	3140	906	813	655	1090	633	455	570	298	197	211
7	498	e2280	818	790	679	1010	610	439	400	281	202	208
8	e500	e2000	784	770	651	968	575	437	357	276	204	200
9	e8110	e1770	1460	755	652	936	563	427	339	305	208	194
10	1680	e1520	2520	744	645	910	557	421	334	281	222	200
11	892	e1360	1580	734	636	902	548	419	327	278	226	211
12	741	e1260	1480	966	620	884	539	421	317	276	246	511
13	674	1170	1770	1610	613	e887	538	417	309	272	243	503
14	641	1100	1290	1080	609	e880	527	412	377	265	234	348
15	621	1050	1110	936	614	e870	519	410	391	264	242	520
16	592	1010	1050	863	610	e860	511	401	443	267	240	304
17	567	970	1010	816	604	e851	500	394	416	260	238	263
18	553	942	979	786	596	e842	485	384	379	253	231	264
19	671	924	939	769	592	e833	475	376	357	254	226	259
20	953	906	901	766	3870	e824	462	368	336	250	217	238
21	853	884	874	765	7840	e815	453	361	325	248	221	267
22	2610	865	857	758	3590	e807	448	358	316	241	221	268
23	4820	850	898	739	2210	800	434	353	307	238	227	247
24	4130	837	1660	719	1650	785	430	350	301	234	211	234
25	8140	824	1330	714	1410	783	424	350	307	228	206	221
26	3050	817	1060	720	1280	776	419	347	298	229	206	219
27	2190	809	972	729	1200	766	431	347	283	234	206	223
28	1900	e807	930	729	1150	748	440	345	277	233	205	216
29	1770	e805	906	725	---	730	443	338	273	237	204	210
30	1510	e802	977	712	---	726	442	329	269	229	200	209
31	1340	---	1860	702	---	718	---	321	---	216	196	---
TOTAL	53017	48252	38874	25980	36320	28531	15814	12262	10316	8026	6688	7800
MEAN	1710	1608	1254	838	1297	920	527	396	344	259	216	260
MAX	8140	11500	3970	1610	7840	1660	702	461	570	305	246	520
MIN	495	802	784	702	592	718	419	321	269	216	196	194
AC-FT	105200	95710	77110	51530	72040	56590	31370	24320	20460	15920	13270	15470

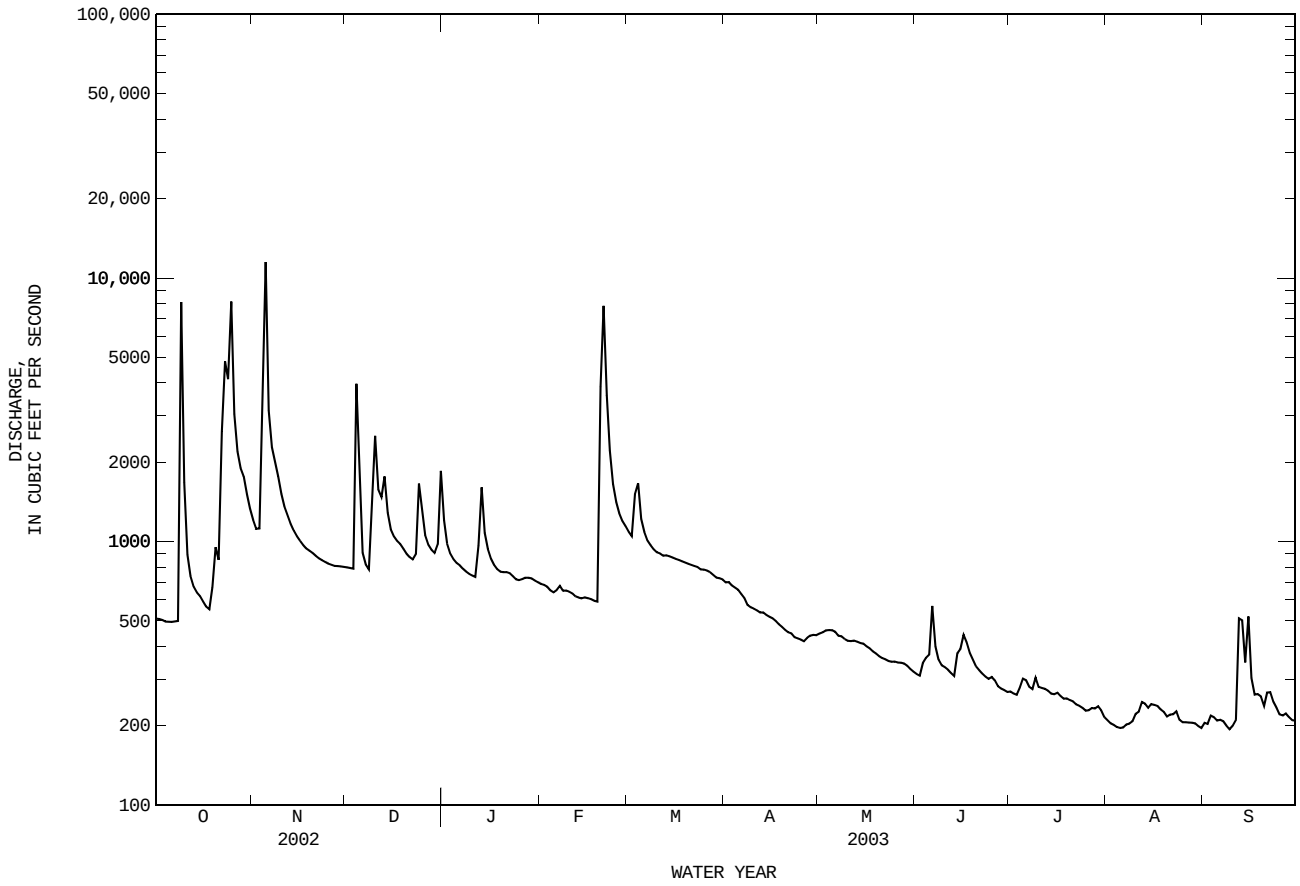
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	414	380	404	385	460	403	470	529	600	355	210	283
MAX	5485	1682	3520	2286	3358	2438	1853	2054	4850	4486	699	1577
(WY)	1999	1999	1992	1968	1992	1992	1977	1975	1987	2002	2002	1952
MIN	59.7	63.1	82.1	77.5	81.0	73.8	78.5	84.5	58.5	58.9	63.7	64.4
(WY)	1956	1956	1955	1957	1952	1956	1956	1996	1956	1956	1984	1984

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	399613		291880			
ANNUAL MEAN	1095		800		409	
HIGHEST ANNUAL MEAN					1482	1992
LOWEST ANNUAL MEAN					75.3	1956
HIGHEST DAILY MEAN	19000	Jul 6	11500	Nov 5	90500	Oct 18 1998
LOWEST DAILY MEAN	191	Jun 25	194	Sep 9	43	Aug 12 1951
ANNUAL SEVEN-DAY MINIMUM	196	Jun 20	200	Aug 2	53	Jun 2 1956
MAXIMUM PEAK FLOW			16400	Nov 5	i206000	Oct 18 1998
MAXIMUM PEAK STAGE			30.98	Nov 5	a41.85	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	792600		578900		296100	
10 PERCENT EXCEEDS	1880		1380		722	
50 PERCENT EXCEEDS	591		563		211	
90 PERCENT EXCEEDS	239		221		92	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08172000 San Marcos River at Luling, TX--Continued



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^2.

PERIOD OF RECORD.--Apr. 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 431.19 ft above NGVD of 1929. Apr. 30, 1959, to July 25, 1968, at site 548 ft downstream at present datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. Flow is affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures. These structures control runoff from 67.8 mi^2 above this station. No flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	28	7.5	222	18	117	5.2	1.4	0.00	0.02	0.00	0.00
2	0.00	23	7.9	150	18	88	5.1	1.7	0.00	0.01	0.00	0.00
3	0.00	38	8.3	101	18	154	5.1	1.6	0.00	0.00	0.00	0.00
4	0.00	1960	144	75	17	206	5.2	1.6	0.00	0.00	0.00	0.00
5	0.00	2800	140	60	15	142	5.1	1.8	40	4.4	0.00	0.00
6	0.00	737	76	49	26	100	5.2	1.8	92	17	0.00	0.00
7	0.00	527	47	41	57	71	4.9	1.9	20	4.9	0.00	0.00
8	0.00	392	38	35	44	53	5.3	1.2	7.0	3.5	0.00	0.00
9	0.11	324	925	32	43	41	4.1	0.85	3.5	2.4	0.00	0.00
10	13	284	564	30	40	32	3.7	0.81	2.4	1.5	0.00	0.00
11	8.5	243	299	27	34	25	3.2	0.62	1.8	0.89	0.00	0.03
12	5.8	197	340	155	29	23	3.1	0.62	1.4	0.53	0.00	15
13	5.0	149	354	299	27	22	2.5	0.74	1.4	0.31	0.00	18
14	4.5	123	210	177	29	20	2.2	0.68	74	0.24	0.00	6.5
15	4.7	98	155	122	31	17	2.4	0.70	23	0.22	0.00	5.7
16	5.0	66	115	89	29	16	2.0	0.54	52	0.32	0.00	2.5
17	4.9	44	86	66	23	14	2.0	0.68	7.7	0.56	0.00	1.1
18	5.1	32	69	52	20	14	2.0	0.43	3.5	0.38	0.00	0.77
19	8.1	25	54	44	19	12	2.0	0.17	2.1	0.41	0.00	0.60
20	51	20	41	38	1330	10	2.3	0.02	1.3	0.39	0.00	0.60
21	24	17	34	35	1360	9.0	2.5	0.00	0.88	0.25	0.00	0.85
22	41	16	30	31	594	8.7	2.8	0.00	0.68	0.16	0.00	0.90
23	64	14	124	26	373	8.4	2.6	0.00	0.55	0.10	0.00	1.7
24	602	13	238	24	288	7.7	2.7	0.00	0.41	0.03	0.00	1.2
25	708	13	171	22	252	7.7	3.5	0.00	0.30	0.00	0.00	0.83
26	300	13	127	22	218	11	2.3	0.00	0.27	0.00	0.00	0.89
27	181	13	92	24	187	10	1.3	0.00	0.22	0.00	0.00	0.82
28	128	11	67	22	149	8.4	1.2	0.00	0.12	0.00	0.00	0.74
29	90	9.9	54	22	---	6.6	1.1	0.00	0.09	0.00	0.00	0.55
30	54	8.8	57	20	---	5.7	1.1	0.00	0.01	0.00	0.00	0.46
31	38	---	397	19	---	5.4	---	0.00	---	0.00	0.00	---
TOTAL	2345.71	8238.7	5071.7	2131	5288	1265.6	93.7	19.86	336.63	38.52	0.00	59.74
MEAN	75.7	275	164	68.7	189	40.8	3.12	0.64	11.2	1.24	0.000	1.99
MAX	708	2800	925	299	1360	206	5.3	1.9	92	17	0.00	18
MIN	0.00	8.8	7.5	19	15	5.4	1.1	0.00	0.00	0.00	0.00	0.00
AC-FT	4650	16340	10060	4230	10490	2510	186	39	668	76	0.00	118

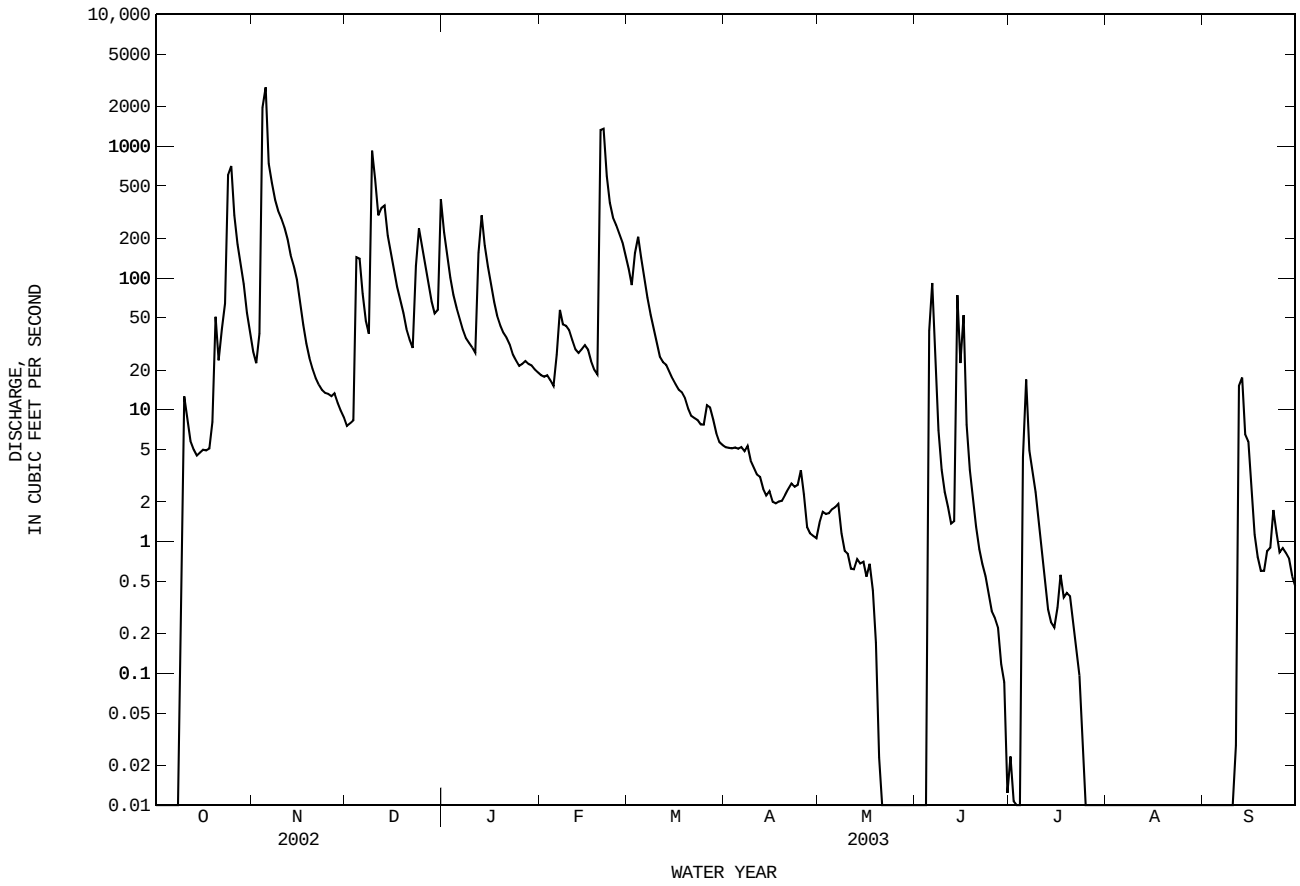
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2003, BY WATER YEAR (WY)

MEAN	73.5	58.1	59.1	44.9	65.6	35.4	40.9	92.0	97.1	14.2	3.68	9.46
MAX	1526	590	605	416	815	332	343	595	905	183	118	142
(WY)	1999	1986	1992	1968	1992	1992	1976	1975	1981	2002	1974	1974
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1964	1964	1964	1964	1989	1964	1967	1971	1963	1963	1962	1959

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1959 - 2003	
ANNUAL TOTAL	23491.55		24889.16			
ANNUAL MEAN	64.4		68.2		49.7	
HIGHEST ANNUAL MEAN					238	1992
LOWEST ANNUAL MEAN					0.10	1978
HIGHEST DAILY MEAN	2800	Nov 5	2800	Nov 5	19400	Oct 18 1998
LOWEST DAILY MEAN	0.00	May 12	0.00	Oct 1	0.00	Jun 23 1959
ANNUAL SEVEN-DAY MINIMUM	0.00	May 12	0.00	Oct 1	0.00	Jul 9 1959
MAXIMUM PEAK FLOW			7080	Nov 4	47200	Oct 18 1998
MAXIMUM PEAK STAGE			17.33	Nov 4	a23.09	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	46600		49370		35990	
10 PERCENT EXCEEDS	148		154		62	
50 PERCENT EXCEEDS	5.8		5.2		0.69	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a From floodmark.

08172400 Plum Creek at Lockhart, TX--Continued



08173000 Plum Creek near Luling, TX

LOCATION.--Lat 29°41'58", long 97°36'12", Caldwell County, Hydrologic Unit 12100203, on left bank at downstream side of bridge on county road, 1.2 mi upstream from West Fork, 1.9 mi upstream from Southern Pacific Railroad Co. bridge, 2.2 mi upstream from McNeil Creek, 2.9 mi northeast of Luling, and 7.5 mi upstream from mouth.

DRAINAGE AREA.--309 mi^2.

PERIOD OF RECORD.--Mar. 1930 to Sept. 1993, July 2001 to current year.
Water-quality records.--Chemical data: Feb. 1944, Apr. 1961 to Sept. 1986. Sediment data: Nov. 1965 to June 1966. Specific conductance: Oct. 1967 to Sept. 1986. Water temperature: Oct. 1967 to Sept. 1986.

REVISED RECORDS.--WSP 1923: 1933. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 321.57 ft above NGVD of 1929. Prior to Aug. 18, 1976, at datum 5.0 ft higher. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known diversions above station. Flow is affected at times by discharge from the flood-detention pools of 27 floodwater-retarding structures. These structures control runoff from 119 mi^2 above this station. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1868, that of Oct. 18, 1998; flood in 1913 reached about same stage as that of July 1, 1936, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	168	54	698	56	321	81	51	26	9.3	4.9	4.7
2	6.5	143	51	363	55	279	81	51	27	9.4	4.7	5.9
3	6.1	138	51	214	56	492	79	52	28	9.4	4.6	5.3
4	5.4	2250	3360	152	55	843	79	53	38	9.6	4.9	9.1
5	5.2	12400	3670	125	52	483	78	51	49	13	4.6	5.6
6	5.4	5950	518	108	58	348	78	50	150	17	4.7	4.8
7	5.5	1740	297	92	95	276	75	50	114	33	4.6	4.5
8	17	e1040	221	81	99	230	73	50	63	24	4.7	4.3
9	8620	e843	607	75	89	205	69	46	41	20	4.1	4.2
10	e1710	e675	2150	71	85	189	67	47	31	16	4.2	4.5
11	e346	e557	982	65	78	173	66	45	26	13	4.1	5.5
12	210	e450	989	200	71	161	66	43	21	14	4.3	74
13	160	356	2060	897	67	154	65	44	20	12	4.9	51
14	128	286	741	511	67	148	61	44	34	9.9	4.3	30
15	88	245	430	286	73	141	59	43	101	9.7	4.2	103
16	68	206	289	191	73	134	58	41	76	10	4.9	25
17	59	167	216	144	67	129	58	40	70	15	4.6	14
18	53	141	175	115	62	127	57	36	38	13	4.7	11
19	186	124	144	97	59	123	56	35	27	10	5.3	11
20	441	107	119	86	2970	113	59	34	23	8.9	5.3	9.4
21	199	94	103	81	9340	107	57	33	20	8.6	4.0	14
22	1490	87	93	76	4510	104	56	32	18	8.4	4.2	20
23	2830	81	117	68	1530	103	57	32	18	7.8	4.1	12
24	2150	75	577	62	874	100	54	31	15	7.0	4.9	9.7
25	7540	72	387	60	707	99	53	30	14	6.6	4.7	9.2
26	e2230	68	236	59	572	108	54	30	12	5.9	4.3	9.3
27	e920	67	178	62	467	105	56	28	11	5.9	4.1	11
28	e560	65	136	62	377	100	52	28	11	5.6	4.1	9.8
29	e405	61	113	61	---	93	51	28	9.9	5.7	4.0	8.4
30	e272	57	119	60	---	87	52	27	9.9	5.5	3.8	8.3
31	200	---	863	57	---	84	---	26	---	5.3	4.0	---
TOTAL	30922.1	28713	20046	5279	22664	6159	1907	1231	1141.8	348.5	138.8	498.5
MEAN	997	957	647	170	809	199	63.6	39.7	38.1	11.2	4.48	16.6
MAX	8620	12400	3670	897	9340	843	81	53	150	33	5.3	103
MIN	5.2	57	51	57	52	84	51	26	9.9	5.3	3.8	4.2
AC-FT	61330	56950	39760	10470	44950	12220	3780	2440	2260	691	275	989

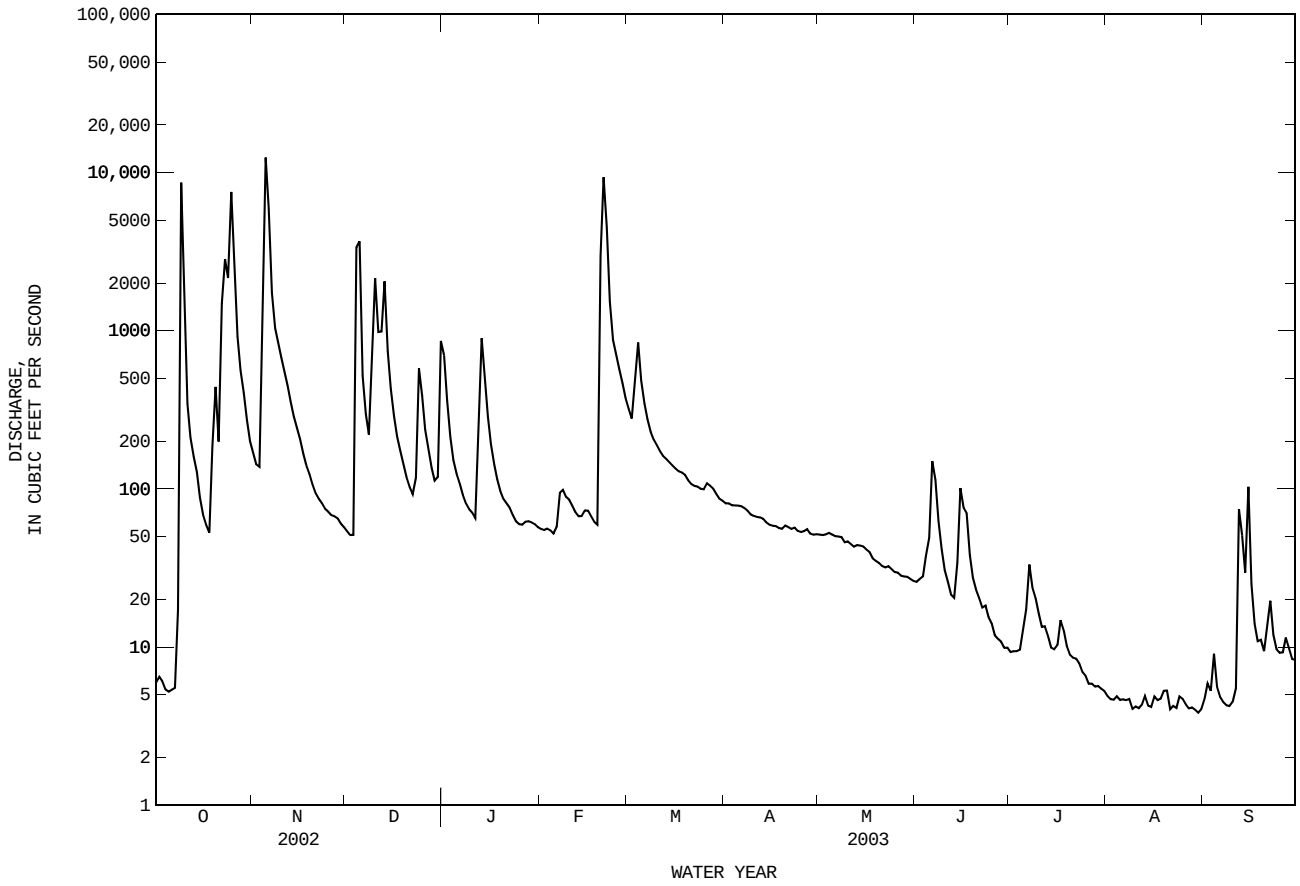
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003h, BY WATER YEAR (WY)

MEAN	98.7	105	122	117	156	88.3	161	195	181	75.6	22.9	49.8
MAX	1280	1040	1969	987	2083	828	1110	1922	2389	1962	538	485
(WY)	1961	1986	1992	1991	1992	1992	1976	1975	1987	1936	1947	1957
MIN	0.000	0.000	0.60	0.80	3.61	1.04	2.55	2.21	0.29	0.000	0.000	0.000
(WY)	1957	1957	1955	1957	1951	1956	1972	1964	1956	1956	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003h	
ANNUAL TOTAL	100175.3		119048.7			
ANNUAL MEAN	274		326		114	
HIGHEST ANNUAL MEAN					578	1992
LOWEST ANNUAL MEAN					7.27	1956
HIGHEST DAILY MEAN	12400	Nov 5	12400	Nov 5	43800	Jul 1 1936
LOWEST DAILY MEAN	5.0	Jun 25	3.8	Aug 30	0.00	Aug 8 1951
ANNUAL SEVEN-DAY MINIMUM	5.6	Jun 20	4.1	Aug 25	0.00	Aug 8 1951
MAXIMUM PEAK FLOW			15000	Nov 5	78500	Jul 1 1936
MAXIMUM PEAK STAGE			a23.82	Nov 5	a30.70	Jul 1 1936
ANNUAL RUNOFF (AC-FT)	198700		236100		82850	
10 PERCENT EXCEEDS	483		558		127	
50 PERCENT EXCEEDS	30		59		9.5	
90 PERCENT EXCEEDS	7.0		5.3		1.6	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08173000 Plum Creek near Luling, TX--Continued



08173900 Guadalupe River at Gonzales, TX

LOCATION.--Lat 29°29'03", long 97°27'00", Gonzales County, Hydrologic Unit 12100202, on right bank on downstream side of U.S. Highway 183 bridge, and 4.6 mi downstream from San Marcos River.

DRAINAGE AREA.--3,490 mi^2.

PERIOD OF RECORD.--July 1915 to Sept. 1922, Oct. 1951 to Sept. 1952 (discharge measurements only), Mar. 1977 to Sept. 1996 (peak stage only), Oct. 1996 to current year. Records for July 1915 to Sept. 1922, published in WSP 408, 438, 458, and 528, are unreliable and should not be used.

Water-quality records.--Chemical data: Apr. 1996 to Apr. 1998. Biochemical data: Apr. 1996 to Apr. 1998. Sediment data: Apr. 1996 to Apr. 1998.

GAGE.--Water-stage recorder. Datum of gage is 231.80 ft above NGVD of 1929. July 1915 to Sept. 1922, and Oct. 1951 to Sept. 1952, 0.2 mi downstream, datum not known. Mar. 1977 to Sept. 1996, 1.2 mi upstream at Gonzales hydroelectric plant at National Weather Service datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since water year 1928, at least 10% of contributing drainage area has been regulated. Some water is diverted for irrigation and municipal use (amounts unknown).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1929, reached a stage of 38.3 ft, National Weather Service datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	5670	3590	7220	1800	3100	1700	1190	863	941	1040	1010
2	1310	5790	3620	4980	1810	2910	1940	1240	829	914	1000	1060
3	1330	5810	3200	4060	1840	e3180	2430	1260	1000	959	944	1110
4	1220	8710	2800	3910	1630	5450	3260	1510	823	1010	994	1100
5	1230	31500	8850	3940	1780	6470	2840	1790	1200	1110	934	1060
6	1150	40400	7380	3920	1790	6080	2290	1780	1400	1040	1000	866
7	1170	15300	3500	3300	1750	5820	3230	1800	1480	1200	966	908
8	1460	6480	2850	2620	1850	5700	3330	1750	1110	1180	1020	958
9	4510	5460	2930	2430	1800	5640	2510	1700	891	1160	860	862
10	28000	5040	5490	2170	1840	5590	1380	1680	889	1210	945	881
11	11800	4750	6250	2050	1640	5530	1520	1500	911	1260	889	853
12	3630	5930	5310	2370	1730	3430	1520	1420	917	1130	897	1400
13	3780	6230	5600	4190	1720	2840	1530	1500	890	1140	917	2340
14	3060	6120	5650	4820	1750	2530	1440	1440	1010	1220	955	1440
15	2050	6060	4090	3500	2110	2400	1560	1360	1560	1130	980	1450
16	1500	5970	3290	2820	4400	2280	1400	1210	1430	1170	930	1210
17	1170	4380	2950	2490	4980	2260	1330	1160	1420	1480	970	982
18	1100	3960	2670	2250	5040	2140	1460	1200	1520	1470	941	1060
19	2160	3880	2800	2230	5000	2050	1360	1150	1520	1030	929	1170
20	3810	3350	2540	2150	4020	2550	1370	1170	1390	1010	941	1040
21	3920	3030	e2240	2190	13600	2390	1330	1080	1390	1080	927	1110
22	3530	2620	e2500	2050	21200	1360	1400	1140	1210	932	1000	1210
23	8260	2670	e5000	2000	11900	1830	1360	1090	1270	1140	837	1120
24	13600	2580	e6000	1930	6560	1860	1400	1070	1510	1130	1010	1070
25	17400	2370	e5000	1830	4800	1870	1300	970	1320	1010	977	1050
26	25600	2420	e4050	1910	3380	1870	1310	1070	1140	933	928	1010
27	10300	2370	3700	1920	3440	1790	1210	918	1040	978	887	968
28	5510	2280	4800	1890	3280	1800	1330	1120	868	1030	922	1030
29	4730	2750	5020	1970	---	1790	1240	947	942	1060	881	970
30	4200	3540	5030	1900	---	1700	1220	815	999	990	915	954
31	4260	---	6160	1830	---	e1640	---	898	---	1050	910	---
TOTAL	178140	207420	134860	88840	118440	97850	52500	39928	34742	34097	29246	33252
MEAN	5746	6914	4350	2866	4230	3156	1750	1288	1158	1100	943	1108
MAX	28000	40400	8850	7220	21200	6470	3330	1800	1560	1480	1040	2340
MIN	1100	2280	2240	1830	1630	1360	1210	815	823	914	837	853
AC-FT	353300	411400	267500	176200	234900	194100	104100	79200	68910	67630	58010	65960

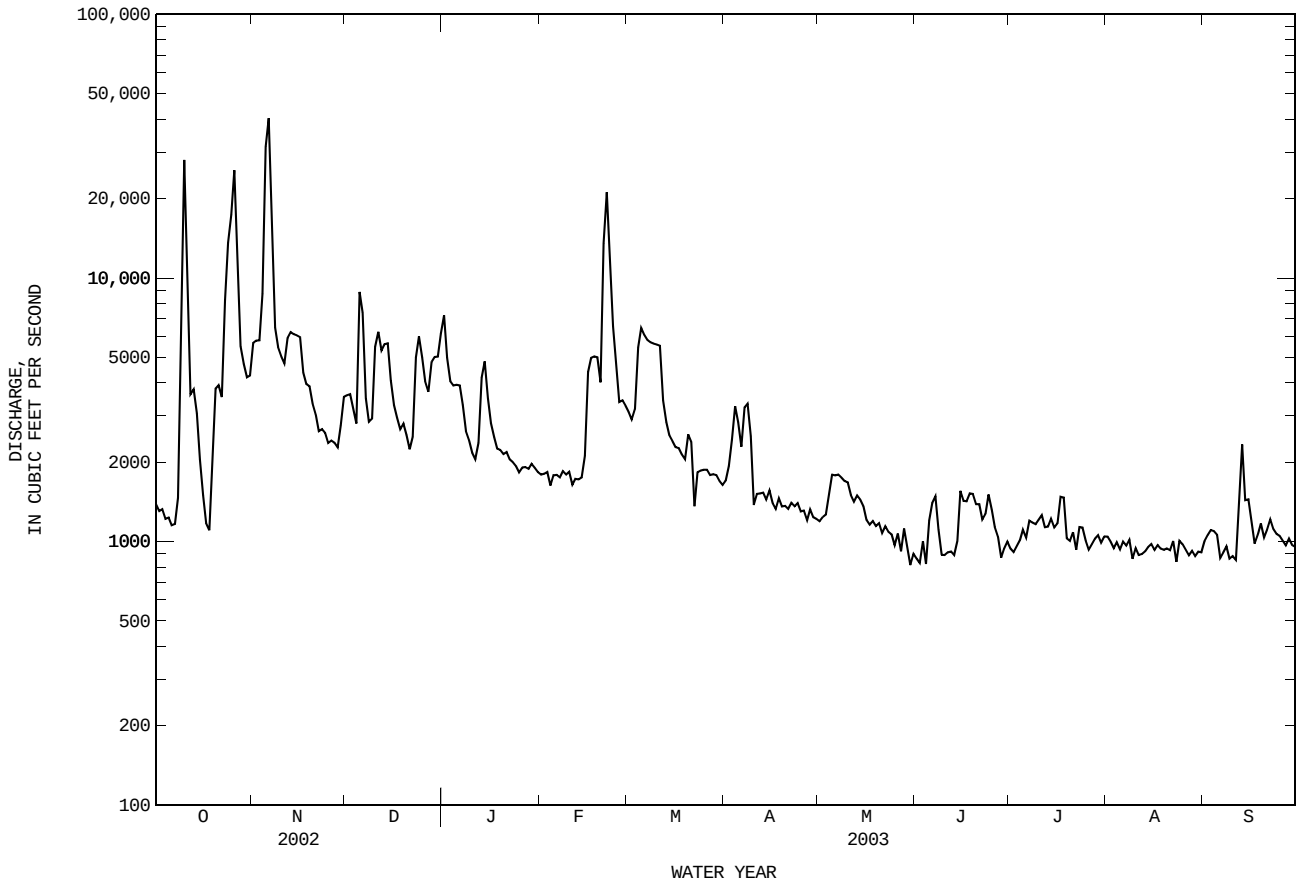
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

MEAN	4058	3184	2477	1633	1858	1925	1678	1199	1606	3402	1493	1689
MAX	18950	6914	4540	2866	4230	3156	3269	2206	5623	13920	4834	5101
(WY)	1999	2003	2002	2003	2003	2003	1997	1997	1997	2002	2002	2002
MIN	352	430	508	520	563	585	493	553	667	330	242	224
(WY)	1997	1997	1997	1997	2000	2000	2000	2000	1998	2000	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	1483282		1049315			
ANNUAL MEAN	4064		2875		2188	
HIGHEST ANNUAL MEAN					3471	2002
LOWEST ANNUAL MEAN					501	2000
HIGHEST DAILY MEAN	50200	Jul 7	40400	Nov 6	188000	Oct 19 1998
LOWEST DAILY MEAN	501	Jun 26	815	May 30	111	Aug 12 2000
ANNUAL SEVEN-DAY MINIMUM	585	Jun 20	882	May 29	185	Sep 4 2000
MAXIMUM PEAK FLOW			47400	Nov 6	i340000	Oct 19 1998
MAXIMUM PEAK STAGE			41.93	Nov 6	a50.44	Oct 19 1998
ANNUAL RUNOFF (AC-FT)	2942000		2081000		1585000	
10 PERCENT EXCEEDS	6400		5620		4870	
50 PERCENT EXCEEDS	2110		1680		1130	
90 PERCENT EXCEEDS	742		941		447	

e Estimated.
i From indirect measurement of peak flow.
a From floodmark.

08173900 Guadalupe River at Gonzales, TX--Continued



08174600 Peach Creek below Dilworth, TX

LOCATION.--Lat 29°28'26", long 97°18'59", Gonzales County, Hydrologic Unit 12100202, on right bank at downstream side of bridge on U.S. Highway 90-A, 1.3 mi downstream from Mitchell Creek, 3.1 mi southwest of Dilworth, 6.4 mi upstream from mouth, and 8.5 mi southeast of Gonzales.

DRAINAGE AREA.--460 mi^2.

PERIOD OF RECORD.--Apr. 1959 to Sept. 1979, Oct. 2000 to current year.
Water quality records.--Chemical data: Apr. 1962 to Sept. 1979.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 213.53 ft above NGVD of 1929. Prior to Feb. 11, 1960 nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversions above station. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1840, 35.3 ft in June 1940; flood of June 30, 1936 reached a stage of 32.8 ft, but may have been affected by backwater from the Guadalupe River, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	50	20	857	28	117	23	13	3.8	1.5	1.2	1.2
2	1.1	44	19	628	27	95	22	12	3.5	1.4	1.0	5.5
3	1.1	65	19	204	27	232	22	12	3.4	1.5	1.0	161
4	1.1	2410	224	108	26	1340	22	11	4.6	1.8	1.0	159
5	1.1	15800	800	75	24	1900	22	11	5.3	2.3	1.0	91
6	1.0	12600	1210	59	25	792	22	11	12	2.7	1.0	13
7	1.1	5790	408	50	25	223	22	11	14	2.2	1.0	3.6
8	4.2	1820	118	44	37	139	21	10	10	3.5	1.0	1.8
9	523	209	782	40	41	102	19	11	6.1	24	1.4	1.4
10	1490	136	2170	37	37	83	18	11	4.9	5.3	1.4	1.2
11	2750	102	2860	35	32	71	17	11	4.2	3.7	1.4	1.1
12	1040	78	3930	301	30	64	17	10	3.8	2.4	1.9	221
13	75	61	5440	1310	28	60	17	9.4	4.1	1.8	1.9	677
14	30	51	3490	1320	27	57	17	8.5	13	1.7	5.0	437
15	16	45	1070	605	34	52	16	7.7	51	1.8	3.3	68
16	10	40	214	173	57	48	16	7.1	16	2.1	2.0	60
17	7.2	37	138	107	65	45	15	8.0	31	35	1.6	14
18	5.3	34	102	72	45	43	15	6.8	10	66	1.4	5.6
19	6.2	32	85	57	33	40	16	6.3	5.6	14	1.3	61
20	407	29	68	50	198	37	16	5.6	3.8	5.4	1.2	32
21	600	28	58	46	3040	34	15	5.5	3.0	2.8	1.1	115
22	703	25	50	42	7080	32	15	6.9	2.7	1.9	2.6	401
23	2100	24	264	e37	5060	30	15	6.8	2.1	1.6	4.5	202
24	3070	23	1440	35	1560	30	15	6.1	1.9	1.5	2.1	38
25	5400	22	1930	33	281	29	15	5.4	1.7	1.4	1.7	12
26	5250	22	1090	32	319	30	15	5.1	1.7	1.3	2.2	5.7
27	3440	23	217	32	207	30	14	5.5	1.6	1.2	1.7	3.5
28	556	26	119	31	158	32	13	4.6	1.6	1.2	1.4	2.4
29	149	23	83	31	---	30	13	4.1	1.6	1.1	1.3	1.8
30	101	21	77	30	---	26	13	4.1	1.6	1.1	1.2	1.7
31	68	---	769	29	---	24	---	3.9	---	1.2	1.1	---
TOTAL	27808.5	39670	29264	6510	18551	5867	518	251.4	229.6	196.4	52.9	2798.5
MEAN	897	1322	944	210	663	189	17.3	8.11	7.65	6.34	1.71	93.3
MAX	5400	15800	5440	1320	7080	1900	23	13	51	66	5.0	677
MIN	1.0	21	19	29	24	24	13	3.9	1.6	1.1	1.0	1.1
AC-FT	55160	78690	58050	12910	36800	11640	1030	499	455	390	105	5550

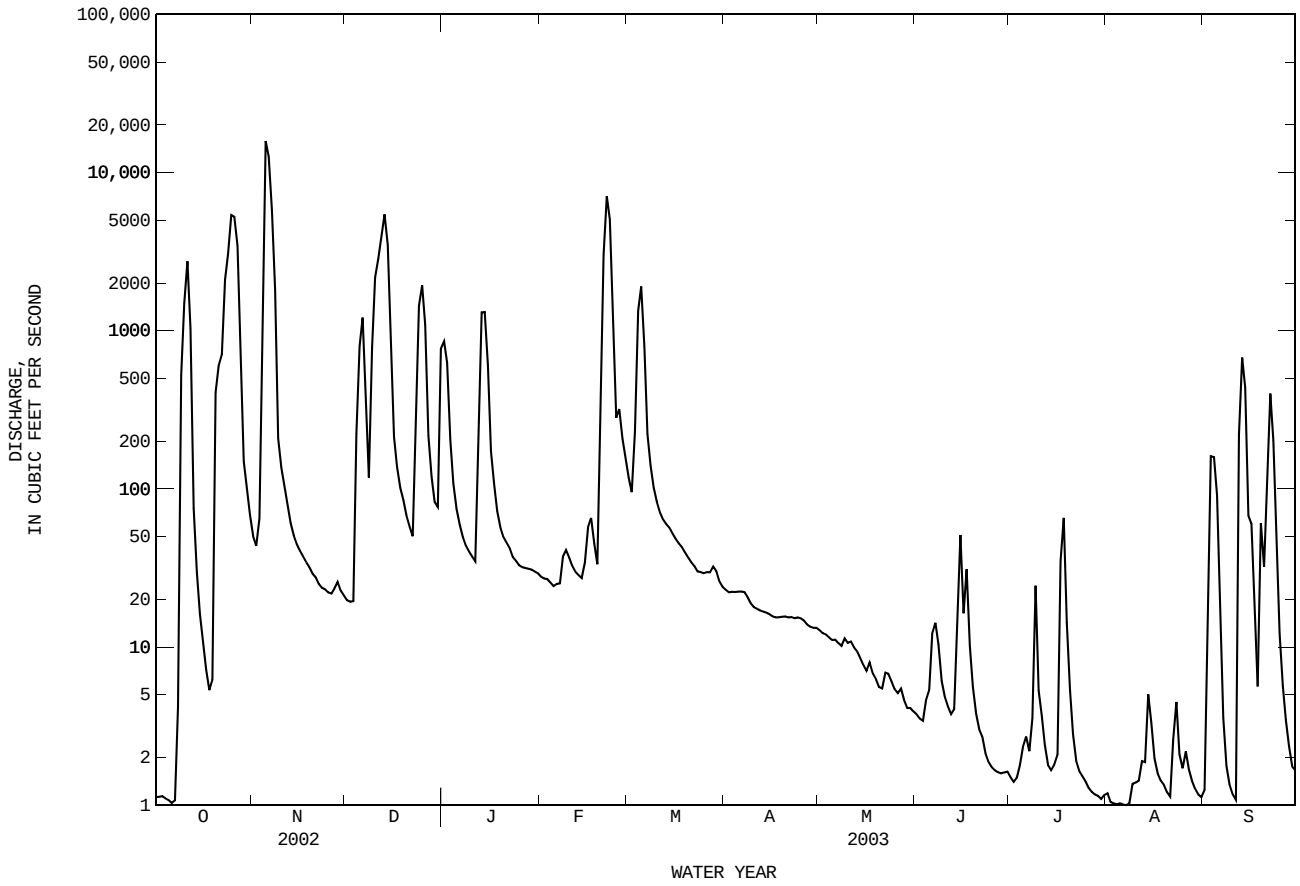
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2003h, BY WATER YEAR (WY)

MEAN	210	195	153	160	176	105	306	287	299	53.7	11.3	139
MAX	1720	1322	1114	1149	727	584	3062	1690	1867	613	121	742
(WY)	1961	2003	1977	1974	1969	1969	1977	1972	1968	2002	2001	1961
MIN	0.000	0.000	0.000	0.000	0.22	0.023	0.40	0.000	0.000	0.000	0.000	0.000
(WY)	1964	1965	1965	1967	1967	1967	1963	1963	1963	1963	1962	1960

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1959 - 2003h	
ANNUAL TOTAL	129738.8		131717.3			
ANNUAL MEAN	355		361		174	
HIGHEST ANNUAL MEAN					503	1977
LOWEST ANNUAL MEAN					7.83	1963
HIGHEST DAILY MEAN	15800	Nov 5	15800	Nov 5	28700	Apr 20 1977
LOWEST DAILY MEAN	1.0	Oct 6	1.0	Oct 6	0.00	Aug 1 1959
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 30	1.0	Aug 2	0.00	Aug 1 1959
MAXIMUM PEAK FLOW			23000	Nov 5	76800	Apr 20 1977
MAXIMUM PEAK STAGE			a31.06	Nov 5	33.11	Apr 20 1977
ANNUAL RUNOFF (AC-FT)	257300		261300		126300	
10 PERCENT EXCEEDS	842		729		175	
50 PERCENT EXCEEDS	5.9		23		5.9	
90 PERCENT EXCEEDS	1.5		1.4		0.00	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08174600 Peach Creek below Dilworth, TX--Continued



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^2.

PERIOD OF RECORD.--Mar. 1930 to Nov. 1934, Aug. 1959 to current year.
Water-quality records.--Chemical data: Apr. 1962 to Sept. 1999. Sediment data: Nov. 1965 to May 1966. Pesticide data: Oct. 1992 to July 1999.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.27 ft above NGVD of 1929. 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. Satellite telemeter at station.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft^3/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 Oct. 1913 reached a stage of 26.0 ft, present site and datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	42	16	1110	31	86	32	22	e4.9	7.8	4.2	1.6
2	1.4	37	15	992	30	76	31	23	e4.3	10	3.6	561
3	1.4	157	15	316	30	94	31	24	4.4	8.2	3.4	71
4	1.4	1080	25	165	28	304	31	24	5.3	28	2.9	26
5	1.2	6570	32	105	28	526	31	23	13	30	2.8	23
6	1.4	14300	48	74	28	407	31	22	15	79	2.6	17
7	1.2	6090	47	56	27	231	31	22	13	58	2.3	8.8
8	1.1	2300	35	45	30	149	30	21	17	38	2.8	5.4
9	1.5	575	365	38	32	106	29	19	18	30	4.3	3.5
10	4.0	189	947	33	33	82	28	18	16	23	3.4	2.8
11	14	120	1050	30	33	69	28	18	14	22	26	2.5
12	19	87	1720	200	33	62	28	18	13	17	35	59
13	16	65	1780	e1430	32	59	28	17	13	14	4.6	99
14	9.6	50	2080	1750	32	55	28	16	15	13	2.2	63
15	4.9	41	1640	1380	73	53	27	16	16	17	1.8	203
16	2.7	36	635	773	146	51	27	15	53	58	1.7	92
17	1.8	31	186	e207	149	49	26	14	64	106	1.6	44
18	1.4	28	105	e121	105	46	26	14	37	226	1.5	89
19	1.2	26	66	e87	64	44	26	14	25	212	1.6	151
20	1.1	24	43	72	219	43	25	13	19	121	1.5	228
21	0.90	23	31	63	1050	41	26	13	16	65	1.7	270
22	4.5	22	24	54	2460	40	25	12	15	37	12	279
23	66	20	e95	49	2650	39	25	10	14	24	5.2	143
24	521	19	1010	41	1210	38	26	9.9	12	17	4.6	69
25	1060	19	2150	38	372	37	26	9.4	11	14	3.3	45
26	1590	17	2140	36	183	37	26	8.0	10	11	2.7	31
27	1580	18	1050	34	127	37	26	7.9	9.7	8.4	2.4	21
28	736	17	281	33	103	35	24	7.2	9.0	7.1	2.3	16
29	190	17	132	33	---	35	23	6.3	7.9	6.2	2.1	12
30	94	17	96	32	---	32	22	5.3	8.1	5.6	1.7	9.2
31	62	---	501	32	---	32	---	5.3	---	4.8	1.5	---
TOTAL	5992.30	32037	18360	9429	9338	2995	823	467.3	492.6	1318.1	149.3	2645.8
MEAN	193	1068	592	304	334	96.6	27.4	15.1	16.4	42.5	4.82	88.2
MAX	1590	14300	2150	1750	2650	526	32	24	64	226	35	561
MIN	0.90	17	15	30	27	32	22	5.3	4.3	4.8	1.5	1.6
AC-FT	11890	63550	36420	18700	18520	5940	1630	927	977	2610	296	5250
CFSM	0.35	1.95	1.08	0.55	0.61	0.18	0.05	0.03	0.03	0.08	0.01	0.16
IN.	0.41	2.17	1.24	0.64	0.63	0.20	0.06	0.03	0.03	0.09	0.01	0.18

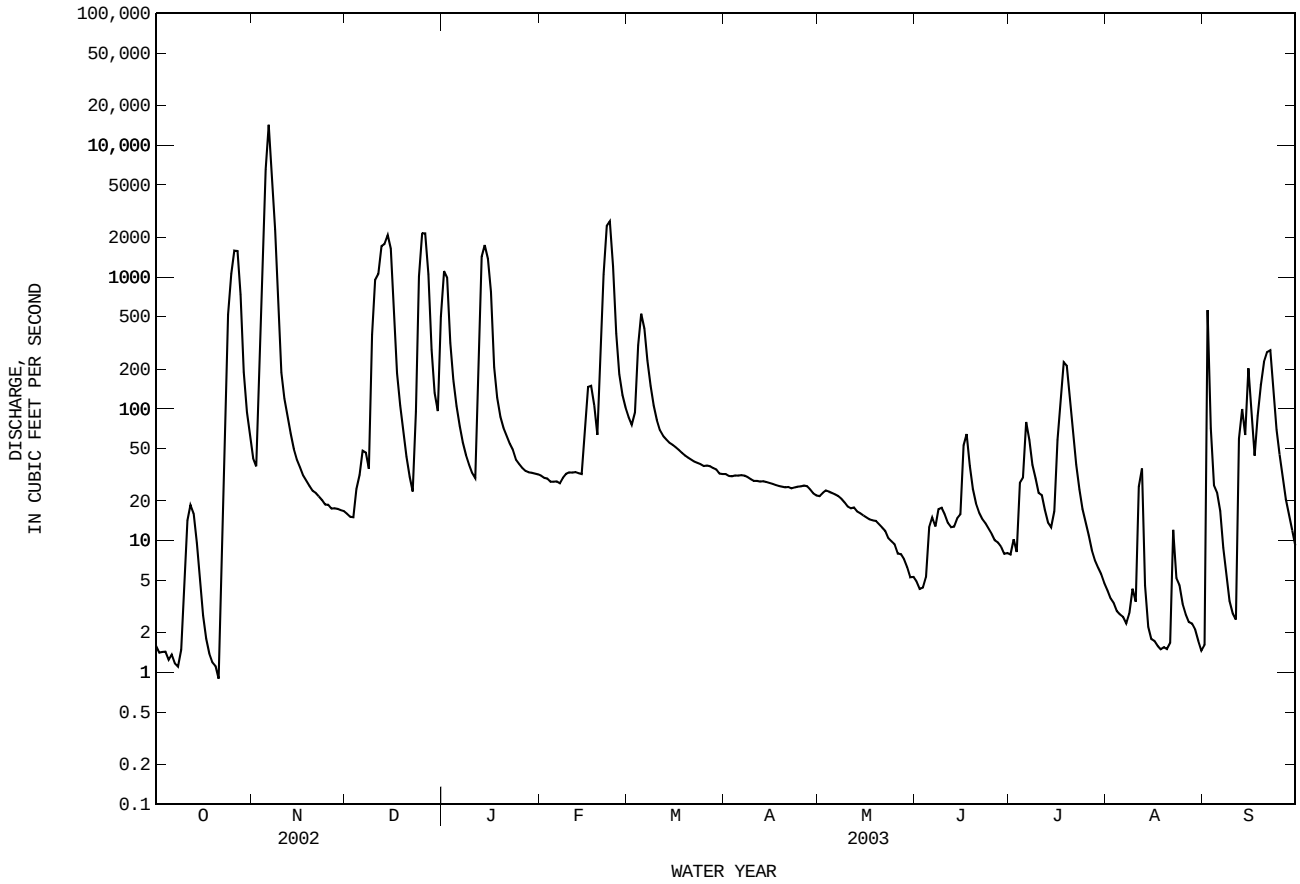
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003h, BY WATER YEAR (WY)

MEAN	154	109	74.6	119	142	75.7	151	234	267	42.6	30.8	226
MAX	2698	1068	969	778	1485	418	1361	2062	2820	726	282	4060
(WY)	1999	2003	1977	1974	1992	1969	1977	1972	1987	2002	2001	1967
MIN	0.26	1.19	1.85	4.08	4.05	2.66	3.26	0.88	0.32	0.23	0.071	0.26
(WY)	1964	1932	1989	1967	1967	1967	1963	1963	1934	1964	1962	1959

08175000 Sandies Creek near Westhoff, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003h	
ANNUAL TOTAL	85189.20		84047.40			
ANNUAL MEAN	233		230		137	
HIGHEST ANNUAL MEAN					532	1992
LOWEST ANNUAL MEAN					8.71	1988
HIGHEST DAILY MEAN	14300	Nov 6	14300	Nov 6	67900	Sep 22 1967
LOWEST DAILY MEAN	0.90	Oct 21	0.90	Oct 21	0.00	Aug 11 1932
ANNUAL SEVEN-DAY MINIMUM	1.3	Oct 2	1.3	Oct 2	0.00	Aug 18 1959
MAXIMUM PEAK FLOW			16800	Nov 6	79700	Sep 22 1967
MAXIMUM PEAK STAGE			25.58	Nov 6	32.34	Sep 22 1967
ANNUAL RUNOFF (AC-FT)	169000		166700		99350	
ANNUAL RUNOFF (CFSM)	0.43		0.42		0.25	
ANNUAL RUNOFF (INCHES)	5.77		5.70		3.39	
10 PERCENT EXCEEDS	543		386		135	
50 PERCENT EXCEEDS	14		28		9.4	
90 PERCENT EXCEEDS	3.5		2.9		1.6	

e Estimated
h See PERIOD OF RECORD paragraph.



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 mouth of Sandies Creek, and at river mile 100.6.

DRAINAGE AREA.--4,934 mi^2.

PERIOD OF RECORD.--Jan. 1964 to current year.
Water-quality records.--Chemical data: Mar. 1968 to Sept. 1985.

REVISED RECORDS.--WRD TX-68-1, TX-69-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 128.64 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in 1964, at least 10% of contributing drainage area has been regulated. Flow is affected at times by discharge from the flood-detention pools of 53 floodwater-retarding structures. These structures control runoff from 302 mi^2 in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station.

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 Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1420	3980	3170	7480	1980	3420	1850	1570	1250	1260	1150	1020
2	1380	5020	3310	8480	1940	3180	1870	1540	1240	1300	1180	1560
3	1280	5420	3310	6400	1950	3050	1970	1570	1220	1230	1160	2110
4	1280	7890	3150	4170	1950	3650	2260	1560	1320	1260	1120	1340
5	1220	15000	3260	3740	1880	6260	2800	1680	1260	1310	1120	1220
6	1240	25100	7220	3660	1920	7950	2750	1850	1430	1360	1110	1210
7	1180	60200	8640	3590	1960	6990	2290	1880	1510	1350	1050	1050
8	1200	44000	4500	3220	1940	5920	2750	1870	1640	1380	1050	1010
9	1390	26900	4250	2640	1980	5570	2930	1850	1420	1430	1130	994
10	4690	10800	7300	2480	1970	5400	2570	1790	1310	1380	1050	1000
11	10400	5470	7680	2310	1980	5290	1780	1810	1230	1390	1060	957
12	13000	4840	10000	2800	1910	5140	1770	1690	1260	1380	1100	1010
13	10300	5580	14800	5740	1900	3680	1780	1640	1240	1360	1060	1550
14	3670	6120	11400	6540	1930	2920	1750	1660	1270	1320	1040	2340
15	2990	6020	9760	7220	1910	2630	1740	1640	1300	1380	1070	1890
16	2350	5900	6660	5280	2270	2510	1770	1600	1550	1470	1080	1510
17	1890	5770	3890	3330	3570	2410	1720	1530	1560	1580	1150	1290
18	1650	4560	3230	2730	4330	2370	1640	1450	1640	1590	1090	1160
19	1570	3790	2820	2450	4420	2280	1710	1490	1580	1770	1050	1460
20	1890	3670	2840	2370	4430	2210	1700	1450	1600	1390	1050	1360
21	3170	3350	2670	2300	6880	2410	1660	1470	1550	1280	1050	1380
22	3700	3030	2520	2280	11300	2450	1650	1400	1490	1260	1030	1680
23	4290	2790	2830	2180	15400	1840	1690	1430	1430	1270	1050	1640
24	8890	2660	4930	2120	22400	1930	1680	1430	1430	1260	1060	1390
25	12500	2650	6250	2100	18700	2000	1660	1400	1540	1250	1010	1190
26	14300	2510	8050	2050	7260	2010	1630	1360	1480	1250	1040	1130
27	19200	2480	6800	2040	4010	2020	1630	1370	1390	1130	1030	1090
28	23600	2480	4370	2070	3630	1950	1570	1320	1310	1150	1010	1060
29	15600	2410	4310	2010	---	1970	1610	1380	1200	1180	986	1060
30	5410	2630	4580	2050	---	1920	1590	1340	1220	1200	977	1050
31	4160	---	5650	2020	---	1900	---	1220	---	1170	993	---
TOTAL	180810	283020	174150	109850	137700	105230	57770	48240	41870	41290	33106	39711
MEAN	5833	9434	5618	3544	4918	3395	1926	1556	1396	1332	1068	1324
MAX	23600	60200	14800	8480	22400	7950	2930	1880	1640	1770	1180	2340
MIN	1180	2410	2520	2010	1880	1840	1570	1220	1200	1130	977	957
AC-FT	358600	561400	345400	217900	273100	208700	114600	95680	83050	81900	65670	78770

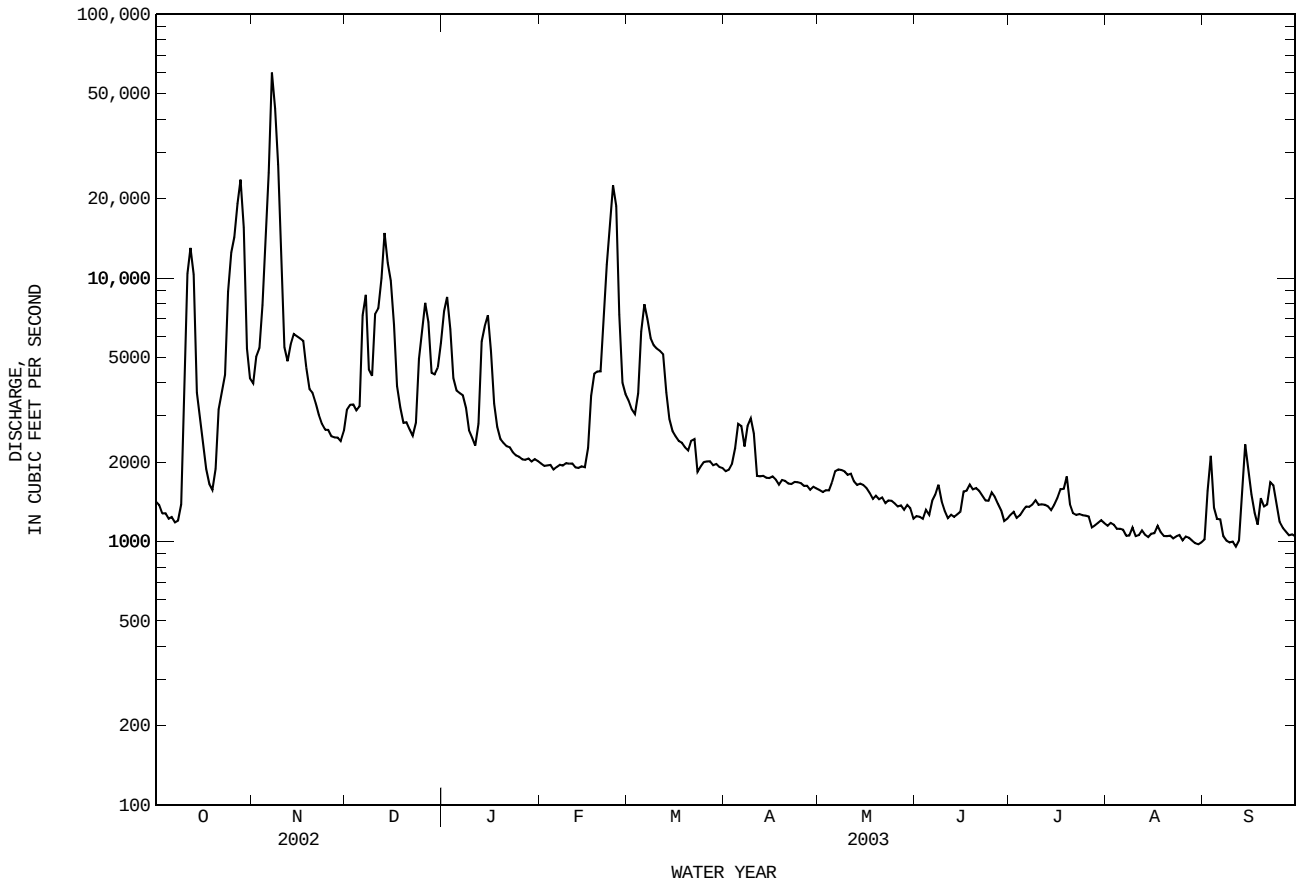
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	2275	2043	1968	1923	2198	1889	2212	2878	3128	1835	1231	1883
MAX	30990	9434	10500	10830	16740	10370	11100	12270	21470	15860	4645	11210
(WY)	1999	2003	1992	1992	1992	1992	1977	1972	1987	2002	2002	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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	1667497		1252747			
ANNUAL MEAN	4568		3432		2149	
HIGHEST ANNUAL MEAN					6885	1992
LOWEST ANNUAL MEAN					435	1984
HIGHEST DAILY MEAN	60800	Jul 9	60200	Nov 7	338000	Oct 20 1998
LOWEST DAILY MEAN	558	Jun 16	957	Sep 11	28	Jul 22 1984
ANNUAL SEVEN-DAY MINIMUM	615	Jun 23	1010	Aug 25	45	Jul 18 1984
MAXIMUM PEAK FLOW			64300	Nov 7	i473000	Oct 20 1998
MAXIMUM PEAK STAGE			36.90	Nov 7	a50.35	Oct 20 1998
ANNUAL RUNOFF (AC-FT)	3307000		2485000		1557000	
10 PERCENT EXCEEDS	10100		6830		4120	
50 PERCENT EXCEEDS	2140		1870		1110	
90 PERCENT EXCEEDS	728		1120		482	

i From indirect measurement of peak flow.
a From floodmark.

08175800 Guadalupe River at Cuero, TX--Continued



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 Coleto Creek, and at mile 50.7.

DRAINAGE AREA.--5,198 mi^2.

PERIOD OF RECORD.--Nov. 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 data: Aug. 1945 to Aug. 1994. Biochemical data: Jan. 1968 to Aug. 1994. Pesticide data: Feb. 1974 to Aug. 1981. Sediment data: Apr. 1959, Aug. 1973 to Aug. 1994. Specific conductance: Oct. 1945 to Sept. 1981. Water temperature: Nov. 1950 to Sept. 1981.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 29.15 ft above NGVD of 1929. Nov. 1, 1934, to July 27, 1992, at site just upstream from pier on left bank of upstream bridge at same datum. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since installation of gage in 1934, at least 10% of contributing drainage area has been regulated. There are many diversions above station. The city of Victoria releases wastewater effluent into the river below this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1929, reached a stage of 30.2 ft, present site and datum, maximum stage since at least 1833, that of July 3, 1936.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1680	4560	2750	6600	2060	4040	1870	1540	1180	1220	1160	1010
2	1580	4770	3180	7930	2010	3630	1830	1520	1220	1320	1160	1040
3	1600	5670	3270	e8200	2000	3390	1850	1500	1220	1240	1170	2120
4	1480	8360	3260	e6000	1990	3290	2010	1520	1200	1240	1140	1910
5	1440	15000	3020	e4300	1990	4640	2350	1560	1310	1340	1110	1370
6	1400	16900	4140	3900	1890	7130	2800	1700	1290	1320	1130	1290
7	1380	22700	7950	3820	1920	7830	2490	1830	1460	1340	1110	1210
8	1320	48800	7420	3700	1980	6800	2340	1830	1580	1400	1030	1060
9	1360	48700	4530	3140	1940	6130	2800	1820	1570	1450	1090	1000
10	1730	30900	6640	2670	1980	5820	2850	1790	1400	1410	1120	1000
11	6760	11600	7500	2540	1950	5660	2230	1780	1280	1370	1050	998
12	10400	6280	8640	2630	1960	5550	1750	1720	1250	1370	1080	1220
13	12900	5700	11600	5990	1890	5030	1770	1650	1260	1480	1100	1200
14	8330	6300	14100	6720	1920	3510	1740	1600	1280	1320	1080	2100
15	3880	6460	11500	7210	2010	2950	1750	1620	1290	1470	1050	3640
16	2810	6330	9420	7040	2100	2680	1720	1590	1330	2030	1070	2050
17	2060	6210	6110	4940	2560	2510	1740	1540	1590	1740	1110	1590
18	1650	5880	4110	3300	3970	2410	1650	1460	1630	1670	1110	1430
19	1430	4580	3390	2750	4450	2350	1620	1430	1580	1780	1090	1510
20	1380	4090	3040	2540	4560	2260	1690	1440	1620	1740	1050	1670
21	2010	3890	2920	2450	5060	2250	1640	1410	1620	1400	1060	1600
22	3530	3470	2770	2390	8250	2470	1650	1430	1540	1300	1060	1660
23	4130	3190	2660	2320	11400	2250	1630	1380	1520	1290	1030	1830
24	6680	2870	3670	2230	15100	1830	1670	1410	1430	1270	1050	1740
25	13600	2820	5610	2190	20300	1990	1640	1390	1460	1280	1030	1410
26	14300	2730	7050	2170	17900	2040	1640	1370	1560	1260	987	1240
27	15500	2630	7970	2100	7250	2030	1600	1310	1550	1230	1040	1170
28	19000	2570	6310	2140	4470	1990	1580	1350	1390	1140	1010	1120
29	22400	2490	4510	2120	---	1950	1530	1260	1300	1150	988	1090
30	15100	2460	4690	2090	---	1920	1580	1350	1230	1180	961	1090
31	6010	---	5170	2100	---	1910	---	1260	---	1200	953	---
TOTAL	188830	298910	178900	120220	136860	110240	57010	47360	42140	42950	33179	44368
MEAN	6091	9964	5771	3878	4888	3556	1900	1528	1405	1385	1070	1479
MAX	22400	48800	14100	8200	20300	7830	2850	1830	1630	2030	1170	3640
MIN	1320	2460	2660	2090	1890	1830	1530	1260	1180	1140	953	998
AC-FT	374500	592900	354800	238500	271500	218700	113100	93940	83580	85190	65810	88000

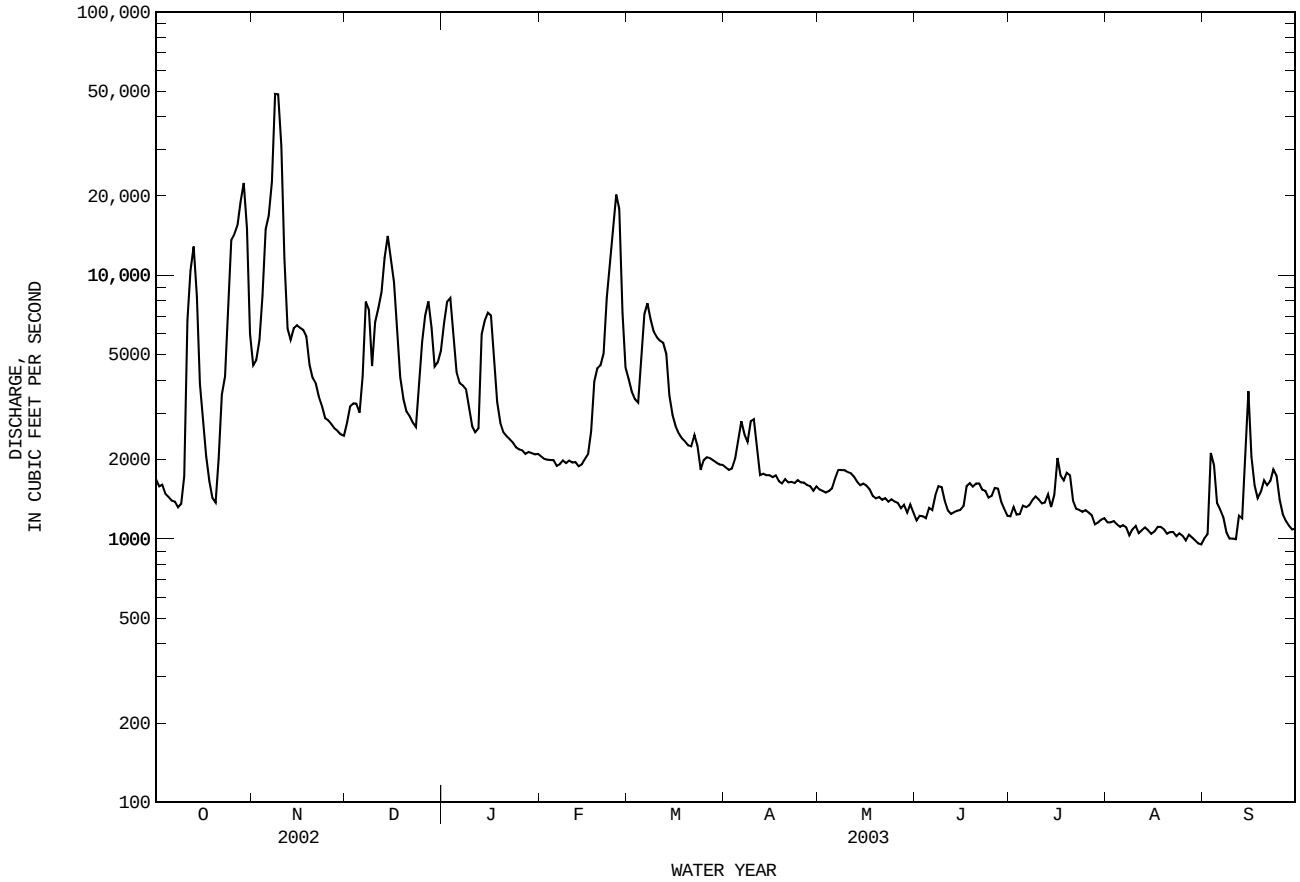
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2003, BY WATER YEAR (WY)

MEAN	2115	1857	1709	1735	1997	1765	2105	2803	2799	1960	1024	1787
MAX	30420	9964	9753	10650	17250	10600	10320	12990	23750	18430	4741	11340
(WY)	1999	2003	1992	1992	1992	1992	1977	1941	1987	1936	2002	1981
MIN	100	59.6	183	118	255	158	157	224	59.7	53.9	37.6	51.6
(WY)	1956	1957	1956	1957	1956	1956	1956	1956	1956	1956	1956	1956

08176500 Guadalupe River at Victoria, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1935 - 2003	
ANNUAL TOTAL	1769807		1300967			
ANNUAL MEAN	4849		3564		1956	
HIGHEST ANNUAL MEAN					6993	1992
LOWEST ANNUAL MEAN					132	1956
HIGHEST DAILY MEAN	67800	Jul 10	48800	Nov 8	307000	Oct 20 1998
LOWEST DAILY MEAN	578	Jun 28	953	Aug 31	14	Aug 20 1956
ANNUAL SEVEN-DAY MINIMUM	668	Jun 22	993	Aug 26	22	Sep 29 1956
MAXIMUM PEAK FLOW			58500	Nov 8	i466000	Oct 20 1998
MAXIMUM PEAK STAGE			29.99	Nov 8	a34.04	Oct 20 1998
ANNUAL RUNOFF (AC-FT)	3510000		2580000		1417000	
10 PERCENT EXCEEDS	10600		7160		3670	
50 PERCENT EXCEEDS	2170		1870		1000	
90 PERCENT EXCEEDS	859		1140		372	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.



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 De Witt-Goliad County line, on right downstream end of bridge on U.S. Highway 183, and 2.4 mi northeast of Weser.

DRAINAGE AREA.--167 mi^2.

PERIOD OF RECORD.--Oct. 1984 to Sept. 1989 (daily mean discharge), Oct. 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 158.40 ft above NGVD of 1929. Satellite telemeter at station.

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

AVERAGE DISCHARGE.--5 years (water years 1985-89), 18.7 ft^3/s (13,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,400 ft^3/s June 22, 1997 (gage height, 26.68 ft), from rating curve extended above 2,840 ft^3/s; minimum discharge, no flow for several days in 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sept. 13	0230	*1,450	*13.31	Sept. 14	1945	1,110	12.44
Sept. 19	1215	1,330	13.00				

THIS PAGE IS INTENTIONALLY BLANK

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 Coleto Creek Reservoir, and 26.0 mi upstream from mouth.

DRAINAGE AREA.--357 mi^2.

PERIOD OF RECORD.--Oct. 1978 to current year. Records equivalent for Jan. 1930 to Dec. 1933 and Oct. 1952 to Sept. 1979, published as "near Schroeder" (discontinued station 08177000).

GAGE.--Water-stage recorder. Datum of gage is 100.43 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi downstream, 122,000 ft^3/s Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft^3/s Oct. 16, 1946, and 46,700 ft^3/s in Oct. 1925, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

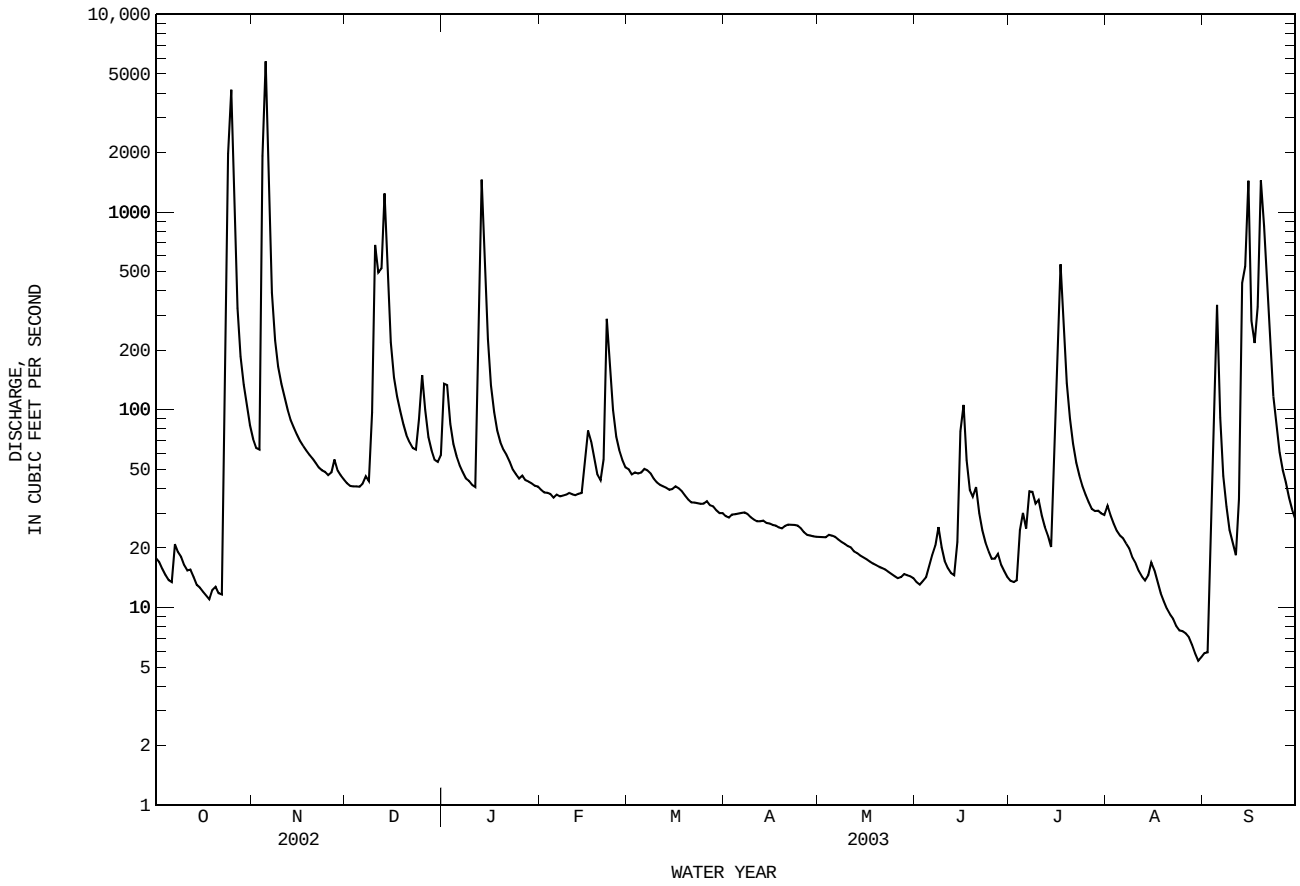
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	71	43	135	39	50	29	23	13	14	33	5.9
2	17	64	41	133	38	47	28	23	13	13	29	5.9
3	16	63	41	85	38	48	30	23	14	14	27	26
4	15	1920	41	67	37	48	30	23	14	25	24	111
5	14	5790	41	58	36	48	30	23	16	30	23	339
6	13	1400	42	52	37	50	30	23	18	25	22	91
7	21	391	46	48	37	49	30	22	21	39	21	46
8	19	224	44	45	37	48	30	21	25	38	20	32
9	18	165	97	44	37	45	29	21	20	34	18	25
10	16	136	682	42	38	43	28	20	17	35	17	21
11	15	117	494	41	37	42	27	20	16	29	15	18
12	16	101	518	192	37	41	27	19	15	26	14	35
13	14	89	1240	1460	38	40	28	19	15	23	14	438
14	13	81	587	596	38	39	27	18	21	20	15	532
15	13	75	220	228	54	40	27	18	78	58	17	1440
16	12	70	145	133	79	41	26	18	106	210	15	282
17	12	66	117	97	69	40	26	17	56	545	13	218
18	11	62	99	79	57	39	25	17	39	288	12	332
19	12	59	84	69	47	37	25	16	36	136	11	1450
20	13	57	74	63	44	35	26	16	41	90	9.8	849
21	12	54	68	59	56	34	26	16	30	67	9.2	376
22	12	51	64	55	289	34	26	16	25	54	8.8	193
23	98	49	63	50	162	34	26	15	21	46	8.0	117
24	1970	48	90	47	100	33	26	15	19	41	7.7	84
25	4160	47	150	45	73	33	25	14	18	37	7.6	61
26	923	48	100	46	63	34	24	14	18	34	7.4	49
27	327	56	73	44	56	33	23	14	19	32	7.1	43
28	186	49	62	43	51	32	23	15	16	31	6.5	36
29	134	47	56	42	---	31	23	15	15	31	5.9	31
30	104	44	54	41	---	30	23	14	14	30	5.4	28
31	84	---	59	41	---	30	---	14	---	29	5.6	---
TOTAL	8308	11494	5535	4180	1724	1228	803	562	789	2124	449.0	7314.8
MEAN	268	383	179	135	61.6	39.6	26.8	18.1	26.3	68.5	14.5	244
MAX	4160	5790	1240	1460	289	50	30	23	106	545	33	1450
MIN	11	44	41	41	36	30	23	14	13	13	5.4	5.9
AC-FT	16480	22800	10980	8290	3420	2440	1590	1110	1560	4210	891	14510

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2003, BY WATER YEAR (WY)

MEAN	115	83.9	47.0	53.5	64.5	52.9	117	105	156	36.1	45.1	103
MAX	895	651	301	400	486	265	1021	608	1191	264	602	920
(WY)	1999	1999	1987	1979	1992	1997	1997	1979	1997	2002	2001	1998
MIN	0.000	0.049	0.94	2.62	2.71	2.78	1.56	0.29	0.48	0.048	0.000	0.000
(WY)	2001	1990	1990	1990	1996	1996	1996	1996	2001	2001	1996	1989

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1979 - 2003	
ANNUAL TOTAL	41682.09		44510.8			
ANNUAL MEAN	114		122		81.3	
HIGHEST ANNUAL MEAN					222	1997
LOWEST ANNUAL MEAN					2.47	1989
HIGHEST DAILY MEAN	5790	Nov 5	5790	Nov 5	24600	Jun 22 1997
LOWEST DAILY MEAN	0.09	Jun 25	5.4	Aug 30	0.00	Aug 20 1989
ANNUAL SEVEN-DAY MINIMUM	0.12	Jun 20	6.0	Aug 27	0.00	Aug 20 1989
MAXIMUM PEAK FLOW			8060	Nov 5	44500	Jun 22 1997
MAXIMUM PEAK STAGE			17.15	Nov 5	31.17	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	82680		88290		58900	
10 PERCENT EXCEEDS	117		163		67	
50 PERCENT EXCEEDS	7.3		37		12	
90 PERCENT EXCEEDS	1.6		14		0.84	

08176900 Coleto Creek at Arnold Road Crossing near Schroeder, TX--Continued



08177300 Perdido Creek at Farm to Market Road 622 near Fannin, TX

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^2.

PERIOD OF RECORD.--June 1978 to Sept. 1991 (daily mean discharge), Oct. 1991 to Dec. 2001 (peak discharges greater than base discharge), Jan. 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft, and flood of Sept. 15, 16, 1967, reached a stage of 26.08 ft, from information by the Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.29	0.27	0.41	0.41	0.55	0.38	0.23	0.17	0.04	0.07	0.35	0.28
2	0.26	0.30	0.42	0.39	0.55	0.37	0.23	0.17	0.05	0.09	0.35	0.29
3	0.23	0.33	0.42	0.40	0.53	0.53	0.23	0.17	0.08	0.13	0.35	0.92
4	0.20	352	0.45	0.40	0.44	0.39	0.23	0.17	0.15	0.28	0.35	0.43
5	0.32	125	0.41	0.41	0.49	0.44	0.23	0.17	0.31	0.31	0.34	0.35
6	0.23	e2.9	0.41	0.41	0.60	0.36	0.23	0.17	0.16	0.21	0.33	0.31
7	0.21	e1.5	0.43	0.40	0.46	0.32	0.23	0.15	0.10	0.24	0.32	0.28
8	0.21	e1.4	0.98	0.42	0.66	0.32	0.20	0.14	0.07	0.24	0.31	0.27
9	0.21	e1.3	21	0.43	0.62	0.31	0.19	0.13	0.06	0.21	0.30	0.32
10	0.17	e1.1	14	0.40	0.44	0.29	0.20	0.13	0.07	0.18	0.30	0.40
11	0.16	e0.97	1.8	0.64	0.43	0.29	0.22	0.14	0.06	0.16	0.46	0.36
12	0.15	e0.94	54	8.5	0.42	0.30	0.21	0.15	0.04	4.3	0.43	14
13	0.15	0.92	30	28	0.45	0.29	0.20	0.14	0.07	0.46	0.32	0.85
14	0.16	0.99	6.0	4.4	0.45	0.27	0.19	0.12	0.22	0.29	0.96	105
15	0.17	0.88	1.7	1.3	33	0.37	0.19	0.11	0.11	114	0.42	72
16	0.15	0.72	0.90	0.74	8.2	0.31	0.21	0.11	0.07	58	0.37	27
17	0.13	0.69	0.62	0.58	0.90	0.29	0.20	0.10	0.06	4.8	0.36	33
18	0.14	0.63	0.49	0.56	0.51	0.27	0.18	0.10	0.05	0.45	0.35	819
19	0.20	0.58	0.46	0.57	0.47	0.25	0.19	0.11	0.05	0.37	0.33	125
20	0.18	0.56	0.42	0.63	0.72	0.24	0.21	0.10	0.05	0.36	0.32	74
21	0.15	0.52	0.42	0.63	0.66	0.24	0.20	0.11	0.06	0.35	0.32	109
22	0.20	0.51	0.45	0.56	0.43	0.27	0.20	0.12	0.05	0.35	0.33	28
23	33	0.54	3.3	0.52	0.41	0.26	0.20	0.11	0.04	0.35	0.32	6.0
24	912	0.52	32	0.56	0.38	0.26	0.19	0.10	0.05	0.34	0.32	1.7
25	60	0.50	2.9	0.69	0.40	0.27	0.17	0.10	0.04	0.33	0.30	0.87
26	13	1.3	0.72	1.1	0.41	0.33	0.15	0.09	0.04	0.33	0.29	0.69
27	4.2	1.1	0.47	0.74	0.39	0.25	0.16	0.11	0.14	0.33	0.28	0.56
28	0.96	0.47	0.43	0.76	0.39	0.26	0.16	0.12	0.10	0.41	0.27	0.49
29	0.48	0.45	0.43	0.68	---	0.24	0.17	0.07	0.06	0.38	0.26	0.45
30	0.36	0.43	0.70	0.58	---	0.24	0.17	0.06	0.06	0.35	0.27	0.45
31	0.31	---	0.65	0.59	---	0.25	---	0.04	---	0.35	0.28	---
TOTAL	1028.58	500.32	177.79	57.40	54.36	9.46	5.97	3.78	2.51	189.02	10.86	1422.27
MEAN	33.2	16.7	5.74	1.85	1.94	0.31	0.20	0.12	0.084	6.10	0.35	47.4
MAX	912	352	54	28	33	0.53	0.23	0.17	0.31	114	0.96	819
MIN	0.13	0.27	0.41	0.39	0.38	0.24	0.15	0.04	0.04	0.07	0.26	0.27
AC-FT	2040	992	353	114	108	19	12	7.5	5.0	375	22	2820

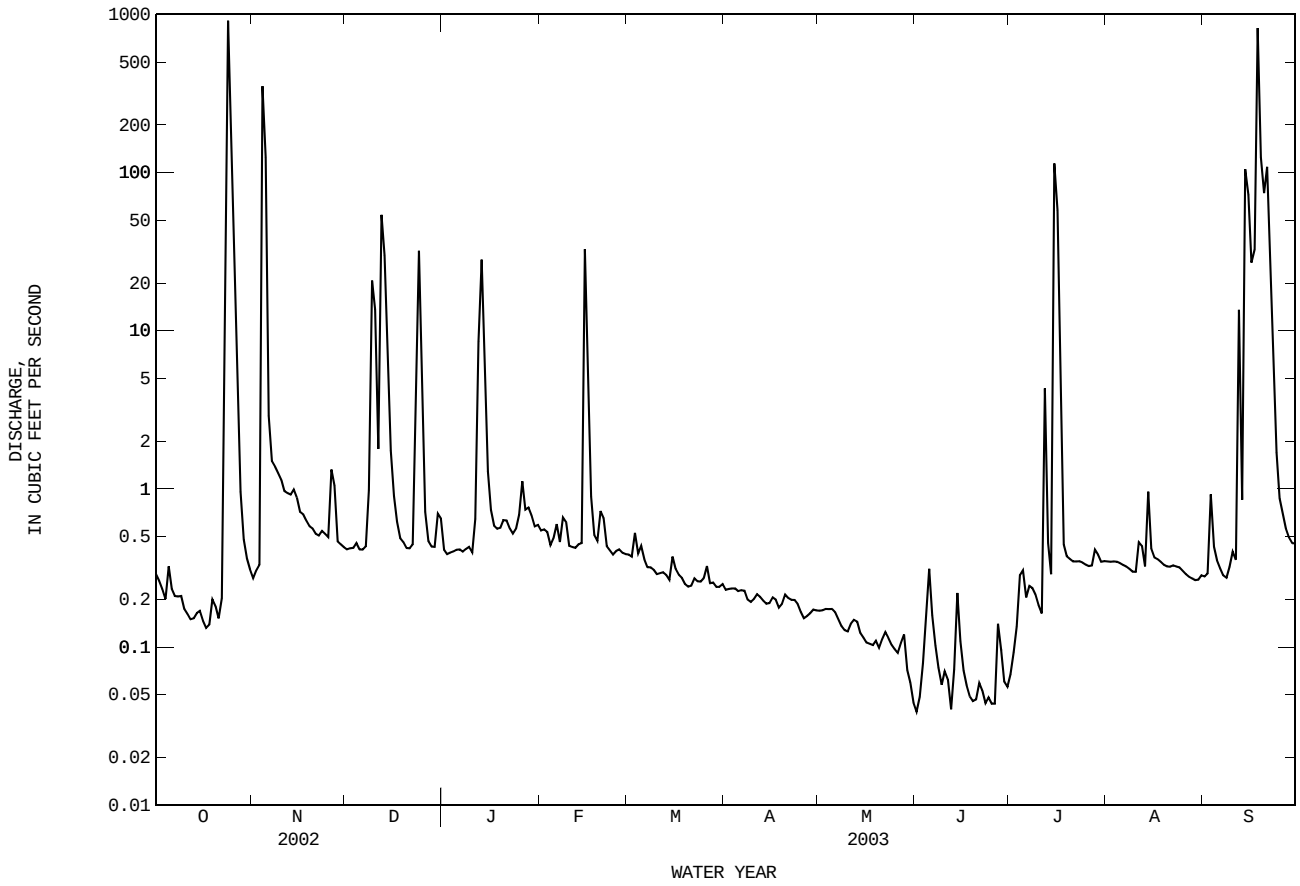
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003h, BY WATER YEAR (WY)

MEAN	10.2	4.23	3.34	3.40	4.61	1.92	4.04	8.84	7.58	8.14	0.36	7.20
MAX	72.0	17.6	36.5	31.6	32.2	12.7	41.8	84.5	55.4	45.7	1.16	47.4
(WY)	1982	1979	1987	1979	1982	1985	1991	1981	1987	1990	1989	2003
MIN	0.000	0.000	0.000	0.040	0.045	0.19	0.20	0.11	0.000	0.002	0.027	0.000
(WY)	1990	1990	1990	1990	2002	2002	2003	1989	1990	1989	1988	1988

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003h	
ANNUAL TOTAL	2786.55		3462.32			
ANNUAL MEAN	7.63		9.49		5.36	
HIGHEST ANNUAL MEAN					12.7	1981
LOWEST ANNUAL MEAN					0.22	1988
HIGHEST DAILY MEAN	912	Oct 24	912	Oct 24	1890	Oct 31 1981
LOWEST DAILY MEAN	0.00	Jan 30	0.04	May 31	0.00	Jul 17 1986
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 13	0.05	Jun 20	0.00	Jul 17 1986
MAXIMUM PEAK FLOW			5840	Oct 24	17900	Oct 18 1994
MAXIMUM PEAK STAGE			11.40	Oct 24	a17.89	Apr 4 1997
ANNUAL RUNOFF (AC-FT)	5530		6870		3880	
10 PERCENT EXCEEDS	1.4		2.2		1.5	
50 PERCENT EXCEEDS	0.20		0.34		0.33	
90 PERCENT EXCEEDS	0.02		0.11		0.00	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08177300 Perdido Creek at Farm to Market Road 622 near Fannin, TX--Continued



08177400 Coleto Creek Reservoir near Victoria, TX

LOCATION.--Lat 28°43'51", long 97°09'53", Victoria County, Hydrologic Unit 12100204, on right upstream end of spillway of dam on Coleto 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^2.

PERIOD OF RECORD.--Feb. 1980 to Sept. 2002 (contents), Oct. 2002 to current year.

REVISED RECORDS.--TX-01-5, contents

GAGE.--Water-stage recorder. Datum of gage NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. The reservoir system consists of the main reservoir, Turkey Creek Arm, and Sulphur Creek Arm. Figures shown below are the contents of the main reservoir only. As of July 1999, the Turkey Creek Arm and Sulphur Creek Arm stations are operated by the Guadalupe-Blanco River Authority. 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 Feb. 1980.

From Feb. 1980 to Sept. 2000, total daily contents of the main reservoir, the Turkey Creek Arm, and the Sulphur Creek Arm published as station 08177400. Revised daily contents for Turkey Creek Arm are stored as station 08177240 Turkey Creek Arm of Coleto Creek Reservoir near Schroeder and revised daily contents for Sulphur Creek Arm are stored as station 08177380 Sulphur Creek Arm of Coleto Creek Reservoir near Fannin.

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-ft 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 are given in the following table:

	Coleto Creek Reservoir Elevation (feet)	Turkey Creek Arm Elevation (feet)	Sulphur Creek Arm Elevation (feet)
Top of dam.....	119.0	107.0	107.0
Emergency spillway.....	107.3	--	--
Top of spillway gates.....	99.4	102.9	102.9
Crest of spillway.....	71.0	91.9	91.9

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 36,680 acre-ft, Aug. 31, 2001, elevation, 99.94 ft; minimum since reservoir was first filled in May 1980, 20,330 acre-ft, Aug. 20, 21, 1996, elevation, 93.27 ft.

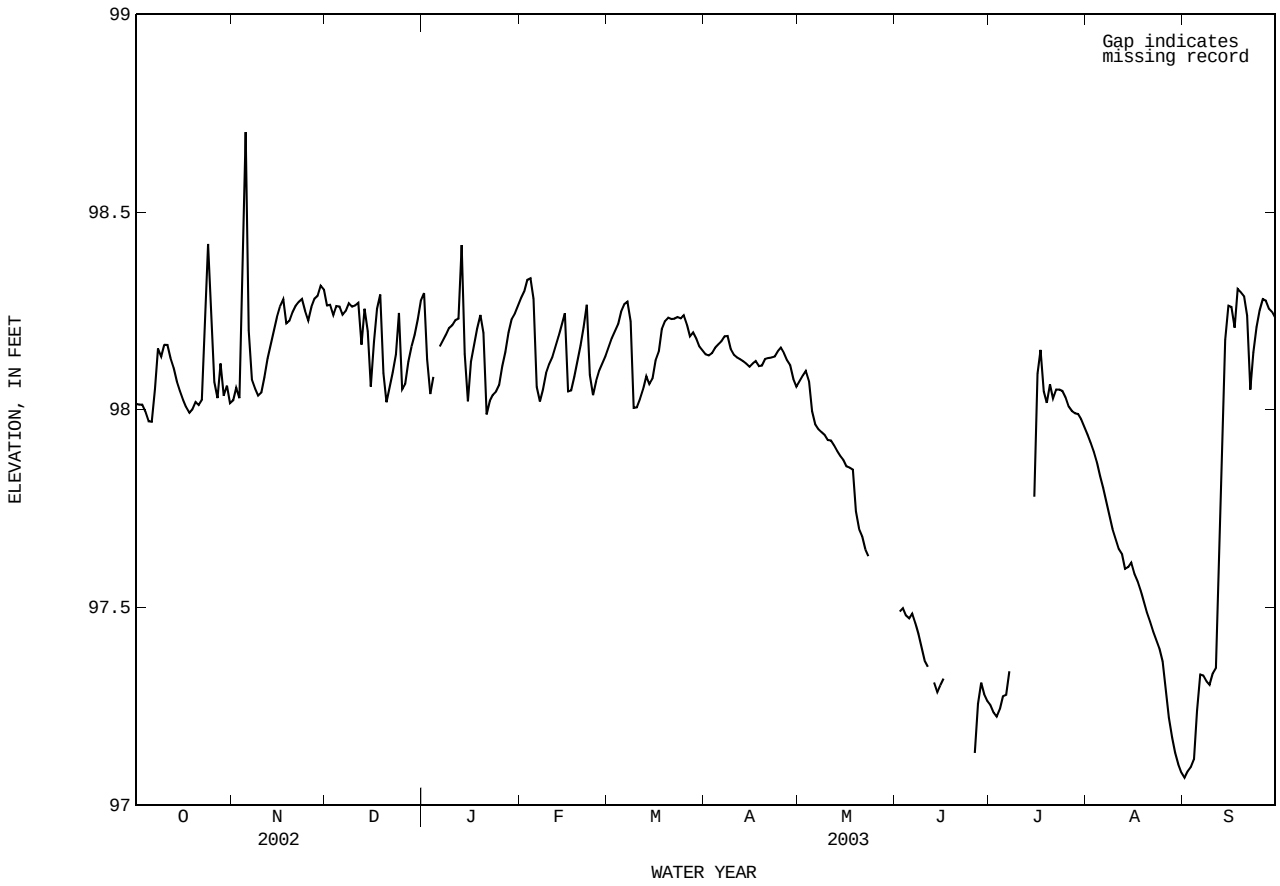
EXTREMES FOR CURRENT YEAR.--Maximum elevation, 99.08 ft, Oct. 24; minimum elevation, 97.05 ft, Sept. 1.

ELEVATION, IN FEET (NGVD), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98.02	98.02	98.26	98.30	98.28	98.16	98.14	98.07	---	97.25	97.94	97.07
2	98.01	98.06	98.27	98.13	98.30	98.18	98.14	98.09	97.49	97.23	97.92	97.09
3	98.01	98.03	98.24	98.04	98.33	98.20	98.14	98.10	97.50	97.22	97.89	97.10
4	98.00	98.44	98.26	98.08	98.33	98.22	98.16	98.07	97.48	97.24	97.87	97.12
5	97.97	98.70	98.26	---	98.28	98.25	98.17	98.00	97.47	97.28	97.83	97.24
6	97.97	98.20	98.24	98.16	98.06	98.27	98.17	97.96	97.48	97.28	97.80	97.33
7	98.05	98.08	98.25	98.17	98.02	98.27	98.19	97.95	97.46	97.34	97.77	97.33
8	98.16	98.05	98.27	98.19	98.05	98.22	98.19	97.94	97.43	---	97.73	97.31
9	98.13	98.04	98.26	98.21	98.09	98.00	98.15	97.94	97.40	---	97.70	97.30
10	98.16	98.04	98.26	98.21	98.12	98.01	98.14	97.92	97.37	---	97.67	97.33
11	98.16	98.08	98.27	98.23	98.13	98.03	98.13	97.92	97.35	---	97.65	97.35
12	98.13	98.13	98.17	98.23	98.16	98.05	98.13	97.91	---	---	97.64	97.65
13	98.11	98.16	98.26	98.42	98.19	98.09	98.12	97.90	97.31	---	97.60	97.86
14	98.07	98.20	98.20	98.14	98.21	98.07	98.12	97.88	97.29	---	97.60	98.18
15	98.05	98.23	98.06	98.02	98.24	98.08	98.11	97.87	97.30	97.78	97.61	98.26
16	98.03	98.26	98.17	98.12	98.05	98.12	98.12	97.86	97.32	98.09	97.59	98.26
17	98.01	98.28	98.26	98.17	98.05	98.15	98.12	97.85	---	98.15	97.57	98.21
18	97.99	98.22	98.29	98.21	98.08	98.20	98.11	97.85	---	98.05	97.54	98.31
19	98.00	98.23	98.09	98.24	98.12	98.22	98.11	97.74	---	98.02	97.51	98.30
20	98.02	98.25	98.02	98.19	98.16	98.23	98.13	97.70	---	98.06	97.49	98.29
21	98.01	98.26	98.06	97.99	98.21	98.23	98.13	97.68	---	98.03	97.46	98.24
22	98.03	98.27	98.09	98.02	98.27	98.23	98.13	97.65	---	98.05	97.44	98.05
23	98.21	98.28	98.14	98.04	98.09	98.23	98.13	97.63	---	98.05	97.42	98.15
24	98.42	98.25	98.25	98.05	98.04	98.23	98.15	---	---	98.05	97.40	98.21
25	98.23	98.23	98.05	98.06	98.07	98.24	98.16	---	---	98.03	97.36	98.25
26	98.07	98.26	98.07	98.11	98.10	98.22	98.14	---	97.13	98.01	97.29	98.28
27	98.03	98.28	98.12	98.15	98.12	98.19	98.13	---	97.26	98.00	97.22	98.28
28	98.12	98.29	98.16	98.20	98.14	98.20	98.11	---	97.31	97.99	97.17	98.26
29	98.04	98.31	98.19	98.23	---	98.18	98.08	---	97.28	97.99	97.13	98.25
30	98.06	98.30	98.23	98.24	---	98.16	98.06	---	97.26	97.98	97.10	98.23
31	98.02	---	98.28	98.26	---	98.15	---	---	---	97.96	97.08	---
MEAN	98.07	98.21	98.19	---	98.15	98.17	98.13	---	---	---	97.55	97.84
MAX	98.42	98.70	98.29	---	98.33	98.27	98.19	---	---	---	97.94	98.31
MIN	97.97	98.02	98.02	---	98.02	98.00	98.06	---	---	---	97.08	97.07

CAL YR 2002 MAX 98.70 MIN 96.23
WTR YR 2003 MAX 98.70 MIN 97.07

08177400 Coleto Creek Reservoir near Victoria, TX--Continued



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 Coleto Creek dam, 9.0 mi southwest of Victoria, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--514 mi^2.

PERIOD OF RECORD.--June 1939 to Sept. 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 NGVD of 1929. Prior to Jan. 17, 1955, at datum 5.0 ft higher. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since water year 1981, at least 10% of contributing drainage area has been regulated. Beginning on Mar. 6, 1980, water diverted from the Guadalupe River basin to the Coleto Creek basin upstream from Coleto Creek Reservoir for industrial use. There are no other large diversions above station. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--16 years (water years 1940-54, 1979-80), 92.7 ft^3/s (67,160 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1939-54, 1979-80).--Maximum discharge, 89,000 ft^3/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^3/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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.58	6.9	1.3	e105	e0.20	2.5	2.2	2.2	2.7	3.6	2.9	3.2
2	0.57	8.0	1.5	e300	e0.20	2.5	2.2	2.2	5.5	3.1	2.9	3.9
3	0.56	133	e375	e2.7	e0.18	2.7	2.2	2.2	4.0	3.1	2.9	3.7
4	0.53	3470	3.8	e1.5	e0.19	2.7	2.2	2.1	2.9	3.2	2.9	3.2
5	0.51	8550	1.4	e0.80	e225	2.7	2.2	4.3	3.0	3.5	2.9	3.1
6	0.51	1930	1.0	e0.72	e241	2.7	2.2	2.6	3.1	3.4	2.9	3.0
7	1.6	482	0.92	e0.68	e6.0	2.6	3.9	2.3	2.8	5.5	3.1	3.0
8	0.67	160	103	e0.70	e3.0	196	2.7	2.3	2.8	7.9	3.0	5.9
9	0.52	154	377	e0.71	e2.9	182	2.2	2.3	2.7	6.3	2.9	3.9
10	0.47	161	527	e0.70	e2.7	5.9	2.1	2.0	2.8	3.9	2.9	3.7
11	0.43	7.6	820	e0.69	e2.4	3.2	2.1	2.0	2.8	3.4	5.9	3.6
12	0.41	2.9	700	e270	2.4	2.8	2.0	2.0	2.8	3.3	3.5	5.2
13	0.41	2.2	1030	e1040	2.4	2.7	2.0	2.0	2.8	3.4	2.9	3.9
14	0.42	1.9	1330	e722	2.5	2.6	2.0	2.0	3.3	9.1	3.5	375
15	0.40	1.7	288	e150	236	3.8	2.0	1.9	2.9	300	3.2	1260
16	0.39	1.6	3.2	e0.43	257	4.1	2.1	2.0	2.8	1450	3.0	438
17	0.39	1.5	1.1	e0.27	6.8	3.0	2.0	2.6	2.8	502	2.9	710
18	0.38	134	101	e0.65	3.1	2.8	2.0	2.7	2.8	404	2.9	2180
19	0.41	4.0	341	e0.60	2.7	2.8	2.0	2.7	2.8	14	2.9	2300
20	0.45	1.8	75	e240	5.1	2.9	2.1	2.7	2.7	4.9	2.9	1800
21	0.41	1.4	1.2	e90	4.2	2.8	2.0	2.7	2.7	3.7	2.9	1540
22	0.43	1.3	0.75	e0.32	165	2.9	2.0	2.7	2.7	3.2	2.8	395
23	323	1.3	0.72	e0.19	403	2.9	2.0	2.7	2.7	3.0	2.9	14
24	4300	106	e76	e0.20	18	2.8	2.0	2.7	2.7	3.0	2.9	6.7
25	7260	6.2	398	e0.20	3.8	2.7	2.0	2.7	2.8	3.0	2.8	5.0
26	1240	2.1	21	e0.19	2.9	115	2.0	2.6	2.9	2.9	2.8	4.3
27	456	1.7	1.2	e0.17	2.6	5.8	1.9	3.9	4.3	2.9	2.8	56
28	116	1.3	e0.93	e0.18	2.5	2.8	2.0	4.1	4.2	3.0	2.8	9.1
29	333	1.2	e0.70	e0.18	---	2.5	3.6	2.9	3.1	3.0	2.8	4.2
30	14	1.4	e0.74	e0.16	---	2.3	2.6	2.7	3.3	2.9	2.8	3.6
31	162	---	e0.63	e0.19	---	2.2	---	2.7	---	2.9	2.9	---
TOTAL	14215.45	15338.0	6583.09	2930.13	1603.77	577.7	66.5	79.5	92.2	2771.1	94.1	11150.2
MEAN	459	511	212	94.5	57.3	18.6	2.22	2.56	3.07	89.4	3.04	372
MAX	7260	8550	1330	1040	403	196	3.9	4.3	5.5	1450	5.9	2300
MIN	0.38	1.2	0.63	0.16	0.18	2.2	1.9	1.9	2.7	2.9	2.8	3.0
AC-FT	28200	30420	13060	5810	3180	1150	132	158	183	5500	187	22120

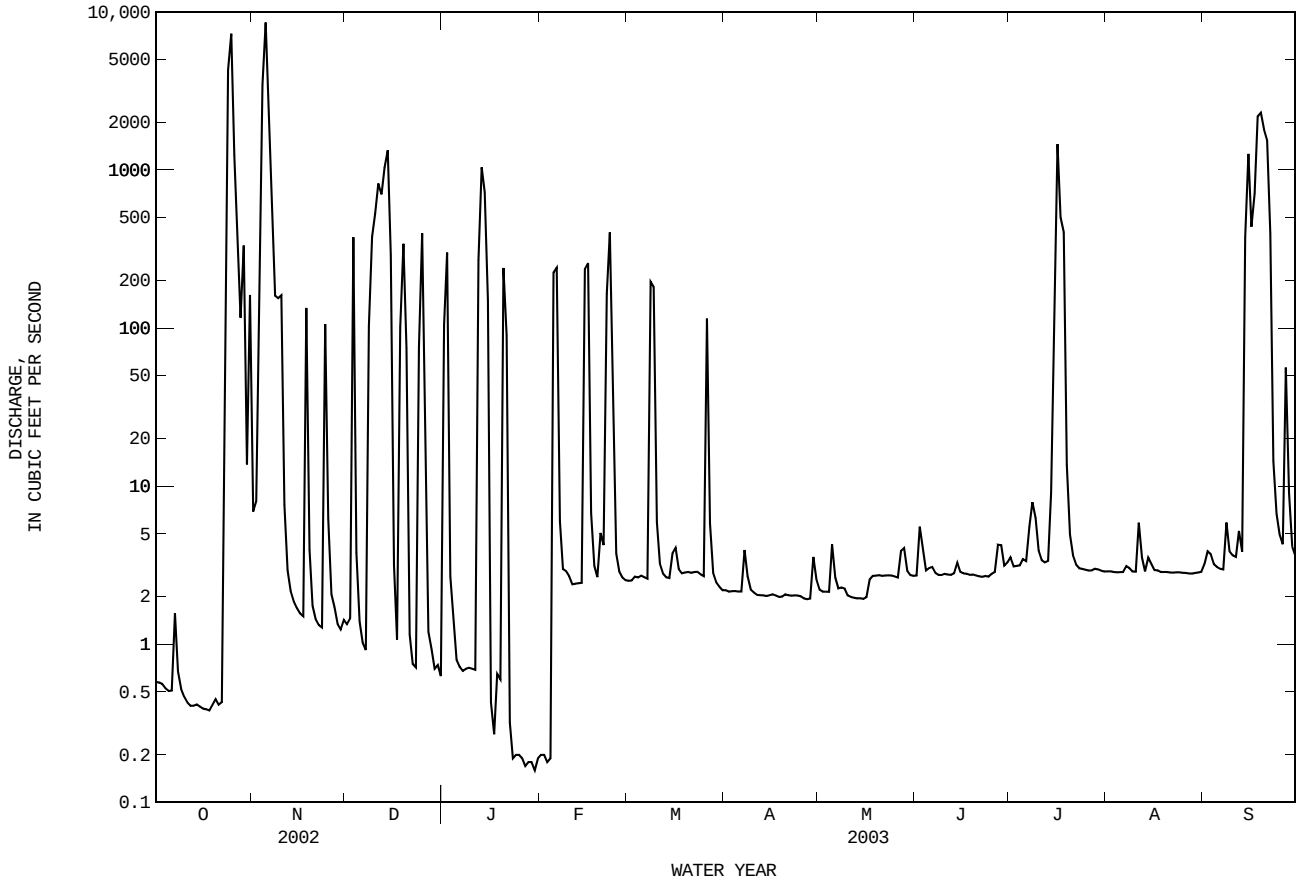
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2003z, BY WATER YEAR (WY)

MEAN	200	112	61.5	39.1	99.4	85.1	176	129	228	66.1	24.3	131
MAX	1313	949	434	347	961	545	1817	940	1426	397	370	1202
(WY)	1999	1999	1992	1992	1992	1997	1997	1993	1993	1990	2001	2001
MIN	1.61	1.90	2.01	1.93	1.98	2.05	2.07	2.09	0.043	0.009	0.93	1.56
(WY)	1996	1997	1997	1996	1996	1996	1996	1996	2001	2001	2002	1989

08177500 Coleto Creek near Victoria, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 2003z		
ANNUAL TOTAL	51702.92		55501.74				
ANNUAL MEAN	142		152		112		
HIGHEST ANNUAL MEAN					302		1997
LOWEST ANNUAL MEAN					1.98		1996
HIGHEST DAILY MEAN	8550	Nov 5	8550	Nov 5	27500	Apr 4	1997
LOWEST DAILY MEAN	0.38	Oct 18	0.16	Jan 30	0.00	May 6	1981
ANNUAL SEVEN-DAY MINIMUM	0.40	Oct 12	0.18	Jan 25	0.00	Jul 5	2001
MAXIMUM PEAK FLOW			15800	Oct 25	c50100	Apr 4	1997
MAXIMUM PEAK STAGE			19.97	Oct 25	a32.05	Apr 4	1997
ANNUAL RUNOFF (AC-FT)	102600		110100		81300		
10 PERCENT EXCEEDS	114		293		32		
50 PERCENT EXCEEDS	3.1		2.8		4.9		
90 PERCENT EXCEEDS	0.68		0.59		1.9		

e Estimated
z Period of regulated streamflow.
a From floodmark.



08177520 Guadalupe River near Bloomington, TX

LOCATION.--Lat 28°39'43", long 96°57'55", Victoria County, Hydrologic Unit 12100204, on left bank at Dupont pump station, 1.8 mi upstream from Dalton Bridge, about 10.5 mi west of Bloomington, and at mile 28.2.

DRAINAGE AREA.--5,816 mi^2.

PERIOD OF RECORD.--Feb. 1999 to current year (daily mean gage height).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. Interruptions in the record were due to the malfunction of the instrument. Since installation of gage in Jan. 1999, at least 10% of contributing drainage area has been regulated. There are many diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 27.67 ft, July 10, 2002; minimum gage height, 8.52 ft, Aug. 3-5, 7-9, 11, 2000.

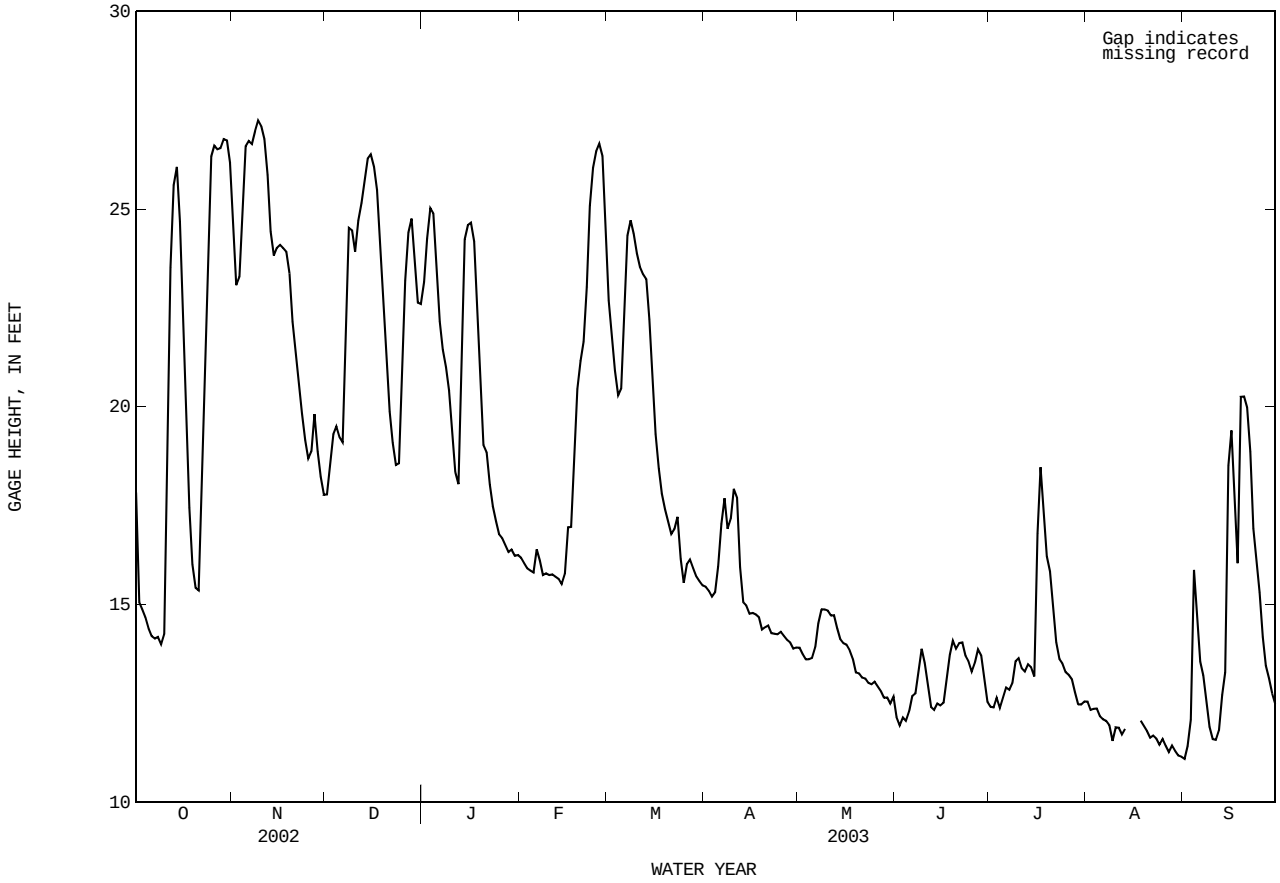
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 20, 1998, reached a gage height of 33.92 ft, from National Weather Service floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.31 ft, Nov. 9; minimum gage height, 11.06 ft, Sept. 1.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	24.49	17.78	23.15	16.18	22.68	15.45	13.91	12.15	12.41	12.54	11.09
2	15.06	23.08	18.61	24.26	16.04	21.77	15.34	13.74	11.94	12.40	12.33	11.42
3	14.88	23.29	19.31	25.02	15.91	20.91	15.20	13.61	12.14	12.64	12.36	12.08
4	14.67	25.06	19.50	24.89	15.86	20.29	15.31	13.61	12.06	12.38	12.37	15.87
5	14.39	26.60	19.23	23.49	15.81	20.46	15.97	13.65	12.30	12.64	12.17	14.73
6	14.20	26.73	19.10	22.16	16.39	22.60	17.03	13.92	12.68	12.90	12.10	13.55
7	14.14	26.65	22.07	21.45	16.10	24.33	17.69	14.53	12.75	12.84	12.05	13.21
8	14.18	26.98	24.52	21.00	15.74	24.72	16.91	14.88	13.31	13.01	11.95	12.54
9	13.99	27.24	24.46	20.42	15.78	24.38	17.17	14.87	13.88	13.57	11.55	11.91
10	14.25	27.09	23.92	19.27	15.74	23.88	17.93	14.85	13.52	13.64	11.89	11.60
11	17.94	26.77	24.71	18.35	15.76	23.54	17.71	14.72	12.99	13.38	11.88	11.58
12	23.52	25.87	25.15	18.04	15.70	23.35	15.95	14.73	12.41	13.31	11.71	11.81
13	25.61	24.43	25.70	20.89	15.65	23.23	15.06	14.40	12.33	13.48	11.85	12.71
14	26.07	23.82	26.28	24.24	15.51	22.22	14.98	14.13	12.49	13.41	---	13.28
15	24.70	24.02	26.38	24.60	15.77	20.59	14.77	14.02	12.45	13.18	---	18.52
16	22.08	24.10	26.07	24.66	16.95	19.31	14.79	13.98	12.51	16.80	---	19.40
17	19.71	24.01	25.48	24.18	16.96	18.44	14.75	13.84	13.08	18.47	---	17.47
18	17.45	23.92	23.83	22.37	18.54	17.80	14.68	13.62	13.73	17.34	12.06	16.04
19	16.01	23.37	22.35	20.48	20.45	17.41	14.37	13.28	14.09	16.22	11.93	20.25
20	15.42	22.15	21.03	19.04	21.16	17.09	14.42	13.25	13.88	15.84	11.80	20.26
21	15.36	21.38	19.88	18.85	21.65	16.78	14.47	13.15	14.03	15.04	11.63	19.99
22	17.85	20.67	19.09	18.03	23.03	16.91	14.28	13.13	14.04	14.05	11.68	18.87
23	20.68	19.83	18.53	17.48	25.08	17.22	14.26	13.02	13.70	13.62	11.61	16.92
24	23.16	19.16	18.57	17.10	26.04	16.15	14.25	12.98	13.56	13.51	11.45	16.07
25	26.34	18.69	21.34	16.77	26.46	15.55	14.31	13.04	13.30	13.29	11.60	15.31
26	26.60	18.88	23.19	16.68	26.66	16.03	14.21	12.92	13.52	13.22	11.42	14.18
27	26.51	19.82	24.41	16.50	26.34	16.14	14.10	12.80	13.87	13.10	11.27	13.45
28	26.54	18.87	24.76	16.33	24.50	15.92	14.04	12.64	13.71	12.78	11.43	13.13
29	26.77	18.23	23.68	16.39	---	15.71	13.88	12.65	13.11	12.48	11.30	12.75
30	26.74	17.78	22.64	16.23	---	15.59	13.91	12.49	12.54	12.47	11.18	12.48
31	26.18	---	22.60	16.25	---	15.48	---	12.66	---	12.55	11.15	---
MEAN	---	23.10	22.39	20.28	18.99	19.56	15.24	13.65	13.07	13.74	---	14.75
MAX	---	27.24	26.38	25.02	26.66	24.72	17.93	14.88	14.09	18.47	---	20.26
MIN	---	17.78	17.78	16.23	15.51	15.48	13.88	12.49	11.94	12.38	---	11.09

08177520 Guadalupe River near Bloomington, TX--Continued



08177700 Olmos Creek at Dresden Drive, San Antonio, TX

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^2.

PERIOD OF RECORD.--June 1968 to Sept. 1981 (daily mean discharge), Oct. 1982 to July 2001 (peak discharges greater than base discharge), Aug. 2001 to current year.
Water-quality records.--Chemical data: Nov. 1968 to Apr. 1995, Oct. 1997 to June 1999. Biochemical data: Nov. 1968 to Apr. 1995, Oct. 1997 to June 1999. Pesticide data: Nov. 1968 to Apr. 1995, Oct. 1997 to June 1999. Sediment data: Oct. 1972 to Sept. 1973.

GAGE.--Water-stage recorder. Datum of gage is 720.00 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records poor. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in Sept. and Nov. 1947 reached a stage of 8.5 ft, from information by local resident. Maximum stage since 1935, that of Sept. 13, 1978.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.10	3.5	4.4	2.7	1.6	0.00	0.10	5.4	0.00	4.5
2	0.00	13	0.19	3.2	4.4	3.3	2.7	0.00	0.23	0.47	0.00	0.01
3	0.00	2.3	2.6	3.2	6.9	27	0.74	0.01	2.0	0.93	0.00	97
4	0.00	88	13	3.6	6.3	5.0	0.10	0.00	58	52	0.00	9.7
5	0.00	6.3	1.2	3.3	5.4	3.6	0.14	0.00	51	326	0.00	69
6	0.00	0.06	0.40	3.1	19	2.1	0.34	0.03	0.35	14	0.00	3.8
7	0.00	0.00	0.63	2.9	3.2	1.5	0.14	0.00	0.00	4.9	0.00	0.30
8	93	0.00	24	2.4	13	1.3	0.06	0.01	0.00	9.7	0.00	0.02
9	264	0.00	112	1.7	4.2	1.6	0.00	0.00	0.00	0.15	0.00	0.01
10	2.2	0.00	2.8	1.0	3.1	0.78	0.00	0.00	55	0.00	0.00	0.08
11	0.02	0.00	1.1	18	1.2	0.04	0.00	0.00	0.13	0.00	0.00	67
12	0.00	0.00	61	107	0.59	0.83	0.00	0.13	0.00	0.00	0.00	542
13	0.00	0.00	4.9	3.5	0.91	0.10	0.00	1.7	2.1	0.00	0.00	1.8
14	0.08	0.00	1.4	0.52	7.9	0.03	0.03	0.15	85	0.00	0.00	2.2
15	0.02	0.00	1.8	0.15	3.9	0.02	0.00	0.05	3.7	0.00	0.00	0.26
16	0.00	0.00	4.5	0.06	1.2	0.00	0.02	0.04	1.9	0.00	0.00	0.01
17	0.33	0.00	3.2	0.22	0.65	0.07	0.00	0.06	0.00	0.00	0.00	0.63
18	0.02	0.00	3.8	0.32	1.3	2.3	0.00	0.03	0.08	0.00	0.00	135
19	5.7	0.00	4.1	0.21	1.1	0.57	0.00	0.02	0.55	0.00	0.00	2.3
20	0.12	0.00	4.2	0.41	98	0.00	0.00	0.00	0.02	0.00	0.00	4.3
21	1.8	0.00	4.8	1.8	20	0.00	0.00	0.00	0.58	0.00	0.00	25
22	33	0.00	5.2	2.4	7.3	8.5	0.00	0.00	2.3	0.00	0.02	1.5
23	276	0.00	34	6.4	2.0	3.0	0.16	0.01	1.00	0.00	0.10	0.51
24	715	0.00	7.8	4.5	8.7	0.01	0.40	0.05	0.38	0.00	0.81	0.07
25	14	0.01	1.4	5.1	9.2	0.00	0.00	0.04	0.05	0.00	5.0	0.08
26	1.9	5.5	0.48	7.7	1.9	0.08	0.00	0.04	0.00	0.00	0.00	1.3
27	0.49	0.11	0.76	4.9	1.9	0.00	0.00	0.05	0.00	0.00	0.05	0.43
28	0.21	0.07	1.3	4.1	2.5	0.00	0.00	0.04	0.01	0.00	0.12	0.65
29	0.01	0.00	1.7	4.1	---	0.00	0.00	0.03	0.00	0.00	0.24	0.37
30	0.00	0.06	3.4	7.0	---	0.00	0.02	0.01	0.00	0.00	0.26	0.14
31	0.00	---	4.0	4.6	---	0.00	---	0.05	---	0.00	36	---
TOTAL	1407.90	115.41	311.76	210.89	240.15	64.43	6.45	2.55	264.48	413.55	42.60	969.97
MEAN	45.4	3.85	10.1	6.80	8.58	2.08	0.21	0.082	8.82	13.3	1.37	32.3
MAX	715	88	112	107	98	27	2.7	1.7	85	326	36	542
MIN	0.00	0.00	0.10	0.06	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.01
AC-FT	2790	229	618	418	476	128	13	5.1	525	820	84	1920

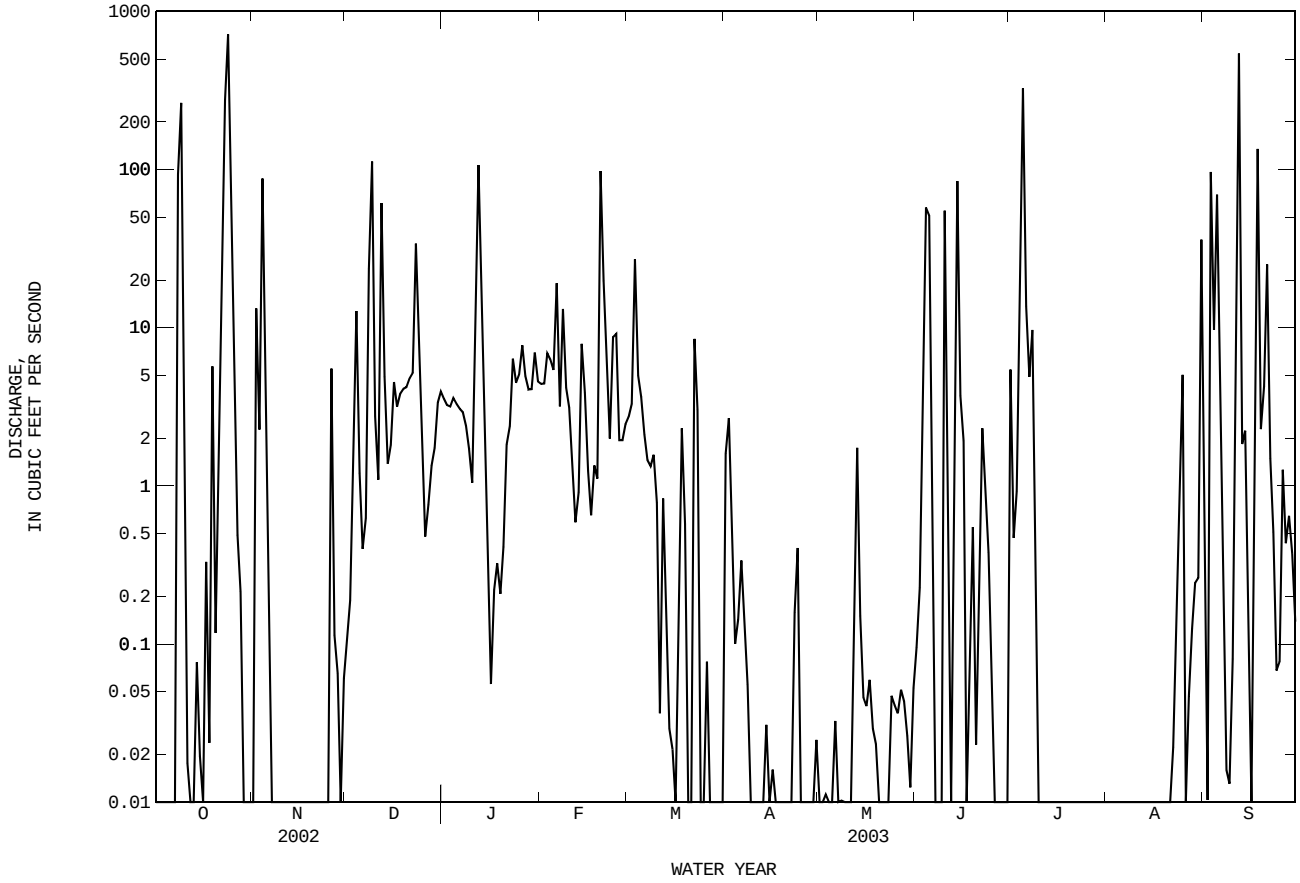
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2003h, BY WATER YEAR (WY)

MEAN	8.05	5.75	2.08	1.76	2.13	1.78	5.90	9.92	6.63	14.6	3.09	11.4
MAX	45.4	33.1	10.1	6.80	8.96	9.12	17.1	52.8	28.4	194	23.5	56.8
(WY)	2003	2002	2003	2003	1975	2002	1973	1972	1973	2002	1974	1973
MIN	0.063	0.046	0.038	0.027	0.023	0.030	0.22	0.082	0.042	0.024	0.020	0.083
(WY)	1969	1976	1978	1971	1976	1976	2003	2003	1980	1974	1977	1975

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1968 - 2003h	
ANNUAL TOTAL	9925.73		4050.14			
ANNUAL MEAN	27.2		11.1		6.26	
HIGHEST ANNUAL MEAN					26.3	2002
LOWEST ANNUAL MEAN					1.03	1971
HIGHEST DAILY MEAN	4000	Jul 1	715	Oct 24	4000	Jul 1 2002
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Jun 14 1968
ANNUAL SEVEN-DAY MINIMUM	0.00	Apr 21	0.00	Oct 1	0.00	Oct 17 1968
MAXIMUM PEAK FLOW			3080	Sep 11	20100	Jul 1 2002
MAXIMUM PEAK STAGE			7.06	Sep 11	a14.54	Jul 1 2002
ANNUAL RUNOFF (AC-FT)	19690		8030		4530	
10 PERCENT EXCEEDS	12		9.4		4.5	
50 PERCENT EXCEEDS	0.07		0.14		0.22	
90 PERCENT EXCEEDS	0.00		0.00		0.01	

h See PERIOD OF RECORD paragraph.
a From floodmark.

08177700 Olmos Creek at Dresden Drive, San Antonio, TX--Continued



08178000 San Antonio River at San Antonio, TX

LOCATION.--Lat 29°24'34", long 98°29'41", Bexar County, Hydrologic Unit 12100301, on right bank 50 ft downstream from South Alamo Street Bridge in San Antonio, 2.1 mi upstream from San Pedro Creek, and at mile 232.0.

DRAINAGE AREA.--41.8 mi^2. Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

PERIOD OF RECORD.--Dec. 1895 to June 1906 (periodic discharge measurements), Jan. 1915 to Nov. 1929, Feb. 1939 to Sept. 1997 (daily mean discharge), Oct. 1997 to Sept. 1999 (annual peak discharge), Oct. 1999 to current year (daily mean stage).
Water-quality records.--Chemical data: Dec. 1991 to Aug. 1992, Jan. 1996 to Aug. 1996. Biochemical data: Dec. 1991 to Aug. 1992, Jan. 1996 to Aug. 1996. Pesticide data: Dec. 1991 to Aug. 1992, Jan. 1996 to Aug. 1996.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 605.26 ft above NGVD of 1929. 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, Feb. 15, 1939, to Apr. 25, 1967, water-stage recorder in vicinity of South Alamo Street Bridge at datum 7.00 ft higher. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft downstream at same datum. May 14, 1969, to Apr. 26, 2000, at site on left bank, 193 ft downstream from South Alamo Street bridge.

REMARKS.--Records good. Since 1926, at least 10% of contributing drainage area has been regulated. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bulletin 5608, vol. 1 (1956, p. 45).

AVERAGE DISCHARGE PRIOR TO REGULATION:--12 years (water years 1915-26) prior to regulation by Olmos Dam, 90.5 ft^3/s (65,570 acre-ft/yr).

AVERAGE DISCHARGE WATER YEARS 1927-97:--50.8 ft^3/s, (36,810 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 20.14 ft, Sept. 10, 1921 (from floodmark at former site and datum); no flow at times.

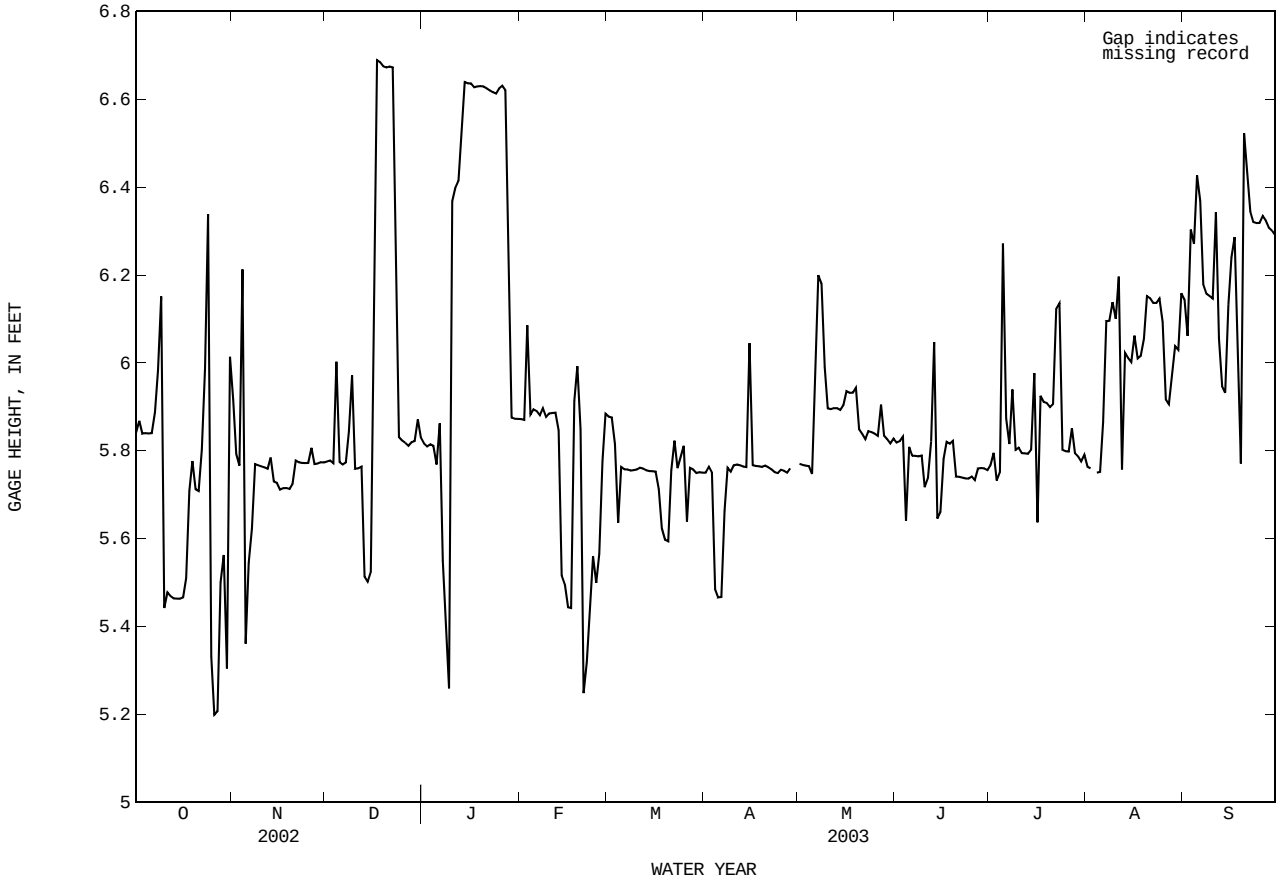
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921, from San Fernando Cathedral archives and old spanish records.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 12.73 ft, July 5; minimum gage height, 5.17 ft, Oct. 30, Jan. 9.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.84	5.92	5.78	5.82	5.87	5.88	5.75	5.77	5.82	5.77	5.76	6.14
2	5.87	5.79	5.78	5.81	5.87	5.88	5.76	5.77	5.82	5.80	5.76	6.06
3	5.84	5.77	5.77	5.81	6.09	5.82	5.75	5.77	5.83	5.73	---	6.30
4	5.84	6.21	6.00	5.81	5.88	5.64	5.48	5.77	5.64	5.75	5.75	6.27
5	5.84	5.36	5.77	5.77	5.89	5.76	5.47	5.75	5.81	6.27	5.75	6.43
6	5.84	5.54	5.77	5.86	5.89	5.76	5.47	5.99	5.79	5.87	5.87	6.37
7	5.89	5.62	5.77	5.55	5.88	5.76	5.66	6.20	5.79	5.82	6.09	6.18
8	5.98	5.77	5.84	5.41	5.90	5.75	5.76	6.18	5.79	5.94	6.10	6.16
9	6.15	5.77	5.97	5.26	5.88	5.76	5.75	5.99	5.79	5.80	6.14	6.15
10	5.44	5.76	5.76	6.37	5.88	5.76	5.77	5.90	5.72	5.81	6.10	6.15
11	5.48	5.76	5.76	6.40	5.89	5.76	5.77	5.89	5.74	5.79	6.20	6.34
12	5.47	5.76	5.76	6.41	5.89	5.76	5.77	5.90	5.82	5.79	5.76	6.06
13	5.46	5.78	5.51	6.54	5.85	5.76	5.76	5.90	6.05	5.79	6.02	5.95
14	5.46	5.73	5.50	6.64	5.52	5.75	5.76	5.89	5.65	5.80	6.01	5.93
15	5.46	5.73	5.52	6.64	5.50	5.75	6.04	5.90	5.66	5.98	6.00	6.13
16	5.47	5.71	6.27	6.64	5.44	5.75	5.77	5.94	5.78	5.64	6.06	6.24
17	5.51	5.71	6.69	6.63	5.44	5.71	5.77	5.93	5.82	5.92	6.01	6.29
18	5.71	5.71	6.68	6.63	5.91	5.62	5.76	5.93	5.82	5.91	6.02	6.07
19	5.78	5.71	6.67	6.63	5.99	5.60	5.76	5.94	5.82	5.91	6.05	5.77
20	5.71	5.72	6.67	6.63	5.85	5.59	5.77	5.85	5.74	5.90	6.15	6.52
21	5.71	5.78	6.67	6.62	5.25	5.76	5.76	5.84	5.74	5.91	6.15	6.43
22	5.80	5.77	6.67	6.62	5.32	5.82	5.76	5.83	5.74	6.12	6.14	6.34
23	5.99	5.77	6.26	6.62	5.45	5.76	5.75	5.84	5.74	6.14	6.14	6.32
24	6.34	5.77	5.83	6.61	5.56	5.79	5.75	5.84	5.74	5.80	6.15	6.32
25	5.33	5.77	5.82	6.62	5.50	5.81	5.76	5.84	5.74	5.80	6.09	6.32
26	5.20	5.81	5.82	6.63	5.57	5.64	5.75	5.83	5.73	5.80	5.92	6.33
27	5.21	5.77	5.81	6.62	5.78	5.76	5.75	5.91	5.76	5.85	5.91	6.32
28	5.50	5.77	5.82	6.17	5.88	5.76	5.76	5.83	5.76	5.79	5.98	6.31
29	5.56	5.77	5.82	5.88	---	5.75	---	5.83	5.76	5.79	6.04	6.30
30	5.30	5.77	5.87	5.87	---	5.75	---	5.82	5.76	5.78	6.03	6.29
31	6.01	---	5.83	5.87	---	5.75	---	5.83	---	5.79	6.16	---
MEAN	5.68	5.75	5.98	6.24	5.74	5.75	---	5.88	5.77	5.86	---	6.23
MAX	6.34	6.21	6.69	6.64	6.09	5.88	---	6.20	6.05	6.27	---	6.52
MIN	5.20	5.36	5.50	5.26	5.25	5.59	---	5.75	5.64	5.64	---	5.77

08178000 San Antonio River at San Antonio, TX--Continued



08178050 San Antonio River at Mitchell Street, 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.--42.4 mi^2. At low-flow, flow of river comes from intermittent spring flow and from artesian wells.

PERIOD OF RECORD.--Oct. 1992 to current year.
Water-quality records.--Chemical data: Dec. 1991 to June 1999. Biochemical data: Dec. 1991 to June 1999. Pesticide data: Dec. 1991 to June 1999.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 585.07 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in Oct. 1992, at least 10% of contributing drainage area has been regulated. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bulletin 5608, vol. 1 (1956, p. 45).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921, from San Fernando Cathedral archives and old spanish records.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	204	183	188	178	187	164	84	15	50	89	66
2	109	329	182	183	180	188	159	81	26	54	85	50
3	102	233	185	182	179	387	163	77	25	103	86	170
4	101	917	426	181	174	194	159	77	227	286	89	155
5	99	374	189	186	177	192	154	75	245	1040	84	448
6	98	230	179	265	186	190	154	67	53	396	74	236
7	117	227	177	183	176	187	146	71	53	149	76	70
8	401	231	219	180	186	190	145	68	56	458	85	71
9	1300	231	664	112	183	189	142	70	57	139	93	83
10	152	231	204	169	176	184	140	64	281	110	73	73
11	129	225	191	193	175	185	138	63	70	107	192	145
12	132	219	364	460	174	186	135	62	68	106	91	1120
13	132	222	212	209	181	185	133	60	263	106	99	207
14	137	218	198	193	183	182	128	52	254	102	101	109
15	133	213	194	181	182	182	129	52	185	278	76	100
16	133	209	191	180	172	184	126	48	91	309	116	103
17	129	208	203	176	171	184	123	45	90	126	79	109
18	133	204	203	180	163	184	119	43	91	114	76	546
19	163	201	200	180	175	182	119	38	100	108	68	91
20	139	198	200	180	501	175	120	31	89	104	64	349
21	137	195	200	178	244	174	121	29	88	102	60	397
22	308	191	198	176	217	207	120	26	86	99	58	136
23	1280	192	e200	174	187	189	124	24	81	100	58	130
24	1380	190	213	174	222	175	123	22	75	96	59	128
25	1050	187	192	178	230	181	117	20	69	92	65	112
26	272	216	194	181	185	171	111	20	64	89	55	112
27	193	186	188	177	185	173	105	19	61	206	52	108
28	200	184	188	187	187	169	97	18	57	118	48	102
29	230	187	191	177	---	167	93	16	55	104	48	99
30	175	184	200	179	---	167	90	15	51	99	47	96
31	194	---	203	179	---	165	---	16	---	94	170	---
TOTAL	9365	7236	6931	5921	5529	5855	3897	1453	3026	5444	2516	5721
MEAN	302	241	224	191	197	189	130	46.9	101	176	81.2	191
MAX	1380	917	664	460	501	387	164	84	281	1040	192	1120
MIN	98	184	177	112	163	165	90	15	15	50	47	50
AC-FT	18580	14350	13750	11740	10970	11610	7730	2880	6000	10800	4990	11350

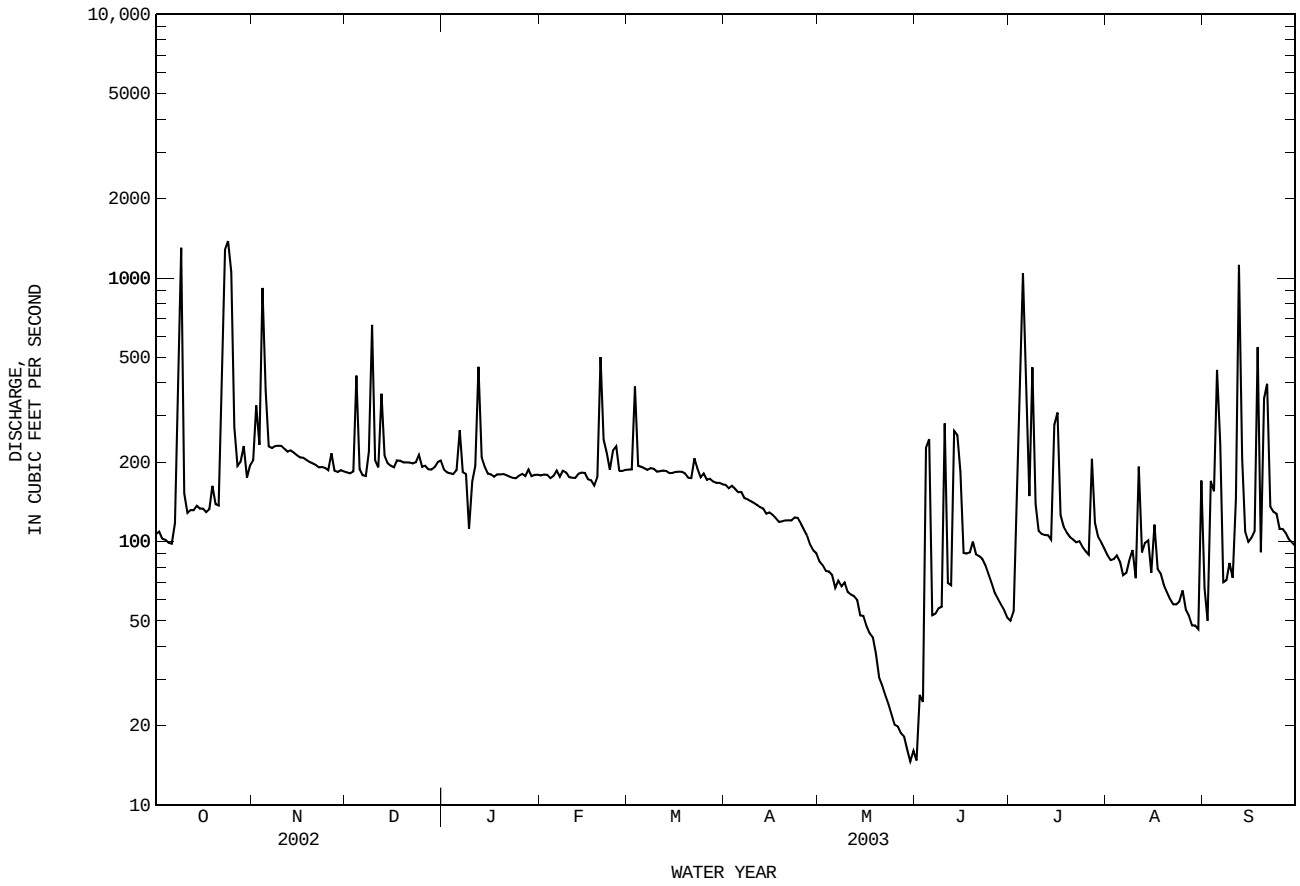
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2003, BY WATER YEAR (WY)

MEAN	102	106	86.9	77.9	77.8	81.3	67.3	84.0	76.5	86.7	48.4	71.6
MAX	302	241	224	191	209	189	149	369	228	510	119	229
(WY)	2003	2003	2003	2003	1993	2003	1993	1993	1993	2002	2001	2002
MIN	4.96	10.9	13.5	6.41	19.0	12.8	14.0	8.96	12.0	9.04	5.82	12.5
(WY)	1997	2000	1997	1997	1996	1996	1996	1998	1998	1998	1997	1999

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1993 - 2003	
ANNUAL TOTAL	59117.5		62894			
ANNUAL MEAN	162		172		80.5	
HIGHEST ANNUAL MEAN					172	2003
LOWEST ANNUAL MEAN					16.4	1996
HIGHEST DAILY MEAN	1960	Jul 5	1380	Oct 24	2750	Oct 17 1998
LOWEST DAILY MEAN	5.7	May 19	15	May 30	0.61	Nov 8 1997
ANNUAL SEVEN-DAY MINIMUM	8.7	May 18	17	May 26	3.0	Jan 1 1997
MAXIMUM PEAK FLOW			5740	Oct 23	i14300	Oct 17 1998
MAXIMUM PEAK STAGE			8.24	Oct 23	a12.94	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	117300		124800		58330	
10 PERCENT EXCEEDS	232		231		181	
50 PERCENT EXCEEDS	86		167		33	
90 PERCENT EXCEEDS	12		58		7.8	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08178050 San Antonio River at Mitchell Street, San Antonio, TX--Continued



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^2. At low-flow, flow of river comes from intermittent springflow and from artesian wells.

PERIOD OF RECORD.--Oct. 1986 to current year.
Water-quality records.--Chemical data: Dec. 1986 to Sept. 2000. Biochemical data: Mar. 1987 to Sept. 1998. Pesticide data: Dec. 1992 to Sept. 1998. Specific conductance: Dec. 1986 to Aug. 1988, Mar. 1993 to Sept. 2000. pH: Dec. 1986 to Aug. 1988, Mar. 1993 to Sept. 2000. Water temperature: Dec. 1986 to Aug. 1988, Mar. 1993 to Sept. 2000. Dissolved oxygen: Dec. 1986 to Aug. 1988, Mar. 1993 to Sept. 2000.

GAGE.--Water-stage recorder. Datum of gage is 488.11 ft above NGVD of 1929. Dec. 20, 1986, to Aug. 15, 1989, at site 0.2 mi downstream at Camino Coahuilteca crossing at same datum. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since installation of gage in water year 1987, at least 10% of contributing drainage area has been regulated.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	308	213	218	212	206	184	135	69	241	144	228
2	141	440	213	214	214	206	e182	130	92	293	140	163
3	138	357	219	211	212	e620	185	128	139	387	138	602
4	138	1080	681	212	209	e220	183	129	423	840	137	526
5	138	444	209	215	211	209	e180	125	412	3050	133	468
6	138	272	197	256	223	205	e182	124	150	1170	128	345
7	168	265	197	211	214	200	174	124	120	317	124	152
8	477	265	226	210	223	200	170	121	112	602	124	107
9	2930	260	796	182	222	201	170	120	113	242	158	119
10	258	258	235	187	213	198	169	117	386	180	153	125
11	204	254	215	226	210	197	168	114	158	177	176	113
12	200	250	461	609	210	199	166	114	134	172	229	1300
13	198	249	239	238	214	e198	164	114	336	170	158	240
14	201	249	220	225	243	e197	161	109	396	171	170	150
15	198	246	218	214	235	196	160	108	327	318	149	150
16	195	240	213	214	213	197	164	105	169	511	179	145
17	194	239	223	209	212	197	e161	100	158	198	170	144
18	194	236	223	209	205	199	158	98	150	183	147	e1130
19	226	233	222	210	213	195	156	95	155	164	137	175
20	208	232	217	212	676	190	159	86	167	164	131	e644
21	197	230	218	210	317	188	158	82	159	162	134	606
22	525	228	217	208	300	261	157	82	158	161	135	151
23	2660	224	280	206	235	233	163	80	160	159	135	136
24	2780	225	268	206	276	195	163	78	158	157	126	131
25	876	222	216	212	307	196	159	75	159	152	138	126
26	415	284	216	215	219	192	156	88	165	150	137	122
27	330	223	213	211	204	192	152	78	173	214	132	123
28	322	217	214	217	203	188	145	77	189	218	130	119
29	333	220	218	213	---	185	141	71	201	162	128	116
30	299	215	225	211	---	186	138	69	209	158	129	113
31	302	---	244	213	---	e185	---	71	---	150	487	---
TOTAL	15721	8665	8166	7004	6845	6631	4928	3147	5897	11393	4836	8769
MEAN	507	289	263	226	244	214	164	102	197	368	156	292
MAX	2930	1080	796	609	676	620	185	135	423	3050	487	1300
MIN	138	215	197	182	203	185	138	69	69	150	124	107
AC-FT	31180	17190	16200	13890	13580	13150	9770	6240	11700	22600	9590	17390

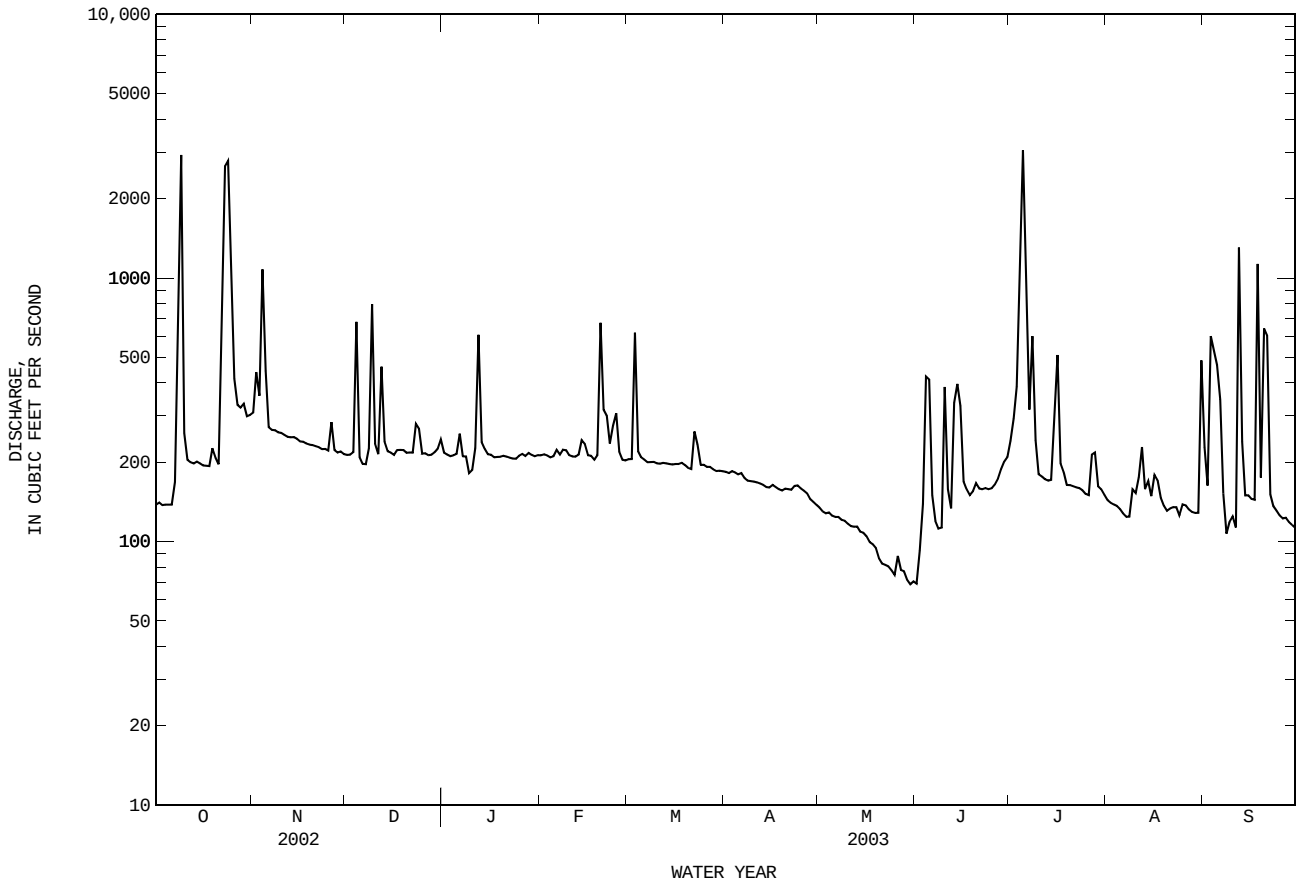
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

MEAN	169	119	133	105	128	124	105	120	159	179	88.5	122
MAX	1041	355	479	226	483	420	211	588	622	696	263	350
(WY)	1999	2001	1992	2003	1992	1992	1987	1987	1987	2002	1992	2002
MIN	10.5	15.2	19.6	12.2	29.3	18.2	25.8	12.5	15.6	12.0	15.1	25.6
(WY)	1997	2000	1991	1997	1996	1996	1996	1998	1998	1998	2000	1989

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	88086.8		92002			
ANNUAL MEAN	241		252		129	
HIGHEST ANNUAL MEAN					321	1987
LOWEST ANNUAL MEAN					30.6	1996
HIGHEST DAILY MEAN	6340	Jul 1	3050	Jul 5	16900	Oct 17 1998
LOWEST DAILY MEAN	5.5	May 24	69	May 30	1.8	Jul 19 2000
ANNUAL SEVEN-DAY MINIMUM	12	Jun 22	75	May 26	4.8	Jul 16 1996
MAXIMUM PEAK FLOW			19000	Oct 23	i79400	Oct 17 1998
MAXIMUM PEAK STAGE			22.58	Oct 23	a32.57	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	174700		182500		93150	
10 PERCENT EXCEEDS	331		340		233	
50 PERCENT EXCEEDS	148		198		44	
90 PERCENT EXCEEDS	23		123		14	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08178565 San Antonio River at Loop 410 at San Antonio, TX--Continued



08178585 Salado Creek at Wilderness Road at San Antonio, TX

LOCATION.--Lat 29°37'50", long 98°33'55", Bexar County, Hydrologic Unit 12100301, on right bank, upstream side of Wilderness Road, within Camp Bullis Military Reservation, 3.1 mi upstream of State Highway 1604.

DRAINAGE AREA.--23.0 mi^2.

PERIOD OF RECORD.--Oct. 1997 to Sept. 2003 (discontinued).
Water-quality records.--Chemical data: Feb. 1998 to Sept. 1999. Biochemical data: Feb. 1998 to Sept. 1999. Pesticide data: Feb. 1998 to Sept. 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,030 ft above NGVD of 1929, from topographic map. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of the gage in Oct. 1997, at least 10% of contributing drainage area has been regulated. No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.11	1.9	0.24	0.32	0.27	0.39	0.19	0.01	0.00	0.00	0.00	0.00
2	e0.11	2.2	0.24	0.30	0.27	0.39	0.20	0.01	0.00	0.00	0.00	0.00
3	e0.10	2.0	0.24	0.29	0.27	0.44	0.18	0.00	0.00	0.00	0.00	0.00
4	e0.10	3.7	0.27	0.30	0.25	0.39	0.19	0.00	0.00	0.00	0.00	0.00
5	e0.10	4.1	0.24	0.28	0.25	0.40	0.19	0.00	0.00	0.00	0.00	0.00
6	e0.10	4.4	0.24	0.29	0.28	0.39	0.17	0.00	0.00	0.00	0.00	0.00
7	e0.12	4.3	0.22	0.27	0.27	0.37	0.17	0.00	0.00	0.00	0.00	0.00
8	e0.62	4.1	0.24	0.28	0.29	0.38	0.17	0.00	0.00	0.00	0.00	0.00
9	e2.0	3.3	1.4	0.28	0.28	0.38	0.17	0.00	0.00	0.00	0.00	0.00
10	e0.20	2.5	0.50	0.26	0.27	0.36	0.17	0.00	0.00	0.00	0.00	0.00
11	0.15	1.7	0.38	0.28	0.27	0.36	0.17	0.00	0.00	0.00	0.00	0.00
12	0.12	1.3	1.0	0.34	0.27	0.34	0.17	0.00	0.00	0.00	0.00	0.59
13	0.12	1.2	0.68	0.30	0.26	0.32	0.15	0.00	0.00	0.00	0.00	0.01
14	0.18	1.1	0.60	0.30	0.26	0.32	0.16	0.00	0.00	0.00	0.00	0.00
15	0.18	0.88	0.61	0.29	0.26	0.31	0.16	0.00	0.00	0.00	0.00	0.00
16	0.18	0.71	0.59	0.29	0.25	0.29	0.14	0.00	0.00	0.00	0.00	0.00
17	0.17	0.62	0.56	0.28	0.25	0.29	0.14	0.00	0.00	0.00	0.00	0.01
18	0.20	0.55	0.55	0.29	0.24	0.30	0.11	0.00	0.00	0.00	0.00	0.02
19	0.26	0.47	0.48	0.28	0.24	0.28	0.12	0.00	0.00	0.00	0.00	0.00
20	0.22	0.42	0.46	0.29	4.7	0.26	0.13	0.00	0.00	0.00	0.00	0.04
21	0.22	0.37	0.46	0.28	0.72	0.27	0.11	0.00	0.00	0.00	0.00	0.06
22	2.5	0.34	0.43	0.27	0.34	0.26	0.10	0.00	0.00	0.00	0.00	0.04
23	17	0.32	0.50	0.27	0.30	0.27	0.11	0.00	0.00	0.00	0.00	0.03
24	27	0.31	0.45	0.26	0.29	0.26	0.09	0.00	0.00	0.00	0.00	0.04
25	13	0.30	0.39	0.28	0.34	0.24	0.05	0.00	0.00	0.00	0.00	0.03
26	10	0.38	0.39	0.29	0.42	0.23	0.04	0.00	0.00	0.00	0.00	0.00
27	8.8	0.29	0.37	0.28	0.40	0.22	0.04	0.00	0.00	0.00	0.00	0.02
28	6.7	0.28	0.34	0.27	0.37	0.21	0.02	0.00	0.00	0.00	0.00	0.01
29	4.5	0.27	0.35	0.28	---	0.19	0.05	0.00	0.00	0.00	0.00	0.01
30	2.8	0.26	0.36	0.27	---	0.20	0.04	0.00	0.00	0.00	0.00	0.01
31	2.2	---	0.33	0.27	---	0.19	---	0.00	---	0.00	0.00	---
TOTAL	100.06	44.57	14.11	8.83	12.88	9.50	3.90	0.02	0.00	0.00	0.00	0.92
MEAN	3.23	1.49	0.46	0.28	0.46	0.31	0.13	0.001	0.000	0.000	0.000	0.031
MAX	27	4.4	1.4	0.34	4.7	0.44	0.20	0.01	0.00	0.00	0.00	0.59
MIN	0.10	0.26	0.22	0.26	0.24	0.19	0.02	0.00	0.00	0.00	0.00	0.00
AC-FT	198	88	28	18	26	19	7.7	0.04	0.00	0.00	0.00	1.8

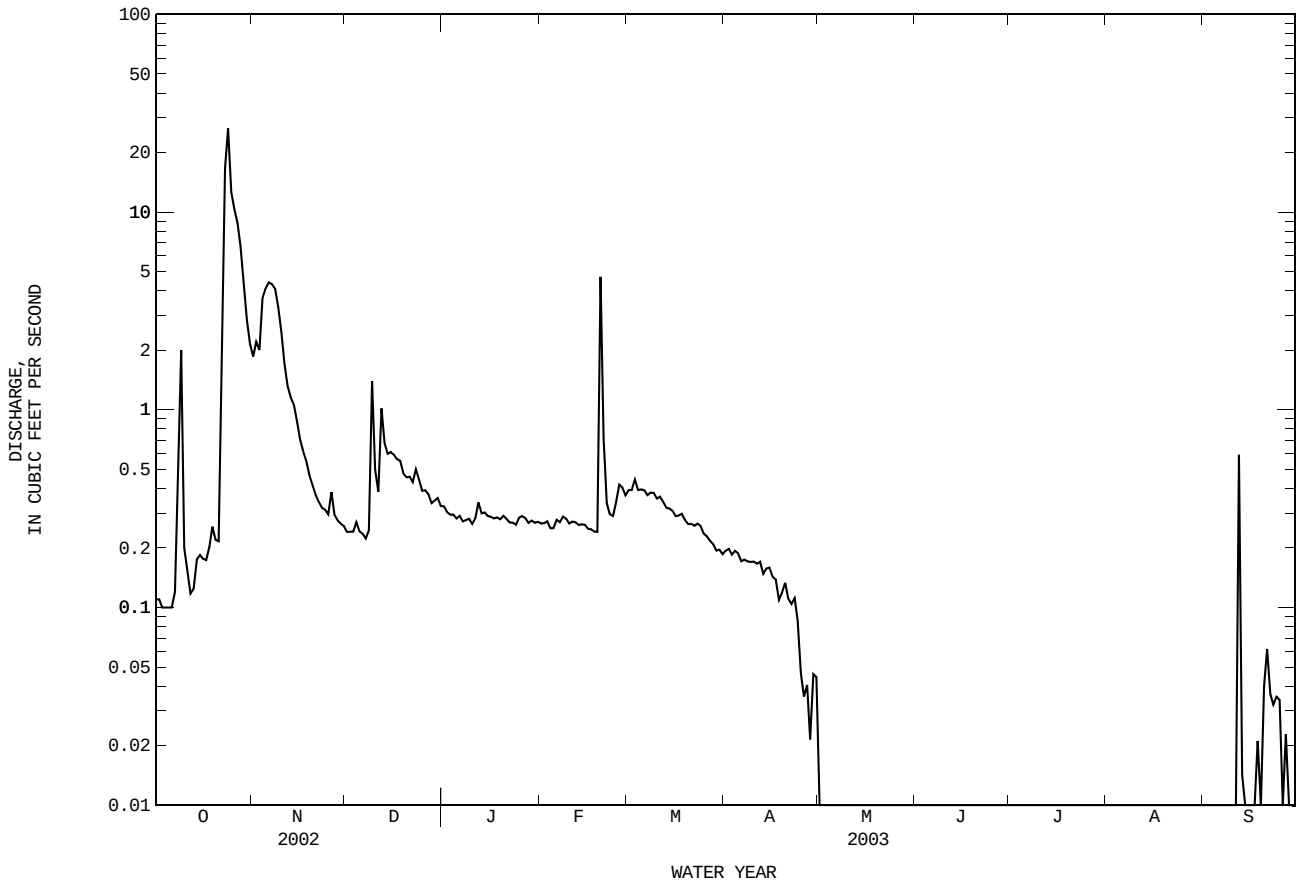
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2003, BY WATER YEAR (WY)

MEAN	23.9	3.54	0.34	0.34	0.31	0.68	0.30	0.14	0.16	35.4	1.25	4.76
MAX	116	11.0	1.09	0.76	0.55	2.66	1.45	0.72	0.53	213	7.31	28.1
(WY)	1999	1999	2002	2001	2002	1998	2001	2001	2002	2002	2001	2001
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	2000	2000	1998	1999	1999	1999	1999	1999	1998	1998	1998	1998

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1998 - 2003	
ANNUAL TOTAL	6827.99		194.79			
ANNUAL MEAN	18.7		0.53		6.70	
HIGHEST ANNUAL MEAN					18.5	2002
LOWEST ANNUAL MEAN					0.005	2000
HIGHEST DAILY MEAN	587	Jul 2	27	Oct 24	653	Oct 18 1998
LOWEST DAILY MEAN	0.00	Mar 10	0.00	May 3	0.00	Dec 1 1997
ANNUAL SEVEN-DAY MINIMUM	0.00	Mar 10	0.00	May 3	0.00	Dec 1 1997
MAXIMUM PEAK FLOW			135	Oct 23	5000	Oct 18 1998
MAXIMUM PEAK STAGE			4.19	Oct 23	13.55	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	13540		386		4850	
10 PERCENT EXCEEDS	7.5		0.59		1.2	
50 PERCENT EXCEEDS	0.22		0.17		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

e Estimated

08178585 Salado Creek at Wilderness Road at San Antonio, TX--Continued



08178627 Elm Waterhole Creek Tributary at San Antonio, TX

LOCATION.--Lat 29°38'48", long 98°24'23", Bexar County, Hydrologic Unit 12100301, on right bank upstream side of Evans Road, 0.4 mi upstream of Elm Waterhole Creek, 5.21 mi upstream of State Highway 1604.

PERIOD OF RECORD.--
CHEMICAL DATA: Apr. 2001 to current year.
BIOCHEMICAL DATA: Apr. 2001 to current year.
PESTICIDE DATA: Apr. 2001 to current year.

INSTRUMENTATION.--Water-stage recorder. Discharge-activated automatic sampler. Tipping bucket raingage at site. Satellite telemeter at station.

REMARKS.--Water-quality samples and associated discharge and precipitation data were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Storm water discharge, Mgal/d (81395)	Elapsed time of storm, hours (00135)	Precipitation duration of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal streptococci KF MF, col/ 100 mL (31673)	Precipitation total, inches/ storm (82381)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
OCT													
24-24	0930	150	8.0	9.7	2.5	495	40	--	--	1.7	71	26.4	1.15
24...	0935	--	--	--	--	--	--	E14000k	E14000k	--	--	--	--
JUL													
08-08	1315	85	8.4	1.2	1.2	180	70	--	--	1.1	37	14.0	.573
08...	1330	--	--	--	--	--	--	8000	24000	--	--	--	--

Date	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)
OCT													
24-24	1.76	.1	5	3.20	2.8	1.45	<.17	11.1	107	138	E.005	.16	<.04
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	1.10	.1	6	2.70	1.9	1.47	<.2	5.12	65	760	E.006	.25	<.04
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Total nitrogen, water, unfltrd mg/L (00600)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, unfltrd ug/L (01027)
OCT													
24-24	1.2	.42	1.0	.153	.022	E.01	--	<7	5	<.30	13	<.06	<.2
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	2.8	.31	2.6	.49	.048	.03	.095	--l	9	<.30	6	<.06	.2
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, unfltrd recover-able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Mercury water, unfltrd recover-able, ug/L (71900)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, unfltrd recover-able, ug/L (01067)	Nickel, water, fltrd, ug/L (01065)
OCT													
24-24	<.04	2.1	.13	<10	1.2	<10	14	.33	3.0	.02	.5	2.8	1.18
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	<.04	<.8	.18	M	1.0	E5n	12	<.08	3.1	.03	E.3n	6.6	.82
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

08178627 Elm Waterhole Creek Tributary at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Silver, water, fltrd, ug/L (01075)	Zinc, water, unfltrd recover -able, ug/L (01092)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)
OCT													
24-24	<.20	920	90	.11	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	<.20	20	Mn	.07	<.006	<.006	<.004	<.005	.007	<.050	<.010	<.002	E.182
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)
OCT													
24-24	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)
OCT													
24-24	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	<.004	<.035	<.027	.077	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)
OCT													
24-24	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08-08	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

08178627 Elm Waterhole Creek Tributary at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
OCT				
24-24	<.005	<.005	<.009	<.004
24...	--	--	--	--
JUL				
08-08	<.005	<.005	<.009	<.004
08...	--	--	--	--

Remark codes used in this report:
  < -- Less than
  E -- Estimated value
  M -- Presence verified, not quantified

Value qualifier codes used in this report:
  k -- Counts outside acceptable range
  n -- Below the NDV

Null value qualifier codes used in this report:
  l -- Analysis discarded: lab QC failure

THIS PAGE IS INTENTIONALLY BLANK

08178700 Salado Creek at Loop 410 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^2.

PERIOD OF RECORD.--Sept. 1960 to current year. Prior to Oct. 2000, published as "(Upper Station) at San Antonio".
Water-quality records.--Chemical data: Nov. 1968 to May 1999. Biochemical data: Nov. 1968 to May 1999. Pesticide data: Nov. 1971 to Sept. 1973.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 684.60 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Some diversions for irrigation upstream from gage. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, 23 to 24 ft in Oct. 1913. Flood in Sept. 1921 reached a stage of 18 ft, and flood of Sept. 27, 1946, reached a stage of 18.2 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.14	6.0	0.25	1.4	1.2	0.18	0.04	0.00	0.03	0.00	0.00	0.00
2	0.14	9.9	0.23	1.6	0.39	0.17	0.04	0.00	0.00	0.00	0.05	0.00
3	0.13	6.5	0.19	1.2	0.43	7.0	0.05	0.00	0.00	0.00	0.12	0.00
4	0.12	187	9.1	0.39	1.0	1.5	0.05	0.11	6.2	73	0.10	42
5	0.13	66	7.6	0.27	4.9	0.40	0.05	0.12	45	219	0.11	199
6	0.15	16	3.9	0.20	2.7	0.26	0.04	0.07	2.6	37	0.06	41
7	0.16	9.4	0.59	0.18	5.5	0.17	0.05	0.03	0.23	5.4	0.05	1.7
8	5.3	8.4	2.3	0.18	1.4	0.16	0.04	0.00	0.09	116	0.05	0.11
9	242	7.8	91	0.16	0.65	0.14	0.05	0.00	0.04	34	0.03	0.02
10	14	7.7	26	0.16	1.1	0.13	0.04	0.00	8.5	1.7	0.04	0.00
11	1.2	7.4	11	0.32	5.5	0.13	0.01	0.00	0.96	0.18	0.16	16
12	0.41	5.8	27	18	5.5	0.13	0.00	0.00	0.11	0.09	0.02	309
13	0.21	6.1	11	5.0	5.3	0.12	0.01	0.00	12	0.04	0.46	25
14	0.19	5.3	1.7	5.1	4.7	0.12	0.02	0.00	29	0.02	0.07	8.9
15	0.22	6.5	0.68	7.2	0.81	0.13	0.02	0.00	11	1.9	0.04	3.5
16	0.22	6.2	0.50	7.0	0.28	0.12	0.02	0.00	1.1	55	0.02	0.44
17	0.20	6.2	0.45	5.9	0.17	0.11	0.02	0.00	0.14	24	0.00	0.19
18	0.18	6.1	2.0	0.98	0.16	0.06	0.04	0.00	0.08	1.5	0.00	21
19	0.22	5.7	7.9	0.37	0.13	0.07	0.04	0.00	0.04	0.18	0.00	13
20	0.28	5.7	7.4	1.3	15	0.14	0.04	0.00	0.02	0.09	0.00	2.8
21	0.29	5.6	1.1	6.1	12	0.09	0.05	0.00	0.01	0.06	0.00	35
22	2.4	5.7	0.38	6.2	4.4	0.10	0.05	0.00	0.00	0.04	0.00	9.2
23	235	5.4	3.4	5.9	0.74	0.12	0.05	0.00	0.00	0.05	3.7	0.69
24	955	4.9	8.5	1.3	1.7	0.13	0.05	0.00	0.00	0.04	24	0.16
25	115	4.5	1.0	0.81	3.6	0.12	0.05	0.03	0.00	0.03	6.0	0.11
26	25	4.7	0.50	0.39	0.79	0.07	0.03	0.12	0.00	0.02	0.74	0.12
27	18	2.4	0.37	1.5	0.46	0.07	0.02	0.14	0.00	0.01	0.06	0.13
28	11	0.77	0.30	6.4	0.28	0.09	0.02	0.15	0.00	0.01	0.00	0.06
29	8.6	0.40	0.24	6.9	---	0.04	0.02	0.14	0.00	0.00	0.00	0.04
30	7.8	0.26	5.7	7.0	---	0.08	0.01	0.13	0.00	0.01	0.00	0.03
31	6.5	---	11	6.3	---	0.06	---	0.12	---	0.00	0.00	---
TOTAL	1650.19	420.33	243.28	105.71	80.79	12.21	1.02	1.16	117.15	569.37	35.88	729.20
MEAN	53.2	14.0	7.85	3.41	2.89	0.39	0.034	0.037	3.90	18.4	1.16	24.3
MAX	955	187	91	18	15	7.0	0.05	0.15	45	219	24	309
MIN	0.12	0.26	0.19	0.16	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	3270	834	483	210	160	24	2.0	2.3	232	1130	71	1450

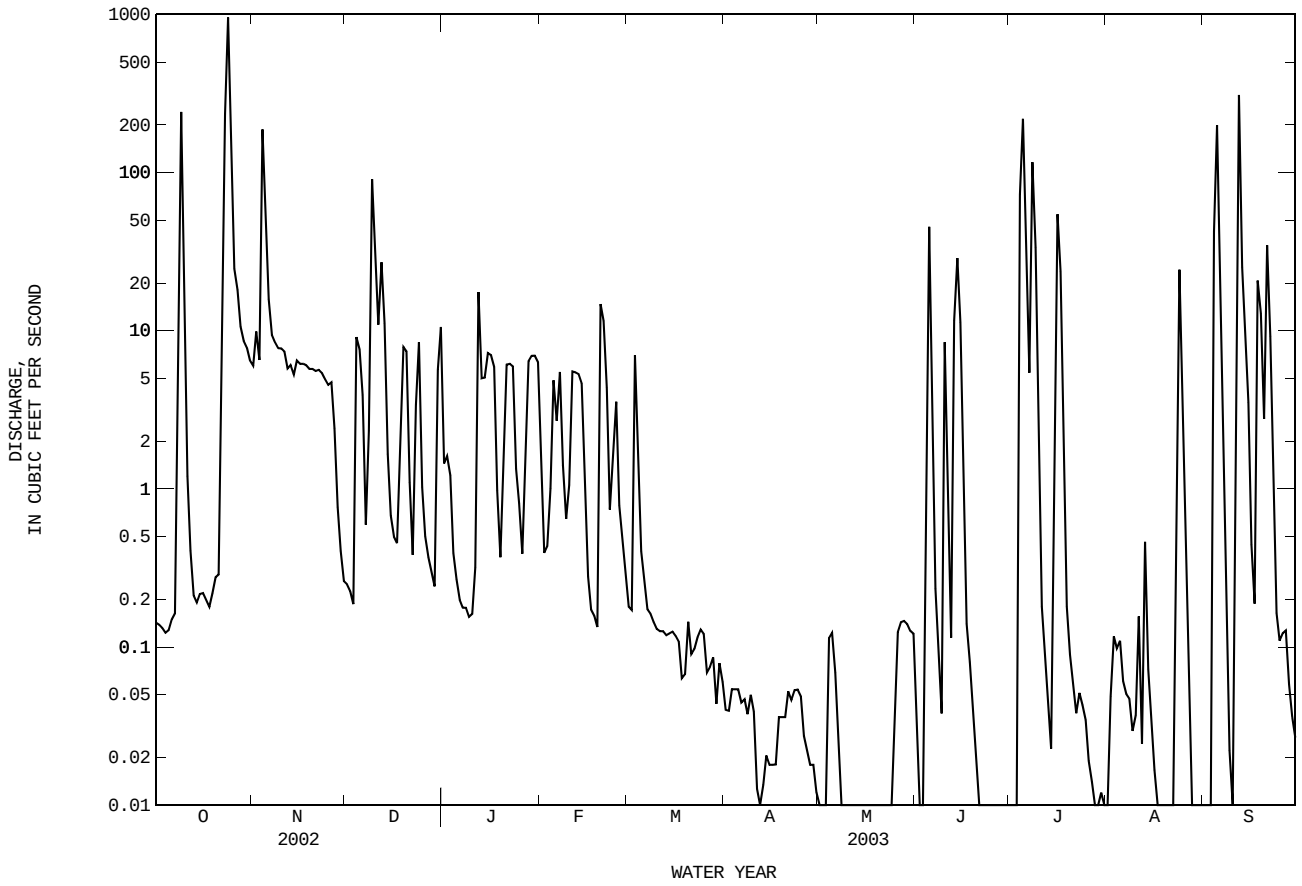
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	25.6	8.84	7.88	7.16	5.00	4.98	8.82	34.0	20.2	23.8	3.73	12.4
MAX	771	77.0	155	173	71.0	93.7	116	576	151	679	49.5	187
(WY)	1999	2001	1992	1968	1992	1992	1991	1993	1987	2002	2001	1973
MIN	0.001	0.006	0.000	0.000	0.013	0.000	0.000	0.000	0.006	0.000	0.000	0.000
(WY)	1992	2000	1962	1996	1996	1962	1984	1961	1984	1984	1986	1960

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	24613.09		3966.29			
ANNUAL MEAN	67.4		10.9		13.6	
HIGHEST ANNUAL MEAN					68.4	2002
LOWEST ANNUAL MEAN					0.27	1962
HIGHEST DAILY MEAN	6570	Jul 2	955	Oct 24	11600	Oct 17 1998
LOWEST DAILY MEAN	0.00	May 12	0.00	Apr 12	0.00	Sep 1 1960
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 2	0.00	May 8	0.00	Sep 1 1960
MAXIMUM PEAK FLOW			3110	Oct 24	i64400	Oct 17 1998
MAXIMUM PEAK STAGE			7.95	Oct 24	a22.40	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	48820		7870		9870	
10 PERCENT EXCEEDS	36		11		8.0	
50 PERCENT EXCEEDS	0.21		0.19		0.60	
90 PERCENT EXCEEDS	0.04		0.00		0.00	

i From indirect measurement of peak flow.
a From floodmark.

08178700 Salado Creek at Loop 410 at San Antonio, TX--Continued



08178800 Salado Creek at Loop 13 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^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Sept. 1960 to current year. Prior to Oct. 2000, published as "(Lower Station) at San Antonio".

GAGE.--Water-stage recorder. Datum of gage is 526.95 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Several small diversions above station. Most of low flow comes from artesian wells and springs within the city of San Antonio.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	30	6.2	51	33	31	23	16	9.8	11	12	64
2	20	43	5.8	32	28	31	21	16	13	11	11	18
3	e20	104	5.7	28	25	167	23	16	16	18	11	58
4	20	388	298	28	24	109	22	17	138	44	10	45
5	19	720	43	27	24	48	22	17	345	770	9.4	190
6	19	98	10	26	32	38	23	16	246	315	9.7	599
7	18	56	6.9	25	30	34	23	15	45	118	9.0	63
8	58	45	5.3	24	34	31	21	16	23	275	9.2	28
9	1690	41	264	24	34	30	20	15	17	576	11	18
10	164	37	104	24	29	28	19	14	58	88	11	16
11	57	32	29	25	26	28	19	14	106	45	11	14
12	36	28	73	162	29	27	20	15	32	27	46	1210
13	27	25	92	133	31	27	19	14	34	22	21	198
14	23	23	35	48	35	26	19	14	396	17	58	76
15	23	21	24	38	62	26	17	13	221	28	24	75
16	22	20	24	38	80	26	19	14	161	358	37	28
17	19	19	25	36	28	25	18	12	40	262	19	20
18	17	18	28	35	24	26	18	13	26	69	11	243
19	21	17	31	30	23	26	19	12	24	33	9.2	147
20	29	15	36	27	198	24	20	12	18	22	8.3	96
21	18	13	37	27	182	24	19	14	17	18	7.6	391
22	60	13	32	32	107	28	19	12	16	15	7.3	154
23	1460	13	51	32	52	36	19	12	14	15	10	49
24	1460	12	97	32	35	26	21	14	13	14	10	30
25	1020	11	53	29	53	24	17	13	13	12	36	22
26	129	12	34	27	52	26	18	12	14	11	24	50
27	80	13	30	26	36	24	18	13	13	26	12	36
28	61	9.5	29	25	33	22	18	13	11	88	9.8	18
29	49	8.1	29	31	---	22	17	11	9.8	19	7.9	15
30	41	7.1	29	33	---	24	16	9.2	11	14	6.5	14
31	34	---	59	33	---	25	---	9.4	---	12	18	---
TOTAL	6734	1891.7	1625.9	1188	1379	1089	587	423.6	2100.6	3353	496.9	3985
MEAN	217	63.1	52.4	38.3	49.2	35.1	19.6	13.7	70.0	108	16.0	133
MAX	1690	720	298	162	198	167	23	17	396	770	58	1210
MIN	17	7.1	5.3	24	23	22	16	9.2	9.8	11	6.5	14
AC-FT	13360	3750	3220	2360	2740	2160	1160	840	4170	6650	986	7900

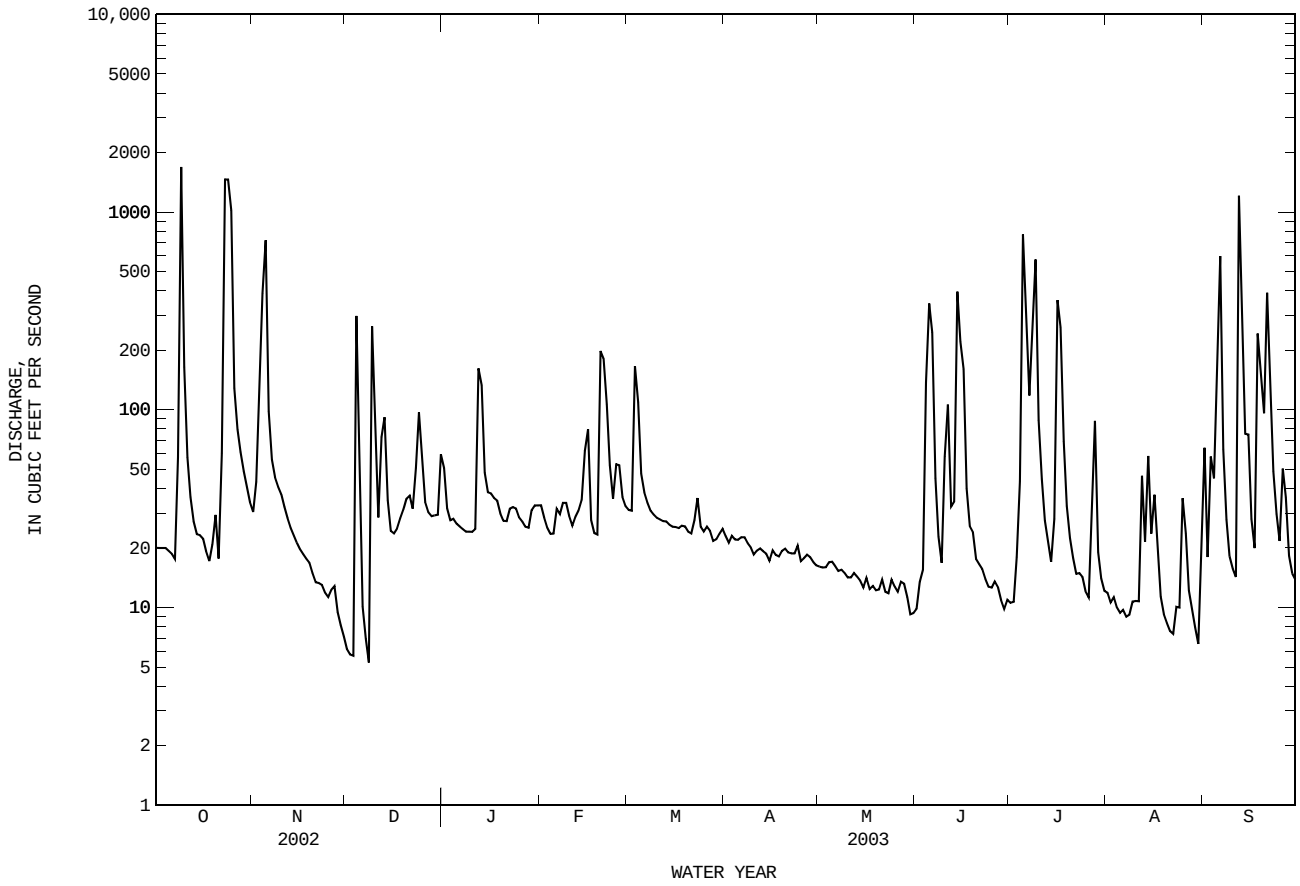
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	67.8	42.2	40.4	39.8	39.5	33.9	40.7	73.9	66.3	48.6	27.2	46.8
MAX	1161	147	376	379	285	206	188	358	349	651	176	400
(WY)	1999	2001	1992	1968	1992	1992	1977	1972	1987	2002	1974	1973
MIN	2.86	3.76	6.11	3.88	5.27	7.70	7.80	3.88	1.64	0.55	0.56	2.32
(WY)	1997	2000	2000	1997	1996	1996	1984	1998	1967	1998	2000	1999

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	39238.1		24853.7			
ANNUAL MEAN	108		68.1		47.4	
HIGHEST ANNUAL MEAN					149	1992
LOWEST ANNUAL MEAN					9.96	1996
HIGHEST DAILY MEAN	5840	Jul 2	1690	Oct 9	16900	Oct 18 1998
LOWEST DAILY MEAN	2.0	Jun 15	5.3	Dec 8	0.00	Aug 13 1967
ANNUAL SEVEN-DAY MINIMUM	2.6	Jun 15	7.9	Nov 27	0.03	Jul 29 1998
MAXIMUM PEAK FLOW			3090	Oct 24	i47800	Oct 17 1998
MAXIMUM PEAK STAGE			16.68	Oct 24	a34.07	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	77830		49300		34320	
10 PERCENT EXCEEDS	166		113		59	
50 PERCENT EXCEEDS	14		25		19	
90 PERCENT EXCEEDS	6.7		11		5.6	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08178800 Salado Creek at Loop 13 at San Antonio, TX--Continued



08178800 Salado Creek at Loop 13 at San Antonio, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Nov. 1968 to current year.
BIOCHEMICAL DATA: Nov. 1968 to Sept. 1998, Nov. 2000 to current year.
BIOLOGICAL DATA: May 1989 to Sept. 1995.
PESTICIDE DATA: Nov. 1968 to Sept. 1998, Nov. 2000 to current year.
SEDIMENT DATA: Oct. 1968 to Sept. 1973, Apr. 1996 to Sept. 1997, Nov. 2000 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Jan. 1987 to July 2000.
pH: Jan. 1987 to July 2000.
WATER TEMPERATURE: Jan. 1987 to July 2000.
DISSOLVED OXYGEN: Jan. 1987 to July 2000.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,290 microsiemens/cm, Aug. 23, 1994; minimum, 39 microsiemens/cm, Nov. 9, 1990.
pH: Maximum, 9.0 units, Apr. 26, 27, 1997; minimum, 7.0 units, Aug. 24, 1999.
WATER TEMPERATURE: Maximum, 31.0°C, July 17-20, 1988, July 30, 1993, July 17, 19, 1996; minimum, 0.0°C, Dec. 24, 1989.
DISSOLVED OXYGEN: Maximum, 16.7 mg/L, Jan. 27, 1988, Mar. 11, 1996; minimum, 0.6 mg/L, July 27, 1996.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper- ature, water, deg C (00010)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	Alka- linity, wat flt fxd end field, mg/L as CaCO3 (39036)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)
OCT													
17...	1340	802	7.9	19.0	7.2	76	270	70.3	53.3	.79	.010	.80	<.04
NOV													
13...	1310	910	7.9	17.0	8.1	85	310	83.2	56.3	1.75	.012	1.77	<.04
DEC													
17...	1310	831	7.0	16.5	8.0	85	250	85.0	56.0	1.09	.008	1.10	.05
JAN													
15...	1300	614	7.8	11.0	11.4	105	180	60.6	40.7	--	E.007	.86	<.04
FEB													
12...	1210	896	8.0	15.0	9.3	94	300	75.0	52.9	--	E.007	1.29	<.04
MAY													
01...	1230	1020	7.9	24.0	6.0	74	340	85.5	81.6	1.48	.014	1.49	<.04
21...	1400	1010	7.8	25.0	--e	--	310	80.3	81.8	1.03	.009	1.04	<.04
JUN													
17...	1310	343	7.5	26.0	7.1	89	120	31.3	24.4	.62	.020	.64	<.04
JUL													
23...	1200	678	7.8	28.0	--e	--	220	53.0	46.9	--	E.007	.88	<.04
AUG													
13...	0810	--	--	--	--	--	--	--	--	--	--	--	--
13...	1220	779	7.6	26.0	--e	--	250	60.4	61.1	.77	.014	.79	<.04
SEP													
10...	1300	491	7.5	26.5	5.7	73	170	34.0	29.9	.68	.029	.71	<.04

Date	Total nitro- gen, water, unfltrd mg/L (00600)	Organic nitro- gen, water, unfltrd mg/L (00605)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phos- phorus, water, unfltrd mg/L (00665)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Ortho- phos- phate, water, fltrd, mg/L (00660)	Sus- pended sedi- ment concen- tration mg/L (80154)	2,6-Di- ethyl- aniline water fltrd 0.7u GF ug/L (82660)	Aceto- chlor, water, fltrd, ug/L (49260)	Ala- chlor, water, fltrd, ug/L (46342)	alpha- HCH, water, fltrd, ug/L (34253)	Atra- zine, water, fltrd, ug/L (39632)	Azin- phos- methyl, water, fltrd 0.7u GF ug/L (82686)
OCT													
17...	1.1	--	.26	.077	.04	.126	61	<.006	<.006	<.004	<.005	.153	<.050
NOV													
13...	2.0	--	.27	.061	.03	.104	101	<.006	<.006	<.004	<.005	.051	<.050
DEC													
17...	1.5	.31	.36	.058	.03	.080	53	<.006	<.006	<.004	<.005	.070	<.050
JAN													
15...	1.2	--	.33	.043	<.02	--	27	--	--	--	--	--	--
FEB													
12...	1.5	--	.21	.016	<.02	--	50	<.006	<.006	<.004	<.005	.039	<.050
MAY													
01...	1.8	--	.35	.103	.06	.196	46	<.006	<.006	<.004	<.005	.021	<.050
21...	1.3	--	.30	.089	.06	.169	76	<.006	<.006	<.004	<.005	.019	<.050
JUN													
17...	1.2	--	.52	.157	.05	.166	43	<.006	<.006	<.004	<.005	.170	<.050
JUL													
23...	1.2	--	.33	.113	.07	.209	21	<.006	<.006	<.004	<.005	.041	<.050
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	1.2	--	.38	.078	.02	.074	6	--	--	--	--	--	--
SEP													
10...	1.0	--	.34	.13oc	.06	.169	10	--	--	--	--	--	--

08178800 Salado Creek at Loop 13 at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Benflur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
OCT													
17...	<.010	<.002	E.012	<.020	<.005	<.006	<.018	<.003	E.011	.026	<.005	<.02	<.002
NOV													
13...	<.010	<.002	<.041	<.030	<.005	<.006	<.018	<.003	E.015	.017	<.005	<.02	<.002
DEC													
17...	<.010	<.002	E.028	<.020	<.005	<.006	<.018	<.003	E.011	E.030	<.005	<.02	<.002
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.011	E.004n	<.005	<.02	<.002
MAY													
01...	<.010	<.002	E.008	<.020	<.005	<.006	<.018	<.003	E.009	<.006	<.005	<.02	<.002
21...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.013	<.005	<.005	<.02	<.002
JUN													
17...	<.010	<.002	E.031	<.020	<.005	<.006	<.018	<.003	E.024	.039	<.005	<.02	<.002
JUL													
23...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.009	.013	<.005	<.15	<.002
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)
OCT													
17...	<.009	<.005	<.003	<.004	<.035	E.005n	<.013	<.006	<.002	<.007	<.003	<.010	<.006
NOV													
13...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
DEC													
17...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.004	<.007	<.003	<.010	<.006
MAY													
01...	<.009	<.005	<.003	<.004	<.035	<.027	E.001t	<.006	<.002	<.007	<.003	<.010	<.006
21...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUN													
17...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
23...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.010	<.002	<.007	<.003	<.010	<.006
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

08178800 Salado Creek at Loop 13 at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
OCT													
17...	<.004	<.022	<.011	.05	<.010	<.011	<.02	<.004	.031	.11	E.021	<.02	<.005
NOV													
13...	<.004	<.022	<.011	.03	<.010	<.011	<.02	<.004	<.005	E.07	E.032	<.02	<.005
DEC													
17...	<.004	<.022	<.011	.03	<.010	<.011	<.02	<.004	.010	.10	E.016	<.02	<.005
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.004	<.022	<.011	.04	<.010	<.011	<.02	<.004	.005	E.13	<.034	<.02	<.005
MAY													
01...	<.004	<.022	<.011	.05	<.010	<.011	<.02	<.004	<.005	E.19	E.030	<.02	<.005
21...	<.004	<.022	<.011	.04	<.010	<.011	<.02	<.004	<.005	.20	<.034	<.02	<.005
JUN													
17...	<.004	<.022	<.011	.04	<.010	<.011	<.02	<.004	<.005	.77	<.034	<.02	<.005
JUL													
23...	<.004	<.022	<.011	.04	<.010	<.011	<.02	<.004	<.005	.26	<.034	<.02	<.005
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)
OCT								
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
NOV								
13...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
DEC								
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
JAN								
15...	--	--	--	--	--	--	--	--
FEB								
12...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
MAY								
01...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
21...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
JUN								
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
JUL								
23...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--
AUG								
13...	--	--	--	--	--	--	--	474d
13...	--	--	--	--	--	--	--	--
SEP								
10...	--	--	--	--	--	--	--	--

Remark codes used in this report:
  < -- Less than
  E -- Estimated value

Value qualifier codes used in this report:
  c -- See laboratory comment
  d -- Diluted sample: method hi range exceeded
  n -- Below the NDV
  o -- Result determined by alternate method
  t -- Below the long-term MDL

Null value qualifier codes used in this report:
  e -- Required equipment not functional/avail

THIS PAGE IS INTENTIONALLY BLANK

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.--328 mi^2.

PERIOD OF RECORD.--Oct. 1982 to current year.
Water-quality records.--Chemical data: Jan. 1983 to Sept. 1993. Biochemical data: Jan. 1983 to Sept. 1993. Pesticide data: Jan. 1983 to Sept. 1993.

REVISED RECORDS.--WDR TX-02-05: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,189.46 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. There are several small diversions upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1880, 46.62 ft Aug. 2, 1978.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	402	196	137	96	138	114	75	46	64	69	50
2	168	424	194	132	96	136	111	77	46	62	66	58
3	164	452	190	130	97	140	113	75	45	62	64	54
4	159	436	194	128	95	143	114	75	49	70	63	51
5	154	438	188	127	100	136	112	74	121	102	61	92
6	150	398	180	126	100	135	111	72	393	161	59	87
7	148	381	176	124	97	134	109	70	165	229	57	51
8	167	374	176	122	96	132	106	68	127	219	55	49
9	514	367	244	122	96	132	105	66	106	207	57	48
10	417	359	250	118	94	130	105	64	523	166	61	48
11	307	341	218	118	94	128	103	64	553	148	58	48
12	259	326	203	126	91	131	101	61	265	143	63	73
13	235	313	190	128	90	132	100	62	195	139	60	60
14	227	307	178	125	91	127	99	61	180	131	60	60
15	216	298	176	120	90	124	98	59	176	123	59	56
16	203	287	171	117	87	124	99	56	156	119	56	59
17	195	276	167	114	84	124	98	57	150	119	54	57
18	191	270	165	112	85	129	96	60	133	118	52	77
19	225	261	164	110	86	125	95	58	124	109	51	66
20	237	254	154	110	168	122	94	55	117	104	50	59
21	210	247	152	109	259	120	90	54	109	98	49	62
22	251	240	151	107	160	127	90	54	102	93	48	60
23	380	234	153	105	145	140	91	55	95	91	47	57
24	606	230	153	104	141	137	92	54	89	104	50	55
25	987	225	150	104	140	134	88	52	85	95	53	53
26	728	221	147	105	140	134	85	51	75	86	51	53
27	617	217	145	104	138	134	82	53	71	82	50	53
28	559	211	142	104	138	127	79	53	71	83	50	53
29	513	206	143	103	---	121	79	50	71	80	49	52
30	461	202	144	100	---	118	79	49	68	78	48	50
31	423	---	141	98	---	118	---	47	---	73	48	---
TOTAL	10243	9197	5395	3589	3194	4032	2938	1881	4506	3558	1718	1751
MEAN	330	307	174	116	114	130	97.9	60.7	150	115	55.4	58.4
MAX	987	452	250	137	259	143	114	77	553	229	69	92
MIN	148	202	141	98	84	118	79	47	45	62	47	48
AC-FT	20320	18240	10700	7120	6340	8000	5830	3730	8940	7060	3410	3470

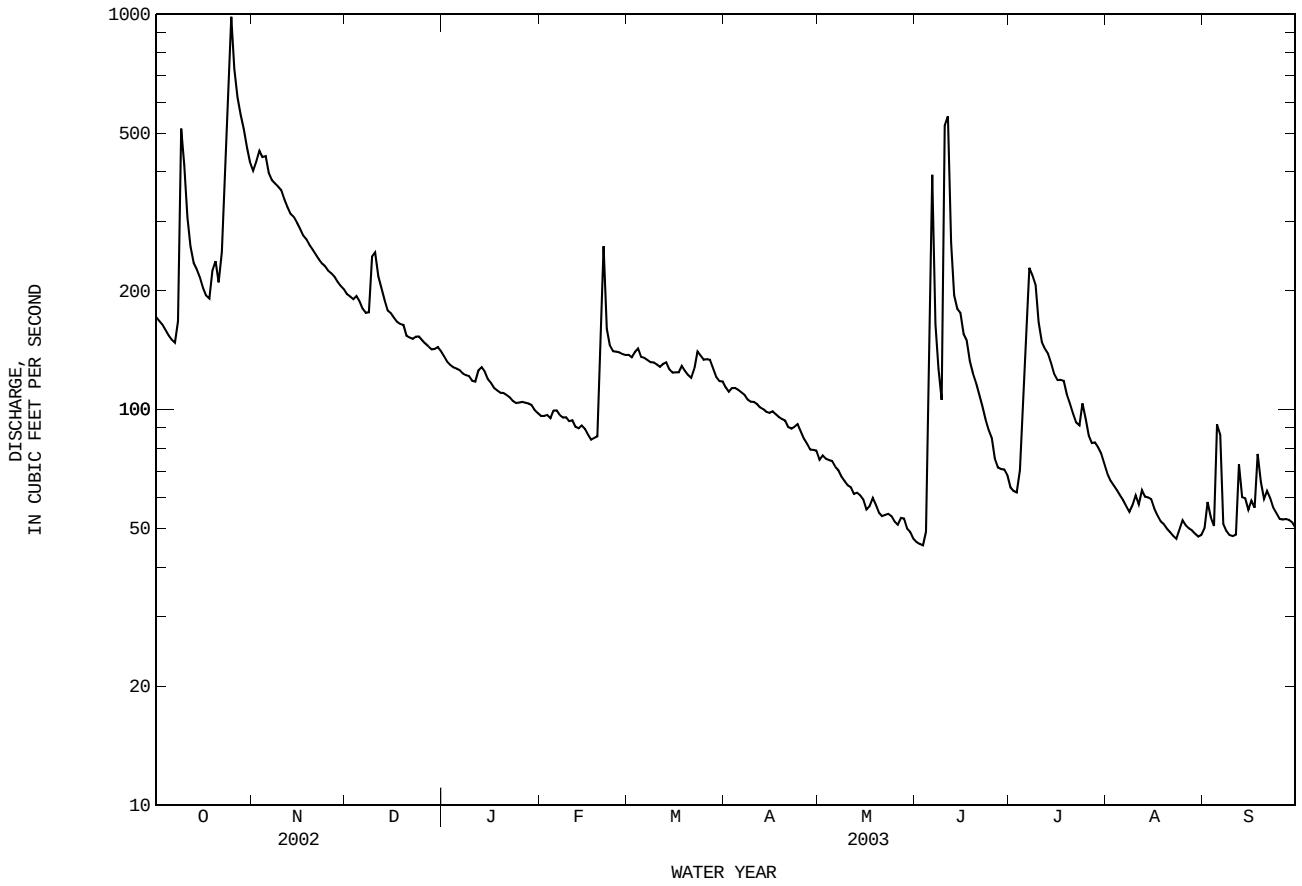
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	126	142	161	131	134	158	125	155	295	488	65.5	85.5
MAX	630	723	1278	638	922	985	547	696	2785	7871	248	364
(WY)	1987	2001	1992	1992	1992	1992	1992	1987	1987	2002	2002	2002
MIN	25.7	27.2	27.0	28.4	27.0	24.3	17.7	14.6	8.77	2.36	2.00	1.28
(WY)	1985	2000	1994	1990	2000	2000	2000	1996	1996	1996	1996	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003		
ANNUAL TOTAL	298538		52002				
ANNUAL MEAN	818		142		173		
HIGHEST ANNUAL MEAN					791		2002
LOWEST ANNUAL MEAN					20.3		2000
HIGHEST DAILY MEAN	104000	Jul 5	987	Oct 25	104000	Jul 5	2002
LOWEST DAILY MEAN	14	Jun 23	45	Jun 3	0.00	Aug 4	1996
ANNUAL SEVEN-DAY MINIMUM	15	Jun 22	47	May 29	0.00	Aug 4	1996
MAXIMUM PEAK FLOW			1400	Jun 10	i159000	Jul 5	2002
MAXIMUM PEAK STAGE			8.42	Jun 10	a38.91	Jul 5	2002
INSTANTANEOUS LOW FLOW			44	Jun 3	0.00	Aug 4	1996
ANNUAL RUNOFF (AC-FT)	592200		103100		125100		
10 PERCENT EXCEEDS	545		259		277		
50 PERCENT EXCEEDS	136		111		64		
90 PERCENT EXCEEDS	33		53		19		

i From indirect measurement of peak flow.
a From floodmark.

08178880 Medina River at Bandera, TX--Continued



08179500 Medina Lake near San Antonio, TX

LOCATION.--Lat 29°32'24", long 98°56'01", Medina County, Hydrologic Unit 12100302, at gate-operating platform, 576 ft from the left end of Medina Dam on Medina River, 4.2 mi upstream from Medina diversion dam, 13 mi north of Castroville, 28 mi west of San Antonio, and 70.4 mi from mouth.

DRAINAGE AREA.--634 mi^2.

PERIOD OF RECORD.--May 1913 to Sept. 1994, Aug. 1997 to current year. Prior to Oct. 1965, end of month contents only from records provided by Bexar-Medina-Atascosa Counties Water Control and Improvement District No. 1.
Water-quality records.--Chemical data: Oct. 1969 to Sept. 1984.

REVISED RECORDS.--WSP 1923: 1953(M), Drainage area.

GAGE.--Water-stage recorder. Datum of the gage is NGVD of 1929. Prior to Oct. 1999, datum of gage was 7.81 ft higher. Satellite telemeter at station.

REMARKS.--Records good. The lake is formed by a gravity-type concrete dam, 1,580 ft long. The dam was completed and storage began May 7, 1913. The uncontrolled spillway is a cut through natural rock 880 ft long, with a 3-foot wide cutoff wall, located near right end of dam. The dam and lake are owned and operated by Bexar-Medina-Atascosa Counties Water Control and Improvement District No. 1. Water is released downstream to Medina Diversion Lake where it is diverted into Medina Canal by the Water District. Capacity table based on survey made by the Texas Water Development Board, July 1995. Conservation pool storage is 254,843 acre-ft. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	1,076.2
Crest of spillways	1,064.2
Water-supply outlet pipe (invert)	958.7
Lowest gated outlet (invert)	912.2

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 322,700 acre-ft July 5, 2002, elevation, 1074.65 ft; minimum contents, 780 acre-ft, Apr. 11, 1948, elevation, 936.2 ft (present datum).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 259,100 acre-ft, Oct. 25, 26, elevation, 1,064.89 ft; minimum contents, 239,100 acre-ft, Sept. 30, elevation, 1,061.55 ft.

RESERVOIR STORAGE, IN (ACRE-FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

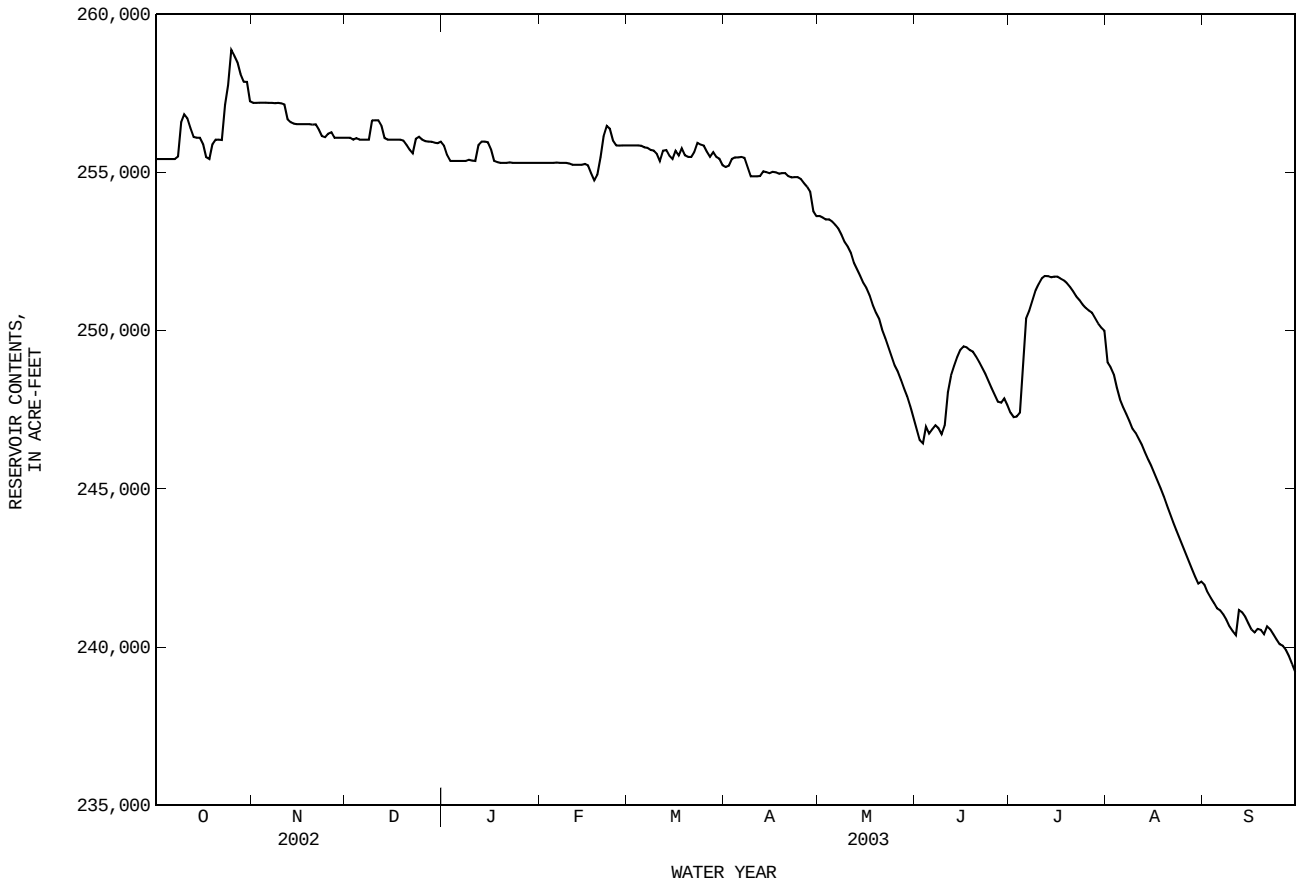
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255400	257200	256100	255800	255300	255900	255200	253600	246900	247400	e249000	242000
2	255400	257200	256100	255600	255300	255900	255200	253600	246500	247300	248800	241700
3	255400	257200	256000	255400	255300	255900	255400	253500	246400	247300	248600	241600
4	255400	257200	256100	255400	255300	255900	255500	253500	247000	247400	248200	241400
5	255400	257200	256000	255400	255300	255800	255500	253500	246700	248900	247800	241200
6	255400	257200	256000	255400	255300	255800	255500	253400	246900	250400	247600	241200
7	255400	257200	256000	255400	255300	255800	255500	253200	247000	250600	247400	241000
8	255500	257200	256000	255400	255300	255700	255200	253000	246900	250900	247200	240900
9	256600	257200	256700	255400	255300	255700	254900	252800	246700	251300	246900	240700
10	256800	257200	256700	255400	255300	255600	254900	252700	247000	251500	246800	240500
11	256700	257200	256700	255400	255200	255400	254900	252500	248100	251700	246600	240400
12	256400	256700	256500	255900	255200	255700	254900	252100	248600	251700	246400	241200
13	256100	256600	256100	256000	255200	255700	255000	251900	248900	251700	246200	241100
14	256100	256500	256000	256000	255200	255500	255000	251700	249200	251700	245900	241000
15	256100	256500	256000	256000	255300	255400	255000	251500	249400	251700	245700	240700
16	255900	256500	256000	255700	255200	255700	255000	251300	249500	251700	245500	240600
17	255500	256500	256000	255400	255000	255500	255000	251100	249500	251700	245300	240500
18	255400	256500	256000	255300	254800	255800	255000	250800	249400	251600	245000	240600
19	255900	256500	256000	255300	254900	255500	255000	250600	249300	251500	244800	240500
20	256000	256500	255900	255300	255500	255500	255000	250400	249200	251400	244500	240400
21	256000	256500	255700	255300	256100	255500	254900	250000	249000	251200	244200	240700
22	256000	256400	255600	255300	256500	255700	254800	249800	248800	251100	244000	240600
23	257100	256200	256100	255300	256400	255900	254900	249500	248600	251000	243700	240400
24	257800	256100	256100	255300	256000	255900	254900	249200	248400	250800	243500	240200
25	258900	256200	256000	255300	255900	255900	254800	248900	248200	250700	243200	240100
26	258700	256300	256000	255300	255900	255700	254700	248700	248000	250600	243000	240000
27	258500	256100	256000	255300	255900	255500	254600	248400	247800	250600	242700	239900
28	258100	256100	256000	255300	255900	255600	254400	248200	247700	250400	242500	239700
29	257900	256100	255900	255300	---	255500	253800	247900	247900	250200	242200	239500
30	257900	256100	255900	255300	---	255400	253600	247600	247700	e250100	242000	239200
31	257300	---	256000	255300	---	255200	---	247200	---	e250000	242100	---
MEAN	256500	256700	256100	255500	255500	255700	254900	251000	248000	250500	245400	240600
MAX	258900	257200	256700	256000	256500	255900	255500	253600	249500	251700	249000	242000
MIN	255400	256100	255600	255300	254800	255200	253600	247200	246400	247300	242000	239200
(+)	1064.6	1064.4	1064.4	1064.3	1064.4	1064.3	1064.0	1062.9	1063.0	1063.4	1062.1	1061.6
(@)	+1900	-1200	-100	-700	+600	-700	-1600	-6400	+500	+2300	-7900	-2900

CAL YR 2002 MAX 261200 MIN 214100 (@) +300
WTR YR 2003 MAX 258900 MIN 239200 (@) -16200

e Estimated

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

08179500 Medina Lake near San Antonio, TX--Continued



08180000 Medina Canal near Riomedina, TX

LOCATION.--Lat 29°30'19", long 98°54'11", Medina County, Hydrologic Unit 12100302, on left bank of canal, 350 ft downstream from county road bridge, 1,900 ft downstream from head of canal and Medina Diversion Dam, 4.6 mi downstream from Medina Dam, 4.7 mi north of Riomedina, and 25.0 mi northwest of San Antonio.

PERIOD OF RECORD.--Mar. 1922 to May 1934, July 1957 to Sept. 1993, Feb. 2001 to current year.

REVISED RECORDS.--WSP 568: 1922. WSP 1712: 1922(M), 1924, 1926.

GAGE.--Water-stage recorder. Datum of gage is 910 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Station is above all diversions from canal. Canal diverts water from right end of Medina Diversion Dam 1,900 ft upstream from gage. Water is used for irrigation downstream near LaCoste and Natalia. Prior to Nov. 1984, double-barrel flume 54 ft downstream from gage. No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	0.00	0.00	0.00	0.00	0.00	0.00	98	127	96	51	81
2	16	0.00	0.00	0.00	0.00	0.00	0.00	94	128	93	53	80
3	26	0.00	0.00	0.00	0.00	0.00	0.00	92	118	93	53	72
4	44	0.00	0.00	0.00	0.00	0.00	19	91	111	86	52	49
5	69	0.00	0.00	0.00	0.00	7.1	41	109	51	40	51	50
6	71	0.00	0.00	0.00	0.00	20	41	123	0.00	11	62	50
7	29	0.00	0.00	0.00	0.00	23	40	117	0.00	4.4	70	49
8	0.00	0.00	0.00	0.00	0.00	27	38	117	30	0.00	69	50
9	0.00	0.00	0.00	0.00	0.00	26	35	117	94	0.00	68	50
10	0.00	0.00	0.00	0.00	0.00	27	54	116	88	0.00	68	51
11	0.00	0.00	0.00	0.00	0.00	27	61	115	69	0.00	68	36
12	0.00	0.00	0.00	0.00	0.00	28	62	112	69	0.00	60	25
13	0.00	0.00	0.00	0.00	0.00	20	62	114	70	0.00	47	26
14	0.00	0.00	0.00	0.00	0.00	0.00	62	112	70	0.00	48	27
15	0.00	0.00	0.00	0.00	0.00	0.00	62	110	69	0.00	49	27
16	0.00	0.00	0.00	0.00	0.00	0.00	63	114	69	0.00	49	28
17	0.00	0.00	0.00	0.00	0.00	0.00	63	119	69	0.00	50	28
18	0.00	0.00	0.00	0.00	0.00	0.00	64	112	59	0.00	60	28
19	0.00	0.00	0.00	0.00	0.00	0.00	64	107	37	0.00	66	29
20	0.00	0.00	0.00	0.00	0.00	0.00	65	104	37	0.00	65	29
21	0.00	0.00	0.00	0.00	0.00	0.00	29	94	37	0.00	64	29
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93	37	0.00	63	29
23	0.06	0.00	0.00	0.00	0.00	0.00	0.00	98	84	0.00	62	10
24	0.01	0.00	0.00	16	0.00	0.00	24	98	119	0.00	61	0.00
25	0.00	0.00	0.00	31	0.00	0.00	66	97	116	0.00	66	0.00
26	0.00	0.00	0.00	19	0.00	0.00	65	94	111	34	89	0.00
27	0.00	0.00	0.00	0.04	0.00	0.00	74	89	106	56	95	0.00
28	0.00	0.00	0.00	0.01	0.00	0.00	82	110	104	56	92	0.00
29	0.00	0.00	0.00	0.00	---	0.00	92	114	101	55	89	0.00
30	0.00	0.00	0.00	0.00	---	0.00	103	112	100	55	86	0.00
31	0.00	---	0.00	0.01	---	0.00	---	118	---	54	83	---
TOTAL	266.07	0.00	0.00	66.06	0.00	205.10	1431.00	3310	2280.00	733.40	2009	933.00
MEAN	8.58	0.000	0.000	2.13	0.000	6.62	47.7	107	76.0	23.7	64.8	31.1
MAX	71	0.00	0.00	31	0.00	28	103	123	128	96	95	81
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89	0.00	0.00	47	0.00
AC-FT	528	0.00	0.00	131	0.00	407	2840	6570	4520	1450	3980	1850

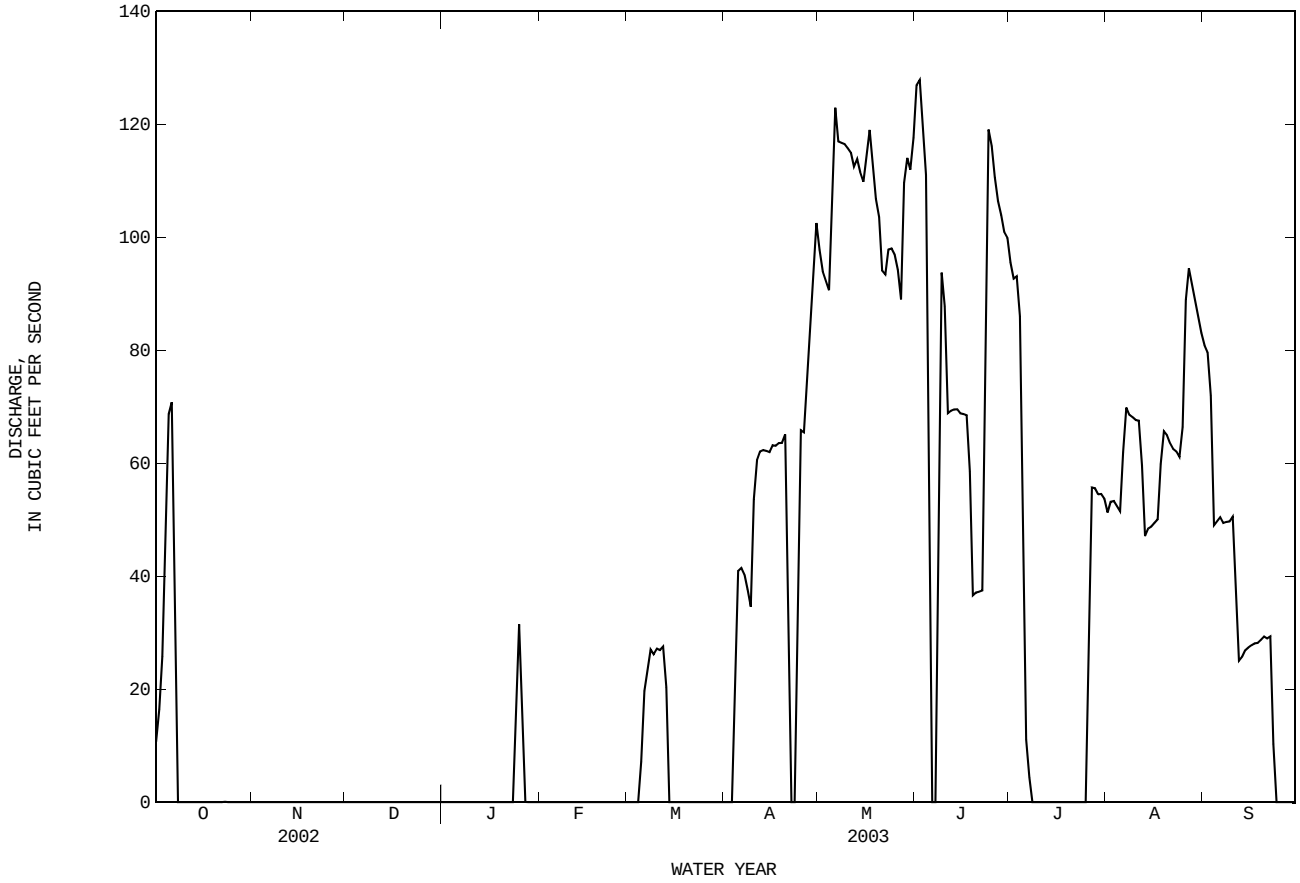
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2003h, BY WATER YEAR (WY)

MEAN	37.8	23.4	18.8	17.8	20.2	34.6	43.6	54.4	83.1	78.3	76.6	46.9
MAX	105	65.3	61.5	65.6	83.0	95.4	131	157	179	179	149	132
(WY)	1990	1989	1989	1971	1971	1971	1972	1971	2002	1978	1989	1989
MIN	1.77	0.000	0.000	0.000	0.000	0.000	2.82	3.33	14.2	9.02	16.8	0.000
(WY)	1974	1990	1985	1985	2003	2001	1992	1975	1986	2002	1971	1925

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1922 - 2003h	
ANNUAL TOTAL	18608.68		11233.63			
ANNUAL MEAN	51.0		30.8		44.9	
HIGHEST ANNUAL MEAN					95.2	1989
LOWEST ANNUAL MEAN					14.8	1926
HIGHEST DAILY MEAN	207	Jun 14	128	Jun 2	216	May 6 1971
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 8	0.00	Nov 1 1922
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 8	0.00	Nov 1 1922
MAXIMUM PEAK FLOW			139	Jun 2	434	Jul 5 2002
MAXIMUM PEAK STAGE			11.48	Jun 2	12.61	Jul 5 2002
ANNUAL RUNOFF (AC-FT)	36910		22280		32510	
10 PERCENT EXCEEDS	157		96		112	
50 PERCENT EXCEEDS	34		0.00		32	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

h See PERIOD OF RECORD paragraph.

08180000 Medina Canal near Riomedina, TX--Continued



08180010 Diversion Lake near Riomedina, TX

LOCATION.--Lat 29°30'36", long 98°54'04", Medina County, Hydrologic Unit 12100302, on right wing wall of dam, 0.90 mi north of county road 2615, 4.2 mi downstream of Medina dam, 6.1 mi north of Riomedina, and 66.2 mi from mouth.

DRAINAGE AREA.--649 mi^2.

PERIOD OF RECORD.--Feb. 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily contents, which are fair. The lake is formed by a gravity-type dam, 440 ft long, built on a radius of 700 ft. It is an overflow type, open spillway, with the spillway in the center of the crest. The dam was completed and impoundment began around May 1912. On the west end of the dam are headgates and control valves for the intakes to Medina Canal. The dam and lake are owned and operated by Bexar-Medina-Atascosa Counties Water Control and Improvement District No. 1. Water is diverted to Medina Canal by the Water District for downstream irrigation. Capacity table based on volumetric survey by the Texas Water Development Board, July 1995. Conservation pool storage is 2,560 acre-ft. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	921.6
Crest of spillway	919.0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 6,570 acre-ft, July 5, 2002, elevation 933.34 ft; minimum contents, 1,760 acre-ft, June 12, 13, 2001, elevation, 913.56 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,790 acre-ft, Oct. 25, 26, elevation, 920.28 ft; minimum contents, 1,780 acre-ft, May 20, 21, 22, elevation, 913.71 ft.

RESERVOIR STORAGE, IN (ACRE-FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

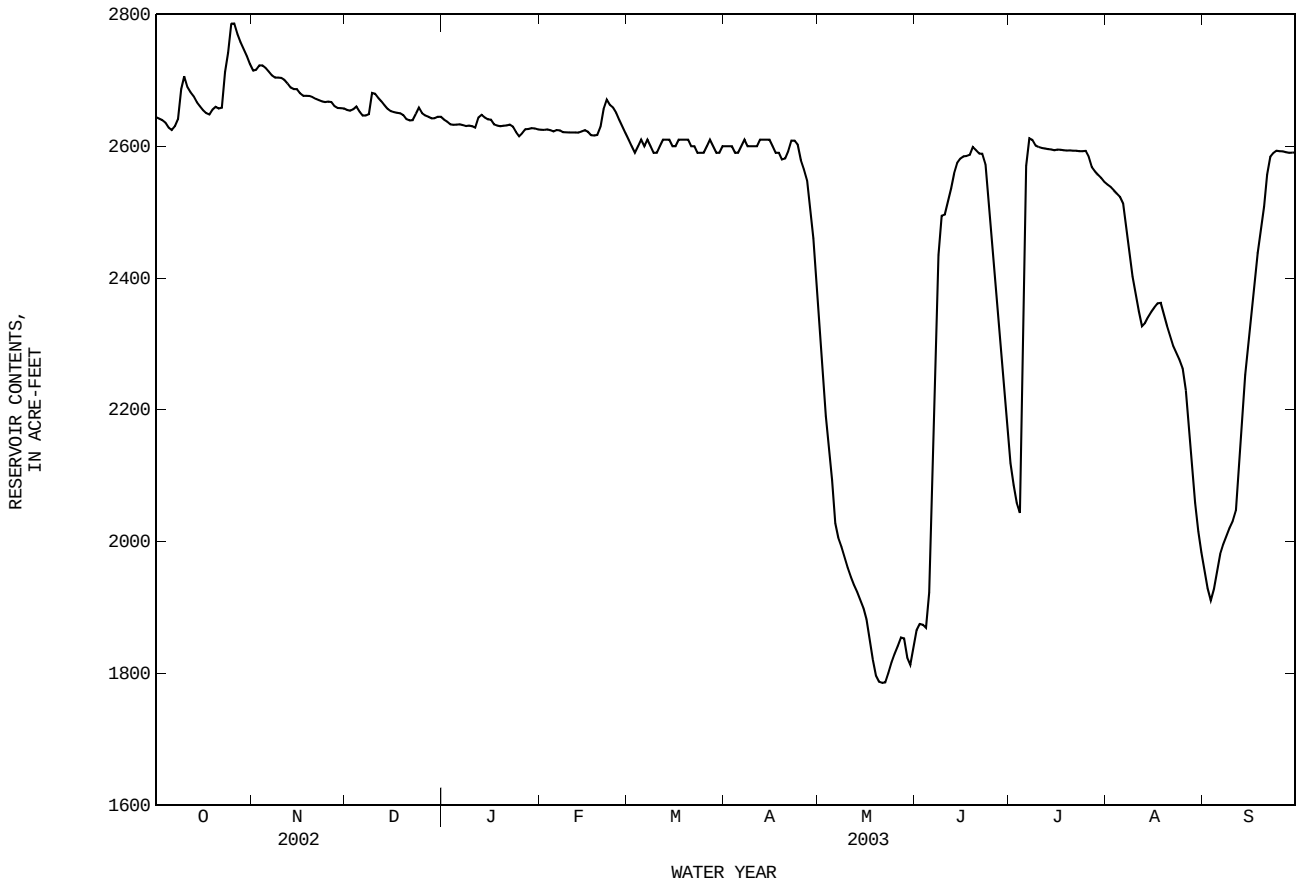
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2640	2710	2660	2640	2630	e2610	e2600	2310	1870	2120	2540	1960
2	2640	2720	2650	2640	2620	e2600	e2600	2240	1880	2090	2540	1930
3	2640	2720	2660	2630	2630	e2590	e2600	2190	1870	2060	2530	1910
4	2640	2720	2660	2630	2620	e2600	e2590	2140	1870	2040	2530	1930
5	2630	2720	2650	2630	2620	e2610	e2590	2090	1920	2210	2520	1960
6	2620	2710	2650	2630	2620	e2600	e2600	2030	2100	2570	2510	1980
7	2630	2710	2650	2630	2620	e2610	e2610	2010	2280	2610	2480	2000
8	2640	2700	2650	2630	2620	e2600	e2600	1990	2440	2610	2440	2010
9	2690	2700	2680	2630	2620	e2590	e2600	1980	2490	2600	2400	2020
10	2710	2700	2680	2630	2620	e2590	e2600	1960	2500	2600	2380	2030
11	e2690	2700	2670	2630	2620	e2600	e2600	1950	2520	2600	2350	2050
12	2680	2700	2670	2640	2620	e2610	e2610	1930	2540	2600	2330	2120
13	2680	2690	2660	2650	2620	e2610	e2610	1920	2560	2600	2330	2190
14	2670	2690	2660	2640	2620	e2610	e2610	1910	2570	2600	2340	2250
15	2660	2690	2650	2640	2620	e2600	e2610	1900	2580	2590	2350	2300
16	2650	2680	2650	2640	2620	e2600	e2600	1880	2580	2590	2360	2350
17	2650	2680	2650	2630	2620	e2610	e2590	1850	2590	2590	2360	2390
18	2650	2680	2650	2630	2620	e2610	e2590	1820	2590	2590	2360	2440
19	2660	2680	2650	2630	2620	e2610	e2580	1800	2600	2590	2350	2470
20	2660	2670	2640	2630	2630	e2610	2580	1790	2590	2590	2330	2510
21	2660	2670	2640	2630	2660	e2600	2590	1790	2590	2590	2310	2560
22	2660	2670	2640	2630	2670	e2600	2610	1790	2590	2590	2300	2580
23	2710	2670	2650	2630	2660	e2590	2610	1800	2570	2590	2290	2590
24	2740	2670	2660	2620	2660	e2590	2600	1820	2500	2590	2280	2590
25	2790	2670	2650	2620	2650	e2590	2580	1830	2420	2590	2260	2590
26	2790	2670	2650	2620	e2640	e2600	2570	1840	2350	2580	2230	2590
27	2770	2660	2640	2630	e2630	e2610	2550	1850	2290	2570	2170	2590
28	2760	2660	2640	2630	e2620	e2600	2510	1850	2240	2560	2110	2590
29	2750	2660	2640	2630	---	e2590	2460	1820	2200	2560	2060	2590
30	2740	2660	2640	2630	---	e2590	2380	1810	2160	2550	2020	2590
31	2720	---	2640	2630	---	e2600	---	1840	---	2550	1980	---
TOTAL	83220	80630	82230	81580	73620	80630	77430	59730	70850	77770	72340	68660
MEAN	2680	2690	2650	2630	2630	2600	2580	1930	2360	2510	2330	2290
MAX	2790	2720	2680	2650	2670	2610	2610	2310	2600	2610	2540	2590
MIN	2620	2660	2640	2620	2620	2590	2380	1790	1870	2040	1980	1910
(+)	919.9	919.6	919.5	919.4	919.3	919.2	917.9	914.1	916.4	918.9	915.2	919.2
(@)	+100	-60	-20	-10	-10	-20	-220	-540	+320	+390	-570	+610

CAL YR 2002 MAX 5010 MIN 2080 (@) +30
WTR YR 2003 MAX 2790 MIN 1790 (@) -30

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

e Estimated

08180010 Diversion Lake near Riomedina, TX--Continued



08180500 Medina River near Riomedina, TX
(Partial-record station)

LOCATION.--Lat 29°29'53", long 98°54'16", Medina County, Hydrologic Unit 12100302, on left bank at bridge at Haby's Crossing, 0.9 mi downstream from Bexar-Medina-Atascosa Counties Water Control and Improvement District No. 1 Diversion Dam, 4.2 mi northwest of Riomedina, 10.0 mi north of Castroville, 10.4 mi upstream from San Geronimo Creek, and 66.4 mi upstream from mouth.

DRAINAGE AREA.--650 mi^2, of which 634 mi^2 is above dam forming Medina Lake.

PERIOD OF RECORD.--Jan. 1922 to Sept. 1934 (daily record of flow over dam and monthly or annual record of seepage under dam), Jan. 1953 to Sept. 1973, Jan. 2001 to current year (daily mean discharges below base discharge of 1,000 ft^3/s).

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 857.28 ft above NGVD of 1929 (river profile survey). Prior to Sept. 30, 1934, water- stage recorder at upstream side of Medina Diversion Dam 0.9 mi upstream at different datum. Jan. 1953 to July 15, 1973, water-stage recorder on left bank 233 ft upstream from bridge at Haby's Crossing at different datum. July 27, 1973 to Sept. 30, 1973, nonrecording gage on left bank 233 ft upstream from bridge at Haby's Crossing at different datum. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in water year 1922, at least 10% of contributing drainage area has been regulated. 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 Medina Diversion Dam. There are several small diversions below Medina Diversion Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 33.88 ft, July. 5, 2002; minimum discharge, 0.00 ft^3/s, on several days.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.87 ft, Oct. 25 (discharge not determined); minimum discharge, 22 ft^3/s, May 21, gage height, 1.04 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	840	358	282	191	290	162	33	25	41	45	33
2	261	853	350	274	190	297	165	33	26	41	45	32
3	248	913	358	233	198	303	168	31	26	40	45	32
4	234	915	402	230	191	297	161	30	26	40	44	31
5	193	890	347	232	177	297	134	30	26	50	45	31
6	174	845	312	236	192	268	134	30	27	110	45	32
7	201	792	307	231	193	246	138	30	29	214	44	32
8	252	749	320	221	174	231	164	31	31	200	44	32
9	500	737	537	227	172	230	103	30	34	151	43	33
10	627	733	526	221	173	225	74	30	33	142	42	32
11	560	712	484	204	166	219	45	30	34	136	41	31
12	476	669	451	297	166	225	42	29	34	132	41	32
13	440	614	412	325	166	237	42	30	36	129	40	33
14	381	601	371	304	174	268	40	28	36	126	40	34
15	347	605	351	283	194	256	39	27	e35	126	41	34
16	323	557	344	288	183	267	39	27	e35	125	40	35
17	300	525	337	233	155	258	39	26	e34	121	40	36
18	288	522	336	220	149	265	39	27	e60	120	40	36
19	326	523	329	215	154	242	39	27	e78	118	40	36
20	354	508	286	218	222	227	42	26	100	117	39	37
21	338	486	274	226	380	211	62	25	100	115	39	40
22	345	473	277	235	472	242	119	26	99	114	39	64
23	695	459	337	217	423	275	120	25	77	113	38	83
24	---	446	407	168	397	268	106	25	48	112	38	98
25	---	455	342	133	349	266	42	26	47	112	38	94
26	---	449	321	160	307	270	38	26	45	88	38	95
27	---	407	307	190	296	238	38	26	44	47	38	92
28	---	386	292	194	289	261	37	27	43	45	36	89
29	---	377	291	205	---	217	36	26	42	45	35	88
30	---	373	307	202	---	178	34	24	42	46	34	88
31	---	---	312	192	---	170	---	25	---	45	34	---
TOTAL	---	18414	10985	7096	6493	7744	2441	866	1352	3161	1251	1495
MEAN	---	614	354	229	232	250	81.4	27.9	45.1	102	40.4	49.8
MAX	---	915	537	325	472	303	168	33	100	214	45	98
MIN	---	373	274	133	149	170	34	24	25	40	34	31
AC-FT	---	36520	21790	14070	12880	15360	4840	1720	2680	6270	2480	2970

e Estimated

THIS PAGE IS INTENTIONALLY BLANK

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 Macdona, 2.2 mi downstream from Potranca Creek, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--885 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Jan. 1981 to Sept. 1995, May 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 589.86 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in water year 1981, at least 10% of contributing drainage area has been regulated. 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 Medina Diversion Dam. There are several small diversions below Medina Diversion Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	825	486	403	269	327	207	107	73	79	84	63
2	386	785	476	382	267	325	200	103	73	80	82	60
3	379	790	472	374	264	337	201	103	74	75	81	60
4	366	893	485	348	261	345	202	102	94	83	80	61
5	352	904	497	342	259	333	202	99	98	153	78	71
6	317	820	473	338	250	326	184	96	91	242	77	65
7	296	779	447	335	251	308	181	96	80	144	76	60
8	318	752	439	332	255	291	182	95	77	184	75	58
9	1970	732	478	326	244	278	195	94	78	193	74	57
10	736	723	558	323	238	272	170	92	93	166	74	56
11	702	714	565	324	235	267	152	91	108	156	78	56
12	657	700	554	330	232	262	132	90	91	152	89	84
13	605	677	537	385	232	261	122	89	88	147	78	76
14	579	650	510	398	232	265	118	88	97	144	77	70
15	538	637	483	383	235	283	116	88	91	143	76	70
16	504	632	462	369	239	279	114	85	88	208	75	64
17	472	608	453	366	237	283	112	84	88	216	75	62
18	446	590	447	336	218	278	111	82	88	161	74	65
19	437	579	440	322	213	278	110	81	86	150	73	69
20	451	576	432	313	224	266	109	80	94	146	71	74
21	467	570	407	309	270	255	109	79	108	143	71	111
22	485	559	395	309	364	247	111	78	110	140	69	94
23	1680	551	406	310	439	272	147	79	110	136	69	82
24	2510	542	455	302	425	287	159	78	108	134	68	90
25	1520	535	475	278	415	280	158	77	90	132	68	103
26	1130	548	441	250	386	280	129	76	80	131	67	107
27	1090	541	420	253	351	281	113	78	78	129	65	107
28	1010	517	409	273	336	262	111	78	77	109	64	104
29	960	500	400	275	---	267	110	77	79	94	62	102
30	914	493	396	278	---	247	109	76	76	89	63	100
31	871	---	399	276	---	220	---	73	---	86	62	---
TOTAL	23511	19722	14297	10142	7841	8762	4376	2694	2666	4345	2275	2301
MEAN	758	657	461	327	280	283	146	86.9	88.9	140	73.4	76.7
MAX	2510	904	565	403	439	345	207	107	110	242	89	111
MIN	296	493	395	250	213	220	109	73	73	75	62	56
AC-FT	46630	39120	28360	20120	15550	17380	8680	5340	5290	8620	4510	4560

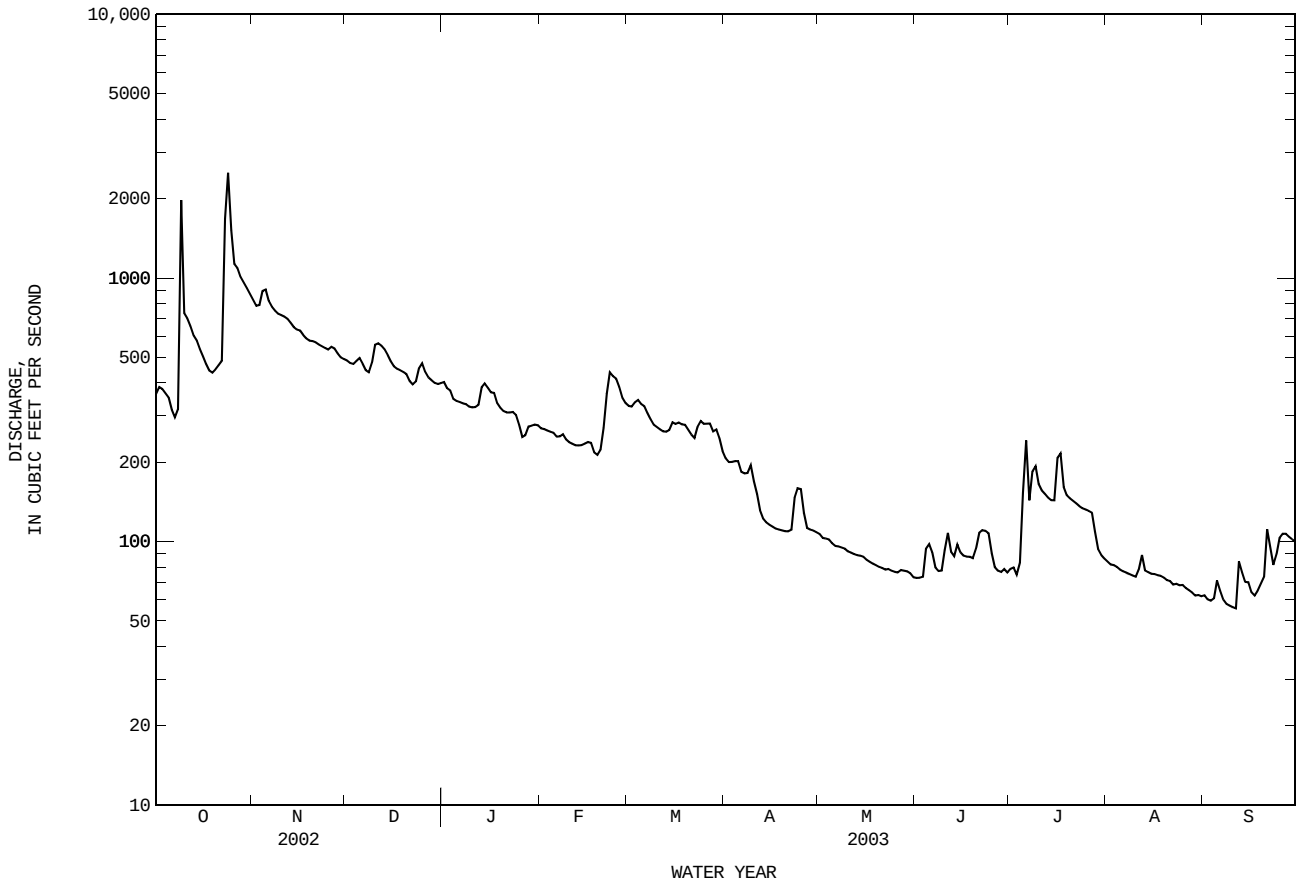
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2003h, BY WATER YEAR (WY)

MEAN	164	132	138	146	204	206	144	220	584	459	89.6	101
MAX	758	657	461	698	2333	2097	1302	1636	5726	6555	458	831
(WY)	2003	2003	2003	1992	1992	1992	1992	1992	1987	2002	2002	2002
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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 2003h	
ANNUAL TOTAL	314941		102932			
ANNUAL MEAN	863		282		207	
HIGHEST ANNUAL MEAN					954	1992
LOWEST ANNUAL MEAN					38.1	1989
HIGHEST DAILY MEAN	40500	Jul 6	2510	Oct 24	40500	Jul 6 2002
LOWEST DAILY MEAN	46	Jun 25	56	Sep 10	14	Jan 11 1985
ANNUAL SEVEN-DAY MINIMUM	48	Jun 20	60	Sep 5	16	Jan 7 1985
MAXIMUM PEAK FLOW			5720	Oct 24	55400	Jul 6 2002
MAXIMUM PEAK STAGE			13.26	Oct 24	a24.78	Jul 6 2002
ANNUAL RUNOFF (AC-FT)	624700		204200		149800	
10 PERCENT EXCEEDS	1100		567		315	
50 PERCENT EXCEEDS	176		216		57	
90 PERCENT EXCEEDS	57		74		34	

h See PERIOD OF RECORD paragraph.
a From floodmark.

08180700 Medina River near Macdona, TX--Continued



08180700 Medina River near Macdona, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: July 1998 to Sept. 2000.
BIOCHEMICAL DATA: July 1998 to Sept. 2000.
PESTICIDE DATA: July 1998 to Sept. 2000.
SEDIMENT DATA: July 1998 to Sept. 2000.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Nov. 2001 to current year.
WATER TEMPERATURE: Nov. 2001 to current year.

INSTRUMENTATION.--Water-quality monitor since Nov. 2001.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 773 microsiemens/cm, May 14, 2003; minimum, 166 microsiemens/cm, July 3, 2002.
WATER TEMPERATURE: Maximum, 29.5°C, June 26, 2003; minimum daily, 9.6°C, Jan. 4, 2002.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 773 microsiemens/cm, May 14; minimum, 209 microsiemens/cm, Oct. 24.
WATER TEMPERATURE: Maximum, 29.5°C, June 26; minimum, 11.7°C, Feb. 27.

SPECIFIC CONDUCTANCE, IN US/CM @ 25c, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	595	550	573	483	463	472	563	562	562	593	587	589
2	570	547	564	487	483	485	568	562	565	592	591	591
3	573	537	553	491	485	489	573	566	570	599	590	592
4	566	538	552	497	474	483	570	566	568	606	599	603
5	565	545	555	496	479	483	566	561	563	612	606	608
6	569	547	562	484	480	482	567	561	563	616	612	614
7	579	565	570	485	481	483	579	567	573	617	615	616
8	582	555	573	489	484	487	584	579	582	617	614	615
9	555	263	342	492	489	491	591	579	585	619	617	617
10	448	308	377	493	490	492	588	546	566	618	615	616
11	458	445	452	491	489	490	546	533	536	617	615	616
12	473	449	464	492	489	490	545	536	540	617	614	616
13	490	462	481	498	491	495	550	544	547	619	598	610
14	503	489	495	508	498	503	555	548	552	598	581	589
15	512	499	506	513	507	511	566	554	560	581	574	576
16	524	511	518	512	508	510	574	565	570	584	577	580
17	534	522	528	518	510	514	577	573	576	584	579	582
18	543	532	538	524	518	521	580	576	578	592	582	588
19	554	542	547	525	522	524	580	578	579	598	592	594
20	556	545	552	525	522	524	583	578	579	607	598	602
21	545	529	538	526	523	525	591	583	587	609	606	607
22	529	514	521	531	526	529	598	591	594	609	605	607
23	514	240	338	535	530	533	598	595	596	609	602	605
24	385	209	300	541	535	538	606	579	596	606	601	603
25	380	277	323	543	540	542	579	570	572	618	606	610
26	421	378	407	543	536	540	575	569	571	634	618	627
27	439	414	429	548	541	545	584	575	579	638	634	637
28	448	438	444	554	548	551	588	583	585	638	635	636
29	451	439	449	561	554	558	594	588	590	640	633	637
30	456	437	450	563	561	562	596	593	595	634	621	627
31	464	456	461	---	---	---	596	592	594	622	617	619
MONTH	595	209	483	563	463	512	606	533	573	640	574	607

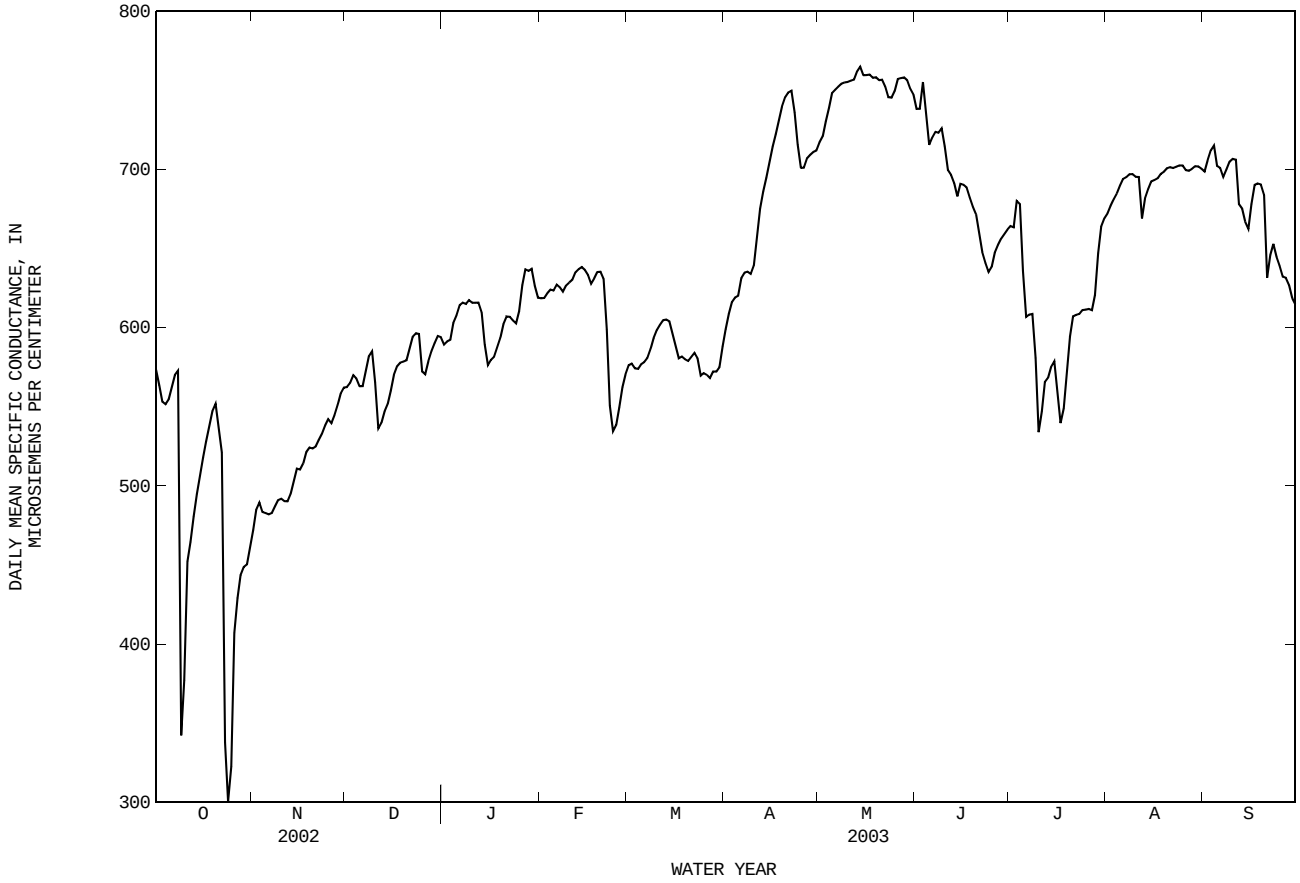
08180700 Medina River near Macdona, TX--Continued

SPECIFIC CONDUCTANCE, IN US/CM @ 25c, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	621	618	619	578	575	576	604	594	599	721	714	717
2	621	618	619	578	576	577	614	604	609	726	716	721
3	626	619	622	577	573	574	619	614	616	734	726	731
4	626	623	624	576	572	574	623	616	619	746	733	739
5	625	622	623	580	575	577	628	615	620	751	746	748
6	629	625	627	581	577	578	635	625	631	753	749	751
7	628	623	626	586	578	581	637	633	635	754	751	752
8	625	622	623	591	584	587	637	634	635	756	753	754
9	628	624	627	599	591	594	640	630	634	757	754	755
10	630	627	629	600	597	599	646	631	639	758	753	755
11	634	629	630	602	600	602	669	646	657	757	755	756
12	637	633	635	607	602	605	681	669	675	759	755	757
13	639	636	637	607	604	605	690	681	686	766	759	762
14	640	637	638	606	601	604	699	689	695	773	760	765
15	638	634	637	602	592	597	709	699	705	761	758	760
16	637	630	633	594	582	589	718	709	715	763	758	760
17	630	626	628	586	576	581	726	718	722	761	759	760
18	634	629	631	585	576	582	735	724	731	759	756	758
19	636	634	635	586	576	580	744	734	740	760	756	758
20	637	634	635	582	576	579	748	742	746	758	755	757
21	636	617	631	586	578	581	752	747	749	760	755	757
22	617	579	599	589	581	584	751	749	750	758	742	752
23	579	536	551	587	571	581	749	725	736	756	741	746
24	536	532	534	575	567	570	725	707	716	747	743	746
25	541	536	538	575	566	571	707	696	701	754	746	750
26	558	541	550	571	569	570	705	697	701	762	751	757
27	566	558	562	571	566	568	710	704	707	761	754	758
28	575	566	570	577	570	572	712	706	709	761	756	758
29	---	---	---	579	567	572	714	709	711	758	755	756
30	---	---	---	581	570	575	715	710	712	756	746	751
31	---	---	---	594	581	588	---	---	---	750	745	747
MONTH	640	532	611	607	566	583	752	594	683	773	714	751

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	753	721	738	669	655	664	676	658	672	704	695	699
2	752	723	738	675	654	663	681	675	677	714	698	706
3	764	743	755	685	675	680	684	679	681	718	709	712
4	762	718	735	685	669	678	689	682	685	718	712	715
5	729	704	716	681	583	636	693	686	690	712	697	702
6	725	711	720	613	597	607	696	691	694	705	696	701
7	726	723	724	619	602	608	700	692	695	702	691	695
8	726	721	723	616	601	609	700	693	697	706	695	700
9	729	725	726	605	571	581	700	692	697	709	702	705
10	729	700	715	585	501	534	700	690	695	710	704	707
11	705	696	700	563	517	547	701	680	695	710	689	706
12	699	694	697	567	562	566	680	664	669	693	665	678
13	696	681	692	570	564	568	684	676	682	682	665	675
14	686	680	683	579	568	575	692	682	688	671	661	667
15	694	686	691	582	572	579	695	689	693	671	656	663
16	693	689	690	572	543	557	696	692	693	689	671	678
17	691	685	689	545	534	540	697	693	695	695	687	690
18	686	679	682	561	534	549	700	696	697	693	689	691
19	679	675	677	576	561	570	702	697	699	693	688	691
20	675	666	672	606	576	594	703	699	701	689	666	684
21	666	653	659	608	606	607	703	700	701	666	611	632
22	653	642	648	610	606	608	703	699	701	649	641	646
23	643	637	641	610	607	609	703	700	702	658	648	653
24	637	634	635	613	609	611	706	699	703	657	637	645
25	646	634	639	613	610	611	706	700	703	643	632	639
26	652	645	647	614	610	612	702	698	700	634	631	632
27	656	651	652	613	608	611	702	697	699	633	629	632
28	660	654	656	634	610	621	704	698	700	630	621	627
29	660	658	659	657	634	647	705	700	702	621	616	619
30	667	659	662	669	657	664	704	700	702	617	611	615
31	---	---	---	673	666	669	708	695	701	---	---	---
MONTH	764	634	689	685	501	606	708	658	694	718	611	674
YEAR	773	209	622									

08180700 Medina River near Macdona, TX--Continued



WATER TEMPERATURE, IN (DEGREES C), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	25.1	24.2	24.6	21.0	20.3	20.6	16.2	15.7	15.9	15.6	14.8	15.2
2	25.3	24.7	25.0	20.3	19.5	19.8	16.8	15.7	16.2	15.3	14.3	14.7
3	25.6	24.9	25.3	19.6	19.4	19.5	17.6	16.8	17.2	14.3	13.5	14.0
4	25.7	25.0	25.4	19.5	17.7	18.8	17.6	16.6	17.2	14.6	13.6	14.1
5	25.6	25.0	25.3	19.4	18.2	18.7	16.6	15.5	16.0	14.9	13.9	14.4
6	25.7	25.1	25.4	19.2	18.3	18.8	15.5	14.7	15.0	15.5	14.7	15.1
7	25.7	25.3	25.5	19.0	18.3	18.7	14.8	14.3	14.5	15.3	14.8	15.1
8	25.5	25.1	25.3	19.1	18.2	18.6	15.5	14.6	15.1	15.6	14.5	15.0
9	25.1	22.5	23.2	19.7	18.7	19.1	15.5	15.1	15.3	16.3	15.4	15.8
10	24.0	22.7	23.3	20.3	19.4	19.8	15.2	14.9	15.0	16.1	15.3	15.6
11	24.2	23.5	23.8	20.3	19.8	20.0	14.9	14.2	14.5	15.3	14.2	14.7
12	24.4	23.6	23.9	20.0	19.1	19.6	15.4	14.6	14.9	14.2	13.4	13.8
13	24.2	22.8	23.6	19.1	18.4	18.7	15.4	14.6	15.1	13.5	13.3	13.4
14	22.8	21.7	22.2	19.0	18.1	18.5	15.3	14.6	15.0	14.0	13.3	13.6
15	21.7	21.2	21.5	18.7	18.3	18.5	15.7	14.9	15.3	13.9	13.4	13.7
16	21.4	20.7	21.1	18.4	17.9	18.1	16.3	15.7	16.0	14.1	13.6	13.8
17	21.4	20.6	21.0	17.9	17.1	17.6	17.0	16.2	16.5	13.7	13.0	13.3
18	21.6	21.3	21.4	17.9	16.9	17.4	17.7	16.9	17.4	13.1	12.3	12.8
19	21.9	21.6	21.8	18.1	17.3	17.7	17.5	16.3	17.0	13.5	12.2	12.9
20	22.3	21.6	21.9	17.9	17.1	17.5	16.3	15.7	16.0	14.7	13.4	14.0
21	22.2	21.9	22.0	17.8	16.9	17.4	15.9	15.2	15.6	15.5	14.2	14.8
22	22.3	21.7	22.0	17.8	17.0	17.4	15.6	15.0	15.2	15.4	14.9	15.1
23	22.3	20.2	21.2	17.7	16.8	17.3	16.4	15.3	15.8	15.0	14.1	14.5
24	21.7	20.3	21.1	18.0	17.2	17.6	16.1	14.8	15.4	14.1	13.1	13.3
25	21.4	21.2	21.3	17.9	17.4	17.6	14.8	14.2	14.4	13.1	12.8	12.9
26	21.4	21.1	21.2	17.4	16.1	16.5	14.3	14.0	14.1	13.0	12.8	12.9
27	21.7	21.0	21.3	16.1	15.4	15.6	14.4	13.6	14.1	13.5	12.9	13.2
28	21.8	21.6	21.7	15.6	15.2	15.4	14.8	13.8	14.3	14.0	13.4	13.7
29	22.1	21.2	21.6	15.8	15.2	15.5	15.4	14.5	14.9	15.0	14.0	14.5
30	22.0	21.1	21.6	16.3	15.8	16.0	16.4	15.4	15.9	15.0	14.3	14.7
31	21.7	20.8	21.1	---	---	---	16.0	15.4	15.6	15.1	14.3	14.7
MONTH	25.7	20.2	22.8	21.0	15.2	18.1	17.7	13.6	15.5	16.3	12.2	14.2

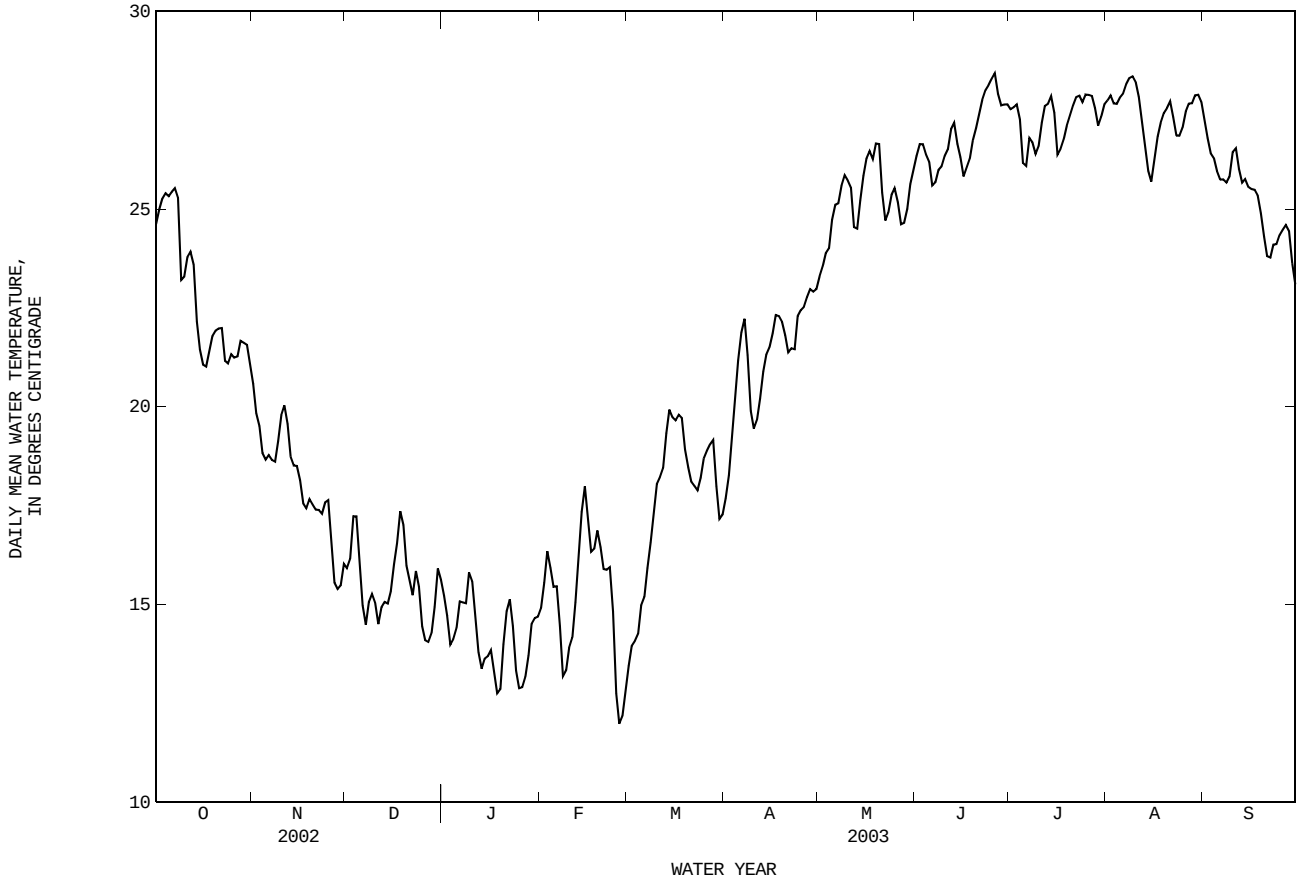
08180700 Medina River near Macdona, TX--Continued

WATER TEMPERATURE, IN (DEGREES C), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	15.5	14.2	14.9	13.8	13.1	13.5	18.3	16.9	17.7	23.5	23.1	23.3
2	16.1	15.1	15.5	14.1	13.8	14.0	18.9	17.6	18.3	24.2	23.1	23.6
3	16.9	15.9	16.3	14.3	13.8	14.1	20.0	18.7	19.3	24.2	23.7	23.9
4	16.6	15.6	15.9	14.8	13.8	14.3	20.9	19.7	20.3	24.6	23.6	24.0
5	15.8	15.4	15.4	15.2	14.7	15.0	21.8	20.5	21.2	25.6	24.1	24.7
6	15.7	15.3	15.5	15.9	14.5	15.2	22.3	21.4	21.9	25.6	24.9	25.1
7	15.4	13.8	14.5	16.8	15.0	15.9	22.6	21.9	22.2	25.8	24.8	25.1
8	13.8	13.0	13.2	17.1	16.0	16.6	22.4	20.5	21.3	26.3	25.1	25.6
9	13.9	12.8	13.3	18.0	16.6	17.3	20.5	19.2	19.9	26.5	25.5	25.9
10	14.4	13.2	13.9	18.6	17.4	18.0	20.0	18.8	19.4	26.2	25.4	25.7
11	14.7	13.6	14.2	18.5	18.1	18.2	20.2	19.1	19.7	25.9	25.0	25.5
12	15.7	14.6	15.1	18.8	18.1	18.5	20.8	19.7	20.2	25.0	24.2	24.5
13	16.9	15.7	16.3	20.0	18.7	19.3	21.4	20.4	20.9	25.2	24.0	24.5
14	17.8	16.9	17.3	20.5	19.2	19.9	22.0	20.9	21.3	26.2	24.5	25.2
15	18.5	17.6	18.0	20.2	19.6	19.7	21.9	21.3	21.5	26.9	25.1	25.8
16	17.9	16.7	17.1	20.2	19.1	19.7	22.6	21.4	21.9	27.2	25.5	26.3
17	16.8	15.7	16.3	20.1	19.5	19.8	23.0	21.9	22.3	27.4	25.6	26.5
18	16.8	15.9	16.4	20.0	19.3	19.7	22.6	22.1	22.3	27.2	25.4	26.3
19	17.1	16.6	16.9	19.4	18.3	18.9	22.3	22.0	22.2	27.6	25.9	26.7
20	17.0	16.0	16.4	18.9	18.0	18.5	22.0	21.4	21.8	27.2	26.2	26.6
21	16.0	15.7	15.9	18.7	17.3	18.1	21.9	21.0	21.4	26.3	24.8	25.4
22	16.5	15.3	15.9	18.5	17.6	18.0	21.5	21.3	21.5	25.4	24.2	24.7
23	16.4	15.4	15.9	18.6	17.1	17.9	21.7	21.3	21.5	25.6	24.3	24.9
24	16.0	13.6	14.8	18.7	17.7	18.2	23.1	21.7	22.3	26.3	24.6	25.4
25	13.6	12.2	12.7	19.0	18.5	18.7	22.8	22.0	22.4	26.2	25.0	25.5
26	12.2	11.9	12.0	19.5	18.2	18.9	23.1	21.9	22.5	25.6	24.8	25.2
27	12.8	11.7	12.2	19.7	18.2	19.0	23.5	22.4	22.8	25.0	24.3	24.6
28	13.1	12.4	12.8	19.6	18.8	19.2	23.6	22.6	23.0	25.5	24.0	24.7
29	---	---	---	18.8	17.5	18.0	23.1	22.7	22.9	26.0	24.1	25.0
30	---	---	---	17.7	16.4	17.2	23.6	22.5	23.0	26.7	24.7	25.6
31	---	---	---	17.8	16.4	17.3	---	---	---	27.1	25.0	26.0
MONTH	18.5	11.7	15.2	20.5	13.1	17.6	23.6	16.9	21.3	27.6	23.1	25.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.4	25.5	26.3	28.4	27.1	27.5	28.7	27.0	27.8	27.6	26.9	27.2
2	27.6	26.0	26.6	28.5	27.0	27.6	28.7	27.3	27.9	27.2	26.5	26.8
3	27.7	26.1	26.6	28.5	26.9	27.7	28.3	27.2	27.7	26.6	26.2	26.4
4	27.3	25.7	26.4	27.7	26.9	27.3	28.6	26.9	27.7	26.9	26.0	26.3
5	26.5	25.8	26.2	26.9	25.8	26.2	28.7	27.1	27.8	26.4	25.6	26.0
6	26.3	24.9	25.6	26.7	25.3	26.1	28.9	27.1	27.9	26.5	25.2	25.7
7	26.6	24.9	25.7	27.3	26.4	26.8	29.2	27.3	28.2	26.6	25.1	25.8
8	26.8	25.4	26.0	27.0	26.4	26.7	29.2	27.6	28.3	26.2	25.2	25.7
9	26.9	25.4	26.1	26.7	26.2	26.4	29.1	27.7	28.4	26.6	25.2	25.8
10	27.2	25.7	26.3	27.1	26.1	26.6	28.7	27.7	28.2	27.4	25.8	26.4
11	27.3	26.0	26.5	27.8	26.7	27.2	28.5	27.4	27.8	26.9	26.1	26.5
12	27.9	26.4	27.0	28.2	27.1	27.6	27.7	26.7	27.2	26.6	25.6	26.0
13	28.0	26.6	27.2	28.1	27.1	27.7	27.2	26.0	26.6	26.4	25.0	25.7
14	27.6	26.0	26.7	28.4	27.3	27.9	26.3	25.7	26.0	26.3	25.3	25.8
15	26.7	25.9	26.3	28.0	26.6	27.4	26.3	25.1	25.7	26.2	25.0	25.6
16	26.5	25.2	25.8	26.6	26.2	26.4	27.1	25.6	26.3	26.3	24.9	25.5
17	26.7	25.5	26.0	27.1	26.1	26.5	27.7	26.1	26.8	25.9	25.2	25.5
18	27.2	25.5	26.3	27.3	26.2	26.8	28.0	26.5	27.2	25.7	25.1	25.3
19	27.7	26.1	26.7	27.6	26.7	27.1	28.3	26.7	27.4	25.2	24.6	24.9
20	27.9	26.3	27.1	27.9	26.9	27.4	28.3	26.9	27.6	24.7	24.0	24.3
21	28.2	26.9	27.4	28.1	27.2	27.6	28.5	27.1	27.7	24.0	23.7	23.8
22	28.4	27.4	27.8	28.3	27.4	27.8	27.8	26.9	27.3	24.4	23.2	23.8
23	28.6	27.6	28.0	28.4	27.6	27.9	27.3	26.5	26.9	24.8	23.6	24.1
24	28.8	27.7	28.1	28.3	27.2	27.7	27.7	26.1	26.9	24.6	23.8	24.1
25	29.1	27.8	28.3	28.4	27.5	27.9	27.9	26.3	27.1	24.8	24.0	24.3
26	29.5	27.8	28.4	28.3	27.6	27.9	28.4	26.8	27.5	24.9	24.2	24.5
27	28.3	27.6	27.9	28.4	27.6	27.9	28.6	26.9	27.7	25.1	24.3	24.6
28	28.4	27.0	27.6	27.8	27.0	27.6	28.5	27.0	27.7	24.8	23.9	24.4
29	28.3	27.2	27.6	27.8	26.6	27.1	28.8	27.2	27.9	24.0	23.2	23.6
30	28.4	27.0	27.7	28.2	26.7	27.3	28.7	27.3	27.9	23.6	22.7	23.1
31	---	---	---	28.6	27.0	27.6	28.2	27.4	27.7	---	---	---
MONTH	29.5	24.9	26.9	28.6	25.3	27.3	29.2	25.1	27.4	27.6	22.7	25.2
YEAR	29.5	11.7	21.4									

08180700 Medina River near Macdona, TX--Continued



THIS PAGE IS INTENTIONALLY BLANK

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^2.

PERIOD OF RECORD.--Oct. 1970 to Sept. 1995, Apr. 1997 to current year.
Water-quality records.--Chemical data: July 1998 to Aug. 2000. Biochemical data: July 1998 to Aug. 2000. Pesticide data: July 1998 to Aug. 2000. Sediment data: July 1998 to Aug. 2000.

GAGE.--Water-stage recorder. Datum of gage is 493.56 ft above NGVD of 1929. Prior to June 16, 1993, at site 300 ft upstream at same datum. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in water year 1971, at least 10% of contributing drainage area has been regulated. 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 Medina Diversion Dam. There are several small diversions below Medina Diversion Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	393	1130	493	389	265	322	215	103	66	71	87	55
2	410	1030	486	375	263	319	205	102	66	78	84	55
3	409	994	473	371	261	346	201	100	66	69	81	57
4	396	1130	504	349	258	354	201	99	78	84	79	59
5	386	1470	494	338	259	333	200	98	92	299	77	64
6	368	1120	485	332	251	325	191	97	92	283	75	67
7	348	1010	456	327	247	316	182	96	84	192	73	59
8	344	940	439	325	254	300	179	96	74	152	71	56
9	4230	e900	509	320	248	284	180	94	73	181	70	54
10	1740	e870	560	316	244	277	178	93	81	161	69	52
11	913	e840	592	318	239	272	158	91	104	145	68	51
12	828	e820	598	326	235	267	146	90	99	139	80	101
13	732	800	593	365	232	264	132	89	88	134	76	106
14	676	764	537	379	233	264	127	88	98	131	71	80
15	620	725	500	367	236	276	123	87	100	130	70	74
16	570	711	472	355	234	279	120	86	95	181	68	71
17	533	688	457	343	239	281	117	82	91	218	67	66
18	505	656	449	333	227	278	115	79	89	167	66	71
19	478	632	432	315	217	272	113	79	87	143	65	89
20	474	623	426	307	236	268	112	77	86	136	63	84
21	495	610	405	302	258	255	111	74	96	131	61	183
22	512	596	389	303	311	249	112	74	101	128	60	135
23	3730	582	389	301	383	262	122	74	101	125	61	98
24	4470	569	420	298	397	292	144	79	100	122	60	92
25	4920	557	458	283	389	282	144	86	96	121	59	99
26	1940	563	438	257	381	279	133	76	81	120	59	103
27	1730	560	409	249	349	286	113	74	75	120	57	103
28	1570	543	397	264	332	269	107	73	73	116	56	101
29	1430	516	393	269	---	255	106	74	71	103	55	98
30	1320	504	386	268	---	251	105	70	71	95	54	96
31	1220	---	383	270	---	231	---	68	---	94	54	---
TOTAL	38690	23453	14422	9914	7678	8808	4392	2648	2574	4369	2096	2479
MEAN	1248	782	465	320	274	284	146	85.4	85.8	141	67.6	82.6
MAX	4920	1470	598	389	397	354	215	103	104	299	87	183
MIN	344	504	383	249	217	231	105	68	66	69	54	51
AC-FT	76740	46520	28610	19660	15230	17470	8710	5250	5110	8670	4160	4920

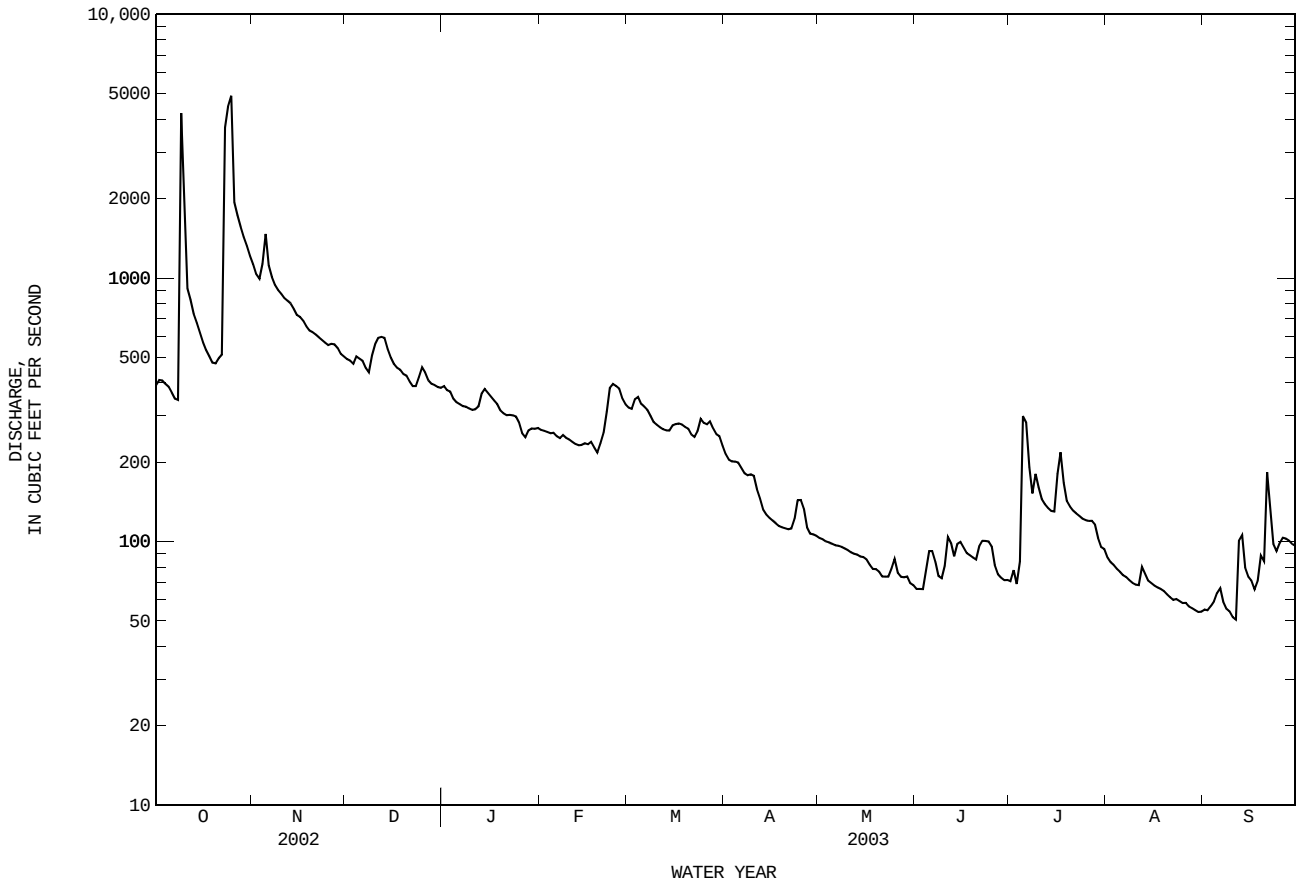
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2003h, BY WATER YEAR (WY)

MEAN	242	191	162	170	243	222	196	269	511	521	170	162
MAX	1284	782	549	751	2449	2326	1480	1663	6432	8643	1222	1148
(WY)	1974	2003	1977	1992	1992	1992	1992	1992	1987	2002	1978	2002
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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1971 - 2003h	
ANNUAL TOTAL	410906		121523			
ANNUAL MEAN	1126		333		255	
HIGHEST ANNUAL MEAN					1033	1992
LOWEST ANNUAL MEAN					40.0	1984
HIGHEST DAILY MEAN	47400	Jul 6	4920	Oct 25	47400	Jul 6 2002
LOWEST DAILY MEAN	41	Jun 26	51	Sep 11	16	Sep 19 1984
ANNUAL SEVEN-DAY MINIMUM	43	Jun 22	55	Aug 27	19	Sep 17 1984
MAXIMUM PEAK FLOW			11500	Oct 24	56000	Jul 6 2002
MAXIMUM PEAK STAGE			22.08	Oct 24	a42.19	Jul 6 2002
ANNUAL RUNOFF (AC-FT)	815000		241000		184800	
10 PERCENT EXCEEDS	1730		614		480	
50 PERCENT EXCEEDS	231		227		80	
90 PERCENT EXCEEDS	53		70		41	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08180800 Medina River near Somerset, TX--Continued



08180945 Leon Creek at Scenic Loop Road near Leon Springs, TX

LOCATION.--Lat 29°40'32", long 98°40'33", Bexar County, Hydrologic Unit 12100301, on right bank, on upstream side of Scenic Loop Road, 2.97 mi upstream from Interstate Highway 10.

DRAINAGE AREA.-- 10.0 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Jan. 2001 to current year.
BIOCHEMICAL DATA: Jan. 2001 to current year.
PESTICIDE DATA: Jan. 2001 to current year.

INSTRUMENTATION.--Water-stage recorder. Discharge-activated automatic sampler. Tipping bucket raingage. Satellite telemeter at station.

REMARKS.--Water-quality samples and associated discharge and precipitation data were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Storm water dis- charge, Mgal/d (81395)	Elapsed time of storm, hours (00135)	Precip- itation dura- tion of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal strep- tococci KF MF, col/ 100 mL (31673)	Precip- itation total, inches/ storm (82381)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
OCT 24...	1000	--	--	--	--	--	--	<1000k	E15000k	--	--	--	--
OCT 24-24	1000	328	8.2	56.0	3.0	465	20	--	--	1.9	170	58.3	5.12

Date	Sodium, water, fltrd, mg/L (00930)	Sodium adsorp- tion ratio (00931)	Sodium, percent (00932)	Potas- sium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	3.17	.1	4	2.11	7.3	4.15	<.17	10.1	183	154	<.008	.10	<.04

Date	Total nitro- gen, water, unfltrd mg/L (00600)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phos- phorus, water, unfltrd mg/L (00665)	Phos- phorus, water, fltrd, mg/L (00666)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Alum- inum, water, fltrd, ug/L (01106)	Anti- mony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryll- ium, water, fltrd, ug/L (01010)	Cadmium water, unfltrd ug/L (01027)	Cadmium water, fltrd, ug/L (01025)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	.84	.17	.74	.104	.017	E.01	<7	6	<.30	15	<.06	<.2	<.04

Date	Chrom- ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, unfltrd recover -able, ug/L (01042)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, unfltrd recover -able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Mangan- ese, water, fltrd, ug/L (01056)	Mercury water, unfltrd recover -able, ug/L (71900)	Molyb- denum, water, fltrd, ug/L (01060)	Nickel, water, unfltrd recover -able, ug/L (01067)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.8	.13	<10	.8	15	3	E.05	1.3	<.02	.4	3.4	1.59	<.20

Date	Zinc, water, unfltrd recover -able, ug/L (01092)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,6-Di- ethyl- aniline water fltrd 0.7u GF ug/L (82660)	Aceto- chlor, water, fltrd, ug/L (49260)	Ala- chlor, water, fltrd, ug/L (46342)	alpha- HCH, water, fltrd, ug/L (34253)	Atra- zine, water, fltrd, ug/L (39632)	Azin- phos- methyl, water, fltrd 0.7u GF ug/L (82686)	Ben- flur- alin, water, fltrd 0.7u GF ug/L (82673)	Butyl- ate, water, fltrd, ug/L (04028)	Car- baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo- furan, water, fltrd 0.7u GF ug/L (82674)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	500	46	.37	<.006	<.006	<.004	<.005	E.004n	<.050	<.010	<.002	<.041	<.020

08180945 Leon Creek at Scenic Loop Road near Leon Springs, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.005	<.006	<.018	<.003	<.006	E.004n	<.005	<.02	<.002	<.009	<.005	<.003	<.004

Date	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.035	E.007n	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01

Date	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005

Date	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
OCT 24...	--	--	--
OCT 24-24	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
k -- Counts outside acceptable range
n -- Below the NDV

08180947 Leon Creek at Hausman Road at San Antonio, TX

LOCATION.--Lat 29°34'19", Long 98°37'09", Bexar County, Hydrologic Unit 12100302, on right bank, on downstream side of Hausman Road, 1.45 mi downstream from State Highway 1604.

DRAINAGE AREA.--42.5 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Jan. 2001 to current year.
BIOCHEMICAL DATA: Jan. 2001 to current year.
PESTICIDE DATA: Jan. 2001 to current year.

REMARKS.-- Water-quality samples were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Precipitation duration of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal streptococci KF MF, col/ 100 mL (31673)	Precipitation total, inches/ storm (82381)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)
OCT													
24...	1100	230	8.0	345	10	E5300k	23000	1.6	96	34.4	2.51	3.56	.2
FEB													
20...	1000	138	7.9	825	E30	7900	19500	1.0	58	21.1	1.30	2.95	.2

Date	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)
OCT													
24...	7	2.17	14.1	5.41	<.17	5.67	133	226	--	E.007	.25	<.04	.70
FEB													
20...	10	1.62	10.4	2.73	.06	2.73	85	88	.22	.009	.23	<.04	.92

Date	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, unfltrd ug/L (01027)	Cadmium water, fltrd, ug/L (01025)
OCT													
24...	.20	.45	.132	.043	.04	.113	<7	3	.37	19	<.06	<.2	<.04
FEB													
20...	.25	.69	.175	.068	.06	.175	<7	5	1.45	12	<.06	<.2	<.04

Date	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, unfltrd recover-able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Mercury water, unfltrd recover-able, ug/L (71900)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, unfltrd recover-able, ug/L (01067)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)
OCT													
24...	<.8	.12	<10	1.2	E5	2	<.08	.5	<.02	.4	2.8	1.30	<.20
FEB													
20...	<.8	.11	<10	2.4	E7	<1	.10	2.2	<.02	.5	<2.0	1.17	<.20

Date	Zinc, water, unfltrd recover-able, ug/L (01092)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)
OCT													
24...	<20	1	.18	<.006	<.006	<.004	<.005	.015	<.050	<.010	<.002	E.015	<.020
FEB													
20...	<20	2	.13	<.006	<.006	<.004	<.005	1.39	<.050	<.010	<.002	E.006	<.020

08180947 Leon Creek at Hausman Road at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)
OCT													
24...	<.005	<.006	<.018	<.003	<.009	.046	<.005	<.02	<.002	<.009	<.005	<.003	<.004
FEB													
20...	<.005	<.006	<.018	<.003	E.110	.019	<.005	<.02	<.002	<.009	<.005	<.003	<.004

Date	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)
OCT													
24...	<.035	E.020n	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
FEB													
20...	<.035	<.027	<.013	<.006	<.002	<.100	<.003	<.010	<.006	<.004	<.022	<.011	<.01

Date	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)
OCT													
24...	<.010	<.011	<.02	<.004	.046	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
FEB													
20...	<.010	<.011	<.02	<.004	.036	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005

Date	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
OCT			
24...	<.005	<.009	<.004
FEB			
20...	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
k -- Counts outside acceptable range
n -- Below the NDV

08181050 Leon Creek at Prue Road at San Antonio, TX

LOCATION.--Lat 29°32'29", long 98°37'54", Bexar County, Hydrologic Unit 12100302, on left bank on upstream side of Prue Road, 5.22 mi downstream from State Highway 1604.

DRAINAGE AREA.--58.20 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Dec. 2000 to current year.
BIOCHEMICAL DATA: Dec. 2000 to current year.
PESTICIDE: Dec. 2000 to current year.

INSTRUMENTATION.--Water -tage recorder. Discharge-activated automatic sampler. Tipping bucket raingage. Satellite telemeter at station.

REMARKS.--Water-quality samples and associated discharge and precipitation data were collected for selected storm events.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Storm water dis- charge, Mgal/d (81395)	Elapsed time of storm, hours (00135)	Precip- itation dura- tion of storm event, min (00117)	COD, high level, water, unfltrd mg/L (00340)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal strep- tococci KF MF, col/ 100 mL (31673)	Precip- itation total, inches/ storm (82381)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
OCT 24...	1045	--	--	--	--	--	--	E23000k	38000	--	--	--	--
OCT 24-24	1045	236	8.0	159	3.0	345	<10	--	--	1.6	100	36.5	2.89
FEB 20...	1400	--	--	--	--	--	--	24000	26000	--	--	--	--
FEB 20-20	1400	117	8.0	5.2	3.0	825	E20	--	--	1.0	46	16.6	.992

Date	Sodium, water, fltrd, mg/L (00930)	Sodium adsorp- tion ratio (00931)	Sodium, percent (00932)	Potas- sium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	4.40	.2	8	3.02	13.3	6.11	<.17	7.28	143	171	.34	.008	.34
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	3.44	.2	13	2.48	5.6	4.91	.06	3.50	78	89	.42	.009	.43

Date	Ammonia water, fltrd, mg/L as N (00608)	Total nitro- gen, water, unfltrd mg/L (00600)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phos- phorus, water, unfltrd mg/L (00665)	Phos- phorus, water, fltrd, mg/L (00666)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Ortho- phos- phate, water, fltrd, mg/L (00660)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Alum- inum, water, fltrd, ug/L (01106)	Anti- mony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryll- ium, water, fltrd, ug/L (01010)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.04	.90	.24	.55	.157	.066	.05	.166	<7	3	E.25	22	<.06
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	E.03	1.2	.39	.76	.18	.126	.10	.313	<7	7	.33	9	<.06

Date	Cadmium water, unfltrd ug/L (01027)	Cadmium water, fltrd, ug/L (01025)	Chrom- ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, unfltrd recover -able, ug/L (01042)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, unfltrd recover -able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Mangan- ese, water, fltrd, ug/L (01056)	Mercury water, unfltrd recover -able, ug/L (71900)	Molyb- denum, water, fltrd, ug/L (01060)	Nickel, water, unfltrd recover -able, ug/L (01067)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.2	<.04	<.8	.13	<10	1.3	E6	2	<.08	.2	<.02	.4	2.1
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	<.2	<.04	E.4	.13	M	2.0	E8	2	.12	2.1	E.01	.4	3.8

08181050 Leon Creek at Prue Road at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)	Zinc, water, unfltrd recover -able, ug/L (01092)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	1.45	<.20	<20	M	.20	<.006	<.006	<.004	<.005	.315	<.050	<.010	<.002
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	1.13	<.20	<20	2	.10	<.006	<.006	<.004	<.005	1.77	<.050	<.010	<.002

Date	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	E.039	<.020	<.005	<.006	<.018	<.003	E.020	.057	<.005	<.02	<.002	<.009	<.005
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	E.166	<.020	<.005	<.006	<.018	<.003	E.056	.022	<.005	<.02	<.002	<.009	<.005

Date	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.003	<.004	<.035	E.016n	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	<.003	<.004	<.035	<.027	E.007n	<.006	<.002	<.100	<.003	<.010	<.006	<.004	<.022

Date	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	--	--
OCT 24-24	<.011	Mn	<.010	<.011	<.02	<.004	.054	<.02	<.034	<.02	<.005	<.002	<.009
FEB 20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 20-20	<.011	<.01	<.010	<.011	<.02	<.004	.097	<.02	<.034	<.02	<.005	<.002	<.009

08181050 Leon Creek at Prue Road at San Antonio, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
OCT 24...	--	--	--	--	--
OCT 24-24	<.007	<.005	<.005	<.009	<.004
FEB 20...	--	--	--	--	--
FEB 20-20	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
k -- Counts outside acceptable range
n -- Below the NDV

THIS PAGE IS INTENTIONALLY BLANK

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^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,014.82 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation. 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. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1923, 13.7 ft in 1927, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	19	2.3	13	3.4	3.5	0.74	0.00	0.00	0.00	0.00	0.00
2	0.00	22	2.2	11	3.3	3.5	0.71	0.00	0.00	0.00	0.00	0.00
3	0.00	21	2.1	10	3.1	4.2	0.58	0.00	0.00	0.00	0.00	0.00
4	0.00	26	2.3	9.5	2.6	3.7	0.52	0.00	0.11	0.11	0.00	0.00
5	0.00	32	1.9	8.8	2.5	3.8	0.44	0.00	0.02	6.1	0.00	0.00
6	0.00	29	1.7	8.0	2.7	3.6	0.39	0.00	0.00	1.9	0.00	0.00
7	0.00	26	1.7	6.9	2.3	3.2	0.46	0.00	0.00	0.31	0.00	0.00
8	0.06	25	2.0	6.5	2.4	3.0	0.34	0.00	0.00	0.00	0.00	0.00
9	7.1	22	13	6.3	2.4	2.9	0.33	0.00	0.00	0.00	0.00	0.00
10	2.8	20	7.8	5.6	2.1	2.6	0.36	0.00	0.08	0.00	0.00	0.00
11	0.68	17	4.7	5.7	1.9	2.5	0.33	0.00	0.00	0.00	0.00	0.09
12	0.07	15	4.5	12	1.7	2.7	0.29	0.00	0.00	0.00	0.00	0.13
13	0.00	14	3.6	10	1.6	2.5	0.18	0.00	0.16	0.00	0.00	0.00
14	0.00	13	3.1	8.7	1.6	2.3	0.04	0.00	0.02	0.00	0.00	0.00
15	0.00	12	2.9	8.3	1.5	2.2	0.00	0.00	0.08	0.00	0.00	0.00
16	0.00	9.6	2.5	8.3	1.3	2.1	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	8.2	2.3	7.9	1.3	2.0	0.00	0.00	0.00	0.00	0.00	0.25
18	0.00	7.4	2.1	8.7	1.2	2.1	0.00	0.00	0.00	0.00	0.00	1.3
19	0.00	6.2	2.0	8.3	1.2	1.8	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	5.7	2.0	7.9	9.9	1.6	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	5.2	2.0	7.1	8.5	1.6	0.00	0.00	0.00	0.00	0.00	0.08
22	0.13	4.6	2.0	6.2	5.5	1.7	0.00	0.00	0.00	0.00	0.00	0.00
23	15	4.1	12	5.4	4.3	1.7	0.00	0.00	0.00	0.00	0.05	0.00
24	50	3.6	14	5.3	3.9	1.4	0.00	0.00	0.00	0.00	0.00	0.00
25	82	3.2	9.9	5.6	3.8	1.6	0.00	0.00	0.00	0.00	0.00	0.00
26	65	4.1	8.5	5.2	3.7	1.9	0.00	0.00	0.00	0.00	0.00	0.00
27	54	3.4	7.3	4.8	3.6	1.3	0.00	0.00	0.00	0.00	0.00	0.00
28	43	3.0	7.2	4.5	3.5	1.1	0.00	0.00	0.00	0.00	0.00	0.00
29	34	2.7	8.0	4.2	---	0.94	0.00	0.00	0.00	0.00	0.00	0.00
30	27	2.5	13	3.9	---	0.88	0.00	0.00	0.00	0.00	0.00	0.00
31	23	---	13	3.6	---	0.81	---	0.00	---	0.00	0.00	---
TOTAL	403.84	386.5	163.6	227.2	86.8	70.73	5.71	0.00	0.47	8.42	0.05	1.85
MEAN	13.0	12.9	5.28	7.33	3.10	2.28	0.19	0.000	0.016	0.27	0.002	0.062
MAX	82	32	14	13	9.9	4.2	0.74	0.00	0.16	6.1	0.05	1.3
MIN	0.00	2.5	1.7	3.6	1.2	0.81	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	801	767	325	451	172	140	11	0.00	0.9	17	0.1	3.7

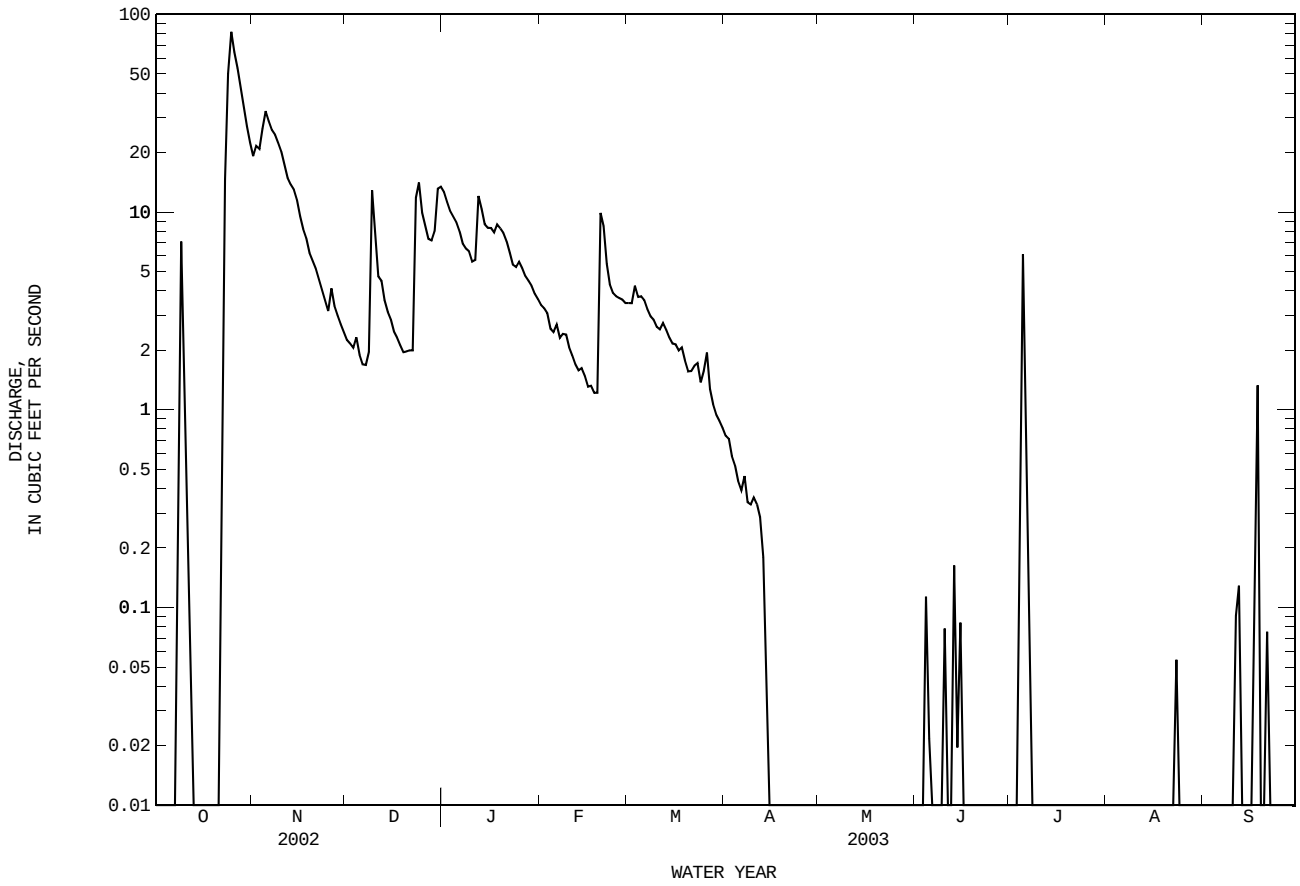
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2003, BY WATER YEAR (WY)

MEAN	7.44	3.58	3.75	2.15	3.50	3.75	3.00	6.41	13.8	7.28	0.87	1.83
MAX	93.6	33.3	79.0	31.0	66.3	32.3	40.0	66.6	142	136	13.5	36.1
(WY)	1999	2001	1992	1992	1992	1985	1973	1992	1987	2002	1971	1973
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1979	1971	1971	1969	1971	1971	1983	1989	1980	1969	1968	1969

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1968 - 2003	
ANNUAL TOTAL	5375.82		1355.17			
ANNUAL MEAN	14.7		3.71		4.83	
HIGHEST ANNUAL MEAN					28.3	1992
LOWEST ANNUAL MEAN					0.003	1984
HIGHEST DAILY MEAN	798	Jul 2	82	Oct 25	1350	Oct 18 1998
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Jun 30 1968
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Jul 4 1968
MAXIMUM PEAK FLOW			116	Oct 24	12600	Oct 18 1998
MAXIMUM PEAK STAGE			2.60	Oct 24	a15.21	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	10660		2690		3500	
10 PERCENT EXCEEDS	26		9.7		7.4	
50 PERCENT EXCEEDS	0.00		0.13		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a From floodmark.

08181400 Helotes Creek at Helotes, TX--Continued



08181400 Helotes Creek at Helotes, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: May 1969 to current year.
BIOCHEMICAL DATA: May 1969 to current year.
PESTICIDE DATA: May 1969 to June 1981, Oct. 1984 to current year.
SEDIMENT DATA: Oct. 1968 to Sept. 1973.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	COD, high level, water, unfltrd mg/L (00340)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal streptococci KF MF, col/ 100 mL (31673)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)
OCT													
24...	0945	22	464	8.1	20.5	<10	<1000k	E6000k	220	68.4	12.7	9.46	.3
JUL													
05...	0900	11	72	6.4	--	20	3500	69000	37	13.2	1.01	.43	.0

Date	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
OCT													
24...	8	1.00	21.0	14.5	<.17	9.15	271	<10	<.008	.21	<.04	.42	.15
JUL													
05...	2	2.39	1.4	.61	<.2	4.94	71	19	<.008	.27	<.04	.80	.30

Date	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Oil and grease, water, unfltrd freon extract mg/L (00556)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, unfltrd ug/L (01027)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)
OCT													
24...	.21	.021	.005	<.02	--	<7	2	<.30	26	<.06	<.2	<.04	<.8
JUL													
05...	.53	.160	.120	.09	.267	E3	6	<.30	7	<.06	<.2	<.04	<.8

Date	Cobalt water, fltrd, ug/L (01035)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, unfltrd recover-able, ug/L (01051)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Mercury water, unfltrd recover-able, ug/L (71900)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, unfltrd recover-able, ug/L (01067)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)	Zinc, water, unfltrd recover-able, ug/L (01092)
OCT													
24...	.14	<10	.5	<10	<1	<.08	.9	<.02	.4	<2.0	2.01	<.20	<20
JUL													
05...	.07	<4.0	1.0	<8	2	.24	.9	<.02	.6	E1.2	.77	<.20	M

Date	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)
OCT													
24...	2	.46	<.006	<.006	<.004	<.005	E.004n	<.050	<.010	<.002	E.004	<.020	<.005
JUL													
05...	3	.02	<.006	<.006	<.004	<.005	.010	<.050	<.010	<.002	<.041	<.020	<.005

08181400 Helotes Creek at Helotes, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)
OCT													
24...	<.006	<.018	<.003	<.006	E.004n	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
JUL													
05...	<.006	<.018	<.003	E.003	.011	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035

Date	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)
OCT													
24...	E.009n	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
JUL													
05...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.035	<.004	<.022	<.011	<.01	<.010

Date	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Trialate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)
OCT													
24...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
JUL													
05...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005

Date	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
OCT		
24...	<.009	<.004
JUL		
05...	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
k -- Counts outside acceptable range
n -- Below the NDV

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^2.

PERIOD OF RECORD.--Oct. 1984 to current year.
Water-quality records.--Chemical data: July 1984 to Sept. 2000. Biochemical data: July 1984 to Oct. 1997. Pesticide data: Aug. 1995 to Oct. 1997. Specific conductance: Sept. 1984 to Sept. 2000. pH: Apr. 1989 to Sept. 2000. Water temperature: Sept. 1984 to Sept. 2000. Dissolved oxygen: Apr. 1989 to Sept. 2000.

GAGE.--Water-stage recorder. Datum of gage is 573.49 ft above NGVD of 1929. Satellite telemeter at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	21	18	14	8.7	7.9	3.9	4.0	2.9	4.8	1.3	4.8
2	12	27	18	14	e8.5	7.8	3.6	4.1	4.2	4.2	1.2	2.4
3	11	26	18	13	e8.1	40	3.6	3.8	3.9	3.9	1.2	42
4	12	202	55	13	7.7	12	3.7	4.3	20	17	1.1	8.5
5	11	140	21	13	8.1	6.8	4.2	4.3	11	380	1.1	3.6
6	11	49	18	13	9.2	5.8	4.1	4.1	5.9	325	1.0	3.5
7	11	30	17	13	8.3	5.3	4.1	4.5	5.1	41	0.98	3.0
8	18	24	20	13	8.9	5.4	3.9	3.8	4.4	40	0.99	3.0
9	1330	22	118	12	8.7	5.3	3.8	3.8	4.2	15	0.99	2.9
10	199	20	71	12	8.1	5.2	3.7	3.6	51	14	0.98	3.0
11	43	20	32	14	7.8	5.1	4.3	3.8	16	7.5	2.5	3.4
12	28	19	59	50	8.0	5.2	4.5	3.3	5.3	5.2	3.3	370
13	23	19	45	26	7.9	5.1	4.4	3.5	11	4.1	2.0	93
14	22	19	32	23	8.9	4.7	4.0	3.5	46	3.4	1.7	28
15	20	19	23	18	10	4.9	3.6	3.3	29	9.1	1.7	14
16	18	19	21	16	7.6	5.1	3.9	3.1	17	57	2.3	11
17	17	19	19	14	7.2	5.0	3.7	3.2	9.0	15	1.7	10
18	16	19	18	13	7.2	5.5	4.0	2.9	8.3	12	1.5	268
19	19	19	17	12	7.6	4.9	4.2	2.9	5.9	6.5	1.5	119
20	19	19	17	12	33	4.7	4.5	2.8	5.0	4.1	1.6	108
21	17	19	17	11	19	4.5	4.6	2.5	4.4	3.2	1.5	235
22	65	19	17	11	17	17	4.2	2.7	4.0	2.8	1.4	75
23	1790	18	24	11	14	20	4.4	2.7	3.9	2.4	1.4	30
24	1970	18	23	10	15	6.4	4.3	2.6	3.8	2.2	1.6	18
25	1140	18	17	11	18	5.0	3.7	2.6	3.7	2.0	1.4	14
26	134	37	16	11	11	5.4	3.5	4.5	3.5	1.9	1.6	12
27	57	23	16	10	8.7	4.1	3.4	3.0	3.4	3.8	1.5	11
28	38	20	15	9.7	8.3	3.8	3.8	3.1	3.4	2.6	1.5	9.9
29	29	19	15	9.7	---	3.7	3.7	3.1	3.2	1.7	1.3	9.3
30	24	18	16	9.3	---	3.7	3.9	2.8	3.2	1.5	1.5	8.8
31	23	---	16	9.2	---	4.2	---	3.0	---	1.4	8.2	---
TOTAL	7139	961	849	440.9	300.5	229.5	119.2	105.2	301.6	994.3	53.54	1524.1
MEAN	230	32.0	27.4	14.2	10.7	7.40	3.97	3.39	10.1	32.1	1.73	50.8
MAX	1970	202	118	50	33	40	4.6	4.5	51	380	8.2	370
MIN	11	18	15	9.2	7.2	3.7	3.4	2.5	2.9	1.4	0.98	2.4
AC-FT	14160	1910	1680	875	596	455	236	209	598	1970	106	3020

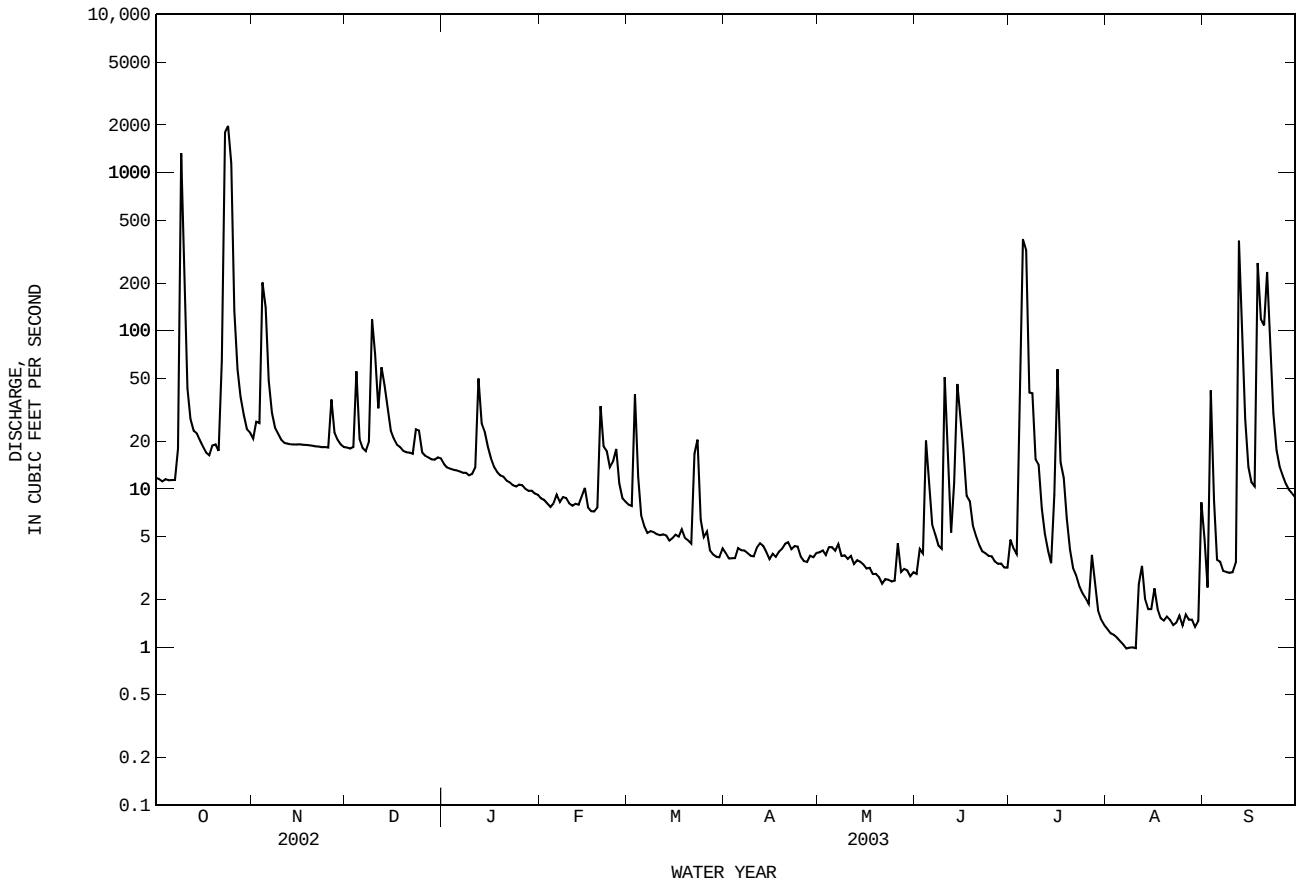
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2003, BY WATER YEAR (WY)

MEAN	87.8	30.5	41.9	18.2	33.1	25.6	20.9	54.1	118	121	14.9	27.4
MAX	942	176	575	116	355	192	82.6	356	824	1950	87.2	195
(WY)	1999	2001	1992	1992	1992	1992	1991	1992	1987	2002	2001	2002
MIN	2.80	3.18	2.89	3.76	5.93	5.11	3.69	2.14	2.72	2.37	1.73	1.97
(WY)	1997	2000	2000	1997	1989	1996	1995	1996	1996	2001	2003	1989

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1985 - 2003	
ANNUAL TOTAL	77153.58		13017.84			
ANNUAL MEAN	211		35.7		49.6	
HIGHEST ANNUAL MEAN					205	2002
LOWEST ANNUAL MEAN					6.22	1996
HIGHEST DAILY MEAN	20500	Jul 2	1970	Oct 24	20500	Jul 2 2002
LOWEST DAILY MEAN	0.88	Jun 20	0.98	Aug 7	0.52	Sep 15 1997
ANNUAL SEVEN-DAY MINIMUM	1.1	Jun 17	1.0	Aug 4	0.78	Aug 1 1996
MAXIMUM PEAK FLOW			3740	Oct 24	i93300	Oct 17 1998
MAXIMUM PEAK STAGE			13.38	Oct 24	a29.31	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	153000		25820		35920	
10 PERCENT EXCEEDS	58		35		36	
50 PERCENT EXCEEDS	9.5		8.5		7.7	
90 PERCENT EXCEEDS	3.0		2.5		2.7	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08181480 Leon Creek at Interstate Highway 35 at San Antonio, TX--Continued



08181500 Medina River at San Antonio, TX

LOCATION.--Lat 29°15'14", long 98°28'20", Bexar County, Hydrologic Unit 12100302, on right bank at downstream side of downstream bridge on U.S. Highway 281 in San Antonio, and 6.8 mi upstream from mouth.

DRAINAGE AREA.--1,317 mi^2.

PERIOD OF RECORD.--Oct. 1929 to Dec. 1930, July 1939 to current year. Oct. 1929 to Dec. 1930, records below about 50 ft^3/s in connection with seepage investigation, published as "at Losoya". Published as "near San Antonio" July 1939 to Sept. 1970.
Water-quality records.--Chemical data: June 1965 to Sept. 2000. Biochemical data: June 1965 to Sept. 2000. Pesticide data: Apr. 1971 to Sept. 1981, Dec. 1992 to Mar. 1998. Specific conductance: Jan. 1987 to Sept. 2000. pH: Jan. 1987 to Sept. 2000. Water temperature: Jan. 1987 to Sept. 2000. Dissolved oxygen: Jan. 1987 to Sept. 2000.

REVISED RECORDS.--WSP 1562: 1957. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.03 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). Oct. 1929 to Dec. 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 at same datum. Oct. 1, 1987 to Apr. 1, 2003, at site near right bank at upstream side of pier of upstream bridge at same datum. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in water year 1939, at least 10% of contributing drainage area has been regulated. Streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone that cross the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the Medina Diversion Dam. Several small diversions below Medina Diversion Lake. Wastewater effluent from the Mitchell Lake, Leon Creek, and Medio Creek plants was discharged into the Medina River above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft, prior to construction of Medina Dam in 1913, from information by Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	552	1500	765	579	401	488	397	e192	125	142	193	149
2	561	1410	757	559	397	479	369	188	130	158	177	141
3	563	1380	731	547	400	667	358	198	139	137	175	129
4	549	1530	960	522	387	789	359	191	178	152	161	172
5	536	2150	839	502	386	655	356	189	207	604	152	133
6	516	1650	784	495	383	614	347	188	205	1180	151	135
7	496	1440	726	481	370	590	334	181	181	576	155	121
8	492	1340	693	482	376	556	321	177	164	443	154	118
9	6430	1290	971	474	378	531	312	161	161	446	144	117
10	4500	1250	1080	468	369	519	316	162	194	407	142	115
11	1500	1220	1010	468	361	506	293	160	201	351	149	112
12	1300	1190	1010	553	355	501	277	159	172	320	166	515
13	1170	1150	1080	645	348	496	258	159	149	306	162	382
14	1090	1120	954	616	347	494	253	150	238	298	148	202
15	1020	1080	859	586	362	498	242	149	238	307	138	161
16	956	1060	796	551	351	509	239	152	218	670	135	145
17	896	1040	750	523	355	509	234	152	187	654	132	139
18	846	1010	724	511	341	505	229	145	181	453	125	351
19	793	989	693	477	327	494	226	142	181	370	124	383
20	770	974	672	468	615	486	220	138	175	313	120	226
21	786	958	638	461	634	469	216	133	177	295	113	720
22	1030	944	606	453	517	458	218	133	181	286	113	434
23	5170	926	603	447	598	514	218	133	180	278	111	264
24	6300	902	680	446	634	522	245	126	179	256	115	209
25	9050	884	709	430	640	507	241	139	171	249	125	196
26	2740	898	694	406	613	495	229	142	163	240	119	200
27	2120	898	640	383	547	501	206	143	156	250	110	196
28	1940	872	612	395	509	484	e202	137	152	264	108	190
29	1810	811	594	402	---	445	e198	132	147	225	107	185
30	1700	788	589	402	---	450	e195	129	152	203	105	177
31	1590	---	579	405	---	424	---	126	---	193	108	---
TOTAL	59772	34654	23798	15137	12301	16155	8108	4806	5282	11026	4237	6717
MEAN	1928	1155	768	488	439	521	270	155	176	356	137	224
MAX	9050	2150	1080	645	640	789	397	198	238	1180	193	720
MIN	492	788	579	383	327	424	195	126	125	137	105	112
AC-FT	118600	68740	47200	30020	24400	32040	16080	9530	10480	21870	8400	13320

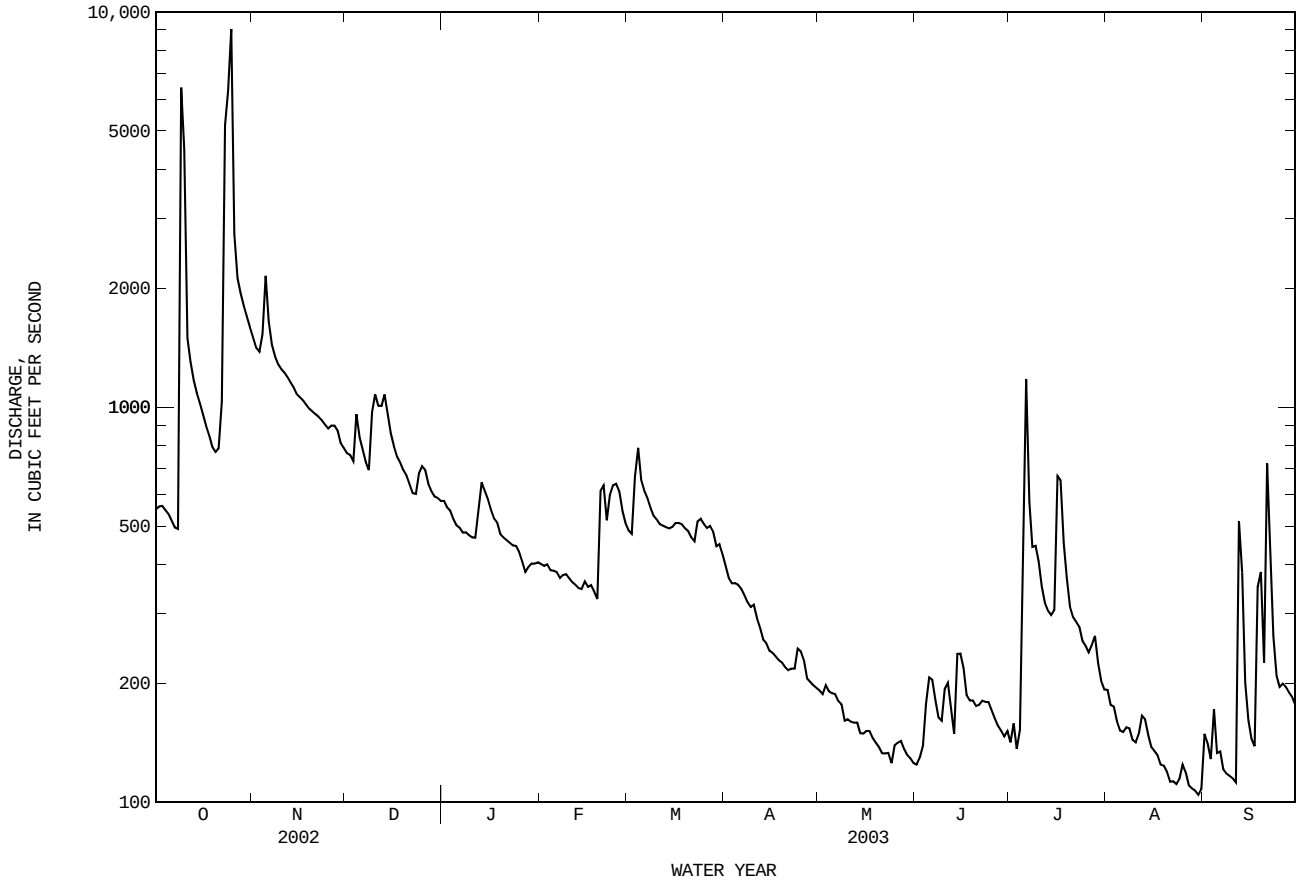
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003h, BY WATER YEAR (WY)

MEAN	255	187	167	175	225	185	193	257	388	349	158	205
MAX	2151	1155	961	979	2923	2558	1620	2018	7006	9434	1175	1533
(WY)	1999	2003	1992	1968	1992	1992	1992	1992	1987	2002	1978	2002
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

08181500 Medina River at San Antonio, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003h	
ANNUAL TOTAL	506929		201993			
ANNUAL MEAN	1389		553		215	
HIGHEST ANNUAL MEAN					1218	1992
LOWEST ANNUAL MEAN					14.3	1956
HIGHEST DAILY MEAN	51300	Jul 6	9050	Oct 25	51300	Jul 6 2002
LOWEST DAILY MEAN	90	Jun 23	105	Aug 30	3.3	Apr 18 1956
ANNUAL SEVEN-DAY MINIMUM	91	Jun 21	112	Aug 25	4.0	Jan 21 1957
MAXIMUM PEAK FLOW			13100	Oct 25	67000	Jul 4 2002
MAXIMUM PEAK STAGE			30.51	Oct 25	a56.10	Jul 4 2002
ANNUAL RUNOFF (AC-FT)	1005000		400700		156000	
10 PERCENT EXCEEDS	1930		1020		367	
50 PERCENT EXCEEDS	373		383		98	
90 PERCENT EXCEEDS	106		138		20	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.



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^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 380.00 ft above NGVD of 1929. Sept. 12, 1962 to Dec. 19, 1980, at site 2.5 mi upstream at different datum. Dec. 19, 1980 to Dec. 23, 1986, water-stage recorder at current site and datum. Dec. 24, 1986 to June 15, 1993, water-stage recorder at site 2.8 mi upstream at different datum. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in water year 1962, at least 10% of contributing drainage area has been regulated. 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. The city of San Antonio discharges wastewater effluent into the San Antonio River above the station from their Leon Creek, Medio Creek, Salado Creek, Dos Rios, and Mitchell plants. The San Antonio City Public Service Board diverts water into and returns water from Braunig Lake and Calaveras Lake upstream from this 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	871	e1710	988	888	714	820	e657	e429	233	245	372	757
2	872	1840	991	e871	715	814	646	418	242	264	343	412
3	879	2040	973	e855	724	1480	635	397	379	240	340	427
4	852	2760	2240	e845	712	1510	637	402	764	423	339	700
5	832	5590	1640	e830	696	969	624	405	772	2470	342	447
6	821	2830	1060	e890	723	886	623	401	934	2640	321	1230
7	817	2020	980	e865	717	858	622	387	450	860	312	464
8	1010	1800	e960	e855	705	825	605	383	390	1000	300	393
9	8540	1680	e2320	841	735	808	597	354	374	1480	284	352
10	8640	1620	1970	789	722	801	596	345	573	639	292	321
11	2470	1580	1340	822	704	783	578	374	560	558	287	333
12	1600	1520	1470	1400	696	777	559	374	404	498	392	3130
13	1380	1460	1630	1460	697	777	546	371	300	468	339	1740
14	1230	1420	1250	980	705	768	545	368	1210	461	319	507
15	1170	1370	1100	853	762	756	527	352	765	463	323	453
16	1060	1310	1040	796	795	767	526	349	701	1280	295	417
17	981	1280	1010	784	720	768	522	336	480	1230	326	403
18	934	1260	982	781	697	769	507	353	433	696	297	1790
19	915	1210	953	776	686	761	510	290	389	543	267	1560
20	926	1190	937	781	1740	745	507	307	352	503	249	526
21	897	1170	909	810	2140	726	502	277	320	482	235	2320
22	1690	1150	892	805	1140	731	502	297	313	470	228	1220
23	7630	1110	912	766	949	853	504	248	318	436	232	590
24	10200	1100	1130	735	928	775	507	276	307	378	275	495
25	13300	1100	991	728	1040	755	467	286	300	368	259	466
26	5890	1160	945	725	947	746	457	310	284	356	310	449
27	3200	1130	914	703	891	735	438	310	276	353	312	460
28	2730	1080	885	712	835	730	431	254	260	513	301	436
29	2480	1030	870	721	---	692	421	254	253	414	264	429
30	2220	1010	877	720	---	692	418	246	252	379	257	417
31	e1970	---	918	722	---	e717	---	241	---	355	283	---
TOTAL	89007	48530	36077	26109	24235	25594	16216	10394	13588	21465	9295	23644
MEAN	2871	1618	1164	842	866	826	541	335	453	692	300	788
MAX	13300	5590	2320	1460	2140	1510	657	429	1210	2640	392	3130
MIN	817	1010	870	703	686	692	418	241	233	240	228	321
AC-FT	176500	96260	71560	51790	48070	50770	32160	20620	26950	42580	18440	46900

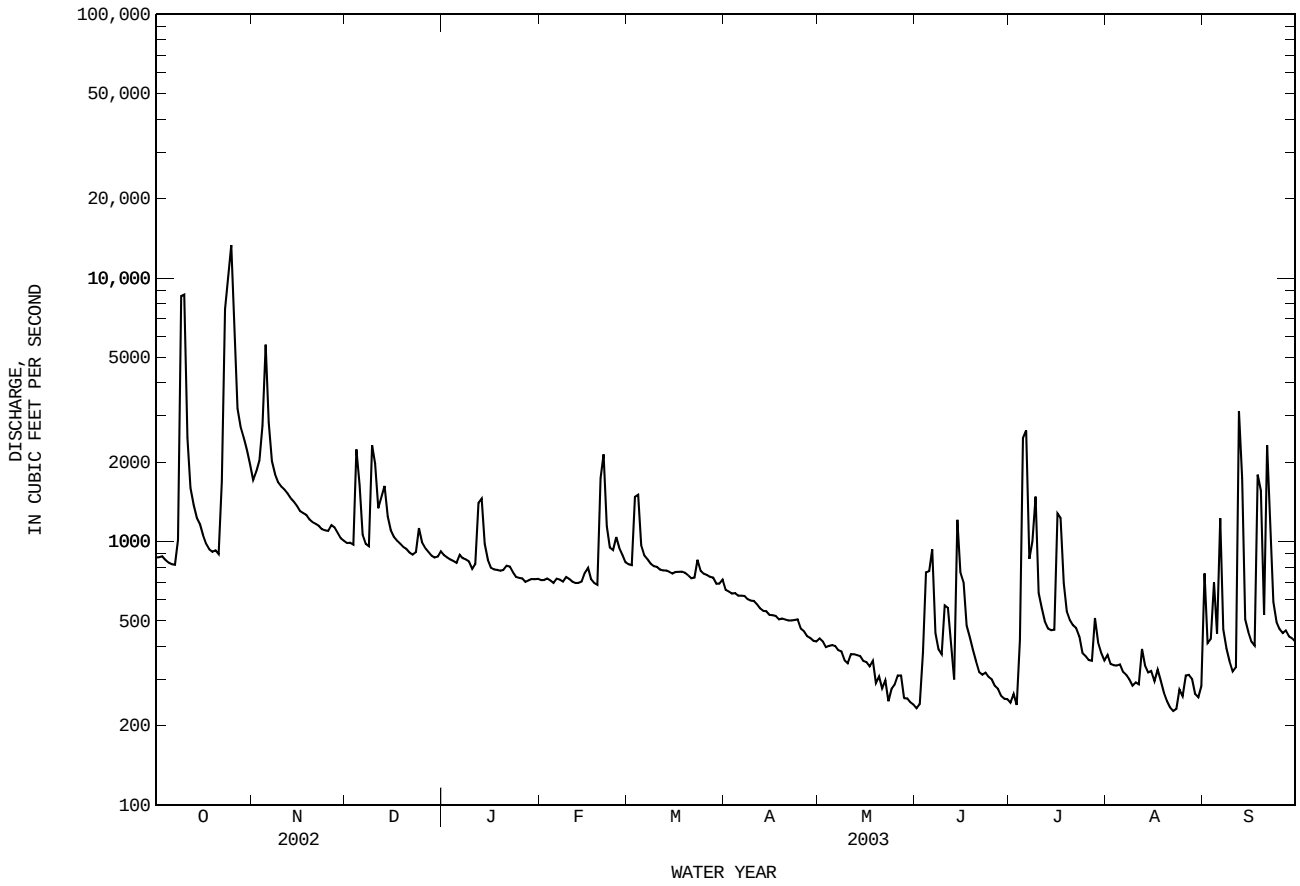
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

MEAN	637	524	477	498	556	494	517	707	920	767	407	527
MAX	4507	2018	2176	2191	3803	3031	1997	3293	8527	12010	1760	2761
(WY)	1999	2001	1992	1968	1992	1992	1992	1992	1987	2002	1978	1973
MIN	127	153	160	168	146	143	150	130	88.6	81.9	52.8	120
(WY)	1997	1967	1971	1967	1967	1971	1967	1967	1967	1964	1963	1989

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	712652		344154			
ANNUAL MEAN	1952		943		586	
HIGHEST ANNUAL MEAN					1784	1992
LOWEST ANNUAL MEAN					166	1963
HIGHEST DAILY MEAN	62400	Jul 6	13300	Oct 25	62400	Jul 6 2002
LOWEST DAILY MEAN	134	May 25	228	Aug 22	25	Aug 26 1963
ANNUAL SEVEN-DAY MINIMUM	148	Jun 23	249	Aug 19	42	Aug 21 1963
MAXIMUM PEAK FLOW			15200	Oct 25	75100	Oct 18 1998
MAXIMUM PEAK STAGE			46.21	Oct 25	64.22	Oct 18 1998
ANNUAL RUNOFF (AC-FT)	1414000		682600		424300	
10 PERCENT EXCEEDS	3240		1610		1010	
50 PERCENT EXCEEDS	649		721		321	
90 PERCENT EXCEEDS	196		300		147	

e Estimated

08181800 San Antonio River near Elmendorf, TX--Continued



08181800 San Antonio River near Elmendorf, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Sept. 1964 to current year.
BIOCHEMICAL DATA: Jan. 1968 to current year.
PESTICIDE DATA: Jan. 1968 to Sept. 1981, Dec. 1992 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct. 1966 to current year.
pH: June 1984 to current year.
WATER TEMPERATURE: Oct. 1966 to current year.
DISSOLVED OXYGEN: June 1984 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1984.

REMARKS.--Records fair except those for dissolved oxygen, which are poor. Interruptions in the record were caused by malfunctions of the instrument. 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, 1,240 microsiemens/cm, Jan. 29, 1973, Aug. 8, 1975; minimum, 102 microsiemens/cm, Oct. 17, 1999.
pH: Maximum, 9.0 units, June 16, 17, 1993; minimum, 7.0 units, Oct. 25, 28, 1988, Jan. 11, 1989, Aug. 29, 2002.
WATER TEMPERATURE: Maximum, 33.5°C, June 19, 20, Sept. 2, 1996; minimum, 5.5°C, Jan. 10, 1973.
DISSOLVED OXYGEN: Maximum, 16.5 mg/L, Mar. 4, 2002; minimum, 0.0 mg/L, Mar. 2, Apr. 14, 15, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,080 microsiemens/cm, May 31; minimum, 175 microsiemens/cm, Oct. 23.
pH: Maximum, 8.3 units, on several days; minimum, 7.4 units, July 5.
WATER TEMPERATURE: Maximum, 32.2°C, Aug. 7; minimum, 12.7°C, Feb. 26.
DISSOLVED OXYGEN: Maximum, 10.6 mg/L, Nov. 5; minimum, 7.2 mg/L, Dec. 16.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper- ature, water, deg C (00010)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	Alka- linity, wat flt fxd end field, mg/L as CaCO3 (39036)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)
OCT													
17...	1030	745	7.8	22.0	7.4	83	220	63.3	54.2	4.83	.021	4.86	<.04
NOV													
13...	1020	693	8.2	20.0	11.0	123	--e	58.2	47.3	4.29	.009	4.30	<.04
DEC													
17...	1000	767	8.0	19.0	8.7	96	220	64.8	54.9	4.89	.029	4.92	.09
JAN													
15...	1020	770	8.0	E13.0	10.6	--	220	68.0	62.5	--	E.007	5.82	<.04
FEB													
12...	0940	830	8.0	18.0	8.6	92	220	71.0	67.6	7.05	.044	7.09	.07
MAY													
01...	0950	929	7.8	25.0	7.2	90	230	81.0	85.4	9.97	.030	10.0	.10
21...	1030	1030	7.8	26.0	6.0	75	200	84.7	106	13.1	.028	13.2	<.04
JUN													
17...	1050	740	8.0	28.0	--e	--	170	59.4	63.4	7.84	.011	7.86	<.04
JUL													
23...	1100	801	8.0	29.0	5.2	69	180	67.5	73.5	8.46	.009	8.47	<.04
AUG													
11...	1100	--	--	--	--	--	--	--	--	--	--	--	--
13...	1000	853	7.9	28.0	--e	--	170	67.8	80.7	9.36	.033	9.39d	<.04
SEP													
10...	1010	877	7.7	28.0	6.8	89	200	63.3	88.1	11.3	.057	11.4d	<.04

08181800 San Antonio River near Elmendorf, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Suspended sediment concentration mg/L (80154)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
OCT													
17...	5.5	--	.60	.44	.32	.984	126	<.006	<.006	<.004	<.005	.022	<.050
NOV													
13...	5.2	--	.85	.75	.15	.454	584	<.006	<.006	<.004	<.005	.014	<.050
DEC													
17...	5.4	.40	.49	.29	.25	.763	119	<.006	<.006	<.004	<.005	.014	<.050
JAN													
15...	6.3	--	.45	.31	.27	.834	28	--	--	--	--	--	--
FEB													
12...	7.9	.71	.77	.47	.27	.828	339	<.006	<.006	<.004	<.005	.033	<.050
MAY													
01...	11	.58	.69	.57	.52	1.59	30	<.006	<.006	<.004	<.005	.040	<.050
21...	14	--	.64	.75	.69	2.10	10	<.006	<.006	<.004	<.005	.045	<.050
JUN													
17...	8.8	--	.92	.77	.62	1.92	123	<.006	<.006	<.004	<.005	.099	<.050
JUL													
23...	9.1	--	.63	.87	.75	2.31	42	<.006	<.006	<.004	<.005	.025	<.050
AUG													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	10	--	.77	.94oc	.84	2.59	40	<.006	<.006	<.004	<.005	.063	<.050
SEP													
10...	12	--	.67	.92oc	.84	2.58	84	--	--	--	--	--	--

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
OCT													
17...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.013	.007	<.005	<.02	<.002
NOV													
13...	<.010	<.002	<.041	<.030	<.005	<.006	<.018	<.003	E.013	.011	<.005	<.02	<.002
DEC													
17...	<.010	<.002	E.006	<.025	<.005	<.006	<.018	<.003	E.013	E.014	<.005	<.02	<.002
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.010	<.002	E.005	<.020	<.005	<.006	<.018	<.003	E.014	<.010	<.005	<.02	<.002
MAY													
01...	<.010	<.002	E.006	<.085	<.005	<.006	<.018	<.003	E.016	.013	<.005	<.02	<.002
21...	<.010	<.002	E.020	<.020	<.005	<.006	<.018	<.003	E.019	<.005	<.005	<.02	<.002
JUN													
17...	<.010	<.002	E.012	<.020	<.005	<.006	<.018	<.003	E.022	.033	<.005	<.02	<.002
JUL													
23...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.014	<.005	<.005	<.06	<.002
AUG													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	<.010	<.002	E.017t	<.020	<.005	<.006	<.018	<.003	E.011	.018	<.005	<.02	<.002
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

08181800 San Antonio River near Elmendorf, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)
OCT													
17...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
NOV													
13...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
DEC													
17...	<.009	<.005	<.003	<.004	<.035	<.027	E.001n	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAY													
01...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
21...	<.009	<.005	<.003	<.010	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUN													
17...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
23...	<.009	<.005	<.003	<.010	<.035	<.027	<.013	<.010	<.002	<.007	<.003	<.010	<.006
AUG													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	<.009	<.005	<.003	.005	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)
OCT													
17...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	.006	E.01n	E.032	<.02	<.005
NOV													
13...	<.004	<.022	<.011	E.01n	<.010	<.011	<.02	<.004	<.005	<.02	E.037	<.02	<.005
DEC													
17...	<.004	<.022	<.011	E.01n	<.010	<.011	<.02	<.004	.020	<.02	E.034	<.02	<.005
JAN													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.004	<.022	<.011	E.01n	<.010	<.011	<.02	<.004	E.004n	E.01n	<.034	<.02	<.005
MAY													
01...	<.004	<.022	<.011	.02	<.010	<.011	<.02	<.004	<.005	E.01n	E.050	<.02	<.005
21...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUN													
17...	<.004	<.022	<.011	.02	<.010	<.011	<.02	<.004	<.005	.15	<.034	<.02	<.005
JUL													
23...	<.004	<.022	<.011	E.01n	<.010	<.011	<.02	<.004	<.005	.03	<.034	<.02	<.005
AUG													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	<.004	<.022	<.011	E.02	<.010	<.011	<.02	<.025	<.005	E.03	<.034	<.02	<.005
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

08181800 San Antonio River near Elmendorf, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Peri-phyton biomass dry weight, g/m2 (00573)	Peri-phyton biomass ash weight, g/m2 (00572)
OCT										
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
NOV										
13...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
DEC										
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
JAN										
15...	--	--	--	--	--	--	--	--	--	--
FEB										
12...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
MAY										
01...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
21...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
JUN										
17...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
JUL										
23...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
AUG										
11...	--	--	--	--	--	--	--	<4.5d	27.60	26
13...	<.002	<.009	<.007	<.005	<.005	<.009	<.004	--	--	--
SEP										
10...	--	--	--	--	--	--	--	--	--	--

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
c -- See laboratory comment
d -- Diluted sample: method hi range exceeded
n -- Below the NDV
o -- Result determined by alternate method
t -- Below the long-term MDL

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

SPECIFIC CONDUCTANCE, IN US/CM @ 25c, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	882	828	859	---	---	---	754	730	743	816	775	801
2	895	850	878	648	630	636	755	730	745	799	772	787
3	883	845	868	646	621	634	767	736	755	796	770	788
4	---	---	---	648	418	594	774	349	631	804	778	791
5	---	---	---	532	409	460	659	529	595	809	779	796
6	---	---	---	608	520	565	688	655	677	805	753	783
7	---	---	---	644	608	627	709	675	695	822	779	805
8	892	677	845	657	641	649	752	706	742	820	799	812
9	704	274	425	670	657	662	755	464	633	826	787	814
10	510	344	409	678	662	672	691	584	644	852	787	830
11	636	494	589	678	666	672	691	650	675	835	797	819
12	657	626	649	681	671	677	697	565	668	798	533	718
13	678	654	670	684	668	676	680	576	650	777	609	728
14	699	674	690	685	674	680	695	672	685	794	765	777
15	723	688	712	695	684	690	718	690	709	800	778	788
16	756	704	740	703	693	696	745	706	732	798	773	788
17	---	---	---	706	679	693	785	736	769	789	762	780
18	---	---	---	703	679	694	787	773	782	785	752	773
19	---	---	---	713	693	705	801	780	791	784	751	772
20	786	758	777	720	705	714	802	774	788	793	765	781
21	784	745	763	726	705	716	791	773	784	827	771	809
22	775	463	657	725	706	716	800	779	791	829	808	822
23	613	175	408	723	710	717	798	762	787	834	810	826
24	347	212	279	732	704	722	819	741	777	825	794	813
25	324	226	256	733	703	723	802	758	781	816	795	808
26	515	324	422	740	698	725	769	742	757	820	794	808
27	605	515	570	737	713	725	773	743	765	831	794	816
28	---	---	---	737	715	729	783	768	778	845	808	833
29	---	---	---	737	716	725	791	771	782	849	818	836
30	667	658	663	744	724	737	794	770	785	855	823	844
31	---	---	---	---	---	---	801	778	792	844	818	833
MONTH	---	---	---	---	---	---	819	349	732	855	533	799

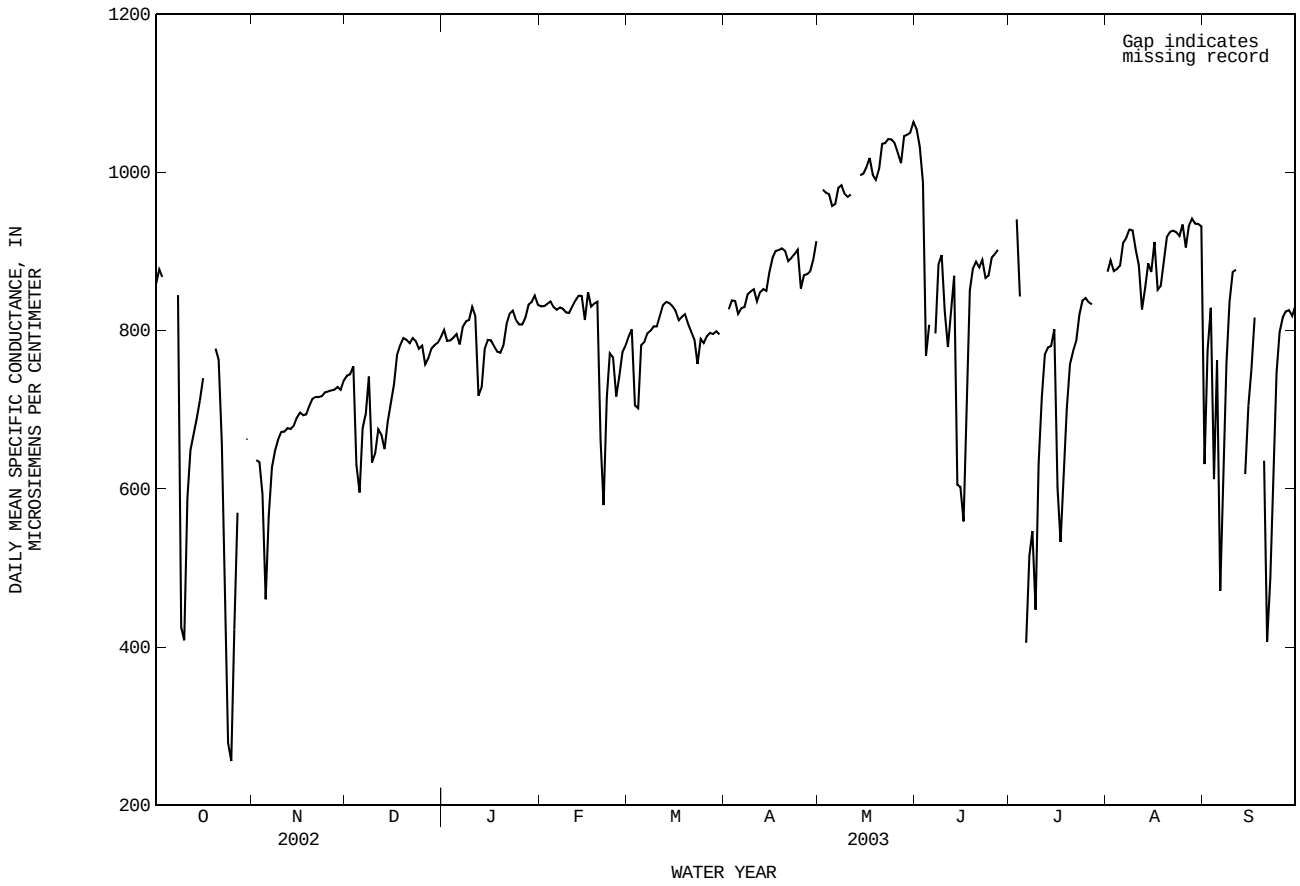
08181800 San Antonio River near Elmendorf, TX--Continued

SPECIFIC CONDUCTANCE, IN US/CM @ 25c, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	836	819	831	799	781	793	---	---	---	---	---	---
2	842	816	831	816	782	802	844	790	827	992	948	978
3	844	814	834	805	453	706	855	814	838	988	953	975
4	848	827	837	789	584	702	861	792	838	987	948	973
5	839	801	830	797	764	782	835	808	821	968	937	958
6	841	802	827	797	765	786	848	808	828	974	941	960
7	837	815	829	802	786	797	848	800	830	999	957	981
8	835	813	828	809	789	800	859	830	846	998	967	984
9	835	806	823	817	791	805	874	827	850	995	949	973
10	835	803	822	815	770	806	870	823	852	992	936	969
11	839	815	831	826	795	819	856	809	837	993	948	972
12	850	826	838	840	816	833	863	816	849	---	---	---
13	854	829	844	846	821	837	871	833	853	---	---	---
14	855	832	844	842	826	835	870	837	850	1010	972	996
15	838	793	814	838	820	831	887	841	875	1020	965	998
16	908	814	849	840	800	825	909	854	893	1060	979	1010
17	841	816	831	824	799	813	916	873	901	1070	997	1020
18	843	817	834	827	799	818	912	882	902	1000	992	997
19	847	825	837	834	809	821	921	880	904	1000	972	991
20	840	401	662	827	790	809	916	872	901	1030	964	1000
21	632	430	579	883	784	799	904	866	888	1070	1020	1040
22	753	632	715	812	729	789	906	865	892	1060	1010	1040
23	781	753	772	778	728	758	911	863	897	1060	1020	1040
24	778	744	766	800	772	789	914	879	902	1050	1030	1040
25	757	686	717	792	766	784	885	796	853	1050	1030	1040
26	760	689	742	805	767	793	883	804	870	1040	1010	1030
27	786	751	773	806	779	797	895	845	871	1050	980	1010
28	797	761	781	805	779	796	895	838	875	1060	1010	1050
29	---	---	---	811	785	799	902	855	890	1070	1010	1050
30	---	---	---	814	779	795	934	869	913	1070	1040	1050
31	---	---	---	---	---	---	---	---	---	1080	1040	1060
MONTH	908	401	797	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1070	1040	1060	---	---	---	884	856	875	923	377	631
2	1060	1010	1030	---	---	---	907	879	889	812	650	776
3	1020	908	988	950	933	941	895	843	876	879	515	829
4	967	456	768	948	605	843	893	864	878	753	388	612
5	940	424	808	795	192	---	896	864	882	824	697	762
6	699	500	599	509	383	405	928	896	911	740	335	471
7	876	699	797	575	407	515	933	895	918	698	484	630
8	901	859	884	619	408	547	943	911	928	783	698	759
9	940	868	896	539	385	447	943	910	927	869	774	836
10	934	557	825	700	539	633	912	876	902	895	858	874
11	852	566	779	750	671	716	911	853	883	905	852	877
12	858	800	829	795	744	770	908	774	827	---	---	---
13	886	842	869	794	772	779	876	789	853	---	---	---
14	879	407	605	796	767	781	904	863	885	683	525	619
15	679	481	602	815	748	802	903	832	874	730	683	705
16	606	525	559	795	483	602	933	876	912	799	701	752
17	799	606	743	585	502	533	914	831	852	831	799	817
18	874	799	851	665	572	624	879	819	856	---	---	---
19	894	859	878	737	665	702	924	852	888	---	---	---
20	900	873	887	776	725	758	941	893	919	677	551	636
21	894	865	880	790	753	774	950	905	925	680	268	407
22	910	875	889	816	761	787	946	898	927	572	391	487
23	877	854	867	840	809	821	942	905	924	692	572	631
24	893	836	870	845	828	838	937	895	920	783	691	747
25	914	875	893	850	830	841	956	912	934	816	773	798
26	913	881	897	846	819	836	922	875	905	835	791	817
27	921	884	902	845	824	833	953	916	933	836	800	824
28	---	---	---	---	---	---	955	927	942	835	817	826
29	---	---	---	---	---	---	955	916	935	831	806	818
30	---	---	---	---	---	---	951	910	935	851	815	831
31	---	---	---	---	---	---	950	911	932	---	---	---
MONTH	---	---	---	---	---	---	956	774	902	---	---	---

08181800 San Antonio River near Elmendorf, TX--Continued



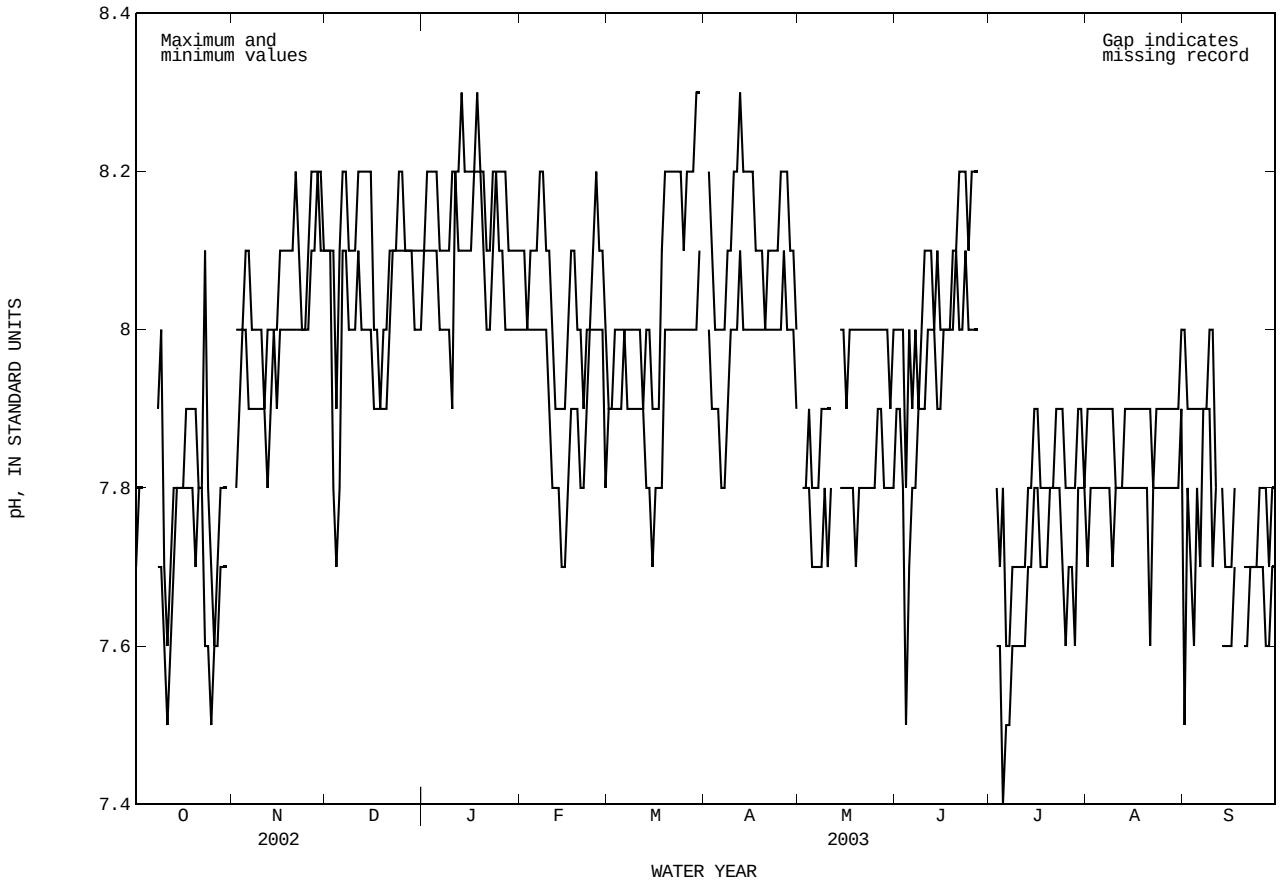
PH, WH, FIELD, IN (STANDARD UNITS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	7.8	7.7	---	---	8.1	8.1	8.1	8.1	8.1	8.0	7.9	7.9
2	7.8	7.8	8.0	7.8	8.1	8.1	8.2	8.1	8.1	8.0	7.9	7.9
3	7.8	7.8	8.0	7.9	8.1	7.8	8.2	8.1	8.0	8.0	8.0	7.9
4	---	---	8.0	8.0	7.9	7.7	8.2	8.1	8.1	8.0	8.0	7.9
5	---	---	8.1	8.0	8.1	7.8	8.2	8.1	8.1	8.0	8.0	7.9
6	---	---	8.1	7.9	8.2	8.1	8.1	8.0	8.1	8.0	8.0	8.0
7	---	---	8.0	7.9	8.2	8.1	8.1	8.0	8.2	8.0	8.0	7.9
8	7.9	7.7	8.0	7.9	8.1	8.0	8.1	8.0	8.2	8.0	8.0	7.9
9	8.0	7.7	8.0	7.9	8.1	8.0	8.1	8.0	8.1	8.0	8.0	7.9
10	7.7	7.6	8.0	7.9	8.1	8.0	8.2	7.9	8.1	7.9	8.0	7.9
11	7.6	7.5	7.9	7.9	8.2	8.1	8.2	8.2	8.0	7.8	8.0	7.9
12	7.7	7.6	8.0	7.8	8.2	8.0	8.2	8.1	7.9	7.8	7.9	7.9
13	7.8	7.7	8.0	7.9	8.2	8.0	8.3	8.1	7.9	7.8	8.0	7.8
14	7.8	7.8	8.0	8.0	8.2	8.0	8.2	8.1	7.9	7.7	8.0	7.8
15	7.8	7.8	8.0	7.9	8.2	8.0	8.2	8.1	7.9	7.7	7.9	7.7
16	7.8	7.8	8.1	8.0	8.0	7.9	8.2	8.1	8.0	7.8	7.9	7.8
17	7.9	7.8	8.1	8.0	8.0	7.9	8.2	8.2	8.1	7.9	7.9	7.8
18	7.9	7.8	8.1	8.0	7.9	7.9	8.3	8.2	8.1	7.9	8.1	7.8
19	7.9	7.8	8.1	8.0	8.0	7.9	8.2	8.2	8.0	7.9	8.2	8.0
20	7.9	7.7	8.1	8.0	8.0	7.9	8.2	8.1	8.0	7.8	8.2	8.0
21	7.8	7.8	8.2	8.0	8.1	8.0	8.1	8.0	7.9	7.8	8.2	8.0
22	7.8	7.8	8.1	8.0	8.1	8.1	8.1	8.0	8.0	7.9	8.2	8.0
23	8.1	7.6	8.0	8.0	8.1	8.1	8.2	8.1	8.0	8.0	8.2	8.0
24	7.8	7.6	8.0	8.0	8.2	8.1	8.2	8.2	8.1	8.0	8.2	8.0
25	7.7	7.5	8.1	8.0	8.2	8.1	8.2	8.1	8.2	8.0	8.1	8.0
26	7.6	7.6	8.2	8.1	8.1	8.1	8.2	8.1	8.1	8.0	8.2	8.0
27	7.7	7.6	8.2	8.1	8.1	8.1	8.2	8.0	8.1	8.0	8.2	8.0
28	7.8	7.7	8.2	8.2	8.1	8.1	8.1	8.0	8.0	7.8	8.2	8.0
29	7.8	7.7	8.2	8.1	8.1	8.0	8.1	8.0	---	---	8.3	8.0
30	7.8	7.7	8.1	8.1	8.1	8.0	8.1	8.0	---	---	8.3	8.1
31	---	---	---	---	8.1	8.0	8.1	8.0	---	---	---	---
MONTH	---	---	---	---	8.2	7.7	8.3	7.9	8.2	7.7	---	---

08181800 San Antonio River near Elmendorf, TX--Continued

PH, WH, FIELD, IN (STANDARD UNITS), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	8.0	7.9	---	---	7.9	7.7	8.0	7.5
2	8.2	8.0	7.8	7.8	8.0	7.9	---	---	7.9	7.8	7.9	7.8
3	8.1	7.9	7.8	7.8	8.0	7.8	7.8	7.6	7.9	7.8	7.9	7.7
4	8.0	7.9	7.9	7.8	7.8	7.5	7.7	7.6	7.9	7.8	7.9	7.6
5	8.0	7.9	7.8	7.7	8.0	7.7	7.8	7.4	7.9	7.8	7.9	7.8
6	8.0	7.8	7.8	7.7	7.9	7.8	7.6	7.5	7.9	7.8	7.9	7.7
7	8.0	7.8	7.8	7.7	8.0	7.8	7.6	7.5	7.9	7.8	7.9	7.9
8	8.1	7.9	7.9	7.7	7.9	7.9	7.7	7.6	7.9	7.8	7.9	7.9
9	8.1	8.0	7.9	7.8	8.0	7.9	7.7	7.6	7.9	7.7	8.0	7.9
10	8.2	8.0	7.9	7.7	8.1	7.9	7.7	7.6	7.8	7.8	8.0	7.7
11	8.2	8.0	7.9	7.8	8.1	8.0	7.7	7.6	7.8	7.8	7.8	7.8
12	8.3	8.1	---	---	8.1	8.0	7.7	7.6	7.8	7.8	---	---
13	8.2	8.0	---	---	8.0	8.0	7.8	7.7	7.9	7.8	7.8	7.6
14	8.2	8.0	8.0	7.8	8.1	7.9	7.8	7.7	7.9	7.8	7.7	7.6
15	8.2	8.0	8.0	7.8	8.0	7.9	7.9	7.8	7.9	7.8	7.7	7.6
16	8.2	8.0	7.9	7.8	8.0	8.0	7.9	7.8	7.9	7.8	7.7	7.6
17	8.1	8.0	8.0	7.8	8.0	8.0	7.8	7.7	7.9	7.8	7.8	7.7
18	8.1	8.0	8.0	7.8	8.0	8.0	7.8	7.7	7.9	7.8	---	---
19	8.1	8.0	8.0	7.7	8.1	8.0	7.8	7.7	7.9	7.8	---	---
20	8.0	8.0	8.0	7.8	8.1	8.1	7.8	7.8	7.9	7.8	7.7	7.6
21	8.1	8.0	8.0	7.8	8.2	8.0	7.8	7.8	7.9	7.6	7.7	7.6
22	8.1	8.0	8.0	7.8	8.2	8.0	7.9	7.8	7.8	7.8	7.7	7.7
23	8.1	8.0	8.0	7.8	8.2	8.1	7.9	7.8	7.9	7.8	7.7	7.7
24	8.1	8.0	8.0	7.8	8.1	8.0	7.9	7.7	7.9	7.8	7.7	7.7
25	8.2	8.0	8.0	7.8	8.2	8.0	7.8	7.6	7.9	7.8	7.8	7.7
26	8.2	8.1	8.0	7.9	8.2	8.0	7.8	7.7	7.9	7.8	7.8	7.7
27	8.2	8.0	8.0	7.9	8.2	8.0	7.8	7.7	7.9	7.8	7.8	7.6
28	8.1	8.0	8.0	7.8	---	---	7.8	7.6	7.9	7.8	7.7	7.6
29	8.1	8.0	8.0	7.8	---	---	7.9	7.8	7.9	7.8	7.8	7.7
30	8.0	7.9	7.9	7.8	---	---	7.9	7.8	7.9	7.8	7.8	7.7
31	---	---	8.0	7.8	---	---	7.8	7.8	8.0	7.9	---	---
MONTH	---	---	---	---	---	---	---	---	8.0	7.6	---	---



08181800 San Antonio River near Elmendorf, TX--Continued

WATER TEMPERATURE, IN (DEGREES C), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

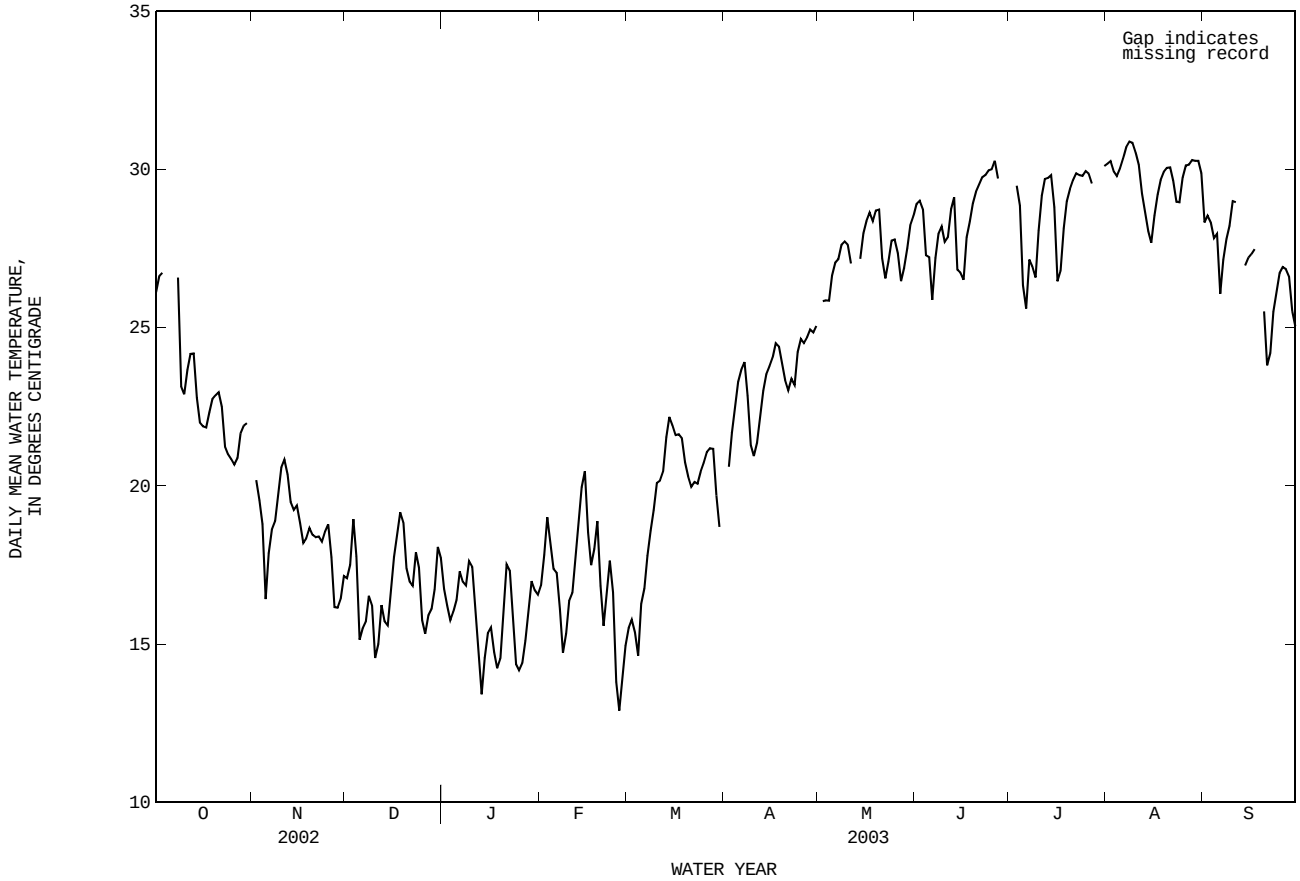
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	26.9	25.7	26.1	---	---	---	17.3	17.0	17.1	17.2	16.3	16.7
2	27.3	26.1	26.6	20.6	19.7	20.2	18.3	16.8	17.5	16.7	15.9	16.2
3	27.5	26.2	26.7	19.7	19.4	19.5	19.7	18.2	19.0	16.3	15.4	15.8
4	---	---	---	19.4	17.1	18.8	19.9	15.1	17.8	16.5	15.7	16.0
5	---	---	---	17.2	15.7	16.4	15.5	14.9	15.1	17.0	16.0	16.4
6	---	---	---	18.5	17.2	17.9	16.1	15.1	15.5	17.8	16.7	17.3
7	---	---	---	19.0	18.3	18.6	16.0	15.5	15.7	17.5	16.8	17.0
8	27.2	26.1	26.6	19.3	18.6	18.9	17.0	16.0	16.5	17.6	16.4	16.9
9	26.2	21.9	23.1	20.3	19.1	19.7	17.7	14.7	16.2	18.4	17.1	17.6
10	23.4	22.2	22.9	21.0	20.1	20.6	14.8	14.3	14.6	18.1	17.0	17.4
11	24.1	23.4	23.7	21.1	20.6	20.8	15.5	14.7	15.0	17.0	15.7	16.2
12	24.7	23.8	24.2	20.7	19.8	20.4	17.4	15.5	16.2	15.7	13.2	14.8
13	24.6	23.6	24.2	19.8	19.2	19.5	16.7	15.4	15.7	13.8	13.1	13.4
14	23.6	22.1	22.8	19.7	18.9	19.2	16.1	15.2	15.6	15.5	13.8	14.6
15	22.4	21.7	22.0	19.5	19.0	19.4	17.3	15.9	16.6	15.8	15.1	15.4
16	22.4	21.4	21.9	19.0	18.5	18.8	18.4	17.0	17.7	15.7	15.3	15.5
17	22.5	21.3	21.8	18.5	17.9	18.2	18.7	18.1	18.4	15.3	14.4	14.7
18	22.7	22.1	22.3	18.8	18.0	18.3	19.7	18.6	19.2	14.6	13.8	14.2
19	22.8	22.6	22.7	19.1	18.4	18.7	19.5	18.2	18.8	15.3	14.1	14.5
20	23.3	22.6	22.9	18.9	18.1	18.5	18.2	16.9	17.4	17.1	15.1	16.1
21	23.2	22.8	23.0	18.8	18.0	18.4	17.3	16.6	17.0	18.4	16.9	17.5
22	23.0	22.0	22.5	18.8	18.1	18.4	17.1	16.6	16.8	18.1	16.6	17.3
23	22.5	20.3	21.2	18.6	17.8	18.2	18.8	16.9	17.9	16.6	15.2	15.7
24	21.2	20.7	21.0	19.0	18.2	18.6	18.6	16.5	17.4	15.2	14.1	14.4
25	21.0	20.8	20.8	19.0	18.5	18.8	16.5	15.3	15.7	14.3	14.1	14.2
26	20.8	20.6	20.7	18.5	17.0	17.7	15.6	15.2	15.3	14.7	14.2	14.4
27	21.3	20.7	20.9	17.0	15.9	16.2	16.4	15.6	15.9	15.8	14.7	15.1
28	21.9	21.3	21.7	16.6	15.9	16.1	16.5	15.8	16.1	16.7	15.7	16.1
29	22.1	21.6	21.9	16.8	16.2	16.4	17.5	16.2	16.7	17.4	16.5	17.0
30	22.3	21.7	22.0	17.5	16.7	17.2	18.6	17.4	18.1	17.1	16.5	16.7
31	---	---	---	---	---	---	18.3	17.2	17.7	17.1	16.3	16.6
MONTH	---	---	---	---	---	---	19.9	14.3	16.8	18.4	13.1	15.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.6	16.3	16.9	15.7	15.3	15.5	---	---	---	---	---	---
2	18.6	17.2	17.8	15.9	15.7	15.8	21.5	19.9	20.6	26.8	25.2	25.8
3	19.8	18.3	19.0	16.4	14.0	15.4	22.8	20.9	21.7	26.5	25.4	25.9
4	19.2	17.7	18.2	15.6	14.0	14.6	23.4	21.8	22.5	26.6	25.3	25.9
5	17.7	17.1	17.4	16.6	15.6	16.3	24.1	22.5	23.3	27.8	25.8	26.7
6	17.6	17.1	17.3	17.7	16.1	16.8	24.2	23.3	23.7	27.7	26.5	27.1
7	17.3	15.4	16.1	19.0	17.0	17.8	24.7	23.3	23.9	28.0	26.5	27.2
8	15.4	14.5	14.7	19.1	18.2	18.6	24.5	22.2	22.9	28.7	26.7	27.6
9	16.3	14.6	15.3	20.0	18.7	19.2	22.2	20.5	21.3	28.4	27.0	27.7
10	17.2	15.8	16.4	20.9	19.5	20.1	21.8	20.1	20.9	28.3	26.8	27.6
11	17.4	16.2	16.6	20.5	20.1	20.2	22.6	20.5	21.4	28.0	26.3	27.0
12	18.7	17.1	17.7	21.2	19.9	20.5	23.3	21.0	22.2	---	---	---
13	19.6	18.5	19.0	22.6	20.9	21.5	23.9	22.2	23.0	---	---	---
14	20.7	19.4	20.0	23.0	21.6	22.2	24.5	22.7	23.5	28.6	26.0	27.2
15	20.8	20.0	20.5	22.4	21.5	21.9	24.3	23.1	23.8	29.2	26.9	28.0
16	20.0	17.6	18.5	22.4	21.0	21.6	25.1	23.2	24.1	29.7	27.2	28.4
17	18.3	16.8	17.5	22.0	21.4	21.6	25.2	23.8	24.5	29.6	27.4	28.6
18	18.9	17.5	18.0	22.0	21.1	21.5	24.9	23.8	24.4	29.6	27.1	28.4
19	19.4	18.5	18.9	21.3	20.1	20.7	24.5	23.7	23.9	29.8	27.5	28.7
20	19.0	13.6	16.8	20.7	19.9	20.3	23.9	22.9	23.3	29.8	27.8	28.7
21	15.9	15.3	15.6	20.9	19.1	20.0	23.8	22.3	23.0	28.5	26.3	27.2
22	17.6	15.8	16.6	20.7	19.7	20.1	23.7	23.2	23.4	27.3	25.7	26.6
23	18.5	16.9	17.6	20.8	19.6	20.1	23.5	23.0	23.2	28.1	26.1	27.1
24	18.0	14.9	16.6	21.1	20.0	20.5	25.7	23.2	24.2	28.8	26.8	27.8
25	14.9	12.9	13.8	21.1	20.5	20.7	25.5	23.6	24.7	28.5	27.1	27.8
26	13.1	12.7	12.9	22.0	20.4	21.1	25.5	23.3	24.5	28.1	26.9	27.4
27	15.3	13.1	14.0	22.2	20.4	21.2	25.5	23.7	24.7	27.4	25.8	26.5
28	15.6	14.6	14.9	21.6	20.7	21.2	25.7	24.1	24.9	28.0	25.8	26.9
29	---	---	---	20.7	19.2	19.7	25.4	24.5	24.8	28.9	26.2	27.5
30	---	---	---	19.5	17.9	18.7	26.1	24.3	25.1	29.5	26.8	28.2
31	---	---	---	---	---	---	---	---	---	29.6	27.2	28.5
MONTH	20.8	12.7	16.9	---	---	---	---	---	---	---	---	---

08181800 San Antonio River near Elmendorf, TX--Continued

WATER TEMPERATURE, IN (DEGREES C), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	30.0	27.9	28.9	---	---	---	31.5	29.0	30.2	29.6	27.5	28.3
2	29.8	28.2	29.0	---	---	---	31.5	29.1	30.3	29.2	28.1	28.5
3	29.5	27.9	28.7	30.3	28.6	29.5	30.9	29.0	29.9	29.0	27.8	28.3
4	28.6	25.6	27.3	29.9	27.8	28.9	31.1	28.7	29.8	28.7	27.3	27.8
5	27.8	25.5	27.2	27.8	24.6	26.3	31.4	28.8	30.0	28.5	27.6	28.0
6	27.0	24.7	25.9	26.7	24.9	25.6	31.8	29.0	30.4	27.7	25.0	26.1
7	28.8	26.0	27.2	28.0	26.6	27.2	32.2	29.3	30.7	28.4	26.4	27.1
8	29.0	27.0	28.0	27.3	26.2	26.9	32.0	29.6	30.9	28.7	27.0	27.8
9	29.5	27.1	28.2	27.6	26.2	26.6	32.0	29.6	30.8	29.4	27.2	28.2
10	29.0	26.4	27.7	29.3	27.2	28.1	31.7	29.5	30.5	30.1	28.1	29.0
11	29.0	26.7	27.9	30.3	28.3	29.2	31.0	29.1	30.2	29.9	28.4	29.0
12	29.9	27.8	28.8	30.8	28.7	29.7	30.4	28.6	29.2	---	---	---
13	30.0	28.4	29.1	30.8	28.6	29.7	29.7	27.7	28.7	---	---	---
14	28.7	25.2	26.8	31.0	28.7	29.8	29.2	27.5	28.1	27.9	26.4	27.0
15	27.3	26.2	26.7	30.4	27.4	28.8	28.8	26.7	27.7	28.1	26.4	27.2
16	27.7	25.4	26.5	27.4	25.7	26.5	29.8	27.5	28.5	28.2	26.6	27.3
17	28.9	27.0	27.9	27.9	25.9	26.8	30.4	28.1	29.2	27.9	27.0	27.5
18	29.7	27.2	28.4	29.6	27.3	28.1	31.0	28.4	29.7	---	---	---
19	30.3	27.7	28.9	30.0	28.2	29.0	31.1	28.8	29.9	---	---	---
20	30.6	28.1	29.3	30.5	28.4	29.4	31.1	28.9	30.1	26.0	25.1	25.5
21	30.8	28.3	29.5	30.8	28.6	29.7	30.9	29.0	30.1	25.2	23.2	23.8
22	30.9	28.8	29.8	31.0	28.8	29.9	30.8	28.8	29.7	25.5	23.5	24.2
23	30.8	28.9	29.8	30.5	29.1	29.8	29.7	28.4	29.0	26.5	24.9	25.5
24	31.1	29.0	30.0	30.9	28.8	29.8	30.3	27.8	29.0	26.7	25.5	26.1
25	31.2	28.9	30.0	31.1	28.9	30.0	30.8	28.5	29.7	27.7	26.0	26.7
26	31.6	29.1	30.3	31.0	28.8	29.9	31.2	29.0	30.1	27.4	26.4	26.9
27	30.7	29.0	29.7	30.3	28.8	29.6	31.3	28.9	30.2	27.6	26.1	26.9
28	---	---	---	---	---	---	31.3	29.2	30.3	27.3	26.1	26.6
29	---	---	---	---	---	---	31.2	29.2	30.3	26.3	24.7	25.5
30	---	---	---	---	---	---	31.2	29.3	30.3	25.8	24.2	25.1
31	---	---	---	31.4	28.9	30.1	30.9	29.4	29.9	---	---	---
MONTH	---	---	---	---	---	---	32.2	26.7	29.8	---	---	---



08181800 San Antonio River near Elmendorf, TX--Continued

OXYGEN DISSOLVED, IN (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

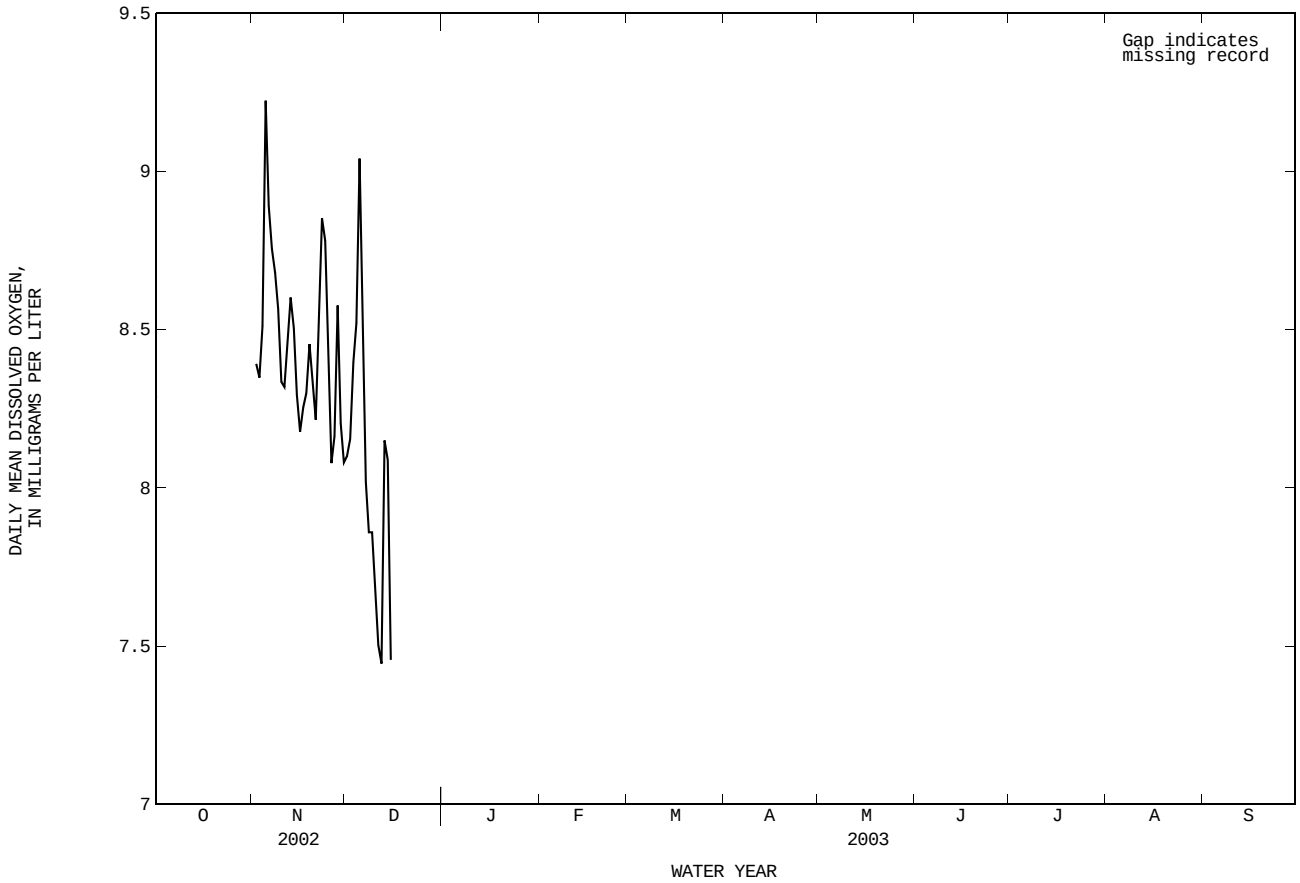
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	8.3	7.9	8.1	---	---	---
2	---	---	---	8.5	8.3	8.4	8.3	8.0	8.2	---	---	---
3	---	---	---	8.7	8.2	8.3	8.6	8.1	8.4	---	---	---
4	---	---	---	10.5	8.1	8.5	9.2	7.7	8.5	---	---	---
5	---	---	---	10.6	8.3	9.2	9.2	8.8	9.0	---	---	---
6	---	---	---	9.7	8.5	8.9	9.0	8.5	8.7	---	---	---
7	---	---	---	8.9	8.5	8.8	8.6	7.8	8.0	---	---	---
8	---	---	---	8.8	8.5	8.7	8.0	7.7	7.9	---	---	---
9	---	---	---	8.7	8.5	8.6	8.0	7.7	7.9	---	---	---
10	---	---	---	8.5	8.2	8.3	7.9	7.6	7.7	---	---	---
11	---	---	---	8.4	8.2	8.3	7.6	7.4	7.5	---	---	---
12	---	---	---	8.9	8.3	8.5	7.6	7.4	7.4	---	---	---
13	---	---	---	8.7	8.5	8.6	8.7	7.6	8.1	---	---	---
14	---	---	---	8.7	8.3	8.5	8.7	7.6	8.1	---	---	---
15	---	---	---	8.5	8.0	8.3	7.7	7.4	7.5	---	---	---
16	---	---	---	8.6	7.9	8.2	---	---	---	---	---	---
17	---	---	---	8.5	8.1	8.3	---	---	---	---	---	---
18	---	---	---	9.5	8.0	8.3	---	---	---	---	---	---
19	---	---	---	8.7	8.3	8.5	---	---	---	---	---	---
20	---	---	---	8.5	8.2	8.3	---	---	---	---	---	---
21	---	---	---	8.7	8.0	8.2	---	---	---	---	---	---
22	---	---	---	8.9	8.0	8.5	---	---	---	---	---	---
23	---	---	---	9.2	8.5	8.9	---	---	---	---	---	---
24	---	---	---	9.0	8.6	8.8	---	---	---	---	---	---
25	---	---	---	8.8	8.3	8.5	---	---	---	---	---	---
26	---	---	---	8.4	7.9	8.1	---	---	---	---	---	---
27	---	---	---	8.8	7.7	8.2	---	---	---	---	---	---
28	---	---	---	8.7	8.4	8.6	---	---	---	---	---	---
29	---	---	---	8.4	8.1	8.2	---	---	---	---	---	---
30	---	---	---	8.2	8.0	8.1	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08181800 San Antonio River near Elmendorf, TX--Continued

OXYGEN DISSOLVED, IN (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---



THIS PAGE IS INTENTIONALLY BLANK

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^2.

PERIOD OF RECORD.--Apr. 1925 to current year.
Water-quality records.--Chemical data: Apr. 1959. Biochemical data: May 1965 to Sept. 1981, Oct. 1986 to Aug. 1995. Sediment data: Jan. 1966 to Sept. 1975, Jan. 1987 to Sept. 1996. Specific conductance: Jan. 1987 to Sept. 1996. pH: Jan 1987 to Sept. 1996. Water temperature: Jan. 1987 to Sept. 1996. Dissolved oxygen: Jan. 1987 to Sept. 1996.

REVISED RECORDS.--WSP 1732: 1947(M). WSP 1923: Drainage area. WDR TX-87-3: 1983-84. WDR TX-02-5: 1999(M).

GAGE.--Water-stage recorder. Datum of gage is 285.49 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in Apr. 1925, at least 10% of contributing drainage area has been regulated. Flow is also regulated by eleven Natural Resources Conservation Service floodwater-retarding structures. Floodwater-retarding structures were completed in 1972. Some diversions for municipal uses and irrigation above station (amount unknown).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in Oct. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	949	1520	1020	1040	817	917	808	454	275	256	396	310
2	913	1440	1020	1030	820	894	795	447	268	269	430	774
3	897	1400	1030	993	829	901	783	449	252	256	412	653
4	901	2550	1040	972	841	1300	766	440	326	283	368	526
5	889	6280	1670	958	836	1600	761	442	657	313	368	829
6	863	5920	1810	938	819	1100	750	439	825	1270	374	737
7	847	3820	1210	961	826	967	749	425	1080	2170	371	1170
8	830	1830	1100	926	840	926	736	414	647	1170	349	753
9	1540	1540	1100	910	821	891	720	397	454	984	348	493
10	4890	1430	1820	884	850	868	710	409	402	1450	315	440
11	10800	1350	2050	832	845	857	712	375	436	875	322	378
12	5310	1290	1990	875	830	848	704	392	718	696	313	856
13	1880	1260	1670	1250	803	843	691	381	518	632	372	2050
14	1560	1220	1720	1530	801	842	676	388	423	585	419	1810
15	1410	1190	1420	1140	818	847	640	396	942	564	351	737
16	1340	1170	1260	997	876	844	611	389	922	769	361	583
17	1240	1140	1190	902	898	857	613	372	853	1270	330	539
18	1170	1120	1150	871	848	856	624	367	615	1320	346	2370
19	1120	1110	1120	846	797	862	619	363	530	879	334	4100
20	1090	1090	1090	835	785	856	621	385	474	674	301	1680
21	1100	1070	1070	819	1590	847	616	306	373	612	280	700
22	1120	1060	1050	825	2840	835	611	318	354	581	263	1780
23	1570	1060	1050	850	1780	835	603	306	327	556	260	1350
24	6360	1040	1140	853	1090	954	573	321	321	546	261	700
25	14500	1040	1240	850	1000	904	580	293	320	456	291	536
26	16600	1030	1160	851	1080	874	553	312	312	425	301	494
27	11000	1060	1080	851	1030	861	538	332	318	404	296	476
28	3530	1100	1050	840	975	843	532	360	299	395	333	490
29	2110	1060	1020	836	---	848	516	326	282	521	361	474
30	1850	1040	1020	851	---	828	489	282	273	526	309	467
31	1660	---	1020	833	---	815	---	277	---	462	293	---
TOTAL	101839	50230	39380	28949	27985	28320	19700	11557	14796	22169	10428	29255
MEAN	3285	1674	1270	934	999	914	657	373	493	715	336	975
MAX	16600	6280	2050	1530	2840	1600	808	454	1080	2170	430	4100
MIN	830	1030	1020	819	785	815	489	277	252	256	260	310
AC-FT	202000	99630	78110	57420	55510	56170	39070	22920	29350	43970	20680	58030

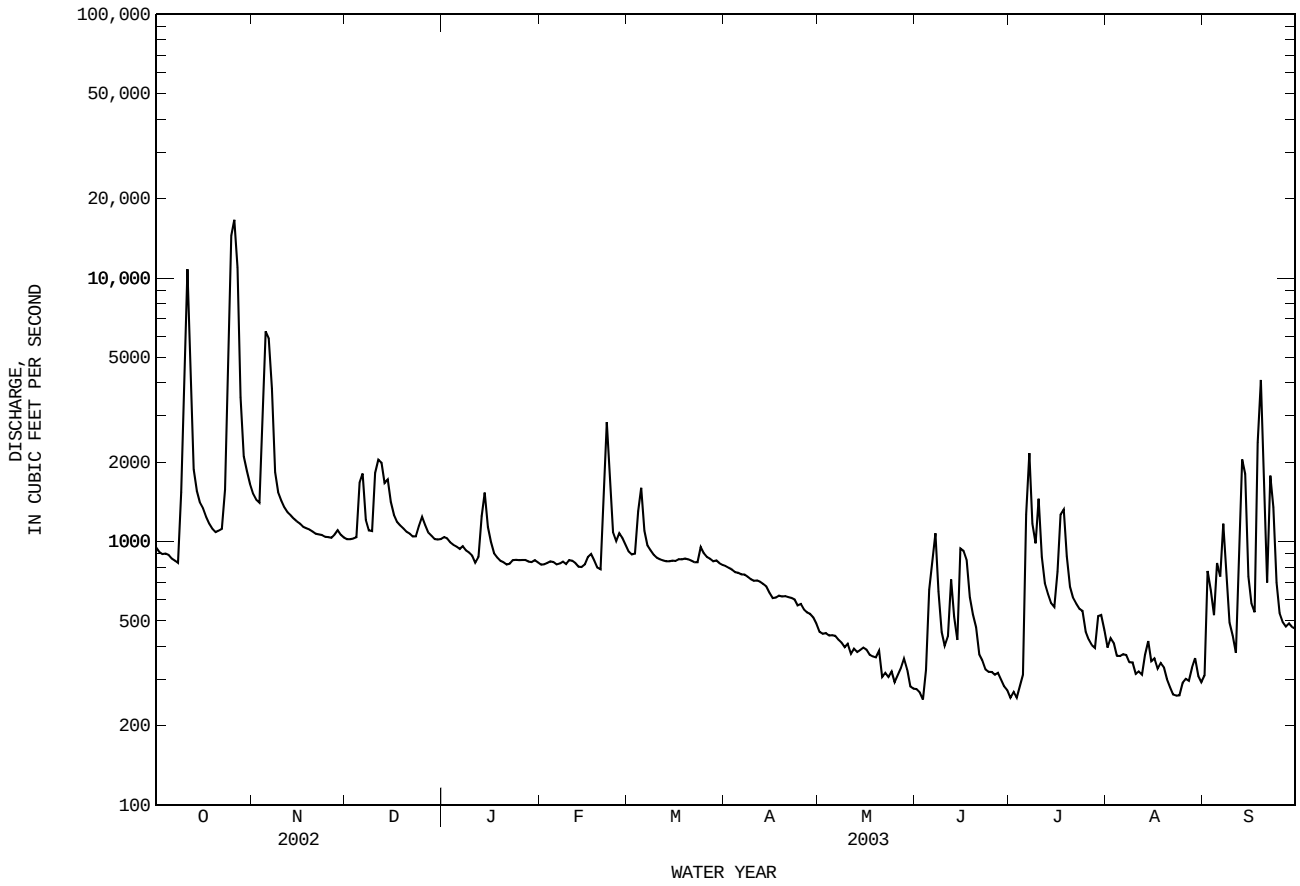
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2003, BY WATER YEAR (WY)

MEAN	515	415	391	416	466	398	463	610	736	563	302	512
MAX	4731	1674	2668	2705	4803	3536	2615	4303	10120	12140	1564	4100
(WY)	1999	2003	1992	1968	1992	1992	1992	1992	1987	2002	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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1925 - 2003	
ANNUAL TOTAL	737166		384608			
ANNUAL MEAN	2020		1054		484	
HIGHEST ANNUAL MEAN					2253	1992
LOWEST ANNUAL MEAN					92.0	1956
HIGHEST DAILY MEAN	53800	Jul 7	16600	Oct 26	53800	Jul 7 2002
LOWEST DAILY MEAN	114	Jun 25	252	Jun 3	19	Jun 27 1956
ANNUAL SEVEN-DAY MINIMUM	123	Jun 20	274	Jun 28	23	Jun 8 1956
MAXIMUM PEAK FLOW			17300	Oct 26	54000	Jul 7 2002
MAXIMUM PEAK STAGE			18.29	Oct 26	a34.74	Jul 7 2002
ANNUAL RUNOFF (AC-FT)	1462000		762900		350700	
10 PERCENT EXCEEDS	3470		1560		864	
50 PERCENT EXCEEDS	683		835		256	
90 PERCENT EXCEEDS	182		322		95	

a From floodmark.

08183500 San Antonio River near Falls City, TX--Continued



08183850 Cibolo Creek at Interstate Highway 10 above Boerne, TX

LOCATION.--Lat 29°48'52", long 98°45'12", Kendall County, Hydrologic Unit 12100304, on right bank between westbound Interstate Highway 10 bridge and frontage road bridge, 600 ft downstream from Ranger Creek, 0.7 mi downstream from Boerne Lake, and 1.9 mi northwest of Boerne.

DRAINAGE AREA.--29.0 mi^2.

PERIOD OF RECORD.--Oct. 1995 to Apr. 1996 (discharge measurements only), May 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,428.50 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in Oct. 1995, at least 10% of contributing drainage area has been regulated. No known diversions. No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	28	e14	20	11	24	9.9	5.3	0.52	2.3	1.6	0.21
2	12	e34	14	17	11	24	10	5.5	0.68	7.4	1.3	0.17
3	12	e40	15	16	11	24	11	5.3	0.74	4.9	1.3	0.19
4	11	e43	16	16	10	23	12	5.5	3.3	8.3	1.3	0.20
5	11	e38	13	16	9.8	22	12	5.2	4.6	18	1.6	0.22
6	10	35	12	16	11	21	12	4.9	4.6	23	1.4	0.25
7	10	33	12	15	9.2	20	11	5.1	3.4	18	1.3	0.21
8	12	32	15	15	9.6	18	9.9	4.6	2.9	14	1.00	0.17
9	23	31	52	16	10	18	7.9	4.2	2.4	11	1.3	0.17
10	20	31	32	14	9.6	18	7.8	3.6	4.3	9.0	1.1	0.17
11	16	28	26	14	9.3	17	8.0	3.4	4.4	10	1.2	0.19
12	13	26	24	22	9.1	19	7.9	2.9	3.9	7.9	1.0	0.82
13	12	24	21	21	10	18	7.8	2.9	7.4	6.5	0.70	0.32
14	12	24	18	18	11	17	7.6	2.8	8.9	5.9	0.70	0.31
15	11	23	17	17	11	16	7.6	2.6	23	5.4	0.62	0.22
16	9.6	21	17	16	9.2	16	7.9	2.4	8.4	11	0.28	0.21
17	8.8	e20	17	13	7.9	15	7.4	2.0	6.0	10	0.43	0.43
18	9.0	e20	17	13	7.3	16	7.6	1.6	4.8	8.5	0.83	2.7
19	24	e19	16	13	7.7	14	7.7	1.5	4.1	7.3	0.28	0.79
20	21	19	14	14	73	12	8.2	1.4	3.6	6.2	0.12	0.72
21	17	18	14	13	69	12	6.8	1.2	2.9	5.1	0.30	1.7
22	23	18	14	13	50	16	7.0	1.1	2.5	4.1	0.25	0.94
23	35	17	52	12	38	17	8.3	1.1	2.0	3.4	0.35	0.76
24	73	17	36	11	31	15	8.0	1.1	1.6	3.0	0.59	0.41
25	78	17	27	11	29	19	6.6	0.96	1.3	2.7	0.47	0.37
26	56	17	24	12	27	23	5.8	1.1	1.1	2.2	0.19	0.39
27	46	e17	22	12	26	17	5.4	1.1	0.99	2.0	0.14	0.34
28	43	e15	21	12	24	15	4.9	0.94	1.8	2.7	0.14	0.24
29	38	e15	22	12	---	12	5.0	0.83	2.4	2.3	0.12	0.19
30	34	e15	23	11	---	10	5.3	0.69	2.7	2.1	0.11	0.22
31	30	---	24	11	---	10	---	0.58	---	1.9	0.60	---
TOTAL	742.4	735	661	452	551.7	538	244.3	83.40	121.23	226.1	22.62	14.23
MEAN	23.9	24.5	21.3	14.6	19.7	17.4	8.14	2.69	4.04	7.29	0.73	0.47
MAX	78	43	52	22	73	24	12	5.5	23	23	1.6	2.7
MIN	8.8	15	12	11	7.3	10	4.9	0.58	0.52	1.9	0.11	0.17
AC-FT	1470	1460	1310	897	1090	1070	485	165	240	448	45	28

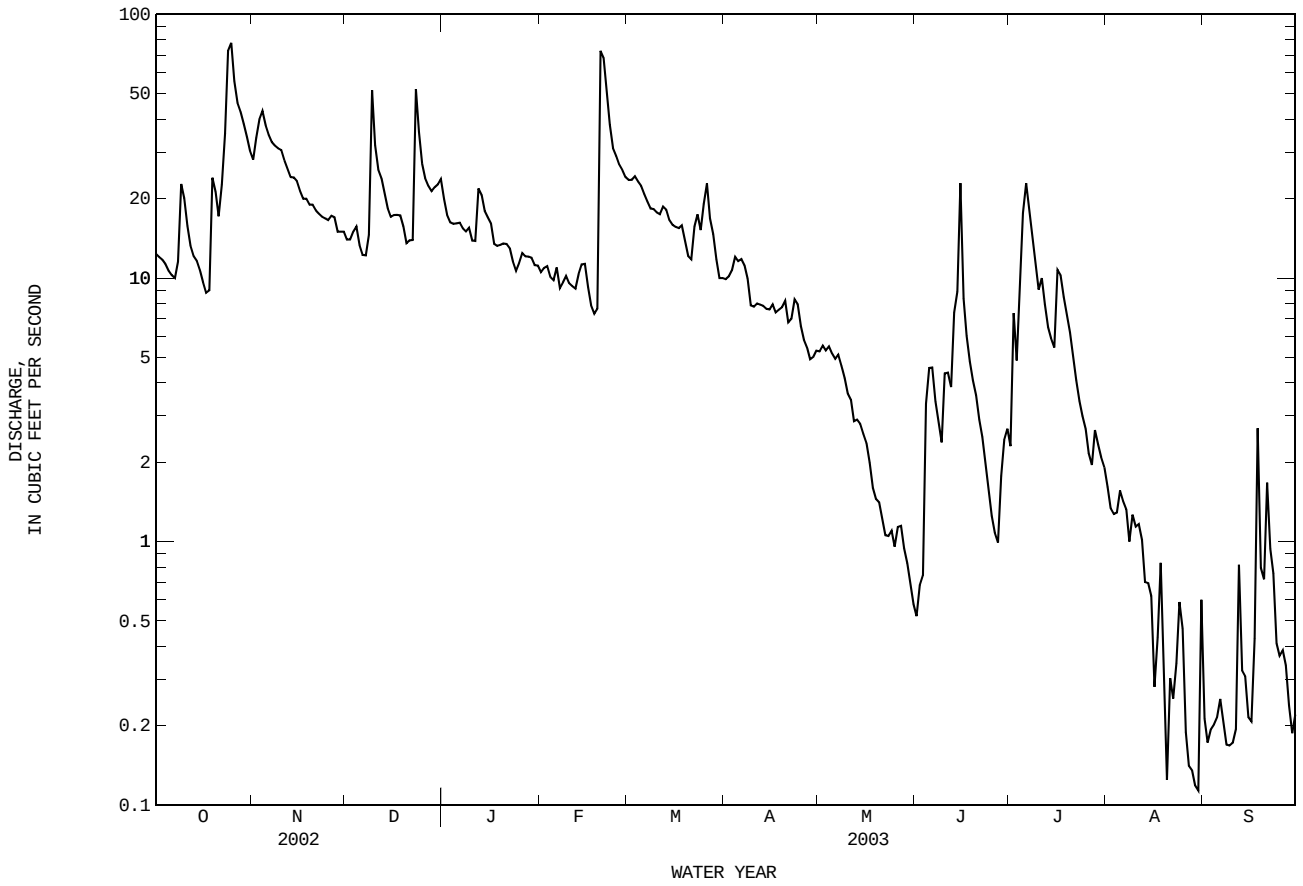
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	12.4	23.2	12.0	8.78	11.5	19.8	15.1	7.45	42.8	84.3	7.23	8.11
MAX	26.1	49.0	26.8	17.5	22.4	73.8	56.8	22.5	313	608	22.7	29.0
(WY)	2001	1999	2002	2001	2001	1998	1997	1997	1997	2002	2002	2001
MIN	0.24	0.30	0.081	0.12	0.47	0.19	0.26	0.88	0.48	0.066	0.25	0.055
(WY)	1997	1997	2000	2000	2000	2000	2000	2000	1996	1996	1996	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	23888.90		4391.98			
ANNUAL MEAN	65.4		12.0		22.8	
HIGHEST ANNUAL MEAN					66.2	2002
LOWEST ANNUAL MEAN					0.45	2000
HIGHEST DAILY MEAN	3750	Jul 3	78	Oct 25	4940	Jun 22 1997
LOWEST DAILY MEAN	0.38	Jun 24	0.11	Aug 30	0.00	Jul 23 1996
ANNUAL SEVEN-DAY MINIMUM	0.80	Jun 20	0.20	Sep 5	0.00	Aug 3 1996
MAXIMUM PEAK FLOW			216	Feb 20	i20100	Jun 22 1997
MAXIMUM PEAK STAGE			2.24	Feb 20	a20.82	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	47380		8710		16530	
10 PERCENT EXCEEDS	51		24		31	
50 PERCENT EXCEEDS	12		10		4.9	
90 PERCENT EXCEEDS	1.4		0.50		0.22	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08183850 Cibolo Creek at Interstate Highway 10 above Boerne, TX--Continued



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^2.

PERIOD OF RECORD.--Mar. 1946 to current year.

REVISED RECORDS.--WSP 1923: Drainage area. WSP 1712: 1960 (M).

GAGE.--Water-stage recorder. Datum of gage is 728.34 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Considerable flow of Cibolo Creek enters the Edwards and associated limestones in the Balcones Fault Zone that crosses basin between this station and the Cibolo Creek at Interstate Highway 10 above Boerne (station 08183850). One known diversion. No flow at times.

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 Oct. 17, 1998.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	28	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.82	5.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	632	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	31	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	13	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	2.7	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	1161.52	235.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	37.5	7.84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MAX	632	80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	2300	467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

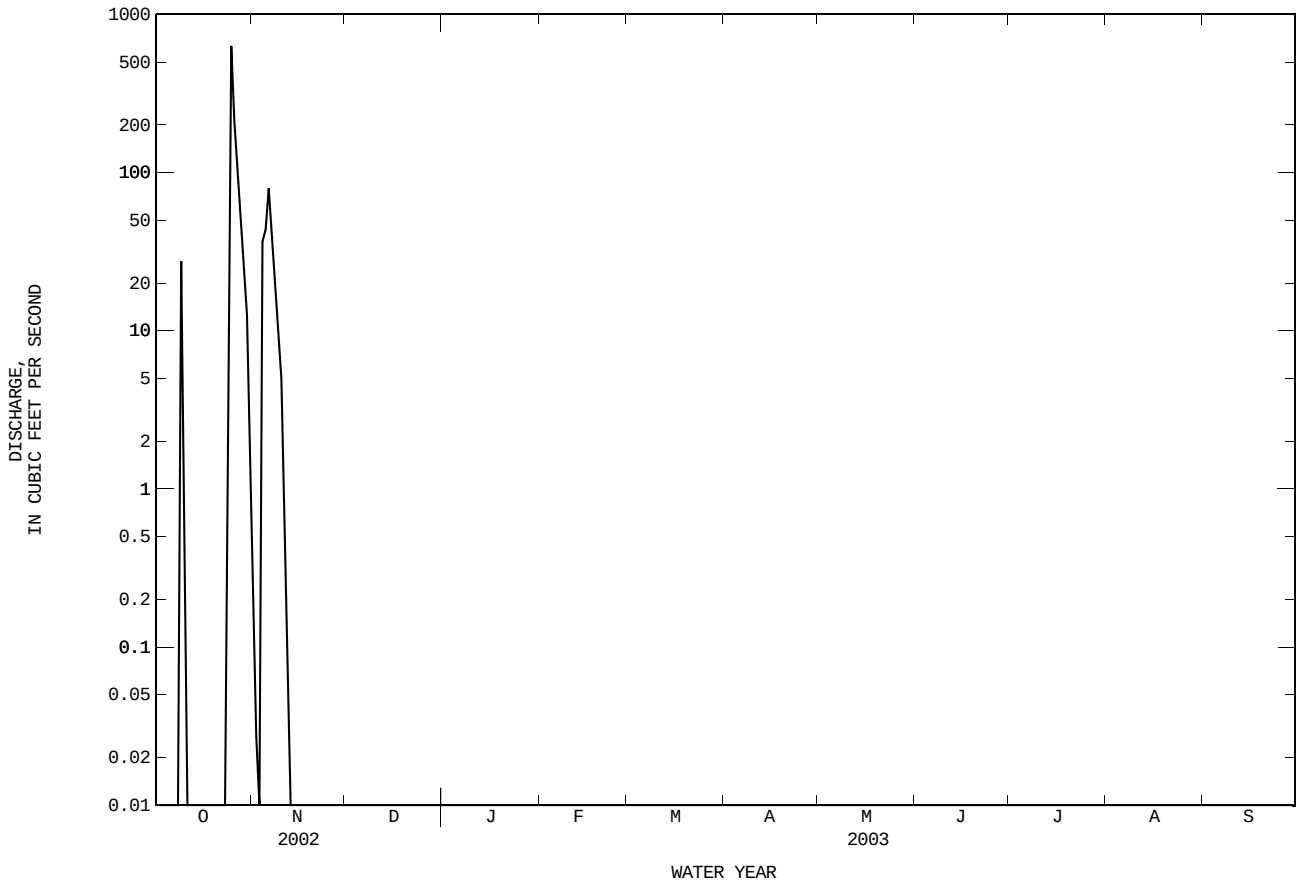
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	42.2	8.77	23.4	7.94	14.5	14.6	9.79	42.2	68.9	60.9	4.20	15.6
MAX	1722	226	1143	371	646	483	217	622	1567	2411	80.6	370
(WY)	1999	2002	1992	1968	1992	1992	1957	1972	1997	2002	1971	1952
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1948	1948	1948	1948	1947	1947	1946	1947	1947	1946	1946	1947

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	76137.68		1396.83			
ANNUAL MEAN	209		3.83		26.3	
HIGHEST ANNUAL MEAN					257	1992
LOWEST ANNUAL MEAN					0.000	1956
HIGHEST DAILY MEAN	19800	Jul 2	632	Oct 25	32000	Oct 17 1998
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Apr 1 1946
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Apr 1 1946
MAXIMUM PEAK FLOW			1590	Oct 25	98100	Oct 17 1998
MAXIMUM PEAK STAGE			6.28	Oct 25	a35.37	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	151000		2770		19030	
10 PERCENT EXCEEDS	29		0.00		0.00	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a From floodmark.

08185000 Cibolo Creek at Selma, TX--Continued



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^2.

PERIOD OF RECORD.--Oct. 1930 to current year.
Water-quality records.--Chemical data: Oct. 1961 to Sept. 1996. Biochemical data: Oct. 1961 to Sept. 1996. Sediment data: Feb. 1966 to Sept. 1975. Specific conductance: Oct. 1968 to Sept. 1991. Water temperature: Oct. 1968 to Sept. 1991.

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 NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--Records fair. 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^2. 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. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 35 ft occurred in Oct. 1913 (discharge, about 35,000 ft^3/s). Maximum stage since at least 1890, that of Oct. 19, 1998.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	312	156	418	141	169	114	103	90	86	86	74
2	41	291	153	252	144	163	116	103	89	83	85	76
3	42	271	152	180	144	200	115	102	89	82	83	87
4	41	2850	161	154	145	1260	115	102	97	90	82	92
5	39	7910	1530	144	147	666	115	102	107	100	82	93
6	38	7300	631	139	148	322	115	103	117	90	81	93
7	38	847	297	136	150	237	117	103	125	123	81	90
8	42	559	225	134	150	197	114	104	131	131	82	104
9	739	426	223	131	148	174	110	102	113	127	79	109
10	11000	355	1220	136	147	163	109	99	109	121	80	109
11	2670	311	717	136	145	156	109	99	106	115	80	102
12	501	275	1180	311	144	150	108	96	106	120	81	152
13	388	247	770	1000	141	147	108	97	115	116	80	135
14	306	229	528	685	143	147	108	98	136	105	88	301
15	249	218	302	319	151	144	109	98	127	107	93	215
16	225	207	235	224	152	137	109	97	194	210	87	177
17	212	194	207	183	148	135	108	97	160	179	86	152
18	202	186	193	160	147	133	109	95	156	176	85	1320
19	191	182	182	152	142	129	108	94	142	153	83	e720
20	179	178	169	144	304	129	108	93	128	126	81	260
21	175	172	155	144	3440	125	107	92	119	114	80	199
22	183	169	153	144	2280	124	108	91	113	106	79	300
23	e450	165	153	140	710	123	108	90	108	100	81	372
24	e5220	163	417	136	374	124	109	91	104	95	82	249
25	6000	163	469	134	257	125	109	91	100	92	81	192
26	5380	162	271	136	214	125	107	90	97	90	81	166
27	1070	160	196	136	195	124	105	92	95	88	80	153
28	719	157	169	139	180	122	103	91	94	96	77	148
29	582	156	158	141	---	117	104	91	96	86	76	138
30	484	157	158	e141	---	114	103	91	94	86	75	127
31	379	---	296	141	---	113	---	91	---	87	74	---
TOTAL	37827	24972	11826	6670	10731	6294	3287	2988	3457	3480	2531	6505
MEAN	1220	832	381	215	383	203	110	96.4	115	112	81.6	217
MAX	11000	7910	1530	1000	3440	1260	117	104	194	210	93	1320
MIN	38	156	152	131	141	113	103	90	89	82	74	74
AC-FT	75030	49530	23460	13230	21280	12480	6520	5930	6860	6900	5020	12900

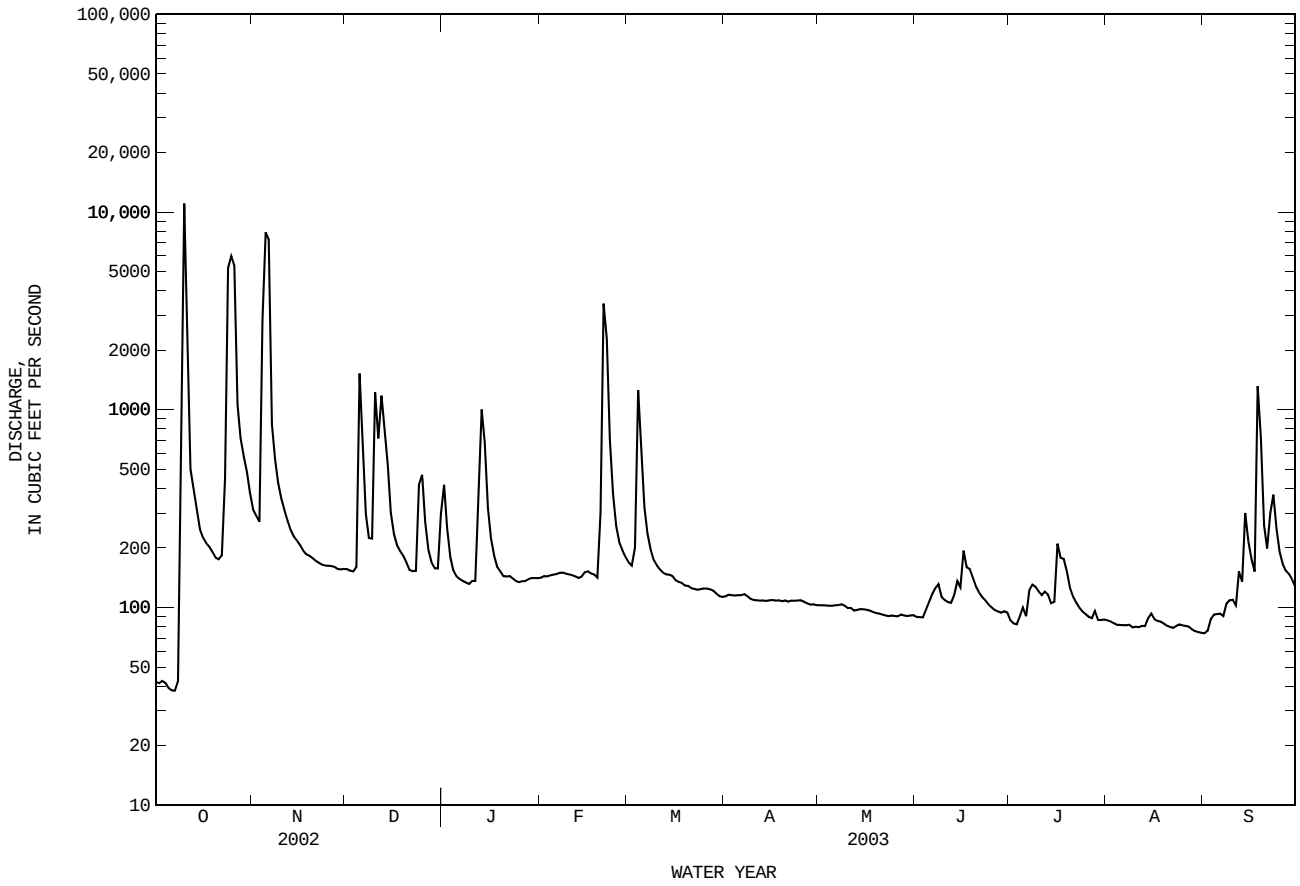
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2003, BY WATER YEAR (WY)

MEAN	157	107	105	95.1	114	71.2	159	232	251	139	57.8	164
MAX	3246	832	2156	1627	1756	860	1492	2230	2821	3302	909	1579
(WY)	1999	2003	1992	1968	1992	1992	1977	1972	1987	2002	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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1931 - 2003	
ANNUAL TOTAL	200764		120568			
ANNUAL MEAN	550		330		138	
HIGHEST ANNUAL MEAN					717	1992
LOWEST ANNUAL MEAN					10.4	1956
HIGHEST DAILY MEAN	18900	Jul 4	11000	Oct 10	45000	Oct 19 1998
LOWEST DAILY MEAN	38	Oct 6	38	Oct 6	0.00	Jul 30 1956
ANNUAL SEVEN-DAY MINIMUM	40	Oct 1	40	Oct 1	0.00	Aug 4 1956
MAXIMUM PEAK FLOW			14800	Oct 10	51200	Oct 19 1998
MAXIMUM PEAK STAGE			26.93	Oct 10	a39.84	Oct 19 1998
ANNUAL RUNOFF (AC-FT)	398200		239100		99710	
10 PERCENT EXCEEDS	727		417		136	
50 PERCENT EXCEEDS	78		135		27	
90 PERCENT EXCEEDS	49		84		9.8	

e Estimated
a From floodmark.

08186000 Cibolo Creek near Falls City, TX--Continued



08188500 San Antonio River at Goliad, TX

LOCATION.--Lat 28°38'58", long 97°23'04", Goliad County, Hydrologic Unit 12100303, on right downstream bank 300 ft below 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^2.

PERIOD OF RECORD.--June 1924 to Mar. 1929, Feb. 1939 to current year.
Water-quality records.--Chemical data: Dec. 1941 to Dec. 1942, Nov. 1944 to Sept. 1946, Sept. 1958 to Sept. 1996. Biochemical data: Jan. 1968 to Sept. 1996. Pesticide data: Jan. 1968 to May 1982. Sediment data: Apr. 1959, Oct. 1974 to Aug. 1994.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 91.08 ft above NGVD of 1929. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 1.1 mi upstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since installation of gage in 1924, at least 10% of contributing drainage area has been regulated. There are many diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in Oct. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	3210	1450	1790	1080	1370	977	654	393	442	623	330
2	1160	2850	1410	1840	1080	1300	972	641	387	431	563	e345
3	1110	2680	1380	1720	1080	1250	967	630	391	425	513	477
4	1070	3800	1370	1520	1070	1260	949	623	381	436	537	898
5	1080	8010	1380	1430	1060	1870	934	619	401	442	524	815
6	1060	10900	1990	1380	1060	2870	922	608	474	465	494	702
7	1030	14200	3240	1340	1050	1980	922	604	850	626	497	715
8	1030	16600	2120	1310	1040	1500	908	597	1030	2110	499	912
9	983	10500	1640	1320	1060	1350	892	592	1080	2150	483	1290
10	1240	3730	1970	1280	1050	1280	877	580	743	1280	455	856
11	5480	2880	2820	1260	1040	1220	861	560	625	1500	449	653
12	9930	2600	3620	1250	1060	1180	851	548	582	1470	422	783
13	11900	2390	4290	1470	1050	1160	846	513	688	1010	420	733
14	7820	2250	5670	2610	1030	1140	833	537	853	907	436	1710
15	2550	2150	3750	3200	1080	1130	815	537	769	963	485	2860
16	2040	2050	2690	2240	1080	1120	799	535	760	1410	522	2000
17	1840	1970	2180	1650	1080	1100	792	532	1260	1460	466	1030
18	1720	1890	1950	1440	1120	1080	779	513	1150	1680	462	1140
19	1610	1830	1820	1320	1130	1080	771	501	1010	1810	434	2450
20	1540	1780	1740	1260	1070	1070	768	494	810	1540	429	7070
21	1470	1740	1670	1220	1280	1060	756	487	724	1060	383	6220
22	1430	1690	1620	1190	3510	1050	755	490	663	824	341	2080
23	1650	1640	1590	1160	6060	1030	749	438	589	738	331	1840
24	2900	1610	1650	1150	4150	1010	747	440	554	690	323	2530
25	8820	1580	1920	1150	2200	1040	750	426	524	661	305	1640
26	11000	1560	2340	1150	1600	1120	743	426	508	634	296	1120
27	13700	1540	2090	1130	1480	1060	742	417	527	554	312	962
28	17100	1500	1720	1120	1460	1040	709	435	507	530	323	831
29	16900	1520	1590	1100	---	1020	689	445	498	516	318	801
30	10200	1500	1530	1080	---	1020	671	454	461	516	344	786
31	4080	---	1560	1080	---	1010	---	426	---	640	360	---
TOTAL	146653	114150	67760	45160	43110	38770	24746	16302	20192	29920	13349	46579
MEAN	4731	3805	2186	1457	1540	1251	825	526	673	965	431	1553
MAX	17100	16600	5670	3200	6060	2870	977	654	1260	2150	623	7070
MIN	983	1500	1370	1080	1030	1010	671	417	381	425	296	330
AC-FT	290900	226400	134400	89570	85510	76900	49080	32340	40050	59350	26480	92390

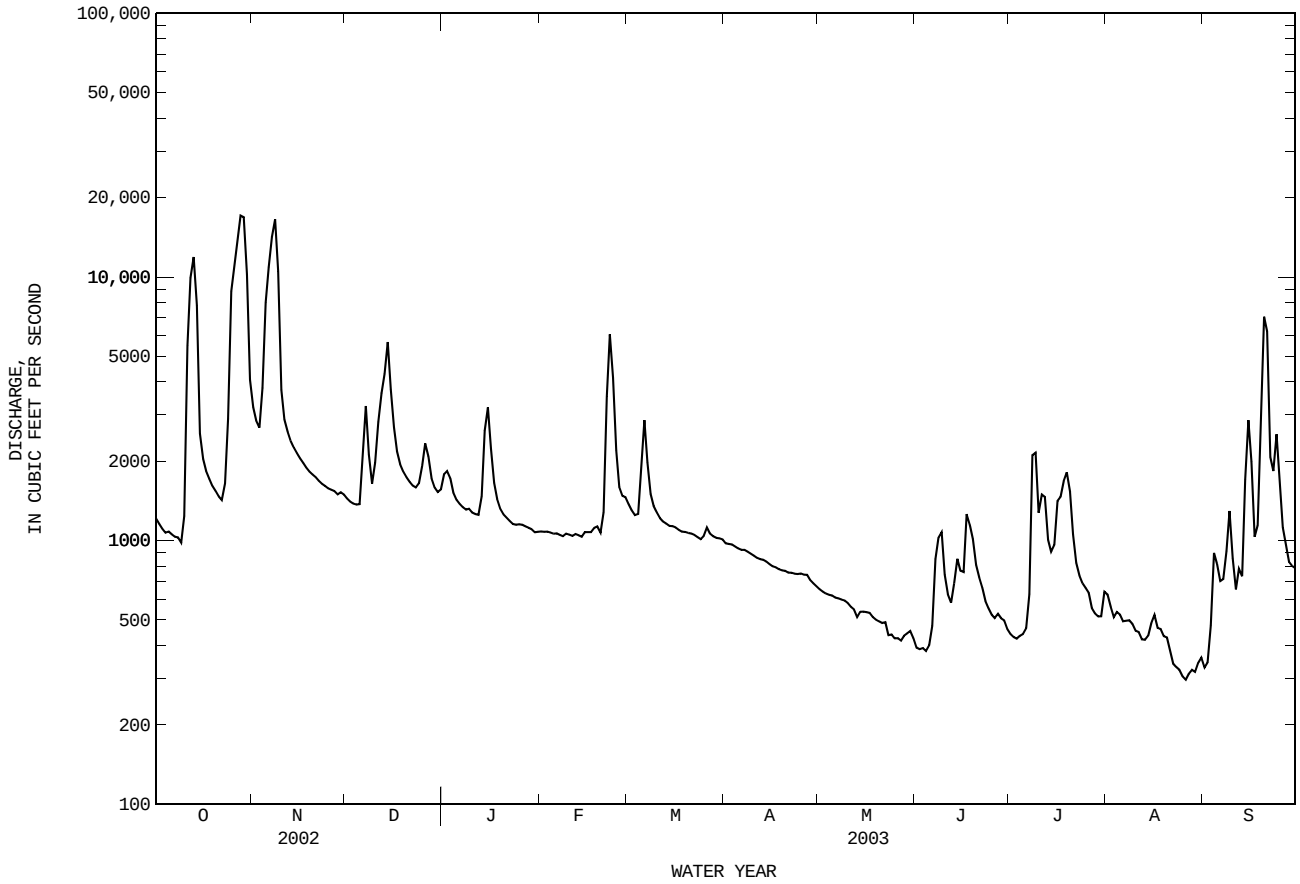
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2003h, BY WATER YEAR (WY)

MEAN	898	691	571	587	695	541	757	1029	1141	804	409	1005
MAX	7543	3805	4628	4309	7682	4379	4488	6169	15370	15330	1736	12050
(WY)	1999	2003	1992	1968	1992	1992	1992	1992	1987	2002	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

08188500 San Antonio River at Goliad, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1924 - 2003h	
ANNUAL TOTAL	1039375		606691			
ANNUAL MEAN	2848		1662		768	
HIGHEST ANNUAL MEAN					3289	1992
LOWEST ANNUAL MEAN					98.2	1956
HIGHEST DAILY MEAN	62000	Jul 9	17100	Oct 28	121000	Sep 23 1967
LOWEST DAILY MEAN	227	Jun 27	296	Aug 26	2.1	Jun 14 1956
ANNUAL SEVEN-DAY MINIMUM	238	Jun 22	315	Aug 23	5.0	Jun 12 1956
MAXIMUM PEAK FLOW			18000	Oct 28	i138000	Sep 23 1967
MAXIMUM PEAK STAGE			36.13	Oct 28	a53.70	Sep 23 1967
ANNUAL RUNOFF (AC-FT)	2062000		1203000		556700	
10 PERCENT EXCEEDS	6400		2740		1300	
50 PERCENT EXCEEDS	926		1070		345	
90 PERCENT EXCEEDS	317		447		124	

e Estimated
h See PERIOD OF RECORD paragraph.
i From indirect measurement of peak flow.
a From floodmark.



08188600 Guadalupe-Blanco River Authority Calhoun Canal Pump Station near Long Mott, TX

LOCATION.--Lat 28°29'35", long 96°46'43", Calhoun County, Hydrologic Unit 12100403, 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.--Mar. 1968 to Feb. 1970 (monthly discharge only), Mar. 1970 to current year.

GAGE.--Totalizing flow meters on rated pumps. Mar. 1968 to Mar. 1981, Parshall flume and deflection-vane recorder, Mar. 1981 to Oct. 1989, water-stage and velocity recorders with duplex water-stage recorder at present site, Oct. 1989 to June 1999 nonrecording gage at site 0.5 mi downstream. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. 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. No flow at times.

COOPERATION.--Log of pumping station on Goff Bayou provided by the Guadalupe-Blanco River Authority.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

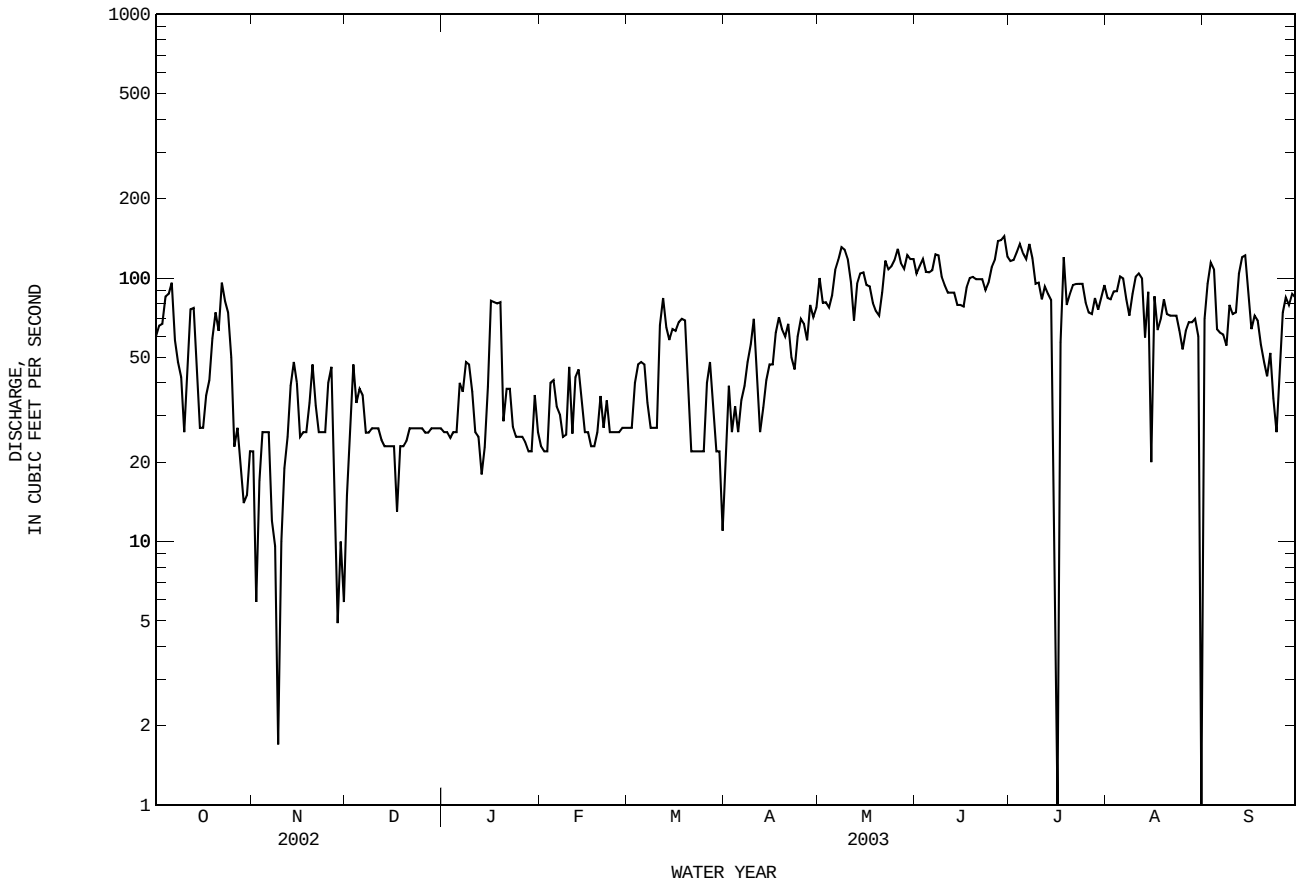
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	22	15	26	23	27	22	100	104	116	84	70
2	66	5.9	26	26	22	27	39	80	111	117	83	95
3	67	17	47	25	22	40	26	81	118	125	89	115
4	85	26	34	26	40	47	33	77	106	135	89	108
5	87	26	38	26	41	48	26	86	105	124	101	64
6	96	26	36	40	33	47	34	107	107	118	100	62
7	58	12	26	37	30	34	39	117	123	135	83	61
8	48	9.6	26	48	25	27	48	131	122	119	72	55
9	42	1.7	27	47	25	27	56	128	101	95	87	79
10	26	10	27	37	46	27	70	118	94	96	101	73
11	47	19	27	26	26	66	42	96	88	83	104	74
12	76	25	24	25	42	84	26	69	88	93	100	104
13	77	39	23	18	45	65	32	95	88	87	60	120
14	44	48	23	23	35	58	41	104	79	82	89	122
15	27	40	23	39	26	64	47	105	79	20	20	87
16	27	25	23	82	26	63	47	94	78	0.00	85	64
17	36	26	13	81	23	68	62	93	92	57	64	72
18	41	26	23	80	23	70	71	80	100	120	70	69
19	59	34	23	81	26	69	64	75	101	79	83	56
20	74	47	24	29	36	39	60	72	99	87	73	48
21	63	33	27	38	27	22	67	88	99	94	72	42
22	96	26	27	38	34	22	50	116	99	95	72	52
23	82	26	27	27	26	22	45	108	90	95	72	35
24	74	26	27	25	26	22	60	111	96	95	63	26
25	50	40	27	25	26	22	70	117	110	81	54	41
26	23	46	26	25	26	40	67	129	117	74	63	74
27	27	19	26	24	27	48	58	114	138	73	68	84
28	19	4.9	27	22	27	31	79	108	139	84	68	79
29	14	10	27	22	---	22	71	122	144	76	70	87
30	15	5.9	27	36	---	22	77	118	120	84	60	84
31	22	---	27	26	---	11	---	118	---	94	0.00	---
TOTAL	1628	722.0	823	1130	834	1281	1529	3157	3135	2833.00	2299.00	2202
MEAN	52.5	24.1	26.5	36.5	29.8	41.3	51.0	102	104	91.4	74.2	73.4
MAX	96	48	47	82	46	84	79	131	144	135	104	122
MIN	14	1.7	13	18	22	11	22	69	78	0.00	0.00	26
AC-FT	3230	1430	1630	2240	1650	2540	3030	6260	6220	5620	4560	4370

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

MEAN	73.6	31.9	31.0	31.3	29.3	42.6	85.6	122	173	159	126	122
MAX	167	83.8	55.7	58.9	61.0	96.9	169	209	268	247	193	225
(WY)	1989	2000	1976	2000	1976	1975	1971	1978	1980	1973	1977	1980
MIN	37.2	10.1	11.7	12.4	10.7	11.6	13.8	42.9	90.7	72.0	67.0	42.0
(WY)	1998	1982	1983	1982	1992	1983	1992	1997	1997	2002	1996	1998

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003	
ANNUAL TOTAL	26045.0		21573.00			
ANNUAL MEAN	71.4		59.1		86.0	
HIGHEST ANNUAL MEAN					126	1975
LOWEST ANNUAL MEAN					55.9	1997
HIGHEST DAILY MEAN	165	Jun 11	144	Jun 29	301	Jun 23 1977
LOWEST DAILY MEAN	1.7	Nov 9	0.00	Jul 16	0.00	Aug 3 1970
ANNUAL SEVEN-DAY MINIMUM	15	Nov 6	15	Nov 6	0.00	Dec 21 1970
ANNUAL RUNOFF (AC-FT)	51660		42790		62330	
10 PERCENT EXCEEDS	132		108		190	
50 PERCENT EXCEEDS	63		56		66	
90 PERCENT EXCEEDS	25		23		15	

08188600 Guadalupe-Blanco River Authority Calhoun Canal Pump Station near Long Mott, TX--Continued



08188800 Guadalupe River near Tivoli, TX
(Partial-record station)

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^2.

PERIOD OF RECORD.--Sept. 1965 to current year (daily maximum stage), Aug. 2000 to current year (daily mean discharges below 3,250 ft^3/s).

Water-quality records.--Chemical data: Aug. 1965 to Aug. 1999. Biochemical data: Jan. 1968 to Sept. 1996. Pesticide data: Oct. 1970 to Aug. 1999. Specific conductance: Aug. 1965 to Oct. 1982. Water temperature: Aug. 1965 to Oct. 1982.

REVISED RECORDS.--WRD TX-68-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.04 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. Since installation of gage in Sept. 1965, at least 10% of contributing drainage area has been regulated. Many small diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream from barrier), 14.8 ft, Oct. 21, 1998. Maximum gage height (downstream from barrier), 14.7 ft, Oct. 21, 1998.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1936 reached a stage of 11 ft, present site and datum. Maximum stage since at least 1936, that of Oct. 21, 1998. 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), 10.8 ft, Nov 10. Maximum gage height (downstream from barrier), 10.5 ft, Nov 10.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	7.6	7.4	9.6	9.4	7.5	7.1	7.7	7.1	7.2	7.0	7.8	7.6
2	7.6	7.3	9.0	8.8	7.5	7.1	7.7	7.1	7.2	6.9	7.8	7.5
3	7.5	7.3	8.5	8.3	7.5	7.1	7.7	7.1	7.3	7.0	7.7	7.5
4	7.5	7.3	8.4	8.2	7.5	7.1	7.7	7.1	7.2	7.0	7.7	7.5
5	7.4	7.2	8.4	8.2	7.5	7.0	7.7	7.1	7.2	7.0	7.6	7.5
6	---	---	8.7	---	7.5	7.0	7.7	7.1	7.3	7.0	7.7	7.5
7	7.3	7.1	8.8	8.6	7.6	7.0	7.7	7.0	7.2	7.0	7.8	7.6
8	---	---	9.0	8.8	7.7	7.2	7.6	7.0	7.2	7.0	7.8	7.6
9	7.4	7.3	10.5	10.3	7.8	7.2	7.6	7.0	7.2	7.0	7.8	7.6
10	7.3	7.2	10.8	10.6	7.8	7.2	7.6	6.9	7.2	7.0	7.7	7.5
11	7.4	7.3	10.7	10.5	7.7	7.1	7.6	6.9	7.1	6.9	7.7	7.5
12	7.9	7.8	10.0	9.7	7.8	7.2	7.6	7.0	7.1	6.9	7.6	7.4
13	8.0	7.9	8.9	8.7	7.8	7.1	7.7	7.0	7.2	6.9	7.6	7.4
14	8.2	8.0	8.2	8.0	7.7	6.8	7.7	7.0	7.2	7.0	7.6	7.4
15	8.3	8.2	8.0	7.8	7.0	5.9	7.8	7.0	7.4	7.2	7.6	7.4
16	8.4	8.3	7.9	7.7	8.2	6.9	7.8	7.1	7.4	7.2	7.6	7.4
17	8.3	8.2	7.8	7.6	8.3	7.8	7.9	7.1	7.4	7.2	7.5	7.3
18	8.1	8.0	7.8	7.6	8.0	7.8	7.8	7.6	7.4	7.1	7.5	7.3
19	---	---	7.8	7.5	7.9	7.6	7.8	7.5	7.4	7.3	7.4	7.2
20	7.9	7.8	7.7	7.4	7.8	7.5	7.7	7.3	7.5	7.3	7.3	7.2
21	7.8	7.6	7.6	7.3	7.8	7.4	7.6	7.3	7.5	7.4	7.2	7.0
22	7.8	7.7	7.6	7.3	7.7	7.3	7.6	7.3	7.5	7.3	7.2	7.0
23	8.0	7.9	7.6	7.3	7.7	7.2	7.5	7.3	7.8	7.6	7.2	7.0
24	8.2	8.0	---	---	7.7	7.2	7.4	7.2	7.9	7.7	7.2	7.0
25	8.2	8.1	7.6	7.2	7.6	7.1	7.4	7.2	8.0	7.8	7.1	6.9
26	---	---	7.5	7.2	7.7	7.1	7.5	7.2	8.0	7.8	7.2	7.0
27	8.6	8.5	7.6	7.2	7.8	7.2	7.4	7.1	8.0	7.8	7.2	7.0
28	8.9	8.7	7.6	7.2	7.8	7.2	7.4	7.1	7.9	7.7	7.2	7.0
29	9.4	9.1	7.6	7.2	7.8	7.2	7.3	7.1	---	---	7.1	6.8
30	9.8	9.5	7.6	7.2	7.8	7.2	7.3	7.1	---	---	7.0	6.7
31	9.8	9.6	---	---	---	---	7.2	7.0	---	---	7.0	6.7
MAX	---	---	---	---	---	---	7.9	7.6	8.0	7.8	7.8	7.6
MIN	---	---	---	---	---	---	7.2	6.9	7.1	6.9	7.0	6.7

08188800 Guadalupe River near Tivoli, TX--Continued
(Partial-record station)

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.9	6.7	6.2	6.1	4.2	4.2	4.8	4.7	4.8	4.7	4.3	4.3
2	6.9	6.7	6.2	6.1	4.0	3.9	4.6	4.6	4.8	4.7	4.1	4.0
3	6.9	6.7	6.0	5.9	3.9	3.8	4.5	4.4	4.8	4.7	4.1	4.1
4	6.9	6.7	6.0	6.0	3.8	3.8	4.5	4.4	4.7	4.6	5.2	5.1
5	7.0	6.7	6.1	6.0	4.0	4.0	4.5	4.5	4.6	4.5	5.9	5.9
6	---	---	6.0	---	4.2	4.1	4.7	4.6	4.4	4.3	6.1	6.0
7	---	6.9	6.1	6.1	4.2	4.1	4.8	4.7	4.3	4.2	6.1	6.0
8	7.2	6.9	6.3	6.2	4.7	4.6	5.0	5.0	4.1	4.1	5.9	5.9
9	7.0	6.8	6.4	6.3	5.5	5.4	6.4	6.3	4.0	3.9	5.9	5.8
10	7.0	---	6.5	6.4	5.9	5.8	6.8	6.7	4.0	4.0	6.0	6.0
11	7.0	6.9	6.4	6.3	5.9	5.8	6.9	6.8	4.2	4.2	6.0	6.0
12	7.0	6.9	6.2	6.1	5.6	5.5	6.9	6.8	4.2	4.1	5.9	5.8
13	6.9	6.7	6.1	6.0	5.2	5.1	7.0	6.9	4.0	4.0	5.6	5.5
14	6.8	6.6	6.1	6.0	4.9	4.8	7.0	6.9	4.1	4.1	5.7	5.6
15	6.7	6.6	6.0	5.9	5.0	4.9	7.0	6.9	4.3	4.2	7.2	7.0
16	6.7	6.6	6.0	5.9	5.0	4.9	7.2	7.1	4.4	4.4	7.6	7.5
17	6.6	6.5	5.9	5.8	5.0	5.0	7.5	7.4	4.4	4.4	7.9	7.8
18	6.6	6.4	5.6	5.5	5.8	5.7	7.7	7.6	4.3	4.2	8.0	7.9
19	6.6	6.5	5.5	5.4	6.1	6.0	7.7	7.6	4.3	4.2	7.9	7.8
20	6.5	6.4	5.2	5.1	6.2	6.0	7.7	7.6	4.2	4.1	8.1	8.0
21	6.6	6.4	4.9	4.8	6.1	6.0	7.7	7.6	4.1	4.0	8.2	8.2
22	6.6	6.4	4.7	4.6	5.9	5.8	7.6	7.5	3.9	3.9	8.3	8.2
23	6.5	6.4	4.7	4.6	5.8	5.7	7.5	7.3	3.9	3.9	8.3	8.2
24	6.5	6.4	4.7	4.6	5.7	5.6	7.1	7.0	3.9	3.8	8.3	8.2
25	6.5	6.4	4.6	4.6	5.5	5.5	6.8	6.7	4.0	3.9	8.1	8.0
26	6.4	6.3	4.6	4.5	5.4	5.3	6.4	6.3	3.9	3.9	8.0	8.0
27	6.3	6.2	4.5	4.4	5.2	5.1	6.2	6.1	3.9	3.9	7.9	7.9
28	6.2	6.2	4.4	4.4	5.2	5.2	6.0	5.9	4.0	4.0	7.7	7.6
29	---	6.2	4.4	4.3	5.2	5.1	5.6	5.5	4.1	4.0	7.4	7.3
30	6.2	6.1	4.3	4.2	5.0	4.9	5.2	5.1	4.1	4.1	7.1	7.0
31	---	---	4.2	4.2	---	---	5.0	4.9	4.3	4.3	---	---
MAX	---	---	6.5	---	6.2	6.0	7.7	7.6	4.8	4.7	8.3	8.2
MIN	---	---	4.2	---	3.8	3.8	4.5	4.4	3.9	3.8	4.1	4.0

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2780	---	2760	2760	2800	2740	2660	e2250	1250	1720	1800	1290
2	2770	---	2770	2760	2760	2810	2680	e2210	1470	1670	1820	1330
3	2680	e3200	2760	2830	2660	2810	2620	e2150	1480	1640	1790	1410
4	2660	e3230	2700	2820	2700	2810	2600	e2150	1470	1630	1750	1750
5	2660	e3240	2710	2780	2760	2840	2610	e2170	1480	1630	1670	1990
6	2650	---	2820	2750	2750	2880	2600	e2110	1620	1720	1650	2100
7	2650	---	2790	2750	2730	2940	2650	2190	1610	1740	1630	2060
8	2610	---	2710	2770	2770	2910	2650	2180	1770	1820	1580	2050
9	2620	---	2670	2730	2710	2900	2710	2090	2060	2150	1480	1950
10	2670	---	2700	2690	2720	2880	2720	2020	2270	2380	1450	1990
11	2670	---	2710	2750	2700	2880	2660	1960	2210	2510	1500	1970
12	2720	---	2660	2690	2730	2920	2650	2110	1970	2550	1470	1890
13	2880	---	2560	2690	2730	2890	2550	2180	1800	2590	1470	1890
14	2990	e2940	2270	2730	2740	2900	2500	1930	1790	2570	1480	1980
15	3050	e2920	1920	2730	2690	2900	2460	1960	1890	2250	1500	2190
16	3230	e2910	2130	2700	2810	2880	2410	1880	1920	2230	1420	2410
17	2980	e2900	2700	2490	2880	2840	2380	1920	1890	2590	1490	2520
18	2880	e2850	2770	2640	2860	2790	2430	1770	2100	2650	1520	2620
19	2870	e2840	2770	2940	2850	2760	2390	1860	2300	2650	1530	2690
20	2880	2830	2820	2880	2830	2780	2420	1830	2320	2700	1480	2750
21	2860	2820	2860	2840	2820	2810	2490	1700	2250	2700	1480	2740
22	2850	2820	2810	2810	2870	2820	e2560	1690	2210	2670	1460	2900
23	2920	2780	2740	2840	2960	2780	e2560	1500	2140	2590	1430	2960
24	2920	2790	2740	2870	2940	2790	e2510	1770	2070	2490	1370	2860
25	3010	2790	2770	2870	3000	2700	e2510	1750	1890	2450	1370	2770
26	e3060	2780	2830	2810	2960	2690	e2380	1770	1960	2270	1370	2720
27	---	2810	2750	2850	2890	2730	e2340	1740	1980	2170	1310	2690
28	---	2800	2770	2850	2830	2680	e2330	1700	1980	2120	1340	2560
29	---	2740	2780	2750	---	2710	e2310	1670	2000	2000	1320	2450
30	---	2700	2730	2780	---	2720	e2280	1620	1850	1910	1290	2310
31	---	---	2720	2760	---	2700	---	1610	---	1850	1300	---
TOTAL	---	---	83200	85910	78450	87190	75620	59440	57000	68610	46520	67790
MEAN	---	---	2684	2771	2802	2813	2521	1917	1900	2213	1501	2260
MAX	---	---	2860	2940	3000	2940	2720	2250	2320	2700	1820	2960
MIN	---	---	1920	2490	2660	2680	2280	1500	1250	1630	1290	1290
AC-FT	---	---	165000	170400	155600	172900	150000	117900	113100	136100	92270	134500

e Estimated

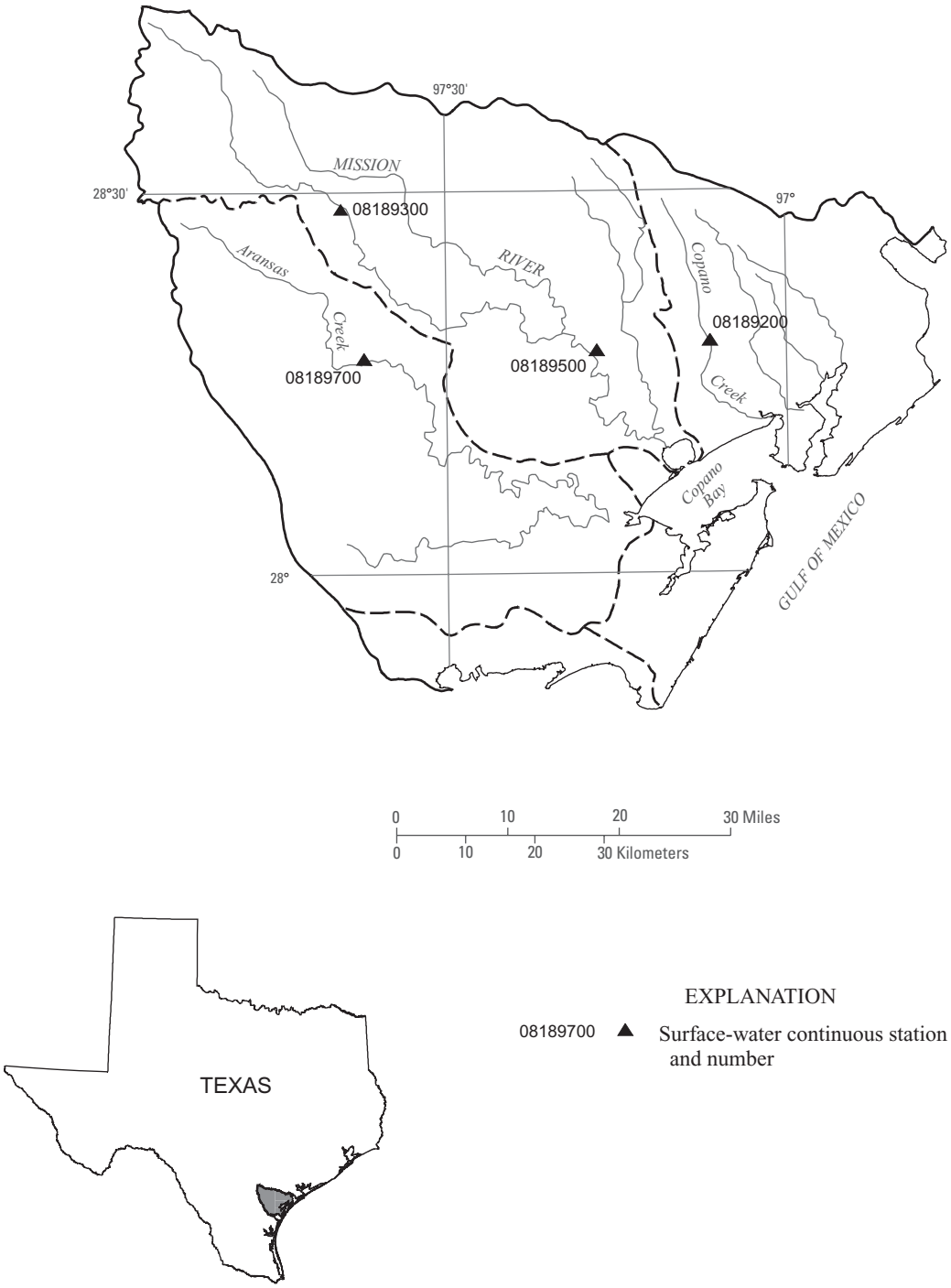


Figure 6.--Map showing location of gaging stations in the Copano, Mission and Aransas River Basins

08189200 Copano Creek near Refugio, TX 190
08189300 Medio Creek near Beeville, TX 192
08189500 Mission River at Refugio, TX 194
08189700 Aransas River near Skidmore, TX 196

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^2.

PERIOD OF RECORD.--June 1970 to current year.
Water-quality records.--Chemical data: July 1970 to Dec. 1988. Biochemical data: July 1970 to Dec. 1988. Pesticide data: July 1970 to July 1981.

GAGE.--Water-stage recorder. Datum of gage is 17.25 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft in Sept. 1967, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

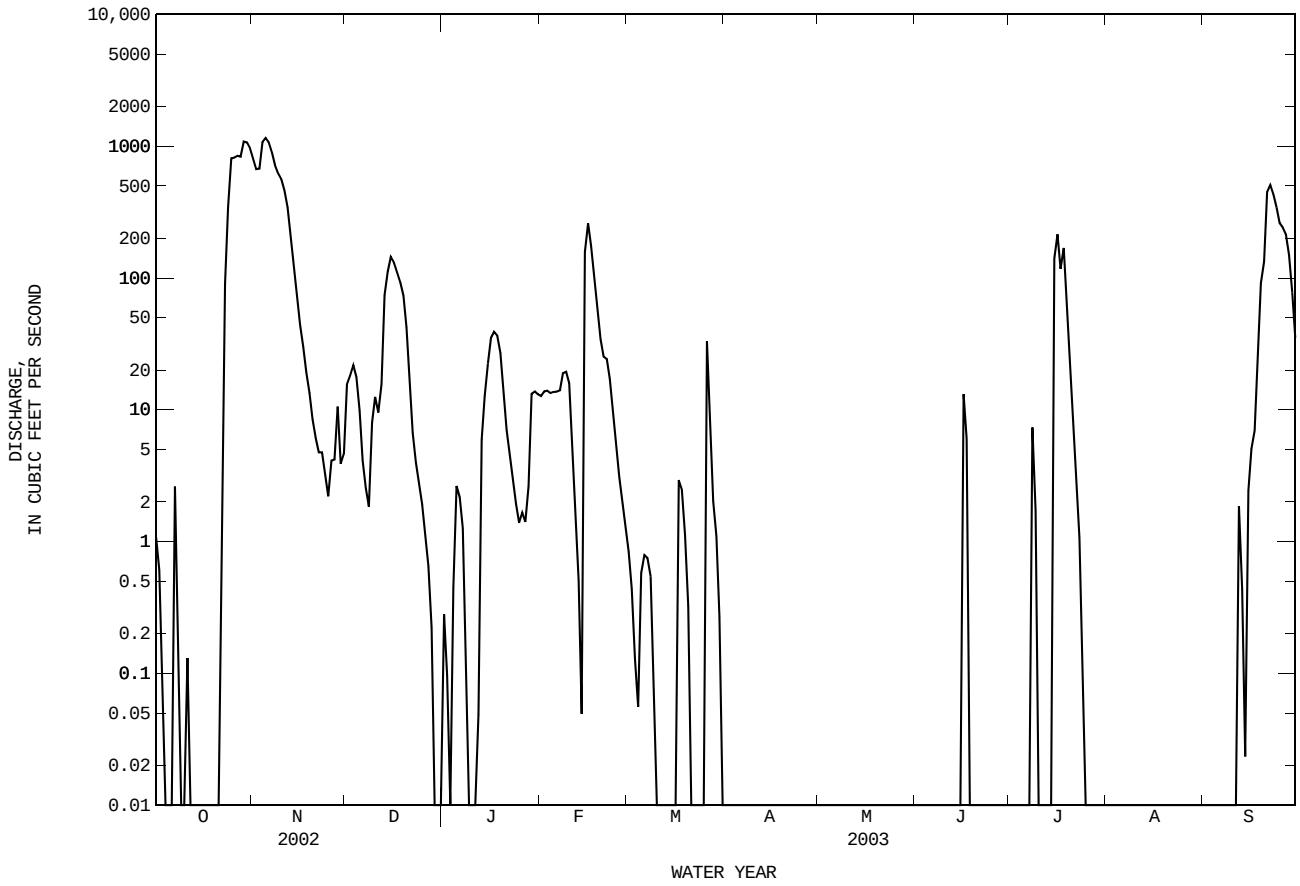
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	797	16	0.28	13	0.83	0.00	0.00	0.00	0.00	0.00	0.00
2	0.61	670	18	0.10	14	0.44	0.00	0.00	0.00	0.00	0.00	0.00
3	0.13	676	22	0.00	14	0.13	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	1080	18	0.45	13	0.06	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	1150	9.9	2.6	14	0.58	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1070	4.1	2.2	14	0.79	0.00	0.00	0.00	0.00	0.00	0.00
7	2.6	899	2.5	1.3	14	0.75	0.00	0.00	0.00	0.00	0.00	0.00
8	0.35	716	1.8	0.14	19	0.54	0.00	0.00	0.00	7.3	0.00	0.00
9	0.00	622	8.0	0.00	19	0.12	0.00	0.00	0.00	1.7	0.00	0.00
10	0.00	560	13	0.00	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.13	464	9.5	0.00	5.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	343	16	0.05	1.6	0.00	0.00	0.00	0.00	0.00	0.00	1.9
13	0.00	200	74	5.9	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.43
14	0.00	121	112	13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.02
15	0.00	73	145	22	158	0.00	0.00	0.00	0.00	141	0.00	2.4
16	0.00	44	131	35	260	0.00	0.00	0.00	13	214	0.00	5.1
17	0.00	30	110	39	175	2.9	0.00	0.00	6.0	117	0.00	6.9
18	0.00	19	93	37	105	2.5	0.00	0.00	0.00	169	0.00	19
19	0.00	13	74	27	62	1.1	0.00	0.00	0.00	73	0.00	91
20	0.00	8.5	42	13	34	0.33	0.00	0.00	0.00	22	0.00	133
21	0.00	6.1	17	7.0	25	0.00	0.00	0.00	0.00	7.7	0.00	448
22	0.71	4.8	6.7	4.4	24	0.00	0.00	0.00	0.00	2.8	0.00	509
23	90	4.8	4.0	2.9	17	0.00	0.00	0.00	0.00	1.1	0.00	434
24	345	3.3	2.8	1.9	9.4	0.00	0.00	0.00	0.00	0.19	0.00	344
25	809	2.2	1.9	1.4	5.1	0.00	0.00	0.00	0.00	0.00	0.00	261
26	820	4.1	1.1	1.7	3.1	33	0.00	0.00	0.00	0.00	0.00	242
27	846	4.2	0.65	1.4	2.0	6.6	0.00	0.00	0.00	0.00	0.00	216
28	835	11	0.22	2.6	1.3	2.0	0.00	0.00	0.00	0.00	0.00	149
29	1090	3.9	0.00	13	---	1.1	0.00	0.00	0.00	0.00	0.00	78
30	1070	4.6	0.00	14	---	0.27	0.00	0.00	0.00	0.00	0.00	35
31	969	---	0.00	13	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	6879.63	9604.5	954.17	262.32	1038.66	54.04	0.00	0.00	19.00	756.79	0.00	2975.75
MEAN	222	320	30.8	8.46	37.1	1.74	0.000	0.000	0.63	24.4	0.000	99.2
MAX	1090	1150	145	39	260	33	0.00	0.00	13	214	0.00	509
MIN	0.00	2.2	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	13650	19050	1890	520	2060	107	0.00	0.00	38	1500	0.00	5900

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

MEAN	74.3	58.6	22.7	23.1	35.2	34.5	25.1	55.3	59.0	41.8	3.26	89.9
MAX	551	589	240	189	459	524	229	508	499	416	29.9	1028
(WY)	1984	1982	1992	1979	1992	1997	1992	1981	1981	1990	1998	1971
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1978	1989	1971	1983	1971	1971	1971	1971	1971	1971	1974	1977

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003	
ANNUAL TOTAL	23769.56		22544.86			
ANNUAL MEAN	65.1		61.8		43.6	
HIGHEST ANNUAL MEAN					138	1992
LOWEST ANNUAL MEAN					0.52	1989
HIGHEST DAILY MEAN	1150	Nov 5	1150	Nov 5	5960	Sep 12 1971
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 4	0.00	Aug 14 1970
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 9	0.00	Oct 12	0.00	Aug 14 1970
MAXIMUM PEAK FLOW			1200	Nov 5	6300	Sep 12 1971
MAXIMUM PEAK STAGE			12.30	Nov 5	21.00	Sep 12 1971
ANNUAL RUNOFF (AC-FT)	47150		44720		31600	
10 PERCENT EXCEEDS	114		136		64	
50 PERCENT EXCEEDS	0.00		0.00		0.02	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

08189200 Copano Creek near Refugio, TX--Continued



08189300 Medio Creek near Beeville, TX

LOCATION.--Lat 28°28'58", long 97°39'23", Bee County, Hydrologic Unit 12100406, on left bank at downstream side of bridge on U.S. Highway 59, 8.0 mi northeast of Beeville, and 9.0 mi upstream from Parker Hollow Creek.

DRAINAGE AREA.--204 mi^2.

PERIOD OF RECORD.--Mar. 1962 to Oct. 1977, Sept. 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 163 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1914, that of Sept. 22, 1967. A stage of about 31 ft (discharge 25,500 ft^3/s) occurred in Sept. 1919, from information from local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.4	2.5	1.8	1.7	1.4	1.8	1.1	0.64	e0.10	0.04	0.29	0.00
2	e1.4	2.3	1.8	1.6	1.5	1.7	1.2	0.62	e0.10	0.04	0.25	0.00
3	e1.5	e2.3	1.8	1.6	1.5	1.8	1.2	0.60	e0.09	0.01	0.22	0.00
4	e1.5	e34	1.8	1.6	1.4	1.7	1.2	0.59	e0.09	0.08	0.18	0.00
5	e1.4	e204	1.7	1.6	1.5	1.8	1.2	0.59	e0.09	0.24	0.14	0.00
6	e1.4	e48	1.7	1.6	1.6	1.7	1.1	0.58	e0.09	0.17	0.09	0.00
7	e1.3	5.5	1.8	1.5	1.5	1.7	1.1	0.55	e0.10	0.26	0.06	0.00
8	1.3	4.2	1.9	1.5	1.5	1.7	0.94	0.52	e0.10	0.23	0.03	0.00
9	1.3	3.5	2.0	1.5	1.5	1.7	0.88	0.51	0.11	0.17	0.02	0.00
10	1.3	3.1	2.0	1.4	1.5	1.7	0.89	0.47	0.12	0.13	0.01	0.00
11	1.2	2.9	2.7	1.5	1.5	1.6	0.94	0.45	0.12	0.07	0.01	0.00
12	1.1	2.5	3.2	1.8	1.7	1.6	0.95	0.41	0.09	0.04	0.00	0.15
13	1.1	2.3	14	1.8	1.7	1.5	0.90	0.40	0.06	0.02	0.00	0.06
14	1.1	2.3	8.5	1.6	1.7	1.5	0.90	0.38	0.21	0.01	0.02	0.01
15	1.0	2.2	3.9	1.6	1.9	1.6	0.89	0.37	0.24	1.1	0.02	0.00
16	0.97	2.1	3.0	1.7	1.8	1.6	0.88	0.35	0.23	4.0	0.01	15
17	0.93	2.1	2.5	1.7	1.7	1.6	0.87	0.33	0.18	24	0.00	4.7
18	0.97	2.1	2.3	1.6	1.9	1.5	0.83	0.32	0.13	8.2	0.00	16
19	1.1	2.0	2.0	1.5	2.1	1.4	0.80	0.30	0.08	2.8	0.00	37
20	1.1	1.9	1.8	1.5	2.1	1.3	0.82	0.29	0.04	1.7	0.00	36
21	1.0	1.9	1.8	1.5	2.3	1.3	0.91	0.26	0.01	1.2	0.00	5.5
22	1.2	1.9	1.8	1.5	2.2	1.4	0.84	0.25	0.00	0.88	0.00	2.9
23	1.4	1.9	1.8	1.3	3.0	1.3	0.81	0.26	0.00	0.71	0.00	1.9
24	243	1.9	1.7	1.3	2.4	1.3	0.75	0.23	0.00	0.61	0.00	1.4
25	908	1.9	4.6	1.4	2.0	1.3	0.72	e0.20	0.00	0.51	0.00	1.1
26	97	2.0	3.5	1.5	1.9	1.7	0.66	e0.18	0.00	0.46	0.00	0.99
27	e34	1.9	2.5	1.4	1.8	1.7	0.63	e0.16	0.00	0.41	0.00	0.89
28	e14	1.8	2.1	1.4	1.8	1.5	0.63	e0.14	0.00	0.40	0.00	0.78
29	e6.6	1.8	2.0	1.4	---	1.2	0.62	e0.13	0.00	0.39	0.00	0.68
30	e4.4	1.8	1.9	1.4	---	1.1	0.64	e0.12	0.00	0.38	0.00	0.61
31	2.8	---	1.8	1.4	---	1.1	---	e0.11	---	0.34	0.00	---
TOTAL	1337.77	350.6	87.7	47.4	50.4	47.4	26.80	11.31	2.38	49.60	1.35	125.67
MEAN	43.2	11.7	2.83	1.53	1.80	1.53	0.89	0.36	0.079	1.60	0.044	4.19
MAX	908	204	14	1.8	3.0	1.8	1.2	0.64	0.24	24	0.29	37
MIN	0.93	1.8	1.7	1.3	1.4	1.1	0.62	0.11	0.00	0.01	0.00	0.00
AC-FT	2650	695	174	94	100	94	53	22	4.7	98	2.7	249

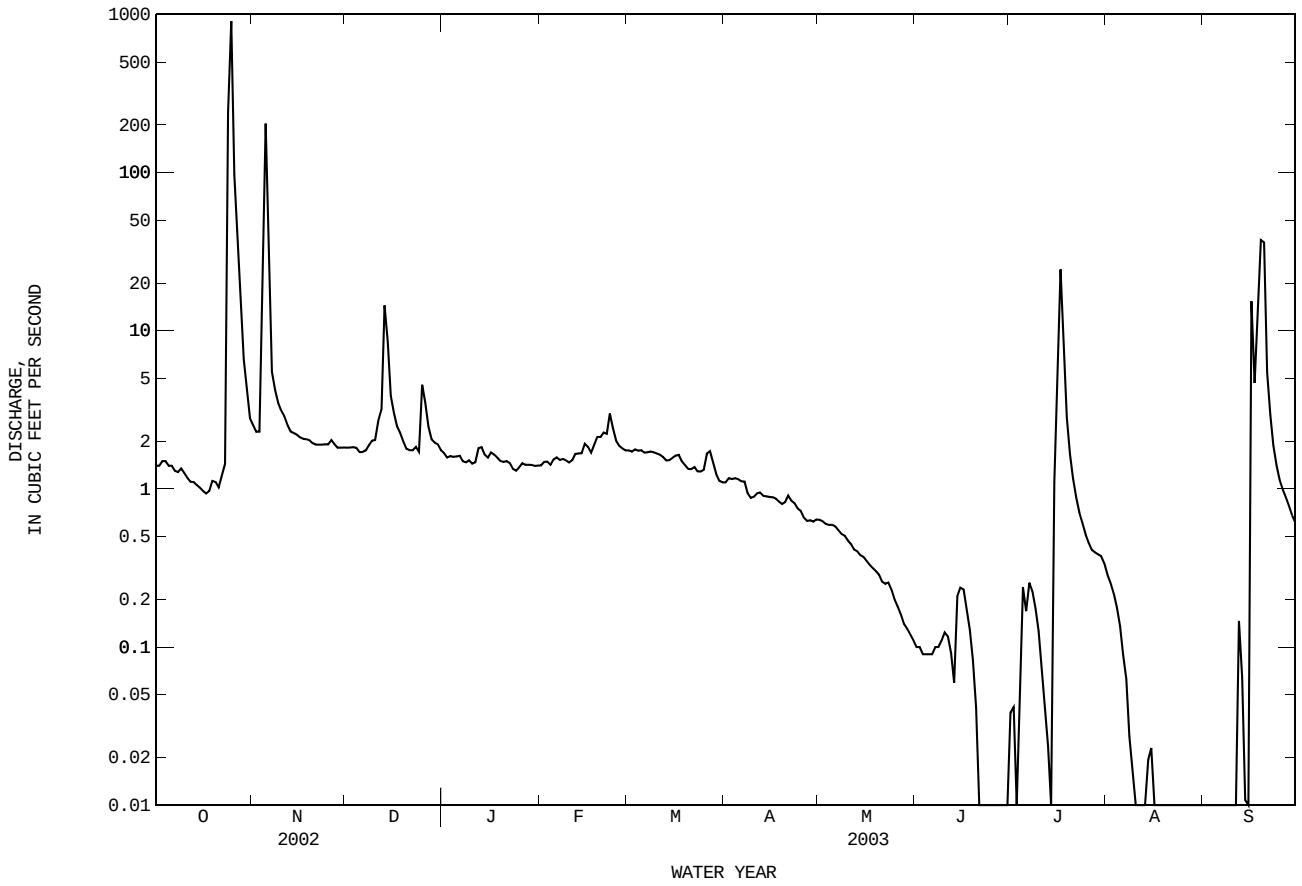
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003h, BY WATER YEAR (WY)

MEAN	11.7	23.9	3.47	2.21	6.90	1.52	15.1	16.4	13.9	2.41	3.42	134
MAX	43.2	350	32.3	9.62	86.4	15.9	110	116	63.0	28.7	37.5	2177
(WY)	2003	2002	2002	1972	1965	1970	1977	1968	1973	2002	1964	1967
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1965	1965	1965	1963	1963	1962	1962	1962	1964	1962	1962	1963

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003h	
ANNUAL TOTAL	2988.31		2138.38			
ANNUAL MEAN	8.19		5.86		20.0	
HIGHEST ANNUAL MEAN					180	1967
LOWEST ANNUAL MEAN					0.62	1975
HIGHEST DAILY MEAN	908	Oct 25	908	Oct 25	46300	Sep 22 1967
LOWEST DAILY MEAN	0.00	Jun 4	0.00	Jun 22	0.00	Mar 1 1962
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 4	0.00	Jun 22	0.00	Mar 1 1962
MAXIMUM PEAK FLOW			1140	Oct 25	105000	Sep 22 1967
MAXIMUM PEAK STAGE			12.31	Oct 25	a38.68	Sep 22 1967
ANNUAL RUNOFF (AC-FT)	5930		4240		14480	
10 PERCENT EXCEEDS	3.1		2.6		5.1	
50 PERCENT EXCEEDS	1.1		1.2		0.05	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

e Estimated
h See PERIOD OF RECORD paragraph.
a From floodmark.

08189300 Medio Creek near Beeville, TX--Continued



08189500 Mission River at Refugio, TX

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.

DRAINAGE AREA.--690 mi^2.

PERIOD OF RECORD.--July 1939 to current year.
Water-quality records.--Chemical data: Sept. 1961 to Aug. 1993. Biochemical data: Jan. 1968 to Aug. 1993. Pesticide data: Oct. 1970 to Apr. 1979. Sediment data: Jan. 1978 to Aug. 1993. Specific conductance: Oct. 1961 to Sept. 1981. Water temperature: Oct. 1961 to Sept. 1981.

REVISED RECORDS.--WSP 1923: Drainage area. WDR TX-71-1: 1967

GAGE.--Water-stage recorder. Datum of gage is 1.00 ft above NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. No known regulation. There are several small diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in Aug. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	222	98	52	35	39	38	19	26	9.6	23	12
2	51	177	81	49	35	38	34	19	23	8.8	21	14
3	48	153	71	45	34	38	32	19	26	10	19	9.9
4	45	480	65	43	33	40	31	18	26	13	17	10
5	41	2380	59	42	32	43	31	18	32	23	16	15
6	49	3810	53	41	32	42	30	18	43	55	15	14
7	61	1520	50	40	34	40	30	18	51	36	15	14
8	57	392	48	39	35	39	30	19	36	27	14	11
9	44	237	106	39	36	37	29	19	24	20	14	9.7
10	39	189	807	38	35	35	27	19	18	15	13	10
11	36	151	616	38	35	34	26	19	16	12	13	9.0
12	34	124	354	42	34	33	26	19	14	11	13	183
13	33	110	1490	245	33	33	26	19	14	13	12	266
14	32	101	909	494	32	33	25	20	16	9.0	13	249
15	31	95	302	211	211	92	25	20	15	129	12	172
16	29	87	191	117	358	e225	24	20	16	e3070	12	127
17	28	81	135	85	262	157	24	21	15	e1370	12	102
18	28	77	110	68	131	94	24	21	34	e850	12	247
19	27	73	93	58	88	64	23	22	55	e813	11	1640
20	27	70	80	53	73	48	24	22	27	e346	10	3980
21	28	66	71	49	67	39	24	22	15	164	10	3640
22	42	63	66	46	69	35	24	22	12	103	10	3100
23	108	60	64	43	71	34	24	23	10	78	9.8	1610
24	427	58	62	40	59	33	24	23	9.3	62	10	511
25	2580	56	58	40	52	32	22	24	8.8	51	10	254
26	6010	55	56	41	48	e136	20	25	10	42	9.2	172
27	4750	499	58	40	44	e203	19	25	21	36	8.8	124
28	1170	707	60	39	42	142	18	26	11	34	8.4	101
29	1210	231	55	39	---	84	18	26	9.0	32	8.4	88
30	668	130	54	38	---	58	19	26	9.1	30	8.3	78
31	331	---	54	36	---	48	---	26	---	26	8.8	---
TOTAL	18120	12454	6376	2290	2050	2048	771	657	642.2	7498.4	388.7	16772.6
MEAN	585	415	206	73.9	73.2	66.1	25.7	21.2	21.4	242	12.5	559
MAX	6010	3810	1490	494	358	225	38	26	55	3070	23	3980
MIN	27	55	48	36	32	32	18	18	8.8	8.8	8.3	9.0
AC-FT	35940	24700	12650	4540	4070	4060	1530	1300	1270	14870	771	33270
CFSM	0.85	0.60	0.30	0.11	0.11	0.10	0.04	0.03	0.03	0.35	0.02	0.81
IN.	0.98	0.67	0.34	0.12	0.11	0.11	0.04	0.04	0.03	0.40	0.02	0.90

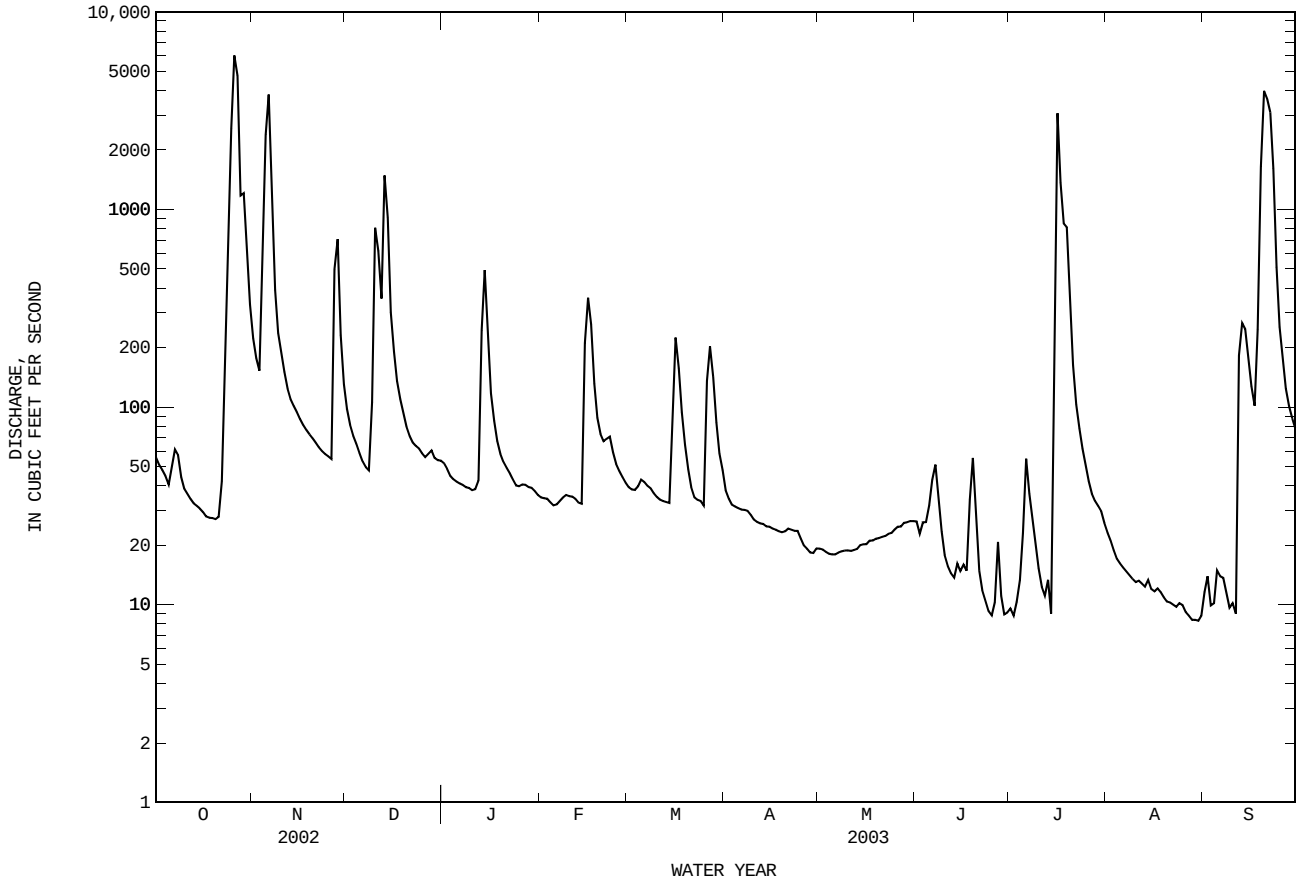
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	194	92.5	64.0	47.5	102	58.4	97.3	180	169	134	61.2	305
MAX	1882	1380	849	417	1178	595	851	1387	1848	2135	1076	5349
(WY)	1974	1982	1992	1992	1958	1997	1992	1972	1973	1990	1942	1967
MIN	0.051	0.64	0.62	0.66	0.66	2.20	1.90	0.46	0.65	0.40	0.096	0.027
(WY)	1990	1990	1990	1990	1990	1989	1940	1989	1990	1989	1989	1989

08189500 Mission River at Refugio, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	68472.4		70067.9			
ANNUAL MEAN	188		192		126	
HIGHEST ANNUAL MEAN					459	1967
LOWEST ANNUAL MEAN					1.74	1989
HIGHEST DAILY MEAN	6010	Oct 26	6010	Oct 26	67200	Sep 12 1971
LOWEST DAILY MEAN	4.9	Jun 24	8.3	Aug 30	0.00	Sep 1 1989
ANNUAL SEVEN-DAY MINIMUM	5.2	Jun 19	8.8	Aug 25	0.00	Aug 30 1989
MAXIMUM PEAK FLOW			6650	Oct 26	79000	Sep 12 1971
MAXIMUM PEAK STAGE			25.56	Oct 26	38.25	Sep 12 1971
ANNUAL RUNOFF (AC-FT)	135800		139000		91060	
ANNUAL RUNOFF (CFSM)	0.27		0.28		0.18	
ANNUAL RUNOFF (INCHES)	3.69		3.78		2.48	
10 PERCENT EXCEEDS	309		257		99	
50 PERCENT EXCEEDS	38		37		11	
90 PERCENT EXCEEDS	8.5		12		2.3	

e Estimated



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^2.

PERIOD OF RECORD.--Mar. 1964 to current year.
Water-quality records.--Chemical data: Oct. 1965 to Sept. 1966. Sediment data: Feb. 1966 to Sept. 1975.

GAGE.--Water-stage recorder. Datum of gage is 72.37 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. The city of Beeville discharges wastewater effluent into the river via Poesta Creek 3.8 mi upstream. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 1954 reached a stage of 33 ft (discharge, 19,600 ft^3/s), from information by local resident. Maximum stage since at least 1914, that of Sept. 22, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	18	14	18	8.5	10	9.2	6.6	4.8	4.0	5.6	4.6
2	6.9	18	12	13	8.3	9.7	8.8	6.3	4.7	4.3	5.4	4.5
3	6.6	17	11	11	8.7	9.9	8.5	6.5	4.7	4.8	5.1	5.2
4	6.7	191	11	9.5	8.9	16	8.7	6.5	5.0	5.6	5.1	7.5
5	6.4	558	10	e9.1	8.3	13	8.7	6.3	5.3	6.2	5.0	172
6	7.0	206	9.6	e9.3	8.6	12	8.8	6.1	66	36	4.9	55
7	10	76	9.4	9.5	9.2	11	8.6	e6.2	35	16	4.8	20
8	10	38	11	9.5	11	9.7	8.3	e5.9	11	8.6	4.8	11
9	25	23	235	10	12	9.4	7.7	e5.6	7.2	6.5	4.6	8.0
10	16	18	233	9.7	9.9	8.9	7.5	e5.9	6.0	5.6	4.4	7.5
11	11	15	75	9.0	9.0	8.7	7.7	e5.7	5.7	4.9	4.6	7.7
12	8.8	13	296	11	8.7	9.1	7.5	e5.7	5.5	4.4	4.8	437
13	7.4	12	290	124	8.6	9.0	7.6	5.7	5.2	4.5	4.5	585
14	6.6	12	87	71	8.9	8.8	7.7	5.7	5.7	7.3	5.1	145
15	6.7	11	37	27	102	45	7.5	5.7	9.7	27	5.3	183
16	6.6	12	e14	17	170	109	7.6	5.6	6.5	753	5.2	68
17	6.3	11	e14	12	52	28	7.7	5.6	6.4	396	5.2	36
18	7.3	10	e14	11	22	15	7.3	5.3	5.7	212	4.8	379
19	7.5	10	e13	10	15	11	7.1	5.1	5.2	75	4.6	1030
20	7.1	9.6	e13	10	15	9.6	7.2	5.1	4.7	27	4.8	236
21	6.8	9.7	e13	9.9	96	9.0	7.6	5.0	4.4	15	4.6	508
22	7.2	9.6	e12	9.4	67	8.9	7.4	5.1	4.4	10	4.3	243
23	153	9.6	12	9.0	28	9.0	7.3	5.0	4.2	8.8	4.4	93
24	569	9.5	12	8.8	16	9.2	7.4	4.8	4.3	8.0	5.1	40
25	2270	9.2	11	8.8	13	8.5	7.3	4.8	4.3	7.0	4.8	23
26	288	237	9.8	9.4	11	134	6.9	4.7	4.1	6.3	4.3	18
27	113	389	9.5	9.5	11	113	6.6	5.1	4.4	6.2	4.3	14
28	57	87	9.2	9.5	10	30	6.5	5.5	5.9	6.4	4.3	11
29	34	32	9.3	9.9	---	15	6.4	6.1	4.9	6.7	4.4	9.9
30	26	19	9.6	8.8	---	11	6.6	5.4	4.2	6.4	4.3	9.1
31	21	---	23	8.6	---	10	---	5.0	---	6.0	4.3	---
TOTAL	3722.2	2090.2	1539.4	512.2	756.6	720.4	229.7	173.6	255.1	1695.5	147.7	4371.0
MEAN	120	69.7	49.7	16.5	27.0	23.2	7.66	5.60	8.50	54.7	4.76	146
MAX	2270	558	296	124	170	134	9.2	6.6	66	753	5.6	1030
MIN	6.3	9.2	9.2	8.6	8.3	8.5	6.4	4.7	4.1	4.0	4.3	4.5
AC-FT	7380	4150	3050	1020	1500	1430	456	344	506	3360	293	8670

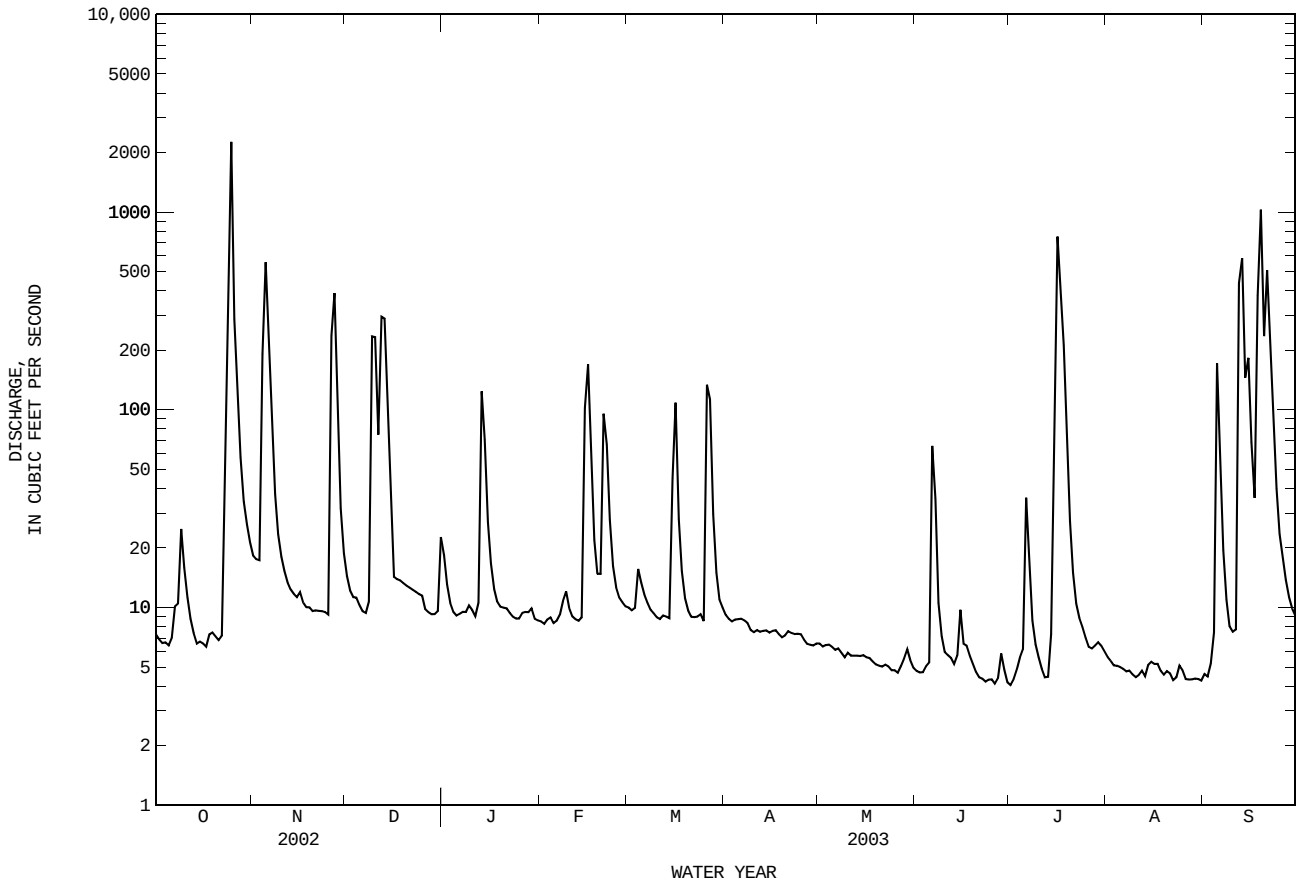
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	42.8	15.6	19.4	7.91	14.3	15.7	28.0	49.5	45.1	33.4	20.6	132
MAX	346	136	327	38.9	119	117	255	349	512	451	297	2356
(WY)	1998	2002	1992	1992	1969	1992	1992	1972	1973	1990	2001	1967
MIN	0.000	0.17	0.72	1.05	1.10	0.55	0.31	1.04	0.026	0.031	0.000	0.000
(WY)	1990	1965	1965	1971	1967	1966	1967	1989	1967	1986	1965	1965

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	21367.1		16213.6			
ANNUAL MEAN	58.5		44.4		35.9	
HIGHEST ANNUAL MEAN					199	1967
LOWEST ANNUAL MEAN					3.15	1986
HIGHEST DAILY MEAN	2410	Sep 16	2270	Oct 25	49300	Sep 22 1967
LOWEST DAILY MEAN	1.4	Jun 20	4.0	Jul 1	0.00	Jun 24 1964
ANNUAL SEVEN-DAY MINIMUM	1.7	Jun 16	4.3	Jun 21	0.00	Aug 16 1964
MAXIMUM PEAK FLOW			3510	Oct 25	i82800	Sep 22 1967
MAXIMUM PEAK STAGE			20.58	Oct 25	a42.22	Sep 22 1967
ANNUAL RUNOFF (AC-FT)	42380		32160		25970	
10 PERCENT EXCEEDS	74		87		17	
50 PERCENT EXCEEDS	7.1		9.0		4.2	
90 PERCENT EXCEEDS	3.4		4.8		0.79	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08189700 Aransas River near Skidmore, TX--Continued



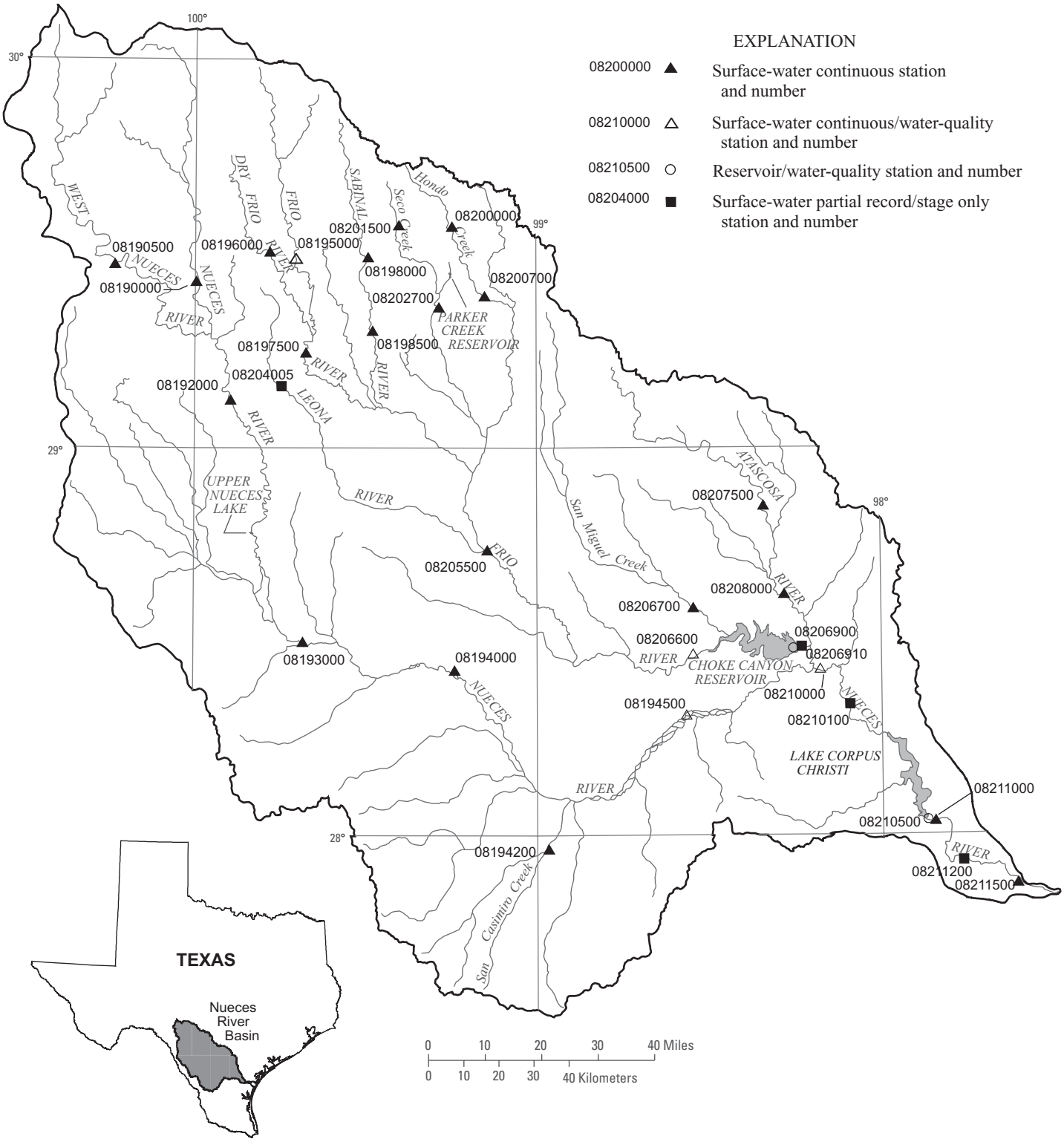


Figure 7.--Map showing location of gaging stations in the Nueces River Basin

08190000 Nueces River at Laguna, TX 200
08190500 West Nueces River near Brackettville, TX 202
08192000 Nueces River below Uvalde, TX 204
08193000 Nueces River near Asherton, TX 206
08194000 Nueces River at Cotulla, TX 208
08194200 San Casimiro near Freer, TX 210
08194500 Nueces River near Tilden, TX 212
08195000 Frio River at Concan, TX 218
08196000 Dry Frio River near Reagan Wells, TX 222
08197500 Frio River below Dry Frio River near Uvalde, TX 224
08198000 Sabinal River near Sabinal, TX 226
08198500 Sabinal River at Sabinal, TX 228
08200000 Hondo Creek near Tarpley, TX 230
08200700 Hondo Creek at King Waterhole near Hondo, TX 232
08201500 Seco Creek at Miller Ranch near Utopia, TX 234
08202700 Seco Creek at Rowe Ranch near D'Hanis, TX 236
08204005 Leona River near Uvalde, TX 238
08205500 Frio River near Derby, TX 240
08206600 Frio River at Tilden, TX 242
08206700 San Miguel Creek near Tilden, TX 248
08206900 Choke Canyon Reservoir near Three Rivers, TX 250
08206910 Choke Canyon Reservoir (Outlet Works Channel) near Three Rivers, TX 278
08207500 Atascosa River near McCoy, TX 280
08208000 Atascosa River at Whitsett, TX 282
08210000 Nueces River near Three Rivers, TX 284
08210100 Nueces River at George West, TX 290
08210500 Lake Corpus Christi near Mathis, TX 292
08211000 Nueces River near Mathis, TX 308
08211200 Nueces River at Bluntzer, TX 310
08211500 Nueces River at Calallen, TX 312

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^2.

PERIOD OF RECORD.--Oct. 1923 to current year.
Water-quality records.--Chemical data: May 1949 to June 1952, Sept. 1964 to Sept. 1993. Biochemical data: Feb. 1970 to Sept. 1993. Pesticide data: Feb. 1970 to Sept. 1993. Sediment data: Jan. 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 NGVD of 1929. Prior to Jan. 26, 1925, nonrecording gage at site 2.0 mi downstream at different datum. Satellite telemeter at station.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1913 reached a stage of about 29 ft (discharge, 210,000 ft^3/s); flood of Sept. 21, 1923, reached a stage of about 26.5 ft (discharge, 160,000 ft^3/s); from information by local residents. Maximum stage since at least 1866, that of Sept. 24, 1955.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e32	432	251	162	128	110	98	80	50	98	82	78
2	e32	431	247	158	128	110	97	80	47	97	78	78
3	e32	434	247	156	127	111	97	78	46	113	76	78
4	e31	427	246	155	123	109	97	77	45	99	76	85
5	e31	414	243	155	122	107	97	76	52	96	73	130
6	e31	397	240	155	122	106	99	76	49	104	72	148
7	e31	380	238	154	122	105	99	75	48	113	71	133
8	e197	373	238	151	124	105	99	72	48	113	69	125
9	e1180	364	244	148	125	105	99	72	48	109	69	117
10	e830	354	238	148	122	106	97	71	66	106	68	115
11	e610	346	235	148	122	107	96	71	75	103	70	114
12	e490	335	231	153	122	107	93	70	91	97	77	136
13	e400	326	225	151	122	107	91	70	106	93	77	164
14	e370	323	225	148	122	107	90	67	110	91	76	160
15	e350	315	223	148	119	105	90	65	138	88	80	189
16	340	312	220	148	116	105	90	63	159	109	79	197
17	335	306	218	145	115	104	90	62	148	108	78	183
18	e330	300	214	144	113	103	90	60	136	102	77	176
19	e320	297	195	144	113	102	90	59	126	97	75	174
20	e305	291	187	144	115	102	90	57	119	95	71	170
21	e335	285	185	144	120	101	89	57	114	91	70	170
22	e320	279	180	141	121	108	87	57	113	87	67	168
23	300	279	179	140	116	107	86	57	107	90	66	163
24	421	276	177	138	116	106	87	57	104	98	66	160
25	695	271	175	138	116	105	85	53	102	98	68	157
26	592	268	173	138	115	105	84	57	98	92	71	180
27	545	263	171	137	113	102	80	57	100	88	74	423
28	510	258	170	133	111	100	80	59	97	85	73	307
29	492	258	170	130	---	99	80	56	100	86	70	241
30	470	255	169	128	---	101	80	54	99	84	69	215
31	449	---	165	128	---	102	---	52	---	83	72	---
TOTAL	11406	9849	6519	4510	3350	3259	2727	2017	2741	3013	2260	4934
MEAN	368	328	210	145	120	105	90.9	65.1	91.4	97.2	72.9	164
MAX	1180	434	251	162	128	111	99	80	159	113	82	423
MIN	31	255	165	128	111	99	80	52	45	83	66	78
AC-FT	22620	19540	12930	8950	6640	6460	5410	4000	5440	5980	4480	9790
CFSM	0.50	0.45	0.29	0.20	0.16	0.14	0.12	0.09	0.12	0.13	0.10	0.22
IN.	0.58	0.50	0.33	0.23	0.17	0.16	0.14	0.10	0.14	0.15	0.11	0.25

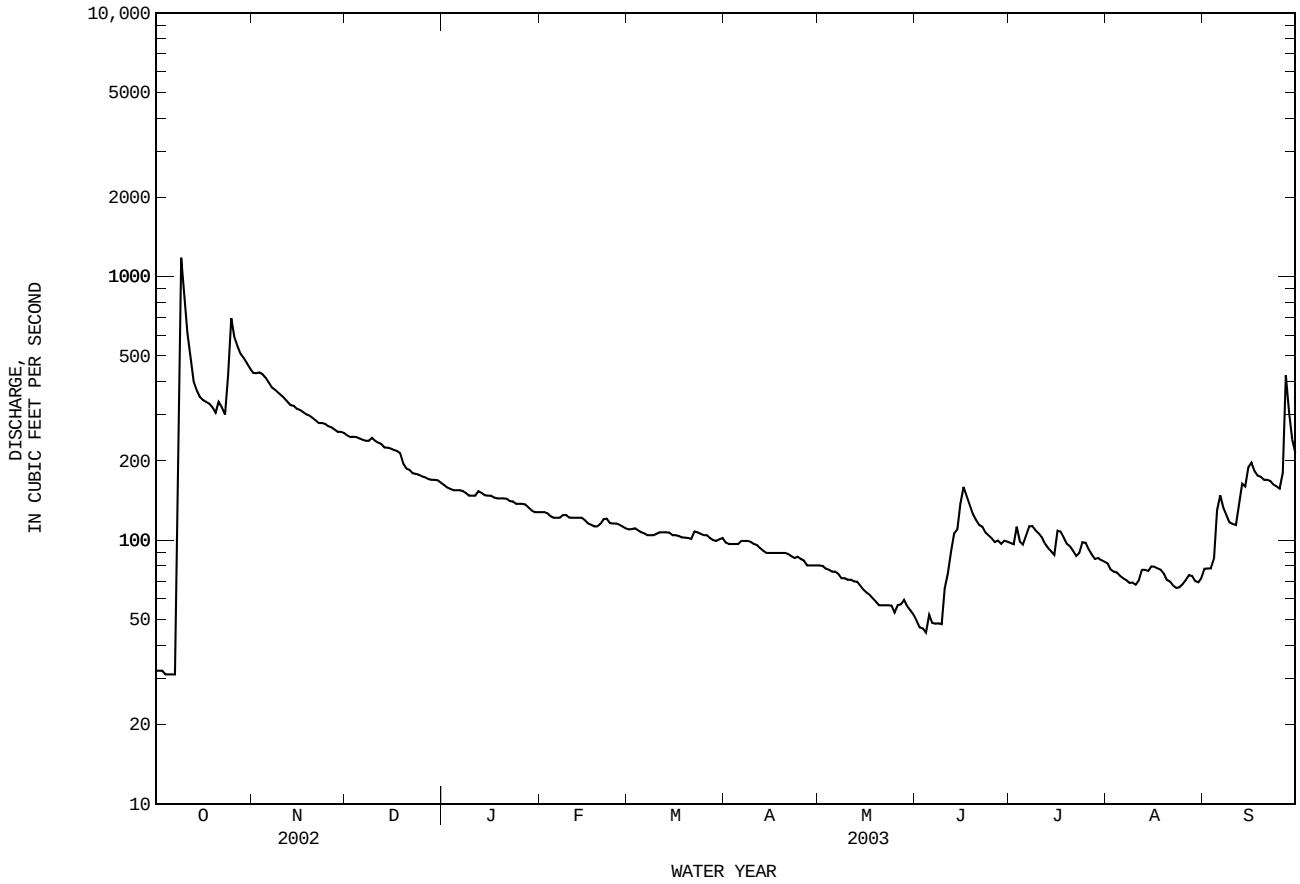
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2003, BY WATER YEAR (WY)

MEAN	234	163	127	109	117	108	112	155	260	161	156	239
MAX	2030	1778	894	610	1160	867	766	868	5407	1580	2500	2668
(WY)	1974	2002	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

08190000 Nueces River at Laguna, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1924 - 2003	
ANNUAL TOTAL	58460		56585			
ANNUAL MEAN	160		155		162	
HIGHEST ANNUAL MEAN					611	1935
LOWEST ANNUAL MEAN					23.1	1953
HIGHEST DAILY MEAN	4750	Jul 2	1180	Oct 9	107000	Jun 14 1935
LOWEST DAILY MEAN	31	Oct 4	31	Oct 4	3.0	Feb 27 1957
ANNUAL SEVEN-DAY MINIMUM	31	Oct 1	31	Oct 1	3.2	Mar 10 1957
MAXIMUM PEAK FLOW			1820	Oct 9	i307000	Sep 24 1955
MAXIMUM PEAK STAGE			5.32	Oct 9	a32.70	Sep 24 1955
ANNUAL RUNOFF (AC-FT)	116000		112200		117000	
ANNUAL RUNOFF (CFSM)	0.22		0.21		0.22	
ANNUAL RUNOFF (INCHES)	2.95		2.86		2.98	
10 PERCENT EXCEEDS	324		317		245	
50 PERCENT EXCEEDS	90		110		78	
90 PERCENT EXCEEDS	45		67		24	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.



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^2.

PERIOD OF RECORD.--Sept. 1939 to Sept. 1950, Apr. 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 NGVD of 1929. Prior to Mar. 14, 1940, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. A large part of the low flow enters the Edwards and associated limestones in the Balcones Fault Zone above station. No known regulation or diversions. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft June 14, 1935 (discharge, 550,000 ft^3/s, based on slope-area measurements of 580,000 ft^3/s at site 33 mi upstream from gage, and 536,000 ft^3/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^3/s, by slope-area measurement).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	8.7	0.93	0.33	0.59	0.45	0.33	0.24	0.18	0.12	0.72	0.19
2	0.00	8.2	0.88	0.34	0.67	0.46	0.36	0.23	0.12	0.14	0.60	0.14
3	0.00	7.3	0.84	0.33	0.64	0.44	0.36	0.21	0.10	1.5	0.51	0.14
4	0.00	6.8	0.73	0.33	0.59	0.39	0.34	0.23	0.07	4.1	0.42	0.15
5	0.00	6.0	0.67	0.39	0.59	0.39	0.33	0.19	0.06	3.9	0.32	0.17
6	0.00	5.6	0.64	0.42	0.59	0.35	0.35	0.17	0.08	2.8	0.27	0.58
7	0.00	5.0	0.59	0.39	0.59	0.33	0.33	0.17	0.06	1.9	0.22	1.6
8	0.25	4.5	0.50	0.39	0.68	0.33	0.31	0.18	0.04	1.4	0.18	1.1
9	1.6	4.2	0.47	0.42	0.59	0.33	0.28	0.17	0.05	1.1	0.18	0.77
10	2.8	3.9	0.45	0.45	0.57	0.33	0.33	0.13	0.43	0.83	0.18	0.58
11	3.7	3.6	0.40	0.45	0.55	0.33	0.33	0.12	0.17	0.62	0.19	0.51
12	4.0	3.3	0.34	0.59	0.59	0.33	0.35	0.10	0.12	0.47	0.34	0.92
13	3.5	3.2	0.37	0.47	0.59	0.31	0.34	0.11	0.14	0.32	0.39	1.0
14	3.2	3.1	0.36	0.45	0.54	0.28	0.36	0.09	0.17	0.25	0.32	1.4
15	2.6	3.0	0.33	0.42	0.47	0.30	0.38	0.07	0.44	0.20	0.25	1.5
16	2.0	2.7	0.30	0.40	0.39	0.28	0.36	0.06	0.31	1.2	0.21	2.4
17	1.5	2.6	0.31	0.44	0.40	0.28	0.33	0.05	0.28	4.1	0.18	2.1
18	1.3	2.4	0.28	0.45	0.45	0.33	0.33	0.04	0.24	5.7	0.14	1.7
19	1.1	2.3	0.36	0.45	0.45	0.28	0.36	0.03	0.18	6.2	0.11	1.3
20	0.84	2.2	0.49	0.45	0.58	0.34	0.33	0.02	0.12	5.8	0.08	1.1
21	0.72	2.0	0.51	0.52	0.55	0.39	0.30	0.03	0.11	4.7	0.07	1.1
22	0.66	2.0	0.48	0.52	0.51	0.75	0.35	0.07	0.09	3.3	0.06	0.90
23	0.62	1.9	0.49	0.52	0.43	0.51	0.35	0.09	0.08	2.5	0.05	0.84
24	1.6	1.7	0.38	0.49	0.42	0.45	0.31	0.11	0.07	2.1	0.08	0.75
25	3.4	1.6	0.41	0.56	0.41	0.50	0.26	0.10	0.07	1.7	0.10	0.75
26	4.6	1.4	0.39	0.59	0.39	0.42	0.26	0.22	0.06	1.4	0.09	1.9
27	5.4	1.3	0.36	0.55	0.39	0.39	0.25	0.36	0.37	1.3	0.07	3.6
28	17	1.2	0.31	0.54	0.39	0.42	0.27	0.31	0.30	1.1	0.05	4.5
29	17	1.1	0.33	0.59	---	0.39	0.28	0.21	0.16	0.99	0.04	4.0
30	14	1.0	0.31	0.59	---	0.36	0.29	0.34	0.12	0.87	0.03	3.2
31	11	---	0.28	0.59	---	0.35	---	0.29	---	0.73	0.10	---
TOTAL	104.39	103.8	14.49	14.42	14.60	11.79	9.71	4.74	4.79	63.34	6.55	40.89
MEAN	3.37	3.46	0.47	0.47	0.52	0.38	0.32	0.15	0.16	2.04	0.21	1.36
MAX	17	8.7	0.93	0.59	0.68	0.75	0.38	0.36	0.44	6.2	0.72	4.5
MIN	0.00	1.0	0.28	0.33	0.39	0.28	0.25	0.02	0.04	0.12	0.03	0.14
AC-FT	207	206	29	29	29	23	19	9.4	9.5	126	13	81

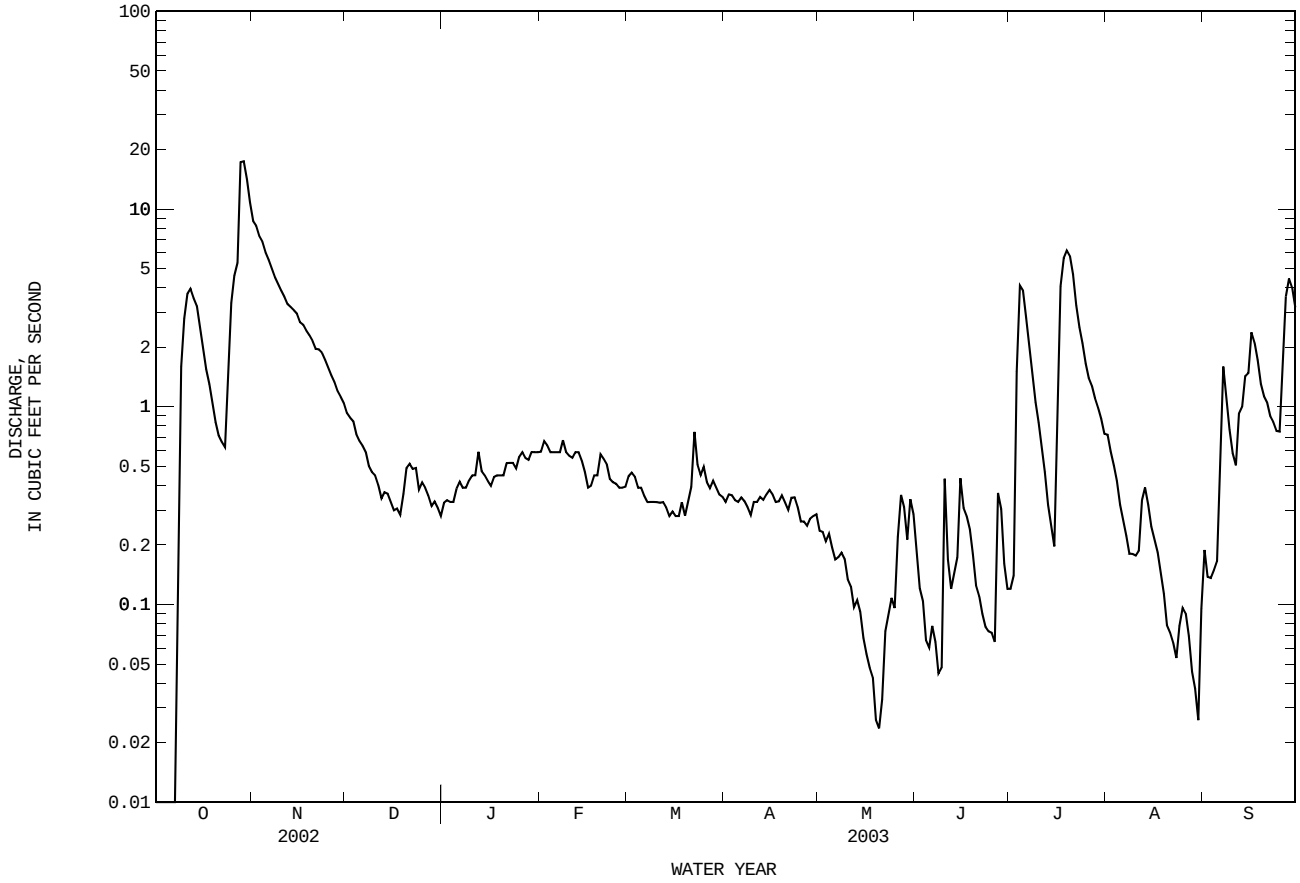
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003h, BY WATER YEAR (WY)

MEAN	78.0	15.4	4.80	2.41	19.5	3.51	9.05	13.3	98.3	43.4	59.6	66.1
MAX	1145	398	164	68.4	978	60.2	238	266	1880	737	1308	2180
(WY)	1997	2002	1985	1985	1949	1979	1990	1957	1958	1976	1971	1964
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1941	1941	1940	1940	1940	1940	1942	1942	1942	1941	1940	1940

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003h	
ANNUAL TOTAL	656.30		393.51			
ANNUAL MEAN	1.80		1.08		34.8	
HIGHEST ANNUAL MEAN					237	1958
LOWEST ANNUAL MEAN					0.000	1962
HIGHEST DAILY MEAN	25	Jul 17	17	Oct 28	42500	Sep 20 1964
LOWEST DAILY MEAN	0.00	Sep 6	0.00	Oct 1	0.00	Sep 28 1939
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 9	0.00	Oct 1	0.00	Sep 28 1939
MAXIMUM PEAK FLOW			19	Oct 28	246000	Sep 20 1964
MAXIMUM PEAK STAGE			1.99	Oct 28	31.30	Sep 20 1964
ANNUAL RUNOFF (AC-FT)	1300		781		25230	
10 PERCENT EXCEEDS	3.3		3.1		8.4	
50 PERCENT EXCEEDS	0.91		0.40		0.08	
90 PERCENT EXCEEDS	0.05		0.09		0.00	

h See PERIOD OF RECORD paragraph.

08190500 West Nueces River near Brackettville, TX--Continued



08192000 Nueces River below Uvalde, TX

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.

DRAINAGE AREA.--1,861 mi^2.

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

REVISED RECORDS.--WSP 1732: 1956(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft above NGVD of 1929. Satellite telemeter at station.

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 the basin between Nueces River at Laguna (station 08190000) and this station. No known regulation. There are many small diversions above station for irrigation. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft June 14, 1935, from floodmark (discharge 616,000 ft^3/s at Nueces River near Uvalde, discountinued station 08191500, 8.5 miles upstream, by slope-area measurement). Large floods also occurred in 1901 and 1913, stages unknown.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	397	188	115	80	68	54	41	32	27	31	30
2	4.9	397	187	111	79	68	54	41	32	27	31	30
3	4.7	401	188	108	78	68	54	41	32	27	31	29
4	4.5	406	181	107	76	68	53	41	32	27	31	29
5	4.3	383	175	107	76	68	53	40	35	51	30	30
6	4.3	363	172	107	75	68	52	40	32	39	30	31
7	4.1	348	171	104	75	67	52	40	31	33	30	29
8	4.2	337	169	104	74	66	51	40	31	31	30	28
9	14	328	173	104	74	65	51	39	31	30	30	29
10	466	322	174	101	74	64	51	39	35	29	30	30
11	264	309	170	99	74	63	51	38	32	28	31	30
12	158	297	161	104	74	63	50	37	31	28	32	35
13	113	287	157	107	74	62	49	37	31	28	31	32
14	95	281	156	105	74	62	49	36	32	27	31	31
15	87	272	153	102	71	64	48	36	32	28	31	32
16	77	264	150	98	69	62	47	36	31	43	31	31
17	70	256	148	95	68	62	47	35	31	33	31	31
18	67	250	145	93	68	61	47	35	31	32	31	32
19	61	246	138	93	67	60	47	34	31	32	30	31
20	58	241	134	93	66	59	46	34	31	32	30	32
21	55	231	132	93	67	60	46	34	30	31	29	34
22	70	227	131	91	68	59	46	35	30	31	29	33
23	68	220	131	87	69	58	46	34	29	31	29	33
24	210	215	128	86	71	58	45	32	29	31	29	32
25	508	211	128	84	70	58	44	31	28	31	31	32
26	592	209	125	85	70	56	43	42	27	31	31	42
27	528	204	122	84	68	57	43	33	27	31	30	34
28	490	195	120	83	68	55	41	32	27	31	29	33
29	457	193	121	83	---	54	41	33	27	31	29	33
30	434	192	120	83	---	54	41	32	27	32	29	44
31	413	---	117	81	---	54	---	32	---	31	30	---
TOTAL	5391.1	8482	4665	2997	2017	1911	1442	1130	917	974	938	962
MEAN	174	283	150	96.7	72.0	61.6	48.1	36.5	30.6	31.4	30.3	32.1
MAX	592	406	188	115	80	68	54	42	35	51	32	44
MIN	4.1	192	117	81	66	54	41	31	27	27	29	28
AC-FT	10690	16820	9250	5940	4000	3790	2860	2240	1820	1930	1860	1910

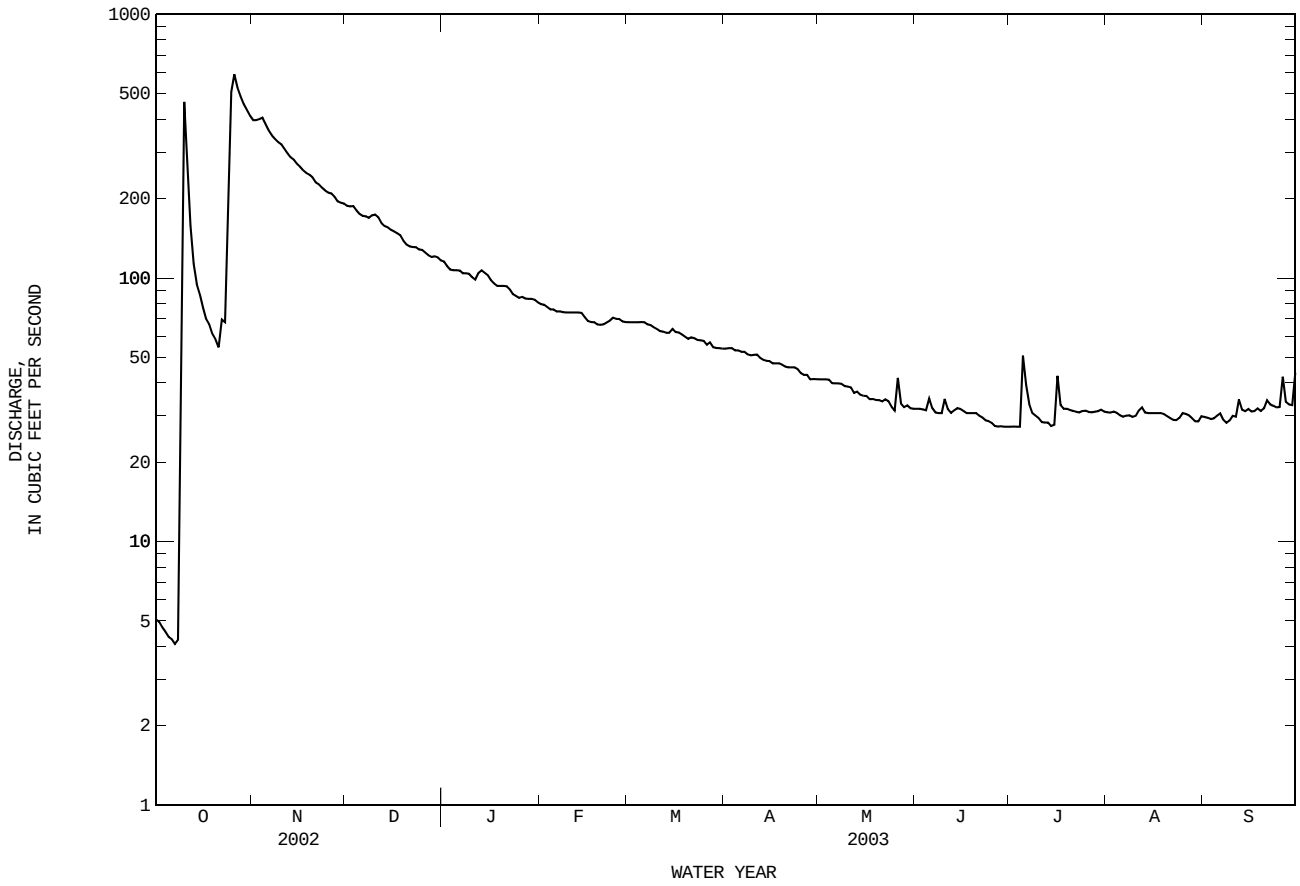
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	264	126	83.7	71.5	94.7	62.7	73.9	99.3	255	141	204	213
MAX	3153	1510	811	656	2487	909	785	972	3496	1525	4057	3081
(WY)	1974	2002	1992	1985	1949	1992	1977	1987	1958	1976	1998	1964
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1953	1953	1952	1952	1952	1952	1952	1953	1953	1951	1951	1951

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	40356.2		31826.1			
ANNUAL MEAN	111		87.2		141	
HIGHEST ANNUAL MEAN					678	1997
LOWEST ANNUAL MEAN					3.63	1956
HIGHEST DAILY MEAN	5690	Jul 2	592	Oct 26	51600	Oct 29 1996
LOWEST DAILY MEAN	4.1	Oct 7	4.1	Oct 7	0.00	May 10 1951
ANNUAL SEVEN-DAY MINIMUM	4.4	Oct 2	4.4	Oct 2	0.00	Jun 18 1951
MAXIMUM PEAK FLOW			626	Oct 26	i201000	Oct 28 1996
MAXIMUM PEAK STAGE			4.43	Oct 10	a24.88	Oct 28 1996
ANNUAL RUNOFF (AC-FT)	80050		63130		101800	
10 PERCENT EXCEEDS	229		206		201	
50 PERCENT EXCEEDS	36		51		28	
90 PERCENT EXCEEDS	7.2		29		3.5	

i From indirect measurement of peak flow.
a From floodmark.

08192000 Nueces River below Uvalde, TX--Continued



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^2.

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

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft above NGVD of 1929. Prior to Feb. 2, 1940, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records fair. Since Mar. 1948, at least 10% of contributing drainage area has been regulated. 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 the basin between Nueces River at Laguna (station 08190000) and Nueces River below Uvalde (station 08192000). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--8 years (water years 1940-48), 140 ft^3/s (101,700 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1940-48).--Maximum discharge, 24,000 ft^3/s Sept. 2, 1944 (gage height 30.40 ft). No flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	805	199	129	59	61	21	13	0.00	0.89	14	0.03
2	34	576	197	126	62	59	22	13	0.00	0.49	11	0.73
3	30	497	195	125	67	e61	22	11	0.00	0.40	8.8	0.03
4	30	441	196	119	67	62	22	8.3	0.00	0.44	7.6	0.02
5	29	413	193	114	62	63	22	5.8	0.00	0.70	7.0	1.5
6	28	382	187	113	61	64	20	4.1	0.00	81	6.9	0.08
7	28	354	187	111	62	64	19	3.3	0.00	2190	7.0	0.01
8	28	331	184	103	70	65	26	2.8	0.00	2780	5.6	0.01
9	28	316	182	102	74	66	34	2.3	0.00	2550	4.0	0.01
10	64	303	180	99	72	66	31	1.8	0.57	1510	3.0	2.3
11	e115	293	175	80	70	64	29	1.4	0.01	479	2.4	5.4
12	e300	282	171	72	68	59	25	e0.84	0.01	244	2.1	4.1
13	e480	269	169	80	67	55	21	e0.62	0.02	150	1.6	2.6
14	e540	261	169	85	67	53	17	e0.41	0.04	99	1.2	1.9
15	e500	255	168	86	69	e52	18	0.26	0.11	70	1.4	1.2
16	e400	246	170	84	68	61	18	0.18	0.07	146	1.4	e0.64
17	e300	239	163	78	65	55	15	0.11	0.03	405	1.1	e0.24
18	e150	237	153	71	63	53	12	0.05	0.02	387	0.79	e0.10
19	e85	232	144	69	62	51	8.9	0.03	0.02	301	0.64	e0.06
20	e80	228	139	67	e63	48	6.3	0.02	0.02	217	0.51	e0.05
21	e175	224	139	65	e64	47	4.4	0.02	0.01	143	0.26	e0.04
22	e325	221	133	64	e65	e45	3.7	0.01	0.01	97	0.15	e5.0
23	e565	216	135	62	e67	e44	4.0	0.01	0.00	70	0.08	22
24	e1000	214	144	59	68	39	7.6	0.01	0.00	52	0.07	50
25	e1450	212	145	56	67	43	9.7	0.00	14	40	0.04	65
26	3530	209	145	58	66	62	9.0	0.00	12	31	0.02	69
27	4830	206	144	65	65	50	7.3	0.00	7.6	25	0.02	59
28	5510	202	137	71	62	e42	6.8	0.00	4.6	21	0.01	49
29	5480	204	130	70	---	34	8.9	0.00	2.7	19	0.01	49
30	3950	202	130	66	---	26	12	0.00	1.9	18	0.00	67
31	1870	---	131	60	---	20	---	0.00	---	16	0.02	---
TOTAL	31970	9070	5034	2609	1842	1634	482.6	69.37	43.74	12143.92	88.72	456.05
MEAN	1031	302	162	84.2	65.8	52.7	16.1	2.24	1.46	392	2.86	15.2
MAX	5510	805	199	129	74	66	34	13	14	2780	14	69
MIN	28	202	130	56	59	20	3.7	0.00	0.00	0.40	0.00	0.01
AC-FT	63410	17990	9980	5170	3650	3240	957	138	87	24090	176	905

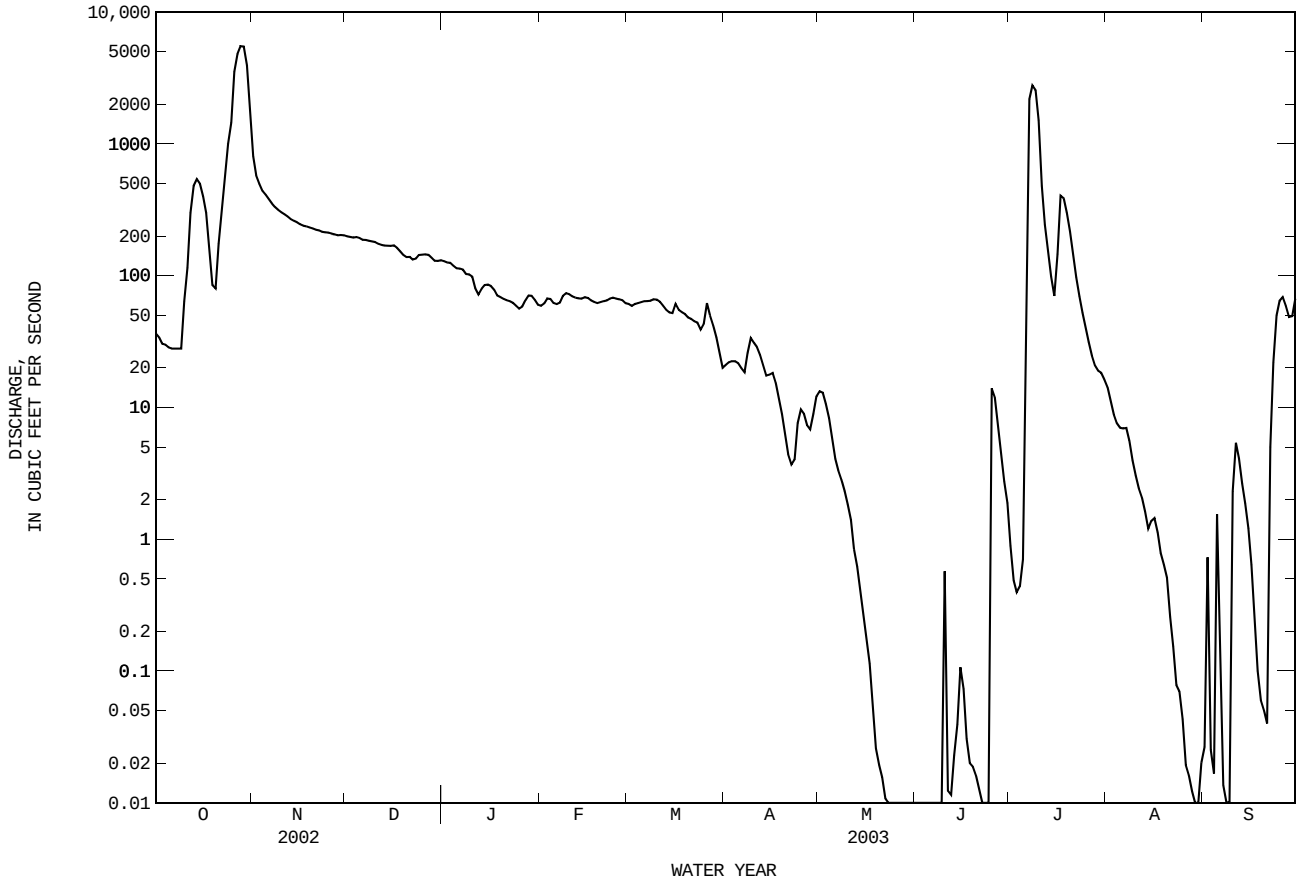
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003z, BY WATER YEAR (WY)

MEAN	371	135	66.4	66.9	79.2	76.6	90.9	220	424	257	232	267
MAX	3254	955	537	724	1498	1347	1256	1738	4349	2437	5246	3674
(WY)	1960	2002	1992	1985	1949	1949	1957	1957	1987	2002	1971	1964
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1953	1951	1949	1949	1950	1950	1950	1956	1953	1951	1951	1952

08193000 Nueces River near Asherton, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003z		
ANNUAL TOTAL	132076.19		65443.40				
ANNUAL MEAN	362		179		191		
HIGHEST ANNUAL MEAN					700		1971
LOWEST ANNUAL MEAN					0.003		1989
HIGHEST DAILY MEAN	12000	Jul 5	5510	Oct 28	24800	Oct 6	1959
LOWEST DAILY MEAN	0.00	Jun 14	0.00	May 25	0.00	Oct 1	1948
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 14	0.00	May 25	0.00	Oct 1	1948
MAXIMUM PEAK FLOW			5710	Oct 28	28500	Oct 6	1959
MAXIMUM PEAK STAGE			25.54	Oct 28	30.88	Oct 6	1959
ANNUAL RUNOFF (AC-FT)	262000		129800		138300		
10 PERCENT EXCEEDS	386		274		287		
50 PERCENT EXCEEDS	61		52		0.40		
90 PERCENT EXCEEDS	0.04		0.02		0.00		

e Estimated
z Period of regulated streamflow.



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^2.

PERIOD OF RECORD.--Nov. 1923 to Sept. 1926 (monthly discharge only), Oct. 1926 to current year. 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 NGVD of 1929. From Oct. 31, 1923, to Aug. 3, 1924, nonrecording gage at approximate site of present gage at datum 7.28 ft higher. From 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. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Since Mar. 1948, at least 10% of contributing drainage area has been regulated. 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 the basin between Nueces River at Laguna (station 08190000) and Nueces River below Uvalde (station 08192000). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. 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. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--22 years (water years 1927-48), 315 ft^3/s (228,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1927-48).--Maximum discharge 82,600 ft^3/s June 18, 1935 (gage height 32.4 ft from floodmarks), by slope-area method; no flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	6160	193	109	71	63	40	1.7	0.00	0.00	20	0.00
2	45	4900	192	108	64	61	35	2.7	0.00	0.00	18	0.00
3	44	3270	184	110	58	60	27	3.2	0.00	0.00	15	0.00
4	42	2210	176	109	57	56	23	3.0	0.00	0.00	13	0.00
5	38	1510	173	107	61	54	23	5.2	0.03	0.45	11	0.01
6	34	1020	172	104	66	54	24	9.0	2.1	7.0	8.6	0.05
7	29	706	170	100	67	57	25	9.4	2.2	2.9	6.7	0.03
8	23	536	165	98	65	57	27	8.3	1.1	15	5.5	0.01
9	22	452	166	97	62	57	24	6.6	0.49	461	4.2	0.00
10	23	403	164	91	65	59	22	5.3	3.7	965	3.7	0.00
11	23	370	161	86	72	60	24	5.0	11	1360	3.2	57
12	26	346	159	88	75	62	34	3.9	7.1	2290	2.9	88
13	228	326	153	80	74	60	35	3.0	4.5	2240	2.5	62
14	412	308	149	75	72	58	34	2.1	4.6	1580	2.5	46
15	567	290	148	80	71	58	31	1.4	2.8	734	2.5	33
16	650	275	147	89	68	54	28	0.93	2.3	357	2.2	23
17	581	265	145	93	67	52	23	0.49	1.3	253	1.8	16
18	423	256	144	92	68	54	20	0.19	0.35	308	1.3	11
19	329	247	140	88	66	57	20	0.04	0.20	539	0.82	7.4
20	280	243	132	80	69	55	19	0.00	0.08	697	0.51	6.0
21	249	239	125	74	63	53	18	0.00	0.02	682	0.26	6.6
22	225	231	120	75	59	53	15	0.00	0.00	521	0.12	5.5
23	251	224	119	73	57	52	12	0.00	0.00	362	0.03	5.3
24	491	219	118	70	58	51	9.3	0.00	0.00	254	0.01	6.4
25	945	212	113	68	59	56	6.8	0.00	0.00	162	0.00	6.7
26	877	209	118	62	61	80	4.6	0.00	0.00	114	0.00	7.5
27	1150	208	122	58	63	52	3.2	0.00	0.00	82	0.00	55
28	5010	205	122	56	63	58	2.4	0.00	0.00	58	0.00	101
29	6660	200	122	59	---	70	2.0	0.00	0.00	43	0.00	97
30	6610	194	120	69	---	57	1.8	0.00	0.00	32	0.00	78
31	6540	---	112	75	---	49	---	0.00	---	24	0.00	---
TOTAL	32875	26234	4544	2623	1821	1779	613.1	71.45	43.87	14143.35	126.35	718.50
MEAN	1060	874	147	84.6	65.0	57.4	20.4	2.30	1.46	456	4.08	23.9
MAX	6660	6160	193	110	75	80	40	9.4	11	2290	20	101
MIN	22	194	112	56	57	49	1.8	0.00	0.00	0.00	0.00	0.00
AC-FT	65210	52040	9010	5200	3610	3530	1220	142	87	28050	251	1430

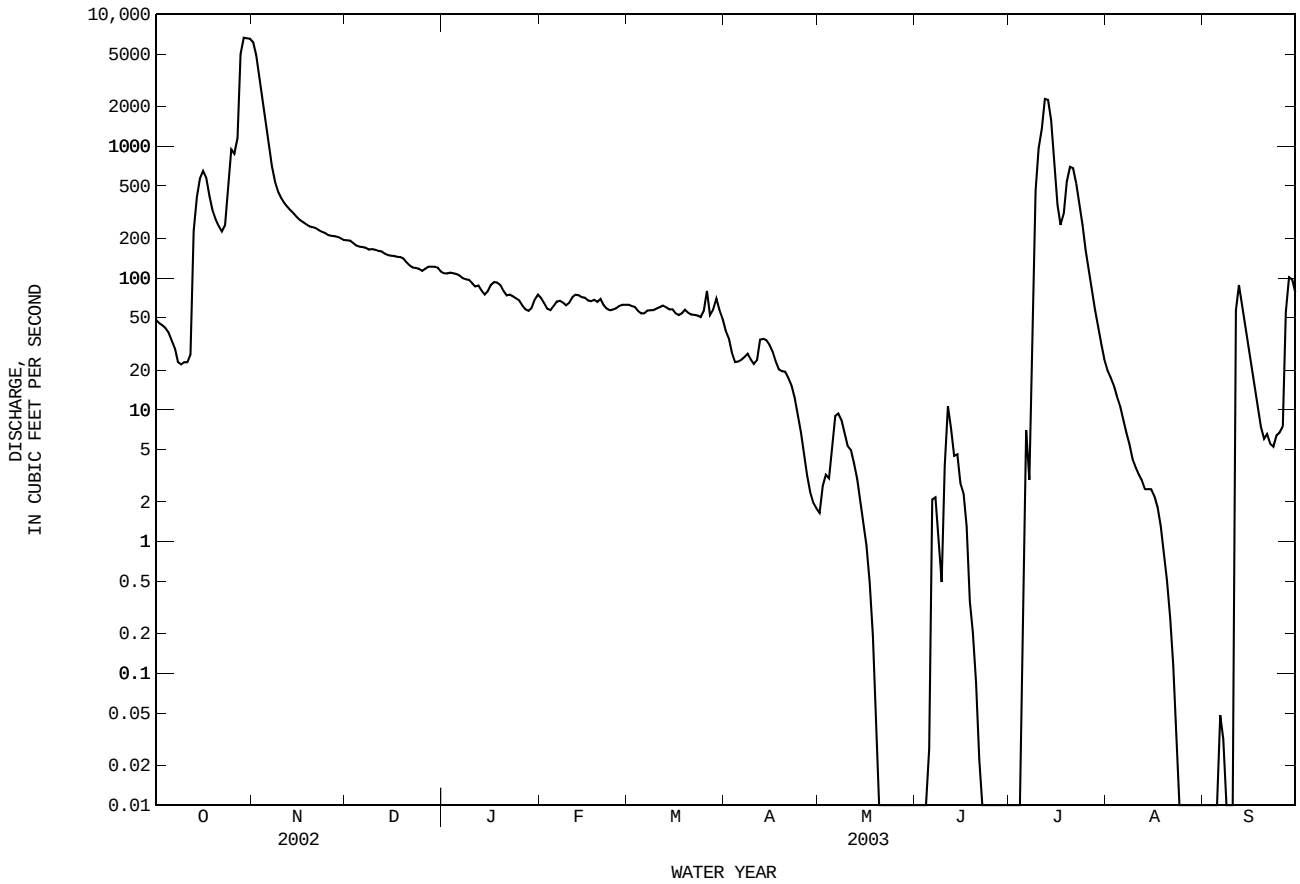
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003z, BY WATER YEAR (WY)

MEAN	474	177	70.2	72.1	55.0	95.5	105	242	504	398	273	350
MAX	3906	1098	414	761	619	2351	1444	1873	5280	6370	6412	5417
(WY)	1960	1977	1970	1985	1992	1949	1957	1957	1987	2002	1971	1964
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1953	1951	1949	1949	1951	1950	1950	1956	1953	1951	1951	1951

08194000 Nueces River at Cotulla, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR			FOR 2003 WATER YEAR			WATER YEARS 1949 - 2003z		
ANNUAL TOTAL	281389.66			85592.62					
ANNUAL MEAN	771			235			236		
HIGHEST ANNUAL MEAN							1003		1971
LOWEST ANNUAL MEAN							2.24		1989
HIGHEST DAILY MEAN	17600	Jul	8	6660	Oct	29	37400	Sep 18	1964
LOWEST DAILY MEAN	0.00	Apr	1	0.00	May	20	0.00	Oct 8	1948
ANNUAL SEVEN-DAY MINIMUM	0.00	Apr	1	0.00	May	20	0.00	Oct 8	1948
MAXIMUM PEAK FLOW				6730	Oct	29	46000	Sep 17	1964
MAXIMUM PEAK STAGE				16.13	Oct	29	27.75	Sep 17	1964
ANNUAL RUNOFF (AC-FT)	558100			169800			170600		
10 PERCENT EXCEEDS	1030			359			363		
50 PERCENT EXCEEDS	74			56			0.90		
90 PERCENT EXCEEDS	0.00			0.00			0.00		

z Period of regulated streamflow.



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 22.0 mi northwest of Freer.

DRAINAGE AREA.--469 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 298.00 ft above NGVD of 1929, from Texas Department of Transportation datum. Satellite telemeter at station.

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

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^3/s), occurred in 1954, from information by Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

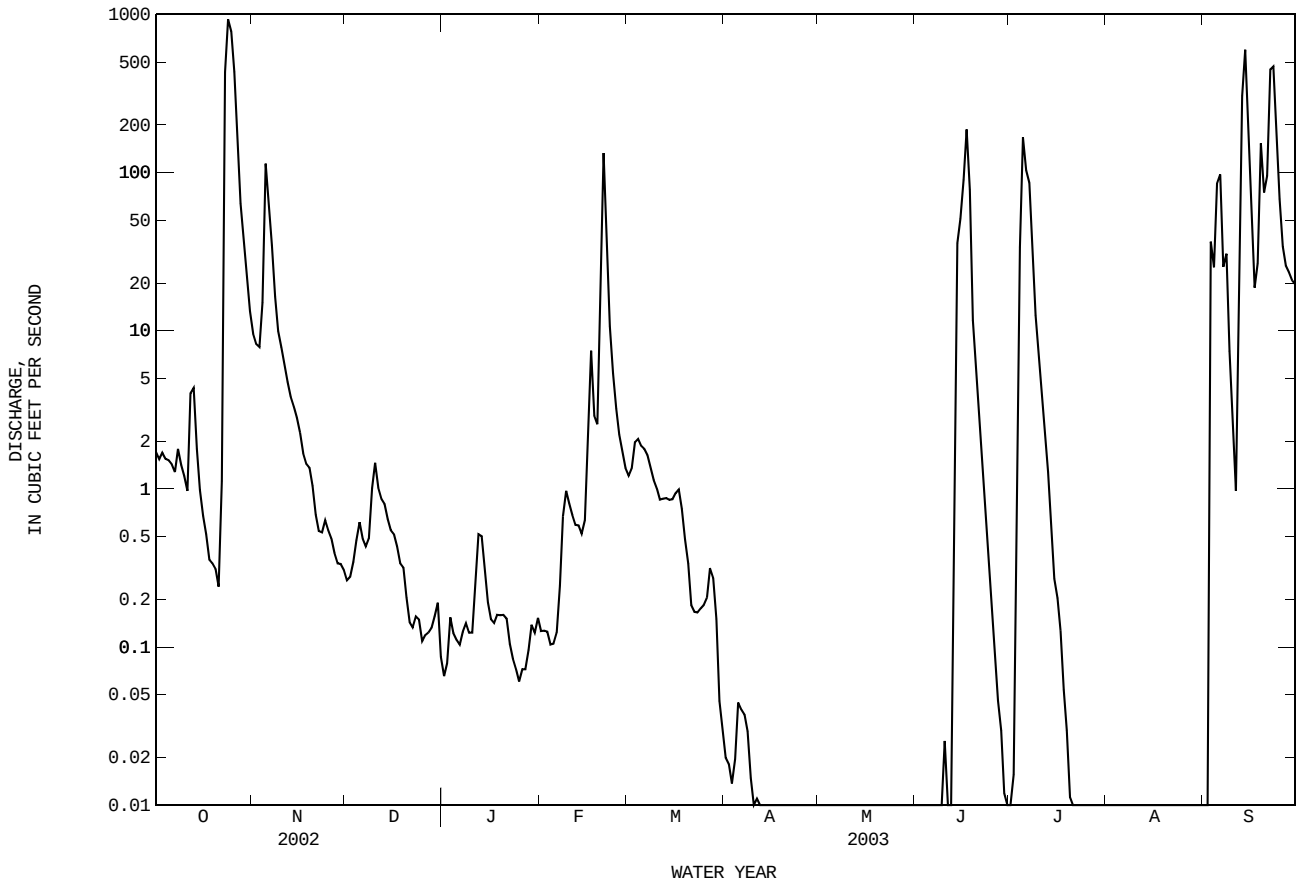
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	9.5	0.26	0.07	0.13	1.2	0.02	0.00	0.00	0.01	0.00	0.00
2	1.5	8.2	0.28	0.08	0.13	1.3	0.02	0.00	0.00	0.02	0.00	0.00
3	1.7	7.9	0.35	0.15	0.13	2.0	0.01	0.00	0.00	0.32	0.00	37
4	1.5	15	0.47	0.12	0.10	2.1	0.02	0.00	0.00	34	0.00	25
5	1.5	114	0.62	0.11	0.11	1.9	0.04	0.00	0.00	167	0.00	85
6	1.4	62	0.49	0.10	0.12	1.8	0.04	0.00	0.00	104	0.00	97
7	1.3	35	0.43	0.12	0.24	1.6	0.04	0.00	0.00	86	0.00	25
8	1.8	16	0.49	0.14	0.67	1.4	0.03	0.00	0.00	34	0.00	31
9	1.4	10	1.0	0.12	0.97	1.1	0.01	0.00	0.00	13	0.00	7.4
10	1.2	7.9	1.5	0.12	0.81	1.0	0.01	0.00	0.03	6.8	0.00	2.9
11	0.97	6.1	1.0	0.23	0.68	0.86	0.01	0.00	0.00	4.0	0.00	0.97
12	4.0	4.7	0.86	0.52	0.59	0.87	0.00	0.00	0.00	2.4	0.00	15
13	4.4	3.8	0.80	0.50	0.59	0.88	0.00	0.00	0.66	1.3	0.00	305
14	1.8	3.3	0.64	0.33	0.52	0.85	0.00	0.00	36	0.57	0.00	598
15	0.98	2.8	0.55	0.19	0.63	0.86	0.00	0.00	51	0.27	0.00	177
16	0.67	2.3	0.52	0.15	2.7	0.94	0.00	0.00	90	0.20	0.00	48
17	0.52	1.7	0.43	0.14	7.5	0.99	0.00	0.00	188	0.13	0.00	19
18	0.36	1.4	0.34	0.16	2.9	0.75	0.00	0.00	78	0.05	0.00	27
19	0.34	1.4	0.32	0.16	2.6	0.48	0.00	0.00	12	0.03	0.00	153
20	0.31	1.0	0.21	0.16	34	0.34	0.00	0.00	5.4	0.01	0.00	75
21	0.24	0.69	0.14	0.15	133	0.18	0.00	0.00	2.8	0.00	0.00	95
22	1.1	0.54	0.13	0.10	30	0.17	0.00	0.00	1.4	0.00	0.00	449
23	432	0.53	0.16	0.08	11	0.17	0.00	0.00	0.66	0.00	0.00	470
24	932	0.63	0.15	0.07	5.4	0.18	0.00	0.00	0.35	0.00	0.00	186
25	781	0.55	0.11	0.06	3.2	0.18	0.00	0.00	0.16	0.00	0.00	68
26	434	0.49	0.12	0.07	2.2	0.20	0.00	0.00	0.09	0.00	0.00	34
27	140	0.39	0.12	0.07	1.7	0.32	0.00	0.00	0.05	0.00	0.00	26
28	64	0.34	0.13	0.10	1.4	0.27	0.00	0.00	0.03	0.00	0.00	23
29	39	0.33	0.16	0.14	---	0.15	0.00	0.00	0.01	0.00	0.00	21
30	24	0.31	0.19	0.12	---	0.05	0.00	0.00	0.01	0.00	0.00	20
31	13	---	0.09	0.15	---	0.03	---	0.00	---	0.00	0.00	---
TOTAL	2889.69	318.80	13.06	4.78	244.02	25.12	0.25	0.00	466.65	454.11	0.00	3120.27
MEAN	93.2	10.6	0.42	0.15	8.71	0.81	0.008	0.000	15.6	14.6	0.000	104
MAX	932	114	1.5	0.52	133	2.1	0.04	0.00	188	167	0.00	598
MIN	0.24	0.31	0.09	0.06	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	5730	632	26	9.5	484	50	0.5	0.00	926	901	0.00	6190

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

MEAN	114	30.9	7.35	1.87	2.23	7.87	17.0	105	72.1	34.9	31.6	159
MAX	3021	581	247	40.2	19.5	145	297	747	606	858	398	2367
(WY)	1972	2002	1977	1977	1973	1985	1985	1981	1981	2002	1999	1967
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1964	1965	1965	1962	1962	1962	1965	1962	1965	1965	1963	1965

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	59382.64		7536.75			
ANNUAL MEAN	163		20.6		49.6	
HIGHEST ANNUAL MEAN					323	1972
LOWEST ANNUAL MEAN					1.54	2000
HIGHEST DAILY MEAN	11900	Jul 16	932	Oct 24	36600	Oct 17 1971
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Apr 12	0.00	Jan 1 1962
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Apr 12	0.00	Jan 1 1962
MAXIMUM PEAK FLOW			1120	Oct 24	82000	Oct 17 1971
MAXIMUM PEAK STAGE			16.72	Oct 24	26.87	Oct 17 1971
ANNUAL RUNOFF (AC-FT)	117800		14950		35910	
10 PERCENT EXCEEDS	53		34		16	
50 PERCENT EXCEEDS	0.00		0.20		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

08194200 San Casimiro Creek near Freer, TX--Continued



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^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Nov. 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 NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since Mar. 1948, at least 10% of contributing drainage area has been regulated. 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 the basin between Nueces River at Laguna (station 08190000) and Nueces River below Uvalde (station 08192000). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--6 years (water years 1943-48), 510 ft^3/s (369,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1943-48).--Maximum discharge 57,500 ft^3/s, Oct. 11, 1946 (gage height 26.46 ft), from rating curve extended above 46,400 ft^3/s; no flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	2750	182	113	66	67	45	7.6	0.90	2.2	58	0.92
2	73	2380	179	111	67	67	48	6.8	0.80	1.9	47	3.0
3	65	2190	174	107	71	70	49	5.9	0.74	3.5	40	5.9
4	59	2880	173	103	75	70	44	5.7	1.8	8.9	34	4.7
5	53	4550	172	100	75	70	39	5.4	1.4	14	28	11
6	49	5030	167	100	72	70	35	4.5	1.4	36	24	44
7	45	4680	160	100	70	68	30	4.0	1.4	128	20	66
8	43	4120	154	99	70	65	25	3.6	1.1	115	17	180
9	45	3540	160	98	71	63	21	3.1	1.0	110	14	141
10	39	3030	164	95	74	62	20	2.7	4.6	86	12	78
11	37	2640	155	93	75	62	23	2.5	20	84	9.8	41
12	35	2250	154	94	72	63	23	2.3	8.0	158	7.8	e27
13	32	1970	151	94	70	63	29	2.1	3.3	397	6.6	e79
14	31	1500	149	93	71	63	26	1.8	37	538	5.8	e178
15	33	541	146	95	76	63	21	1.6	73	628	5.3	e321
16	57	353	142	91	77	65	20	1.4	40	775	4.8	505
17	247	314	137	85	75	68	22	1.2	168	816	4.1	499
18	391	288	134	81	74	68	25	1.1	235	893	3.3	261
19	474	266	133	82	76	65	26	0.92	241	984	2.7	225
20	522	252	132	86	85	61	25	1.0	151	1070	2.2	172
21	491	238	131	89	90	57	23	1.2	67	1060	1.9	247
22	365	227	130	89	105	56	20	1.2	39	616	1.5	180
23	318	218	126	87	194	56	18	1.1	23	501	1.3	220
24	435	212	132	82	120	56	16	0.98	14	546	1.3	436
25	891	207	123	78	85	56	15	0.81	9.2	540	1.1	555
26	1090	201	115	76	73	58	14	0.73	6.4	419	0.77	390
27	1410	196	112	74	68	60	12	1.4	4.9	252	0.59	147
28	2220	191	108	73	67	58	11	2.1	3.9	160	3.7	90
29	3190	187	105	72	---	67	9.0	1.1	3.1	116	3.7	76
30	3320	185	109	71	---	75	8.1	0.91	2.5	89	2.1	71
31	3120	---	111	69	---	56	---	0.93	---	71	1.2	---
TOTAL	19265	47586	4420	2780	2264	1968	742.1	77.68	1164.44	11218.5	365.56	5254.52
MEAN	621	1586	143	89.7	80.9	63.5	24.7	2.51	38.8	362	11.8	175
MAX	3320	5030	182	113	194	75	49	7.6	241	1070	58	555
MIN	31	185	105	69	66	56	8.1	0.73	0.74	1.9	0.59	0.92
AC-FT	38210	94390	8770	5510	4490	3900	1470	154	2310	22250	725	10420

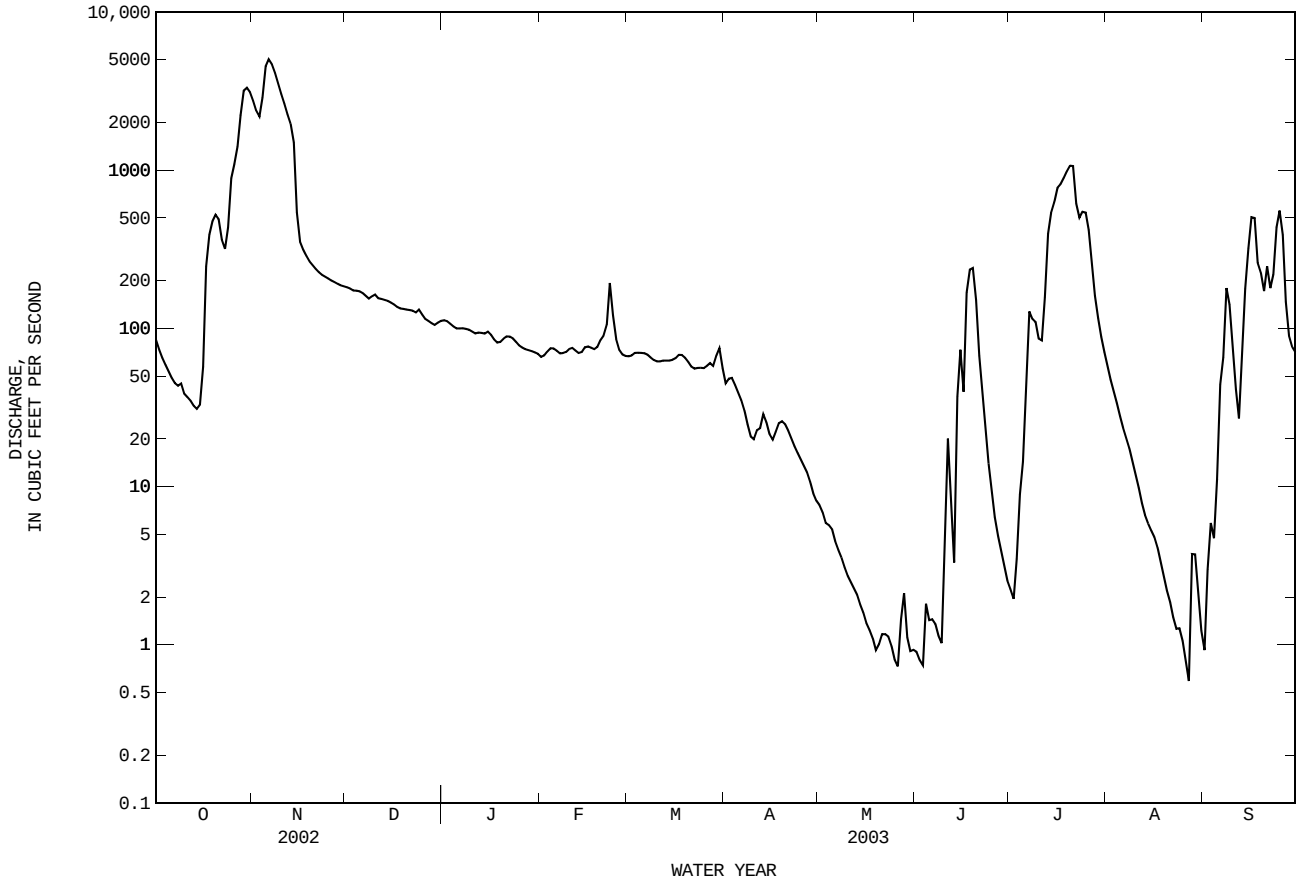
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003z, BY WATER YEAR (WY)

MEAN	778	324	105	116	144	114	154	483	650	586	323	828
MAX	11250	3509	1275	1912	4793	2104	2028	4122	5404	10360	7197	10150
(WY)	1972	1977	1977	1958	1958	1949	1949	1957	1987	2002	1971	1967
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1953	1953	1951	1951	1964	1954	1955	1971	1998	1953	1951	1952

08194500 Nueces River near Tilden, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003z	
ANNUAL TOTAL	620894.07		97105.80			
ANNUAL MEAN	1701		266		384	
HIGHEST ANNUAL MEAN					1736	1971
LOWEST ANNUAL MEAN					14.0	1989
HIGHEST DAILY MEAN	30800	Jul 19	5030	Nov 6	70000	Sep 24 1967
LOWEST DAILY MEAN	0.00	Apr 20	0.59	Aug 27	0.00	Oct 15 1948
ANNUAL SEVEN-DAY MINIMUM	0.00	Apr 20	1.0	May 20	0.00	Jan 6 1949
MAXIMUM PEAK FLOW			5110	Nov 6	76500	Sep 24 1967
MAXIMUM PEAK STAGE			18.27	Nov 6	26.57	Sep 24 1967
ANNUAL RUNOFF (AC-FT)	1232000		192600		278400	
10 PERCENT EXCEEDS	3980		503		719	
50 PERCENT EXCEEDS	88		70		8.0	
90 PERCENT EXCEEDS	0.00		2.0		0.00	

e Estimated
z Period of regulated streamflow.



08194500 Nueces River near Tilden, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Dec. 1997 to current year.
BIOCHEMICAL DATA: Dec. 1997 current year.
PESTICIDE DATA: Dec. 1997 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)
DEC													
20...	1250	131	645	7.5	14.0	9.5	92	250	65	75.4	13.7	38.4	1
APR													
03...	1240	49	857	7.8	19.5	9.1	100	260	99	75.5	16.2	68.1	2
JUN													
18...	1125	234	1730	7.8	28.0	5.9	76	370	280	128	11.3	191	4
SEP													
09...	1050	142	870	7.8	26.5	6.6	83	190	84	65.0	5.84	88.5	3

Date	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)
DEC													
20...	25	2.19	2	216	180	30.9	69.7	<.17	8.77	349	--	<.008	.27
APR													
03...	36	2.64	2	188	157	55.9	127	.16	2.24	443	--	<.008	.14
JUN													
18...	52	9.09	<1	107	89	55.7	438	<.2	12.9	902	.49	.031	.53
SEP													
09...	50	6.58	<1	125	104	31.8	178	.2	13.2	452	.21	.011	.22

Date	Ammonia water, fltrd, mg/L as N (00608)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)
DEC													
20...	<.04	--	.15	E.03	.02	.067	<2	<.30	<2	95	<.06	<.04	<.8
APR													
03...	<.04	--	.23	E.02	E.01	--	2	E.17	E2	94	<.06	<.04	<.8
JUN													
18...	.08	.68	.76	.08	E.03n	--	M	E.20	3	177	<.06	<.04	<.8
SEP													
09...	.05	.58	.64	.12	.10	.310	E1n	E.25n	7	106	<.06	E.02n	<.8

Date	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Mercury water, fltrd, ug/L (71890)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)
DEC													
20...	.20	.8	<10	<.08	8	3.4	<.02	.9	2.35	<3	<.20	432	E6
APR													
03...	.41	1.2	<10	E.06	14	13.5	<.02	1.1	1.23	<3	<.20	532	E6
JUN													
18...	.52	2.4	E7	<.08	38	4.7	<.02	2.0	3.17	<3	<.20	1080	11
SEP													
09...	.31	2.5	E6n	<.08	19	1.0	<.02	1.8	1.75	3	<.20	516	14

08194500 Nueces River near Tilden, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbofuran, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-dinitrophenol, wat flt 0.7u GF ug/L (49299)	Acetochlor, water, fltrd, ug/L (49260)	Acifluorfen, water, fltrd 0.7u GF ug/L (49315)	Alachlor, water, fltrd, ug/L (46342)	Aldicarb, water, fltrd 0.7u GF ug/L (49312)
DEC													
20...	1	1.02	<.07	<.16	<.25	<.006	<.03	<.11	<.25	<.006	<.05	<.004	<.21
APR													
03...	1	1.05	<.07	<.16	<.25	<.006	<.03	<.15	<.25	<.006	<.05	<.004	<.21
JUN													
18...	1	.72	<.07	<.16	<.25	<.006	<.03b	<.25	<.25	<.006	<.05	<.004	<.21
SEP													
09...	2	.69	<.07	<.16	<.25	<.006	<.03b	<.11	<.25	E.005n	<.05	<.004	<.21

Date	Aldicarb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldicarb sulfoxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benflurralin, water, fltrd 0.7u GF ug/L (82673)	Bentazon, water, fltrd 0.7u GF ug/L (38711)	Bromacil, water, fltrd, ug/L (04029)	Bromoxynil, water, fltrd 0.7u GF ug/L (49311)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (49310)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (49309)
DEC													
20...	<.20	<.27	<.005	<.007	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.15
APR													
03...	<.20	<.27	<.005	.009	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.15
JUN													
18...	<.20	<.27	<.005	.017	<.050	<.010	<.05	<.16	<.07	<.002	<.080	E.008	<.15
SEP													
09...	<.20	<.27	<.005	E.004t	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.18

Date	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorothalonil, water, fltrd 0.7u GF ug/L (49306)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Clopyralid, water, fltrd 0.7u GF ug/L (49305)	Cyanazine, water, fltrd, ug/L (04041)	Dacthal monoacid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlobenil, water, fltrd 0.7u GF ug/L (49303)	Dichlorprop, water, fltrd 0.7u GF ug/L (49302)
DEC													
20...	<.020	<.25	<.005	<.006	<.42	<.018	<.07	<.003	<.006	<.005	<.11	<.09	<.12
APR													
03...	<.020	<.25	<.005	<.006	<.89	<.018	<.07	<.003	E.003	<.005	<.11	<.09	<.12
JUN													
18...	<.020	<.25	<.005	<.006	<.42	<.018	<.10	<.003	E.007	<.005	<.11	<.09	<.12
SEP													
09...	<.020	<.25	--m	<.006	<.42	<.018	<.07	<.003	<.006	--m	<.11	<.12	<.12

Date	Dieldrin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluometuron water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)
DEC													
20...	<.005	<.09	<.02	<.12	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
APR													
03...	<.005	<.09	<.02	<.12	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
JUN													
18...	<.005	<.09	<.02	<.43	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
SEP													
09...	<.005	<.09	--m	<.12	<.002	<.009	--m	<.07	<.06	--m	<.004	<.06	<.035

Date	Malathion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methiocarb, water, fltrd 0.7u GF ug/L (38501)	Methomyl, water, fltrd 0.7u GF ug/L (49296)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflurazon, water, fltrd 0.7u GF ug/L (49293)	Oryzalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)
DEC													
20...	<.027	<.20	<.26	<.07	<.22	<.013	<.006	<.002	<.007	<.07	<.04	<.28	<.41
APR													
03...	<.027	<.20	<.26	<.07	<.22	<.013	<.006	<.002	<.007	<.07	<.04	<.28	<.16
JUN													
18...	<.027	<.20	<.26	<.12	<.22	<.013	<.006	<.002	<.007	<.07	<.05	<.28	<.16
SEP													
09...	--m	<.20	<.26	<.07	<.22	<.013	<.006	<.002	<.007	<.07	<.04	<.29	<.16

08194500 Nueces River near Tilden, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate fltrd 0.7u GF ug/L (82664)	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)
DEC													
20...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
APR													
03...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
JUN													
18...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.57	<.12
SEP													
09...	<.003	--m	--m	<.004	<.022	--m	<.09	<.01	<.010	<.011	<.07	<.22	<.12

Date	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)
DEC													
20...	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.12	<.009	<.007	<.005	<.005	<.009
APR													
03...	<.004	.009	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
JUN													
18...	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.08	<.009	<.007	<.005	<.005	<.009
SEP													
09...	<.004	<.005	<.02	<.034	--m	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009

Date	Desulfinyl fipronil, water, fltrd, ug/L (62170)
DEC	
20...	<.004
APR	
03...	<.004
JUN	
18...	<.004
SEP	
09...	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
b -- Value was extrapolated below
n -- Below the NDV
t -- Below the long-term MDL

Null value qualifier codes used in this report:
m -- Results sent by separate memo

THIS PAGE IS INTENTIONALLY BLANK

08195000 Frio River at Concan, TX

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, 15.0 mi upstream from Dry Frio River, and 222.8 mi upstream from mouth.

DRAINAGE AREA.--389 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1923 to Sept. 1929, Oct. 1930 to current year.

REVISED RECORDS.--WSP 1342: Drainage area. WSP 1512: 1926, 1931-32, 1934(M), 1935-36. WSP 1712: 1958. WSP 1923: 1954(M), 1957(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,203.71 ft above NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known regulation. Many small diversions for irrigation above station. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, that of July 1, 1932, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	327	193	145	111	98	84	67	50	80	65	99
2	54	325	190	141	111	98	86	67	49	78	63	88
3	54	326	190	140	111	98	86	67	48	79	64	77
4	52	322	188	138	108	98	84	67	51	80	65	79
5	52	312	185	133	108	98	83	66	74	81	65	95
6	50	299	180	133	107	96	83	65	105	e89	63	83
7	49	291	180	133	102	93	81	65	95	95	63	77
8	53	284	180	132	104	92	81	63	81	92	60	73
9	443	278	183	129	105	89	79	62	71	90	59	70
10	543	277	188	126	105	89	78	60	84	89	60	68
11	391	271	189	126	105	89	78	60	96	86	60	67
12	318	261	187	128	105	89	78	60	102	83	62	76
13	291	256	180	129	105	89	78	60	98	80	63	84
14	286	254	176	129	105	89	78	60	93	77	63	82
15	264	249	172	126	104	87	78	60	e204	75	63	89
16	249	244	171	123	100	86	78	59	e218	94	63	82
17	238	239	167	122	98	85	75	57	e144	99	62	80
18	229	233	167	119	98	83	75	56	e102	92	60	82
19	228	230	162	118	98	83	75	55	92	86	58	83
20	228	227	158	119	99	83	73	53	e93	82	58	83
21	222	220	158	118	99	81	72	52	e89	79	56	86
22	218	218	158	118	102	83	72	52	e86	76	56	86
23	237	214	158	115	102	92	72	53	e86	75	54	84
24	290	213	156	115	100	96	72	53	86	74	54	83
25	556	210	152	115	98	95	72	52	85	72	57	81
26	498	206	150	115	98	92	70	53	83	72	60	83
27	430	203	150	115	98	89	68	57	94	70	60	97
28	396	199	150	115	98	87	67	60	98	70	62	94
29	371	197	150	115	---	83	67	57	88	68	60	88
30	352	194	150	115	---	83	67	54	83	67	58	84
31	337	---	147	111	---	83	---	51	---	66	62	---
TOTAL	8029	7579	5265	3856	2884	2776	2290	1823	2828	2496	1878	2483
MEAN	259	253	170	124	103	89.5	76.3	58.8	94.3	80.5	60.6	82.8
MAX	556	327	193	145	111	98	86	67	218	99	65	99
MIN	49	194	147	111	98	81	67	51	48	66	54	67
AC-FT	15930	15030	10440	7650	5720	5510	4540	3620	5610	4950	3730	4930

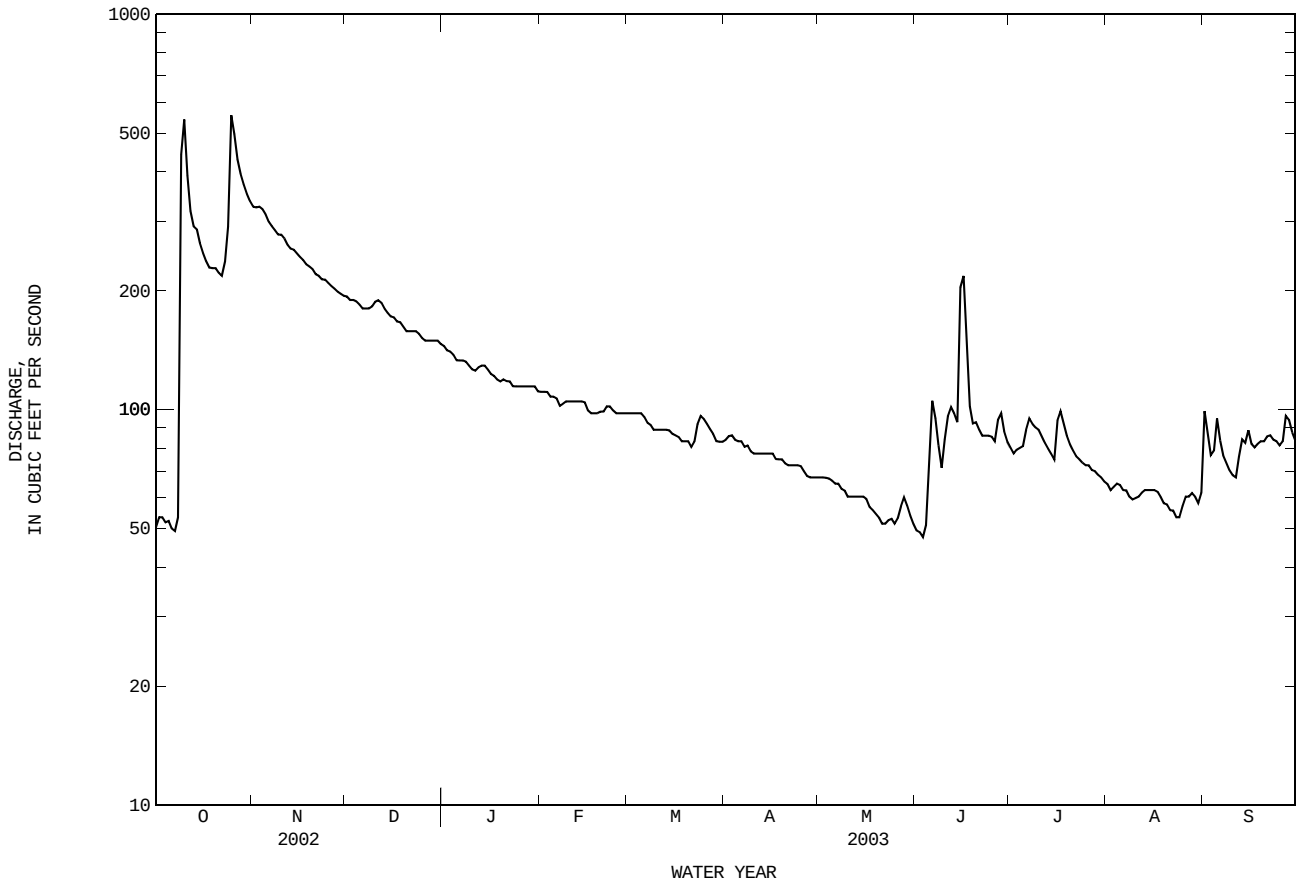
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2003h, BY WATER YEAR (WY)

MEAN	149	114	103	91.1	96.3	96.8	106	132	182	186	108	137
MAX	648	565	767	525	613	762	859	1041	2468	2823	1050	1333
(WY)	1970	2001	1992	1992	1992	1992	1981	1935	1935	1932	1971	1936
MIN	0.000	0.000	0.000	3.01	8.25	11.8	8.52	6.48	1.08	1.25	0.019	0.000
(WY)	1957	1957	1957	1957	1957	1956	1956	1956	1956	1953	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1924 - 2003h	
ANNUAL TOTAL	95163		44187			
ANNUAL MEAN	261		121		125	
HIGHEST ANNUAL MEAN					434	1992
LOWEST ANNUAL MEAN					8.80	1956
HIGHEST DAILY MEAN	24700	Jul 2	556	Oct 25	52000	Jul 1 1932
LOWEST DAILY MEAN	23	Jun 26	48	Jun 3	0.00	Aug 5 1956
ANNUAL SEVEN-DAY MINIMUM	24	Jun 23	51	May 29	0.00	Aug 5 1956
MAXIMUM PEAK FLOW			687	Oct 9	i162000	Jul 1 1932
MAXIMUM PEAK STAGE			4.90	Oct 9	a34.44	Jul 1 1932
ANNUAL RUNOFF (AC-FT)	188800		87640		90740	
10 PERCENT EXCEEDS	325		231		199	
50 PERCENT EXCEEDS	61		89		68	
90 PERCENT EXCEEDS	34		60		19	

e Estimated
h See PERIOD OF RECORD paragraph.
i From indirect measurement of peak flow.
a From floodmark.

08195000 Frio River at Concan, TX--Continued



08195000 Frio River at Concan, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: June 1952, Dec. 1964 to July 1965, Aug. 1968 to Sept. 1993, Apr. 1996 to Apr. 1998, Nov. 2000 to current year.
BIOCHEMICAL DATA: Aug. 1968 to Sept. 1993, Apr. 1996 to Apr. 1998, Nov. 2000 to current year.
PESTICIDE DATA: Aug. 1968 to Sept. 1993, Nov. 2000 to current year.
SEDIMENT DATA: Apr. 1996 to Apr. 1998, Nov. 2000 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper- ature, water, deg C (00010)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	Alka- linity, wat flt fxd end field, mg/L as CaCO3 (39036)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitro- gen, water, unfltrd mg/L (00600)
OCT													
15...	1000	420	8.2	20.0	7.1	82	190	11.6	8.32	<.008	.75	<.04	--
NOV													
14...	1130	437	8.0	17.5	8.9	97	210	13.4	8.51	<.008	.77	<.04	--
DEC													
18...	1000	432	7.8	15.5	9.0	95	200	11.0	7.44	<.008	.66	<.04	--
JAN													
14...	1040	430	7.9	12.5	9.5	92	200	13.6	9.14	<.008	.71	<.04	--
FEB													
11...	1300	421	8.2	15.0	9.2	95	190	13.9	8.90	<.008	.64	<.04	--
MAY													
19...	1100	395	7.8	27.0	7.9	105	170	13.5	10.7	<.008	.26	<.04	.42
JUN													
18...	1110	353	7.7	26.0	8.2	--	170	13.1	10.3	<.008	.60	<.04	.75
AUG													
12...	1100	398	7.7	27.5	--e	--	170	13.1	10.8	<.008	.32	<.04	.45
14...	0840	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
09...	1020	398	7.8	24.5	7.4	93	180	12.4	10.9	<.008	.35	<.04	--

Date	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phos- phorus, water, unfltrd mg/L (00665)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Sus- pended sedi- ment concen- tration mg/L (80154)	Chloro- phyll a peri- phyton, chromo- fluoro, mg/m2 (70957)
OCT					
15...	E.08	<.004	<.02	4	--
NOV					
14...	E.09	<.004	<.02	38	--
DEC					
18...	E.07	<.004	<.02	13	--
JAN					
14...	E.08	E.003	<.02	1	--
FEB					
11...	E.07	<.004	<.02	.0	--
MAY					
19...	.16	E.002	<.02	6	--
JUN					
18...	.14	E.003	<.02	8	--
AUG					
12...	.14	E.003n	<.02	9	--
14...	--	--	--	--	304d
SEP					
09...	E.08n	<.004	<.02	5	--

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
d -- Diluted sample: method hi range exceeded
n -- Below the NDV

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

THIS PAGE IS INTENTIONALLY BLANK

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^2.

PERIOD OF RECORD.--Sept. 1952 to current year.
Water-quality records.--Chemical data: Jan. 1966 to Sept. 1993. Biochemical data: Jan. 1966 to Sept. 1993. Pesticide data: Jan. 1974 to Sept. 1993. Sediment data: Jan. 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 NGVD of 1929, from Texas Department of Transportation datum. Satellite telemeter at station.

REMARKS.--Records poor. No known regulation. There are several small diversions above station. No flow at times.

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^3/s, determined at site 2.6 mi upstream), and flood of July 1, 1932, reached a stage of 23 ft (discharge, 30,700 ft^3/s, determined at site 2.0 mi upstream), from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.0	111	48	e36	e25	e18	e15	e10	e9.0	22	18	29
2	e8.8	108	48	e35	e25	e18	e15	10	e8.7	20	16	28
3	e8.5	108	48	e35	e24	e18	e14	e10	e8.5	23	16	28
4	e8.3	105	48	e34	e24	e18	e14	e10	e8.3	25	15	e28
5	e8.0	100	48	e34	e24	e18	e14	e10	e9.4	31	15	e99
6	e8.4	93	46	e33	e23	e18	e14	e9.9	e9.0	33	13	76
7	e10	89	45	e33	e23	e18	e14	e9.8	e8.5	34	12	57
8	e75	84	45	e32	e23	e18	e13	e9.8	e8.2	31	12	47
9	e255	81	45	e32	e23	e18	e13	e9.8	e8.0	27	11	41
10	e205	79	45	e32	e22	e18	e13	e9.7	30	26	10	38
11	e169	75	45	e32	e22	e17	e13	e9.7	68	23	10	37
12	e126	72	45	e32	e22	e17	e13	e9.6	39	22	11	62
13	e104	68	43	e32	e22	e17	e13	e9.6	31	21	13	100
14	e108	66	43	e32	e22	17	e12	e9.6	27	21	14	82
15	e104	65	43	e31	e22	e17	e12	e9.5	234	21	15	86
16	e102	63	43	e30	e22	e17	e12	e9.5	128	37	16	76
17	e100	61	42	e29	e22	e17	e12	e9.4	76	37	16	69
18	e100	59	42	e29	e22	e17	e12	e9.4	60	33	15	69
19	e100	57	42	e28	e22	e17	e12	e9.3	53	29	14	94
20	e100	57	e42	e28	e22	e17	e12	e9.3	46	26	13	75
21	e104	55	e42	e28	e22	e17	e11	e9.2	42	24	12	71
22	e115	55	e41	e27	e21	e17	e11	e9.2	38	22	11	65
23	e135	53	e40	e27	e21	e18	e11	e9.2	35	21	11	59
24	e208	53	e40	e27	e21	e18	e11	e9.2	32	22	10	54
25	e363	52	e39	e27	e20	e19	e11	e9.2	30	22	30	50
26	e236	51	e39	e26	e20	e18	e11	e9.1	28	21	47	83
27	191	50	e38	e26	e19	e18	e11	e9.2	27	20	35	357
28	166	50	e38	e26	e19	e17	e11	e9.3	30	19	28	197
29	149	50	e38	e26	---	e17	e10	e9.7	25	19	23	142
30	133	48	e37	e26	---	e16	e10	e9.9	23	19	19	116
31	119	---	e37	e25	---	e16	---	e9.6	---	19	25	---
TOTAL	3628.0	2118	1325	930	619	541	370	296.7	1179.6	770	526	2415
MEAN	117	70.6	42.7	30.0	22.1	17.5	12.3	9.57	39.3	24.8	17.0	80.5
MAX	363	111	48	36	25	19	15	10	234	37	47	357
MIN	8.0	48	37	25	19	16	10	9.1	8.0	19	10	28
AC-FT	7200	4200	2630	1840	1230	1070	734	589	2340	1530	1040	4790

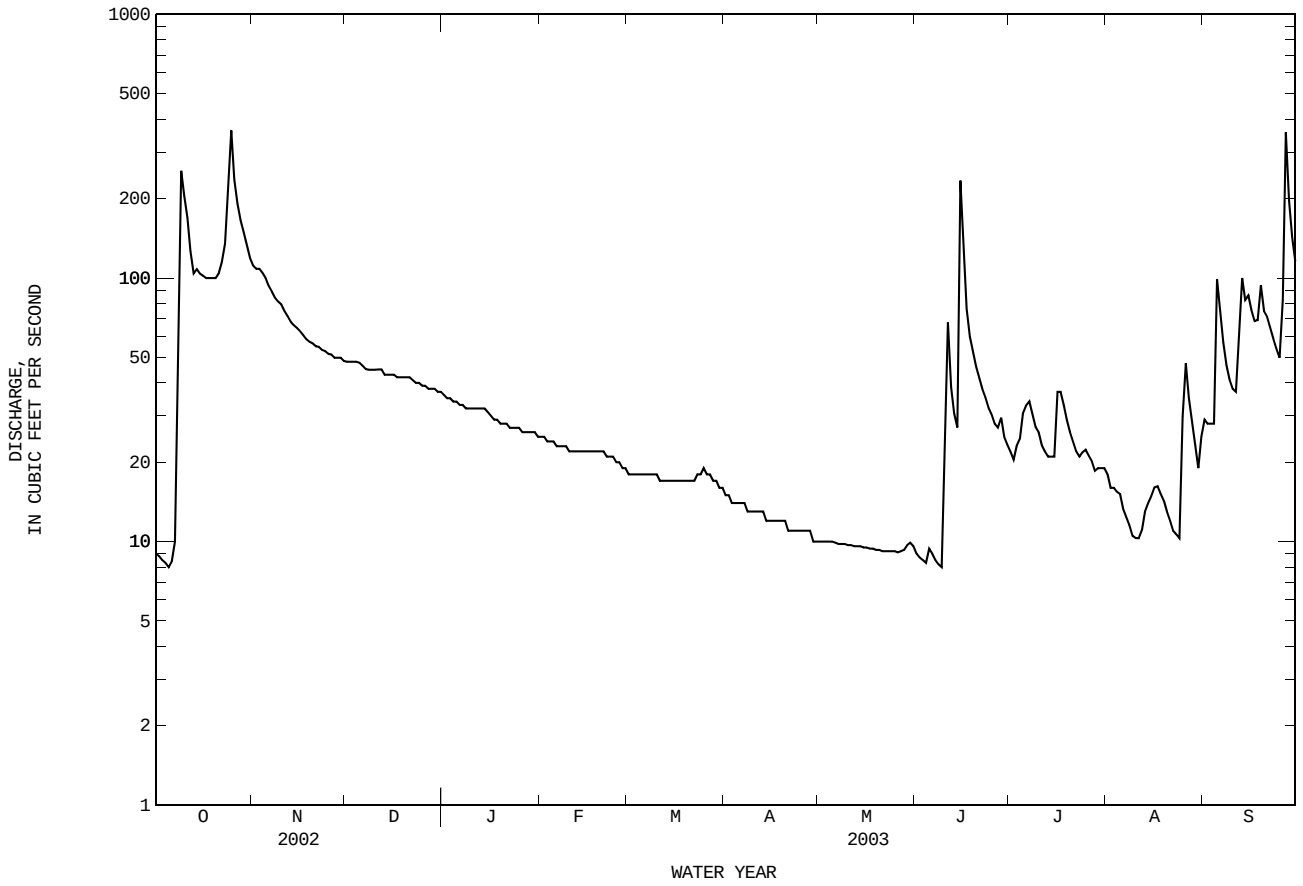
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2003, BY WATER YEAR (WY)

MEAN	57.2	34.4	27.4	22.0	23.4	26.9	28.0	36.6	60.5	44.8	36.0	37.2
MAX	258	134	185	120	131	208	257	338	483	514	365	277
(WY)	1970	1968	1992	1992	1992	1992	1981	1987	1987	2002	1966	1958
MIN	0.000	0.000	0.055	0.51	0.87	2.09	1.50	0.86	0.19	0.077	0.000	0.000
(WY)	1957	1957	1957	1957	1957	2002	1956	1956	1953	1953	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1952 - 2003	
ANNUAL TOTAL	24743.7		14718.3			
ANNUAL MEAN	67.8		40.3		36.3	
HIGHEST ANNUAL MEAN					121	1987
LOWEST ANNUAL MEAN					2.99	1956
HIGHEST DAILY MEAN	12200	Jul 2	363	Oct 25	12200	Jul 2 2002
LOWEST DAILY MEAN	1.6	Mar 27	8.0	Oct 5	0.00	Jul 10 1953
ANNUAL SEVEN-DAY MINIMUM	1.8	Mar 23	8.6	Jun 3	0.00	Jul 30 1953
MAXIMUM PEAK FLOW			1180	Jun 15	i123000	Aug 13 1966
MAXIMUM PEAK STAGE			5.01	Jun 15	a27.60	Aug 13 1966
ANNUAL RUNOFF (AC-FT)	49080		29190		26310	
10 PERCENT EXCEEDS	100		96		64	
50 PERCENT EXCEEDS	7.8		25		14	
90 PERCENT EXCEEDS	2.2		9.8		2.3	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08196000 Dry Frio River near Reagan Wells, TX--Continued



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^2.

PERIOD OF RECORD.--Oct. 1953 to current year. Sum of records published as Frio River at Knippa (discontinued station 08195700) and Dry Frio River at Knippa (discontinued station 08196500) for period Sept. 1952 to Sept. 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 NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses the basin between Frio River at Concan (station 08195000) and this station. Most of the low flow enters this formation. Many diversions for irrigation above station. No flow at times.

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, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	2.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	1.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00
5	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00
6	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00
7	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	110	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	28	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	3.0	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.04	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00
16	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00
17	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	5.5	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	151	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	88	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	12	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	6.3	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	3.0	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	465.84	7.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	15.0	0.24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MAX	151	2.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	924	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

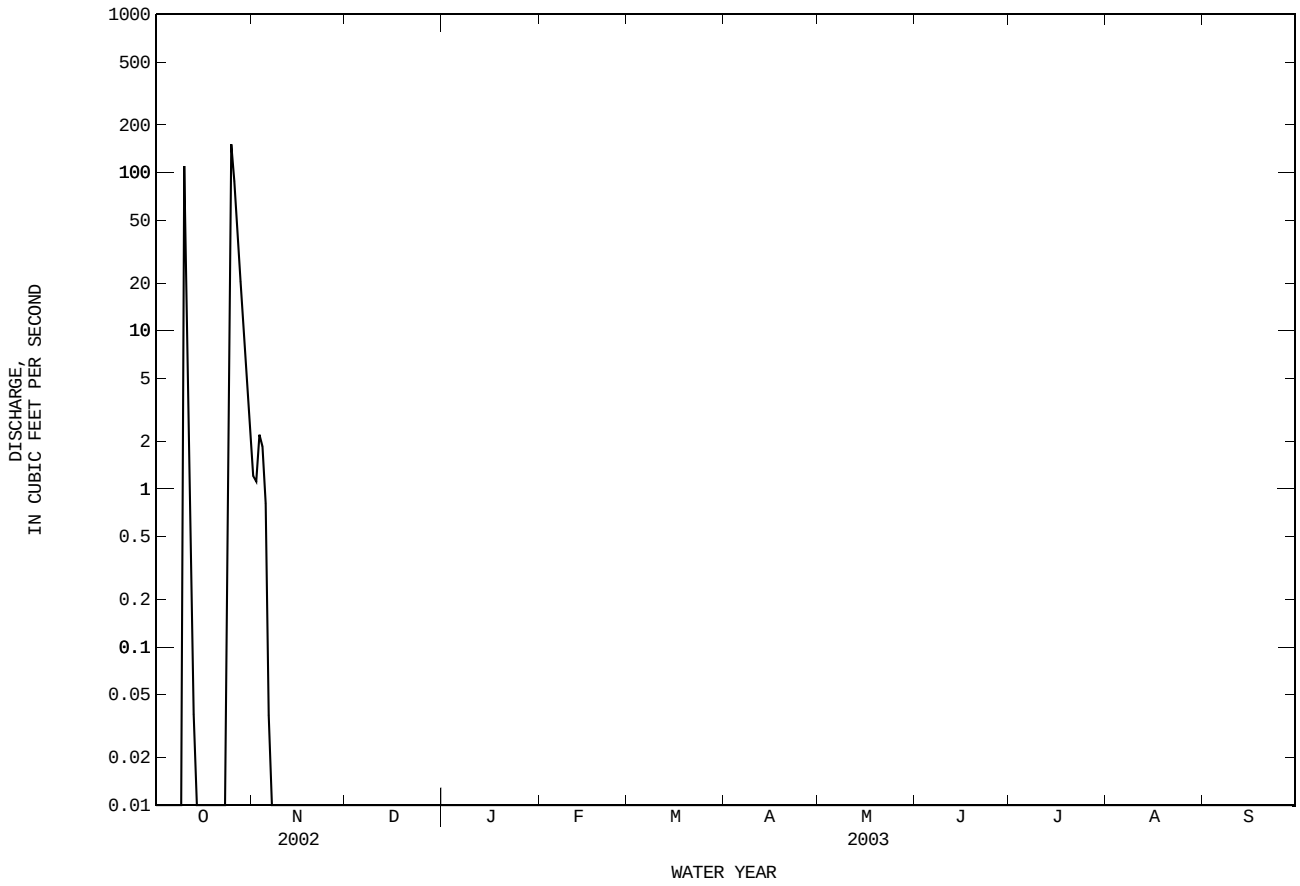
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2003, BY WATER YEAR (WY)

MEAN	77.6	18.1	26.1	10.0	6.38	10.4	24.9	34.8	112	65.2	64.6	43.8
MAX	842	471	710	241	300	455	702	865	1584	1621	1224	699
(WY)	1997	2002	1985	1992	1992	1992	1981	1987	1997	2002	1998	1958
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1954	1954	1954	1954	1954	1954	1954	1955	1954	1954	1954	1954

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1954 - 2003	
ANNUAL TOTAL	50724.92		473.09			
ANNUAL MEAN	139		1.30		41.3	
HIGHEST ANNUAL MEAN					221	1987
LOWEST ANNUAL MEAN					0.000	1962
HIGHEST DAILY MEAN	19900	Jul 2	151	Oct 25	32300	Jun 22 1997
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1953
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1953
MAXIMUM PEAK FLOW			201	Oct 25	i189000	Jul 2 2002
MAXIMUM PEAK STAGE			3.79	Oct 25	a34.82	Jul 2 2002
ANNUAL RUNOFF (AC-FT)	100600		938		29930	
10 PERCENT EXCEEDS	2.7		0.00		0.12	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08197500 Frio River below Dry Frio River near Uvalde, TX--Continued



08198000 Sabinal River near Sabinal, TX

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.

DRAINAGE AREA.--206 mi^2.

PERIOD OF RECORD.--Oct. 1942 to current year.
Water-quality records.--Chemical data: Nov. 1964 to July 1965, Feb. 1970 to Sept. 1993, Apr. 1996 to Apr. 1998. Biochemical data: Feb. 1970 to Sept. 1993, Apr. 1996 to Apr. 1998. Pesticide data: Aug. 1971 to Sept. 1993. Sediment data: Nov. 1965, Apr. 1996 to Apr. 1998.

REVISED RECORDS.--WSP 1312: 1943(M), 1944(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 1,131.20 ft above NGVD of 1929. Prior to Apr. 9, 1971, at site 0.3 mi downstream at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation. There are several small diversions above station for irrigation. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--The 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. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	180	129	90	62	49	43	32	19	30	37	30
2	76	184	127	86	62	48	43	31	18	34	37	29
3	75	184	127	86	61	47	42	31	18	38	36	28
4	74	182	127	86	59	46	42	31	23	41	36	36
5	73	177	126	85	60	45	41	30	285	58	34	34
6	72	171	124	84	61	46	40	29	69	74	34	45
7	72	169	123	82	60	45	39	28	41	63	33	41
8	82	166	122	81	62	44	46	27	34	58	31	36
9	191	164	137	79	62	44	39	27	31	56	31	33
10	259	163	132	78	60	41	39	27	209	53	31	30
11	152	159	126	78	57	41	39	27	133	51	32	29
12	136	157	122	88	56	42	38	26	84	48	35	41
13	131	155	116	83	55	42	37	27	70	47	34	35
14	132	154	114	80	55	42	37	26	63	45	34	32
15	126	152	113	77	56	41	38	25	63	46	33	32
16	120	151	111	74	54	41	38	24	62	70	32	34
17	116	150	110	74	53	41	37	22	55	60	32	32
18	115	148	108	73	51	41	37	22	50	55	30	32
19	121	146	104	73	51	41	37	21	47	51	30	30
20	120	145	102	72	57	41	36	21	45	49	28	30
21	114	142	102	72	57	41	35	21	43	48	28	34
22	123	139	101	68	56	49	36	22	41	47	27	31
23	176	139	102	67	55	55	35	22	40	46	27	29
24	262	138	101	67	53	50	35	21	38	46	27	27
25	308	136	99	69	52	47	33	20	37	45	30	26
26	229	135	97	68	52	48	32	21	36	43	27	28
27	213	134	95	67	48	45	32	23	35	42	26	27
28	206	132	93	66	49	43	31	23	36	42	25	26
29	198	132	93	63	---	42	32	21	34	41	24	25
30	190	131	93	66	---	41	32	20	33	40	23	24
31	184	---	91	63	---	43	---	19	---	38	33	---
TOTAL	4524	4615	3467	2345	1576	1372	1121	767	1792	1505	957	946
MEAN	146	154	112	75.6	56.3	44.3	37.4	24.7	59.7	48.5	30.9	31.5
MAX	308	184	137	90	62	55	46	32	285	74	37	45
MIN	72	131	91	63	48	41	31	19	18	30	23	24
AC-FT	8970	9150	6880	4650	3130	2720	2220	1520	3550	2990	1900	1880
CFSM	0.71	0.75	0.54	0.37	0.27	0.21	0.18	0.12	0.29	0.24	0.15	0.15
IN.	0.82	0.83	0.63	0.42	0.28	0.25	0.20	0.14	0.32	0.27	0.17	0.17

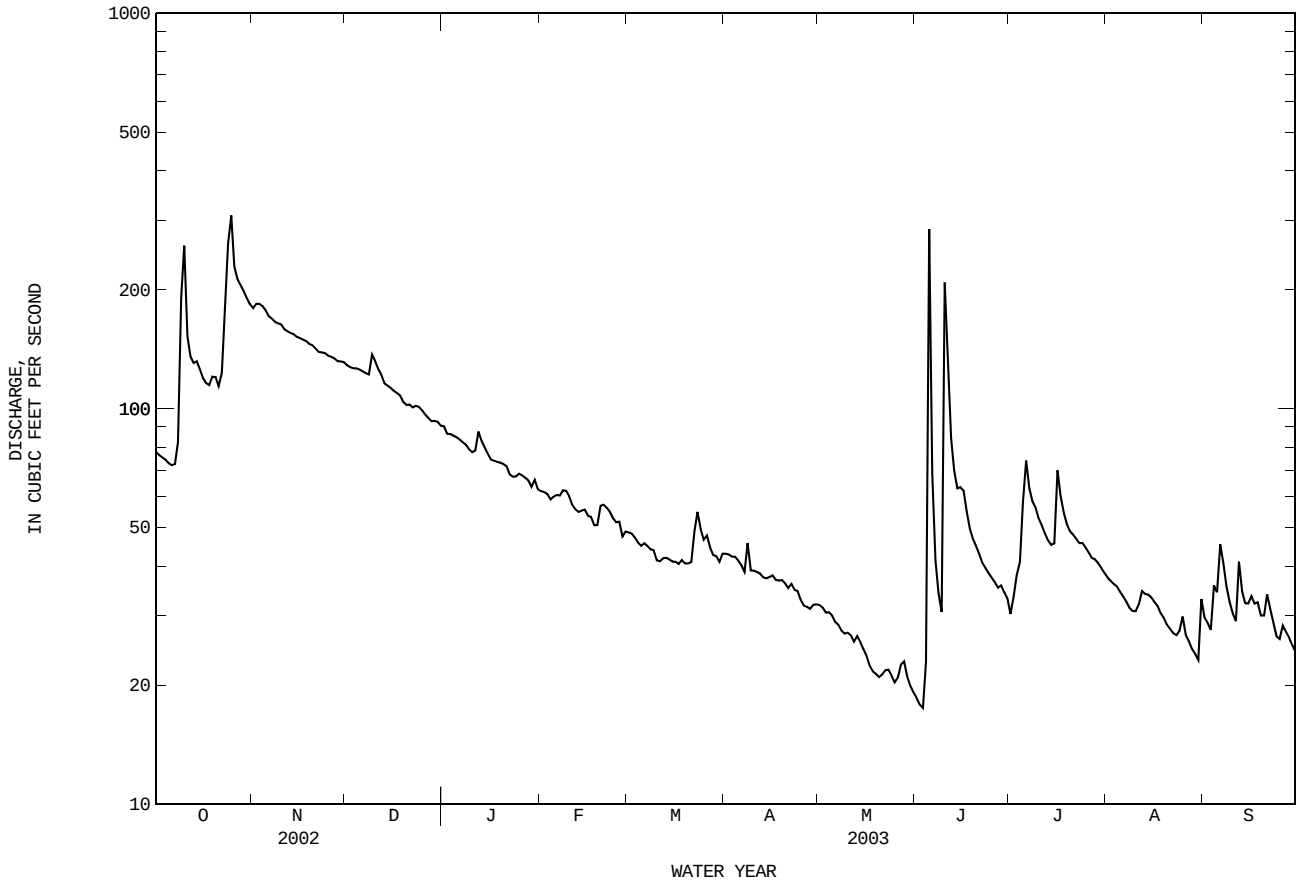
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	68.0	58.8	52.1	47.7	52.8	58.6	57.2	67.3	120	101	55.9	50.0
MAX	318	388	612	408	584	624	392	389	1527	1619	669	306
(WY)	1972	2001	1992	1992	1992	1992	1992	1987	1987	2002	1971	1980
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1952	1952	1952	1952	1952	1952	1954	1953	1953	1953	1948	1951

08198000 Sabinal River near Sabinal, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	74172		24987			
ANNUAL MEAN	203		68.5		65.8	
HIGHEST ANNUAL MEAN					340	1992
LOWEST ANNUAL MEAN					0.82	1955
HIGHEST DAILY MEAN	17100	Jul 5	308	Oct 25	17100	Jul 5 2002
LOWEST DAILY MEAN	19	Jun 26	18	Jun 2	0.00	Aug 10 1946
ANNUAL SEVEN-DAY MINIMUM	20	Jun 21	20	May 28	0.00	Aug 10 1946
MAXIMUM PEAK FLOW			2340	Jun 5	i108000	Jul 5 2002
MAXIMUM PEAK STAGE			7.64	Jun 5	a33.74	Jul 5 2002
ANNUAL RUNOFF (AC-FT)	147100		49560		47690	
ANNUAL RUNOFF (CFSM)	0.99		0.33		0.32	
ANNUAL RUNOFF (INCHES)	13.39		4.51		4.34	
10 PERCENT EXCEEDS	183		139		124	
50 PERCENT EXCEEDS	57		47		27	
90 PERCENT EXCEEDS	27		27		0.00	

i From indirect measurement of peak flow.
a From floodmark.



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 Ranchero Creek, and 223 mi upstream from mouth.

DRAINAGE AREA.--241 mi^2.

PERIOD OF RECORD.--Sept. 1952 to current year.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.17 ft above NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation. 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). No flow at times.

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^3/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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	107	25	7.3	4.7	3.6	2.9	2.0	1.4	2.2	3.2	1.8
2	3.6	111	22	6.8	4.6	3.5	2.9	1.9	1.4	2.2	3.1	1.7
3	3.5	117	21	6.5	4.5	3.4	2.9	1.9	1.2	2.2	2.9	1.8
4	3.4	111	21	6.1	4.5	3.4	2.8	1.9	1.3	2.4	2.8	1.9
5	3.4	105	19	6.0	4.5	3.4	2.8	1.8	1.7	17	2.8	1.8
6	3.3	92	17	6.0	4.4	3.3	2.8	1.9	1.3	6.7	2.7	1.7
7	3.3	84	17	6.0	4.3	3.2	2.9	1.9	1.3	5.3	2.6	1.6
8	3.4	80	17	6.0	4.3	3.1	2.9	1.8	1.3	5.2	2.5	1.6
9	5.2	77	19	5.9	4.3	3.1	2.9	1.6	1.3	5.2	2.5	1.5
10	110	74	24	5.8	4.3	3.1	2.9	1.5	2.1	5.0	2.6	1.4
11	83	68	25	5.7	4.2	3.1	2.9	1.5	1.6	4.8	2.5	1.3
12	45	60	21	6.1	4.1	2.9	2.9	1.4	1.6	4.7	2.6	4.1
13	34	56	18	5.7	4.0	2.9	2.9	1.5	1.9	4.5	2.5	2.0
14	26	55	16	5.5	4.1	2.8	2.9	1.5	1.9	4.4	2.5	2.0
15	26	54	15	5.5	4.1	2.8	2.9	1.4	2.3	4.5	2.5	2.2
16	21	50	14	5.2	4.0	2.9	2.9	1.4	2.1	6.6	2.4	2.1
17	16	48	13	5.1	4.0	3.0	2.9	1.4	2.2	5.3	2.4	2.2
18	13	47	12	5.1	3.9	2.9	2.9	1.4	2.2	4.9	2.3	2.3
19	12	45	11	5.1	3.9	2.9	2.9	1.4	2.3	4.8	2.1	2.0
20	10	41	11	5.0	3.9	2.9	3.0	1.3	2.3	4.8	2.0	2.0
21	10	39	11	5.0	4.2	2.8	2.8	1.4	2.2	4.6	1.9	2.3
22	12	37	11	5.0	3.9	3.0	2.6	1.5	2.2	4.4	1.9	2.1
23	70	35	10	5.0	3.8	3.1	2.6	1.5	2.3	4.4	1.8	1.9
24	307	34	10	4.8	3.7	3.0	2.5	1.5	2.4	4.2	1.8	1.9
25	404	32	9.8	4.8	3.7	3.0	2.4	1.6	2.3	4.1	1.8	2.0
26	238	30	9.3	4.7	3.7	3.0	2.4	2.0	2.2	4.1	1.8	2.3
27	187	30	8.9	4.6	3.7	3.2	2.1	1.8	2.2	4.1	1.7	2.0
28	162	29	8.4	4.6	3.7	3.0	2.0	1.8	2.3	4.1	1.7	1.8
29	148	28	8.1	4.7	---	3.0	2.0	1.7	2.2	4.0	1.6	1.7
30	131	26	7.8	4.7	---	2.9	2.0	1.6	2.2	3.7	1.5	1.7
31	116	---	7.4	4.8	---	3.0	---	1.5	---	3.4	1.7	---
TOTAL	2213.8	1802	459.7	169.1	115.0	95.2	81.2	50.3	57.2	147.8	70.7	58.7
MEAN	71.4	60.1	14.8	5.45	4.11	3.07	2.71	1.62	1.91	4.77	2.28	1.96
MAX	404	117	25	7.3	4.7	3.6	3.0	2.0	2.4	17	3.2	4.1
MIN	3.3	26	7.4	4.6	3.7	2.8	2.0	1.3	1.2	2.2	1.5	1.3
AC-FT	4390	3570	912	335	228	189	161	100	113	293	140	116

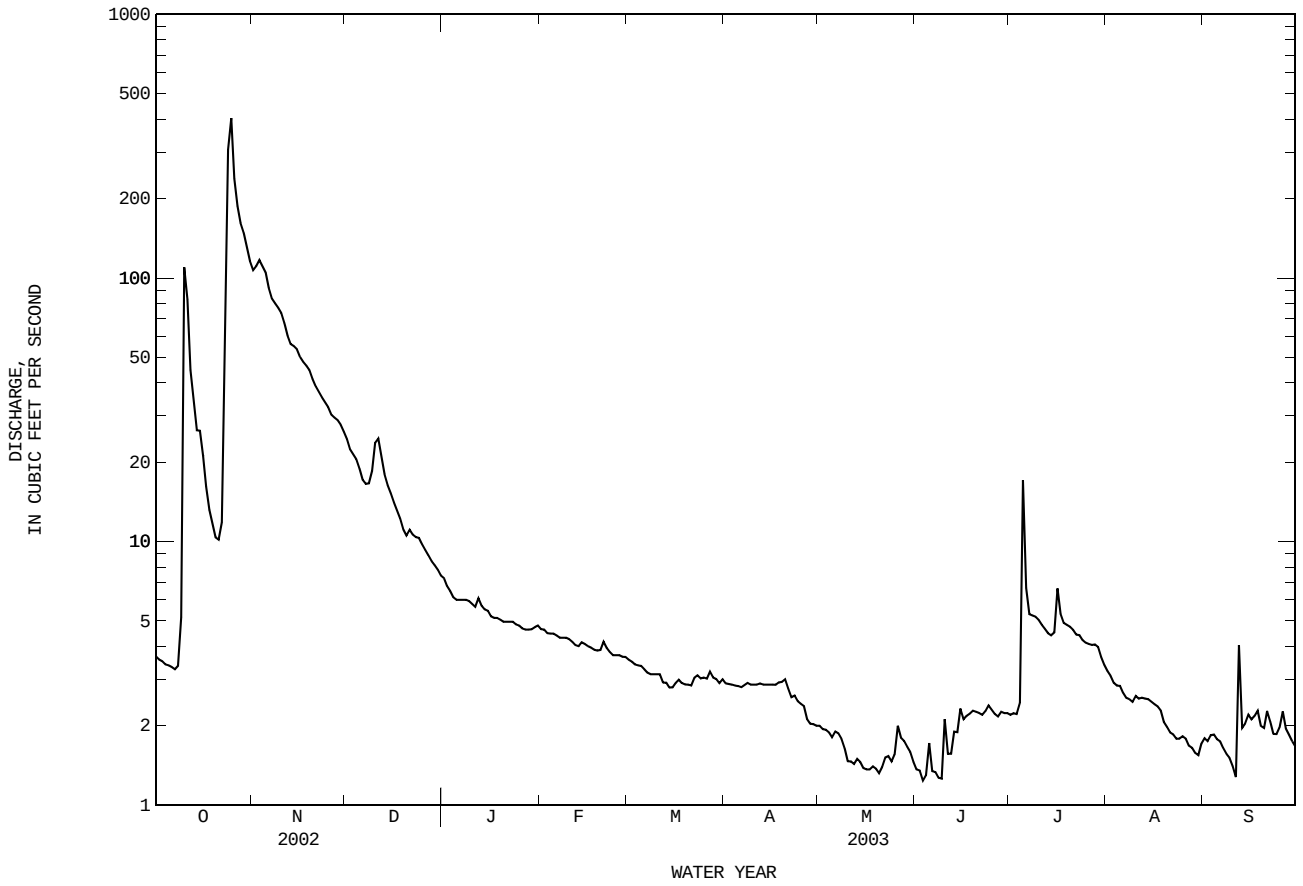
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2003, BY WATER YEAR (WY)

MEAN	36.4	22.0	18.9	14.8	19.9	23.5	25.6	31.7	107	99.6	34.5	20.8
MAX	261	247	498	292	510	535	349	427	1493	2333	709	210
(WY)	1970	2001	1992	1992	1992	1992	1992	1987	1987	2002	1971	1958
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1953	1953	1953	1953	1953	1956	1956	1953	1953	1953	1962	1962

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1952 - 2003	
ANNUAL TOTAL	78502.8		5320.7			
ANNUAL MEAN	215		14.6		38.0	
HIGHEST ANNUAL MEAN					265	1992
LOWEST ANNUAL MEAN					0.070	1963
HIGHEST DAILY MEAN	22900	Jul 5	404	Oct 25	22900	Jul 5 2002
LOWEST DAILY MEAN	1.8	Feb 26	1.2	Jun 3	0.00	Sep 5 1952
ANNUAL SEVEN-DAY MINIMUM	1.9	Feb 21	1.3	Jun 3	0.00	Sep 19 1952
MAXIMUM PEAK FLOW			1060	Oct 24	119000	Jul 2 2002
MAXIMUM PEAK STAGE			8.20	Oct 24	a39.00	Jul 2 2002
ANNUAL RUNOFF (AC-FT)	155700		10550		27510	
10 PERCENT EXCEEDS	116		34		42	
50 PERCENT EXCEEDS	3.5		3.3		1.7	
90 PERCENT EXCEEDS	2.1		1.7		0.10	

a From floodmark.

08198500 Sabinal River at Sabinal, TX--Continued



08200000 Hondo Creek near Tarpley, TX

LOCATION.--Lat 29°34'10", long 99°14'47", Medina County, Hydrologic Unit 12110107, on right bank 50 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^2.

PERIOD OF RECORD.--Aug. 1952 to current year.
Water-quality records.--Chemical data: Nov. 1965 to Sept. 1969, Feb. 1970 to Sept. 1993. Biochemical data: Feb. 1970 to Sept. 1993. Pesticide data: Aug. 1971 to Sept. 1993. Sediment data: Nov. to Dec. 1965.

REVISED RECORDS.--WSP 1712: 1957. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,169.1 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. There are several small diversions for irrigation above station. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1932 reached a stage of about 26 ft (discharge, 58,500 ft^3/s), from information by local resident. Maximum stage since at least 1907, that of June 22, 1997.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e51	168	65	42	19	27	27	18	9.3	13	21	12
2	e49	182	65	40	20	27	28	17	9.1	14	20	11
3	47	169	66	38	20	28	28	17	9.2	15	20	12
4	47	164	64	37	20	27	28	17	12	18	20	11
5	48	157	62	38	21	27	27	16	36	26	19	11
6	48	131	61	38	20	27	27	15	20	59	19	12
7	46	125	60	37	19	26	26	15	13	70	18	12
8	61	120	60	35	20	26	25	14	12	121	18	11
9	764	115	65	34	20	26	25	14	12	78	19	11
10	126	112	59	33	19	26	25	14	129	66	18	11
11	105	105	58	32	19	26	25	14	32	60	22	11
12	95	100	58	37	19	27	24	13	25	54	30	18
13	86	98	56	34	19	27	24	13	23	49	20	12
14	80	96	56	31	19	26	24	13	22	46	18	11
15	73	93	55	30	19	26	24	13	23	44	17	11
16	66	89	55	29	18	26	24	12	20	48	17	11
17	62	86	56	28	18	26	23	12	17	43	18	12
18	57	85	56	27	18	28	23	12	17	40	16	18
19	60	83	53	26	18	26	23	12	16	38	15	12
20	52	81	52	26	36	25	22	11	16	35	15	12
21	48	79	51	25	50	25	21	11	16	30	14	14
22	375	77	50	24	28	34	21	11	16	30	14	12
23	466	75	51	23	26	37	21	11	16	31	14	11
24	462	74	50	21	26	29	20	11	15	30	14	10
25	431	73	49	21	26	29	19	10	15	27	15	10
26	365	72	48	21	27	29	19	11	14	26	14	11
27	300	70	47	20	27	29	18	10	14	25	13	10
28	256	69	45	20	27	29	18	11	14	25	13	9.1
29	233	68	46	20	---	28	18	10	14	24	14	8.5
30	210	66	45	20	---	28	18	10	13	23	13	8.1
31	185	---	44	20	---	28	---	9.7	---	22	14	---
TOTAL	5354	3082	1708	907	638	855	695	397.7	619.6	1230	532	345.7
MEAN	173	103	55.1	29.3	22.8	27.6	23.2	12.8	20.7	39.7	17.2	11.5
MAX	764	182	66	42	50	37	28	18	129	121	30	18
MIN	46	66	44	20	18	25	18	9.7	9.1	13	13	8.1
AC-FT	10620	6110	3390	1800	1270	1700	1380	789	1230	2440	1060	686

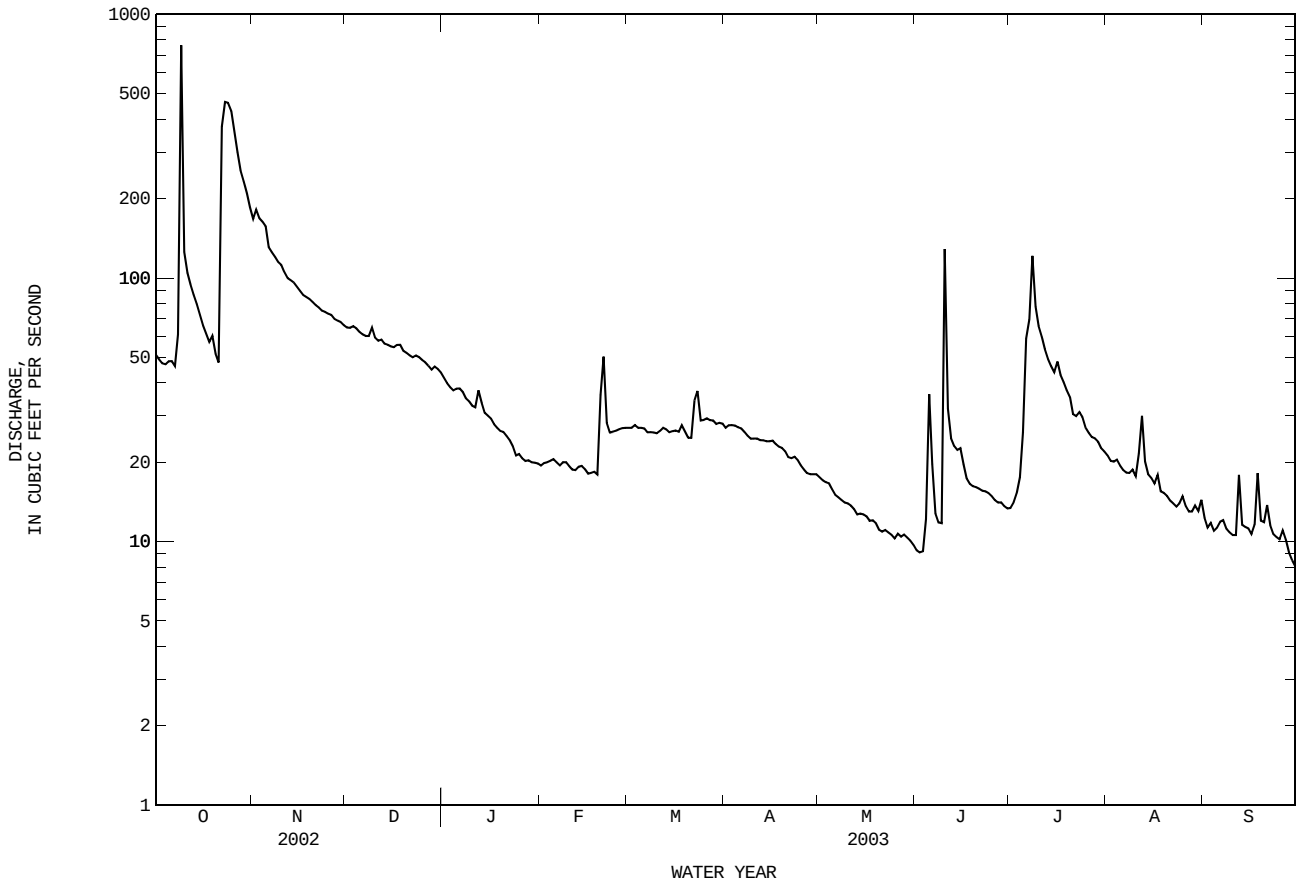
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2003, BY WATER YEAR (WY)

MEAN	39.6	30.6	33.7	26.8	33.2	36.1	36.0	61.7	92.3	75.0	36.0	28.7
MAX	254	134	541	172	342	323	178	402	1056	1943	654	153
(WY)	1972	1999	1992	1992	1992	1992	1992	1987	1987	2002	1971	1958
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1956	1955	1955	1956	1956	1956	1956	1956	1996	1996	1984	1955

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1952 - 2003	
ANNUAL TOTAL	76673.70		16364.0			
ANNUAL MEAN	210		44.8		44.2	
HIGHEST ANNUAL MEAN					205	1992
LOWEST ANNUAL MEAN					0.41	1956
HIGHEST DAILY MEAN	30000	Jul 5	764	Oct 9	30000	Jul 5 2002
LOWEST DAILY MEAN	0.10	Jun 26	8.1	Sep 30	0.00	Sep 1 1952
ANNUAL SEVEN-DAY MINIMUM	0.16	Jun 21	9.5	Sep 24	0.00	Sep 1 1952
MAXIMUM PEAK FLOW			5170	Oct 9	76900	Jun 22 1997
MAXIMUM PEAK STAGE			7.59	Oct 9	a29.64	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	152100		32460		32040	
10 PERCENT EXCEEDS	171		82		83	
50 PERCENT EXCEEDS	18		26		13	
90 PERCENT EXCEEDS	2.4		12		0.20	

e Estimated
a From floodmark.

08200000 Hondo Creek near Tarpley, TX--Continued



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^2.

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Most of the low flow enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses the basin between Hondo Creek near Tarpley (station 08200000) and this station. There are several small diversions above station for irrigation. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 21 ft in Sept. 1919, from information by local resident. Other substanial floods occurred in July 1932, stage 18 ft, and June 17, 1958, stage 17 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	2.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	114.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.05	0.00	0.00
MEAN	3.69	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.55	0.000	0.000
MAX	53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34	0.00	0.00

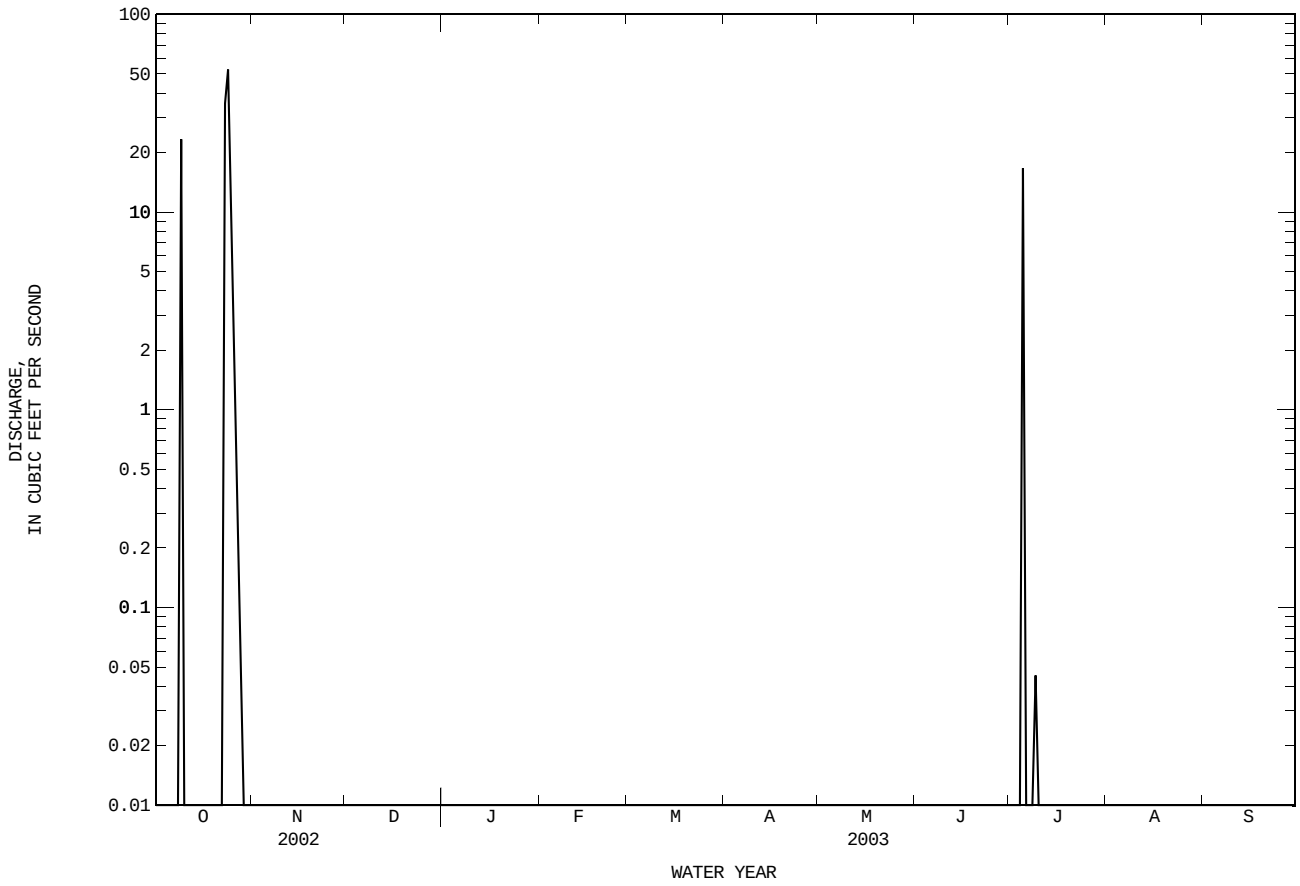
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	12.3	0.61	9.75	2.55	6.37	8.37	6.51	27.0	57.8	40.5	31.4	6.69
MAX	160	10.8	379	56.9	187	168	89.5	468	1060	1187	1015	151
(WY)	1972	1972	1992	1968	1992	1992	1981	1987	1987	2002	1971	1980
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1962	1961	1962	1961	1962	1962	1961	1961	1962	1962	1961	1961

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1961 - 2003	
ANNUAL TOTAL	37609.83		131.42			
ANNUAL MEAN	103		0.36		17.6	
HIGHEST ANNUAL MEAN					128	1987
LOWEST ANNUAL MEAN					0.000	1962
HIGHEST DAILY MEAN	24000	Jul 5	53	Oct 24	24000	Jul 5 2002
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1960
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1960
MAXIMUM PEAK FLOW			353	Oct 23	i63600	Jun 22 1997
MAXIMUM PEAK STAGE			2.93	Oct 23	a18.96	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	74600		261		12730	
10 PERCENT EXCEEDS	0.00		0.00		0.20	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

i From indirect measurement of peak flow.
a From floodmark.

08200700 Hondo Creek at King Waterhole near Hondo, TX--Continued



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^2.

PERIOD OF RECORD.--May 1961 to current year.
Water-quality records.--Chemical data: Nov. 1965, Sept. 1969 to July 1994. Biochemical data: Mar. 1970 to July 1999. Pesticide data: Jan. 1974 to Sept. 1998. Sediment data: Nov. 1965, Aug. 1994 to Sept. 1998.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 1,265.80 ft, from Magnolia Oil Company datum, adjustment unknown. Satellite telemeter at station.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft June 17, 1958, from floodmarks (discharge, 52,600 ft^3/s, by slope-area measurement of peak flow).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	31	8.3	3.9	3.4	6.1	9.3	5.4	0.83	6.2	11	5.3
2	5.5	35	8.3	4.1	3.5	6.2	8.8	5.3	0.77	7.1	11	4.9
3	5.1	32	8.0	4.2	3.7	6.2	8.7	5.1	0.74	12	10	4.8
4	4.6	31	7.7	4.1	3.4	6.2	8.5	5.0	4.8	9.4	10	4.7
5	4.1	24	7.0	4.0	3.7	6.1	8.1	5.0	26	56	9.7	7.6
6	3.9	21	6.7	3.9	3.9	6.1	8.0	4.5	8.5	49	9.3	8.2
7	4.6	20	6.8	3.7	3.6	5.7	8.0	4.5	5.6	51	8.9	5.1
8	8.8	20	7.1	3.7	4.2	5.8	7.9	4.2	4.8	48	8.6	4.8
9	77	19	9.7	3.7	4.0	5.7	8.3	4.1	4.5	41	8.3	4.7
10	22	19	7.3	3.4	3.9	5.5	8.4	3.9	72	37	8.2	4.7
11	18	18	6.8	3.5	3.8	5.8	8.2	3.9	18	35	8.4	5.1
12	16	18	6.3	5.0	3.8	6.3	7.9	3.5	14	31	10	21
13	16	17	5.8	3.9	3.9	5.9	7.6	3.6	13	28	8.2	6.6
14	17	17	5.6	3.6	4.3	5.3	7.4	3.3	12	26	7.8	6.1
15	15	17	5.9	3.5	4.2	5.2	7.4	3.0	13	24	7.5	6.0
16	15	16	5.9	3.5	3.8	5.3	7.4	2.8	11	33	7.2	5.5
17	14	16	5.8	3.3	4.0	5.1	6.9	2.6	10	25	7.1	5.8
18	14	15	5.6	3.5	4.0	5.5	7.0	2.3	9.2	22	6.9	6.1
19	16	15	4.9	3.7	4.2	4.9	6.8	2.2	8.8	20	6.7	5.0
20	14	14	5.0	4.0	7.1	4.7	6.5	1.8	8.3	19	6.4	4.9
21	13	14	5.0	3.8	6.5	4.8	6.3	1.8	7.8	18	6.1	6.7
22	14	13	4.9	3.5	5.7	e21	6.4	1.8	7.3	17	5.8	5.3
23	46	13	5.1	3.5	5.2	e16	6.5	1.7	7.1	17	5.8	4.9
24	62	12	5.1	3.7	5.4	e10	6.3	1.5	7.0	17	6.1	4.7
25	63	11	4.6	3.8	6.4	e10	5.8	1.4	6.7	15	6.0	4.7
26	53	11	4.5	3.8	6.2	e16	5.7	1.7	6.4	14	5.5	5.7
27	50	10	4.4	3.7	6.0	e9.6	5.5	1.5	6.3	14	5.3	5.2
28	46	9.8	4.2	3.6	5.9	e9.2	5.4	1.2	6.2	13	5.1	4.5
29	42	9.2	4.5	3.6	---	e9.2	5.5	1.2	5.9	13	5.0	4.3
30	35	8.9	4.3	3.4	---	9.3	5.5	1.0	5.7	12	4.9	4.2
31	32	---	3.9	3.5	---	9.3	---	0.91	---	12	6.4	---
TOTAL	752.5	526.9	185.0	116.1	127.7	238.0	216.0	91.71	312.24	741.7	233.2	177.1
MEAN	24.3	17.6	5.97	3.75	4.56	7.68	7.20	2.96	10.4	23.9	7.52	5.90
MAX	77	35	9.7	5.0	7.1	21	9.3	5.4	72	56	11	21
MIN	3.9	8.9	3.9	3.3	3.4	4.7	5.4	0.91	0.74	6.2	4.9	4.2
AC-FT	1490	1050	367	230	253	472	428	182	619	1470	463	351
CFSM	0.54	0.39	0.13	0.08	0.10	0.17	0.16	0.07	0.23	0.53	0.17	0.13
IN.	0.62	0.44	0.15	0.10	0.11	0.20	0.18	0.08	0.26	0.61	0.19	0.15

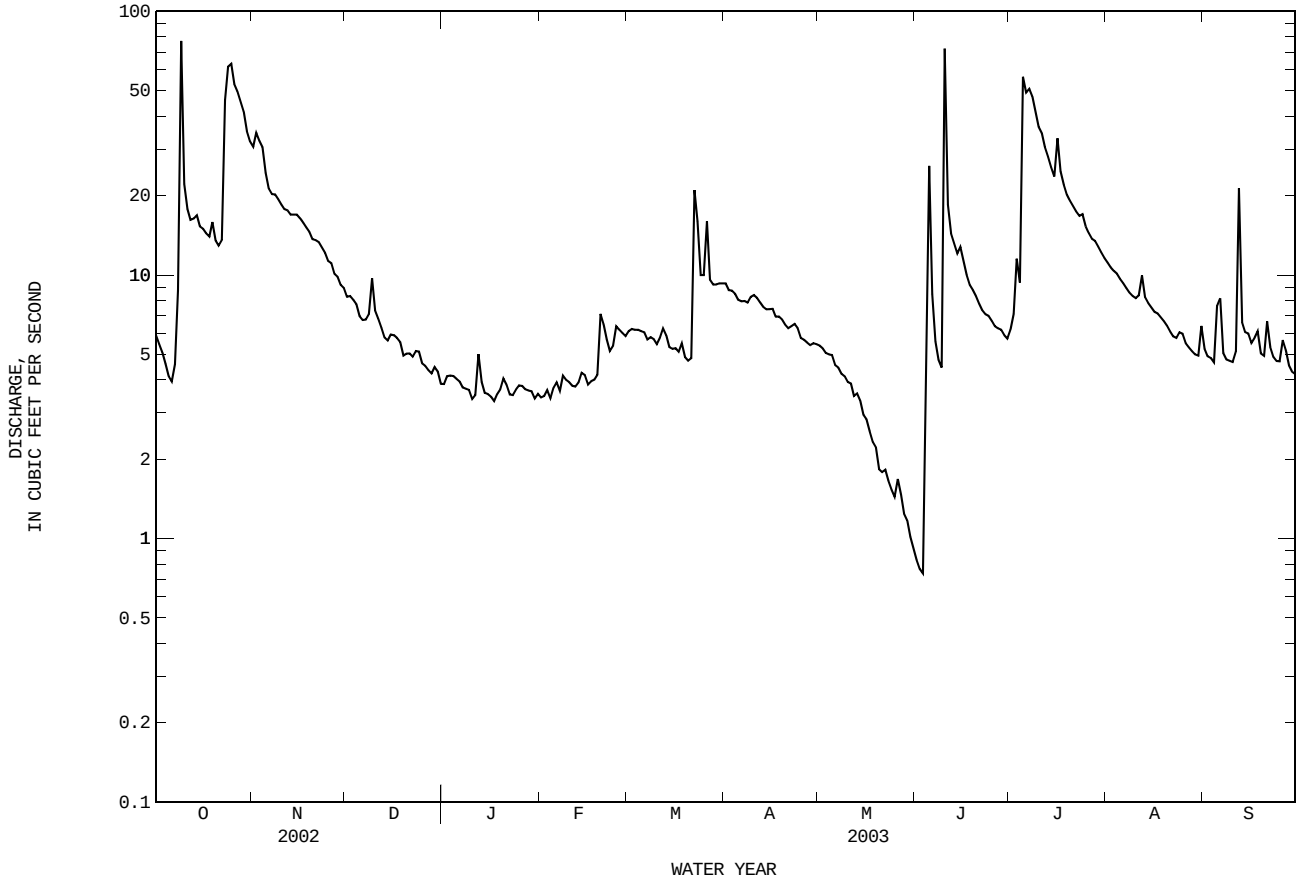
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	19.8	13.5	16.3	12.0	13.8	15.8	14.9	24.8	39.6	29.0	20.4	14.4
MAX	169	73.6	241	92.9	136	134	91.1	120	471	331	279	63.1
(WY)	1972	1999	1992	1992	1992	1992	1992	1987	1987	2002	1971	1967
MIN	0.24	0.50	0.40	0.66	0.90	0.65	0.52	0.64	0.15	0.010	0.005	0.000
(WY)	1964	1964	1964	2000	2000	2000	2000	1984	1989	1989	1989	1989

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1961 - 2003	
ANNUAL TOTAL	13100.22		3718.15			
ANNUAL MEAN	35.9		10.2		19.6	
HIGHEST ANNUAL MEAN					87.4	1992
LOWEST ANNUAL MEAN					0.97	1989
HIGHEST DAILY MEAN	3920	Jul 5	77	Oct 9	5000	Jun 22 1997
LOWEST DAILY MEAN	0.40	Jun 27	0.74	Jun 3	0.00	Jul 30 1963
ANNUAL SEVEN-DAY MINIMUM	0.46	Jun 24	0.95	May 28	0.00	Jul 30 1963
MAXIMUM PEAK FLOW			587	Jun 10	i64900	Jun 22 1997
MAXIMUM PEAK STAGE			3.23	Jun 10	a17.70	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	25980		7370		14230	
ANNUAL RUNOFF (CFSM)	0.80		0.23		0.44	
ANNUAL RUNOFF (INCHES)	10.83		3.07		5.93	
10 PERCENT EXCEEDS	33		20		40	
50 PERCENT EXCEEDS	4.6		6.2		5.4	
90 PERCENT EXCEEDS	1.1		3.6		0.79	

e Estimated
i From indirect measurement of peak flow.
a From floodmark.

08201500 Seco Creek at Miller Ranch near Utopia, TX--Continued



08202700 Seco Creek at Rowe Ranch near D'Hanis, TX

LOCATION.--Lat 29°22'14", long 99°17'15", 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^2.

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

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft above NGVD of 1929. Prior to Oct. 1970, published as "at Crook Ranch, near D'Hanis". Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. No known regulation or diversions. All of low flow from Seco Creek enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin between Seco Creek at Miller Ranch near Utopia (station 08201500) and this station. No flow at times.

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; Sept. 1919, 28 ft; July 2, 1932, 28.2 ft (discharge, 35,800 ft^3/s, by slope-area measurement); and June 17, 1958, 32.4 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 20033
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	445	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.1	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	116	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	1.5	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.0	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	258.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	508.79	0.00	0.00
MEAN	8.32	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.4	0.000	0.000
MAX	116	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	445	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	512	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1010	0.00	0.00

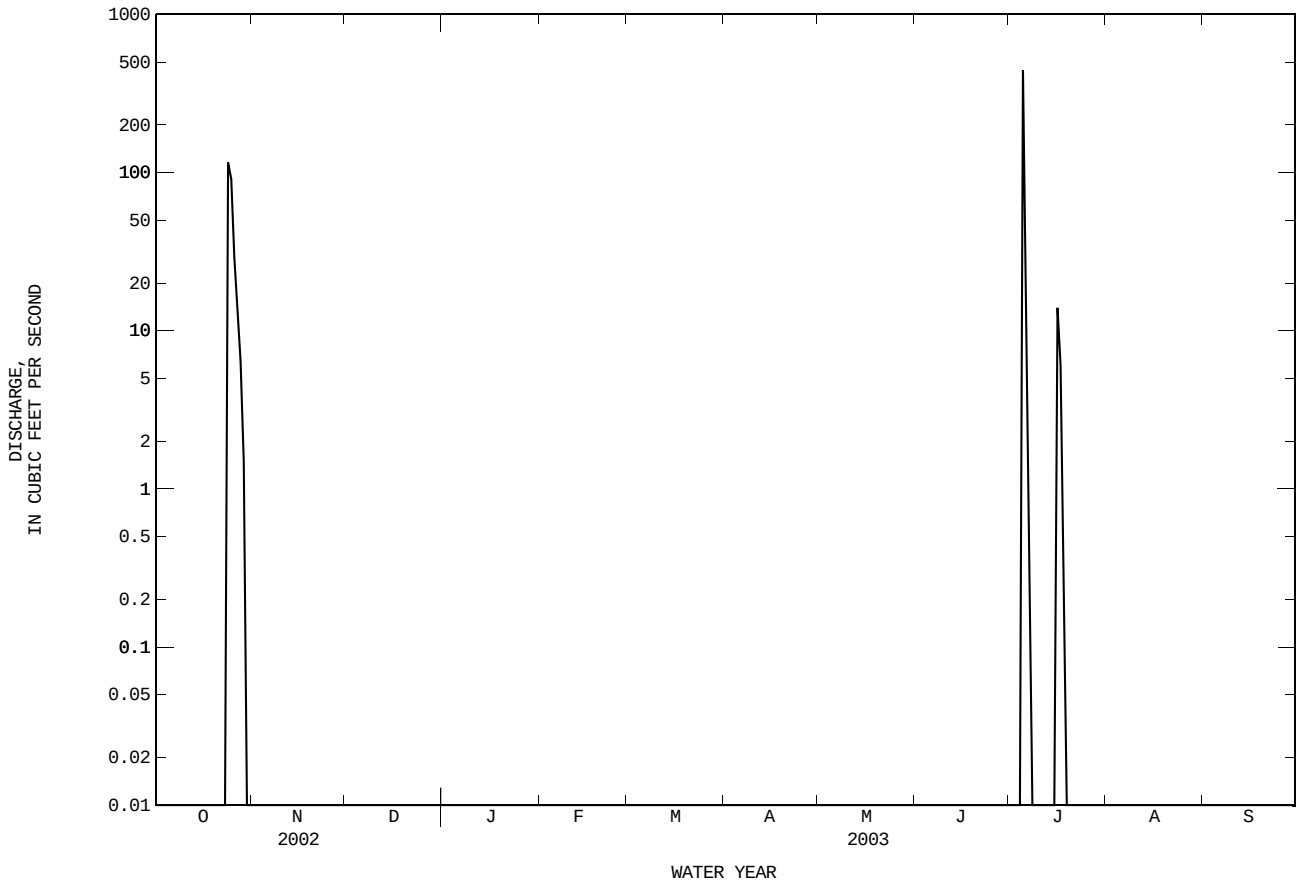
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	9.66	0.024	4.04	0.59	0.89	1.58	3.07	10.4	26.0	18.9	26.4	3.92
MAX	183	0.99	117	24.7	33.2	27.0	74.6	277	411	487	862	58.5
(WY)	1972	2002	1992	1968	1992	1992	1981	1987	1997	2002	1971	1980
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1962	1961	1961	1961	1961	1961	1961	1961	1962	1962	1961	1961

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1961 - 2003	
ANNUAL TOTAL	15361.03		766.79			
ANNUAL MEAN	42.1		2.10		8.96	
HIGHEST ANNUAL MEAN					73.3	1971
LOWEST ANNUAL MEAN					0.000	1962
HIGHEST DAILY MEAN	3990	Jul 4	445	Jul 5	11800	Jun 22 1997
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Nov 1 1960
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Nov 1 1960
MAXIMUM PEAK FLOW			2180	Jul 5	i51400	Jun 22 1997
MAXIMUM PEAK STAGE			11.67	Jul 5	a30.62	Jun 22 1997
ANNUAL RUNOFF (AC-FT)	30470		1520		6490	
10 PERCENT EXCEEDS	0.00		0.00		0.00	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

i From indirect measurement of peak flow.
a From floodmark.

08202700 Seco Creek at Rowe Ranch near D'Hanis, TX--Continued



08204005 Leona River near Uvalde, TX
(Partial-record station)

LOCATION.--Lat 29°09'15", long 99°44'35", Uvalde County, Hydrologic Unit 12110106, at old road crossing on Whités Ranch, 2.0 mi downstream from Cooks Slough, and 4.7 southeast of Uvalde.

DRAINAGE AREA.--132 mi^2.

PERIOD OF RECORD.--Mar. 2003 to Sept. 2003 (daily mean discharges below 60 ft^3/s).

GAGE.--Water-stage recorder. Datum of gage is 838.39 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Flow is from several springs that enter river above station except for periods of runoff. No known regulation or diversions.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	52	53	39	32	32	40	39
2	---	---	---	---	---	52	53	39	32	32	40	38
3	---	---	---	---	---	53	53	40	31	32	40	38
4	---	---	---	---	---	52	52	41	31	32	40	39
5	---	---	---	---	---	51	52	39	34	---	39	39
6	---	---	---	---	---	50	52	38	32	---	39	39
7	---	---	---	---	---	50	52	37	31	---	39	38
8	---	---	---	---	---	50	51	37	31	50	39	38
9	---	---	---	---	---	51	51	37	31	41	38	39
10	---	---	---	---	---	52	51	37	---	38	39	38
11	---	---	---	---	---	53	51	39	37	37	39	38
12	---	---	---	---	---	53	49	38	35	37	40	---
13	---	---	---	---	---	53	49	36	37	37	40	40
14	---	---	---	---	---	53	48	35	39	38	40	41
15	---	---	---	---	---	52	47	34	---	37	40	40
16	---	---	---	---	---	51	46	34	45	---	39	40
17	---	---	---	---	---	52	46	33	38	43	39	40
18	---	---	---	---	---	52	46	34	36	41	39	40
19	---	---	---	---	---	52	44	34	36	41	39	40
20	---	---	---	---	---	52	44	32	37	41	39	40
21	---	---	---	---	---	52	45	30	37	40	39	43
22	---	---	---	---	---	53	45	30	37	40	39	41
23	---	---	---	---	---	53	46	30	36	41	39	42
24	---	---	---	---	---	54	45	29	35	41	40	42
25	---	---	---	---	---	54	42	30	34	41	41	42
26	---	---	---	---	---	54	40	36	35	40	40	---
27	---	---	---	---	---	54	39	32	35	41	40	45
28	---	---	---	---	---	53	38	33	34	41	40	43
29	---	---	---	---	---	52	38	34	33	41	40	42
30	---	---	---	---	---	53	38	34	32	40	39	42
31	---	---	---	---	---	53	---	34	---	40	40	---
TOTAL	---	---	---	---	---	1621	1406	1085	---	---	1224	---
MEAN	---	---	---	---	---	52.3	46.9	35.0	---	---	39.5	---
MAX	---	---	---	---	---	54	53	41	---	---	41	---
MIN	---	---	---	---	---	50	38	29	---	---	38	---
AC-FT	---	---	---	---	---	3220	2790	2150	---	---	2430	---

THIS PAGE IS INTENTIONALLY BLANK

08205500 Frio River near Derby, TX

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.

DRAINAGE AREA.--3,429 mi^2.

PERIOD OF RECORD.--Aug. 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-22. WSP 1312: 1917-18(M). WSP 1923: 1954. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 449.11 ft above NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation. Part of the 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. 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. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, that of July 4, 1932, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	681	234	175	162	156	135	69	40	35	129	75
2	79	601	233	175	159	159	133	68	37	33	124	130
3	80	559	228	170	159	161	134	64	37	31	123	82
4	81	579	232	167	157	162	136	67	37	30	119	116
5	83	595	232	165	157	163	135	67	36	52	115	106
6	84	561	227	165	158	164	133	67	36	803	110	92
7	85	517	219	169	156	161	130	66	38	7060	109	89
8	84	475	212	170	162	158	125	64	35	11500	108	89
9	89	436	219	169	161	153	121	61	36	4850	104	83
10	1320	414	220	169	157	146	117	58	48	1580	99	79
11	2980	397	230	171	155	144	110	56	52	758	96	76
12	1320	377	232	175	159	141	108	54	48	486	95	248
13	1250	356	224	173	159	139	108	53	62	336	100	98
14	808	344	226	178	159	138	108	52	71	251	98	96
15	477	330	220	185	170	141	105	51	76	215	96	119
16	339	321	211	182	165	141	103	50	138	593	92	105
17	276	313	205	174	158	330	102	48	104	935	91	92
18	241	303	204	171	152	300	101	46	77	1230	89	92
19	216	295	203	167	148	207	100	45	72	636	89	85
20	202	291	198	165	176	181	98	44	62	445	87	86
21	185	287	194	168	167	170	90	41	53	363	84	131
22	175	280	189	172	164	162	89	39	48	280	81	143
23	209	273	189	172	165	156	92	39	46	222	78	151
24	984	260	187	168	165	156	91	36	44	194	79	136
25	2800	255	188	163	163	163	88	34	42	179	77	125
26	6160	253	198	157	159	172	86	36	43	168	75	117
27	4560	251	193	157	157	165	83	36	42	161	74	109
28	2750	248	185	162	155	160	81	35	40	156	74	107
29	1320	241	182	164	---	151	76	37	38	146	74	117
30	933	236	181	163	---	146	72	48	36	140	72	117
31	796	---	175	164	---	143	---	42	---	134	75	---
TOTAL	31045	11329	6470	5245	4484	5189	3190	1573	1574	34002	2916	3291
MEAN	1001	378	209	169	160	167	106	50.7	52.5	1097	94.1	110
MAX	6160	681	234	185	176	330	136	69	138	11500	129	248
MIN	79	236	175	157	148	138	72	34	35	30	72	75
AC-FT	61580	22470	12830	10400	8890	10290	6330	3120	3120	67440	5780	6530

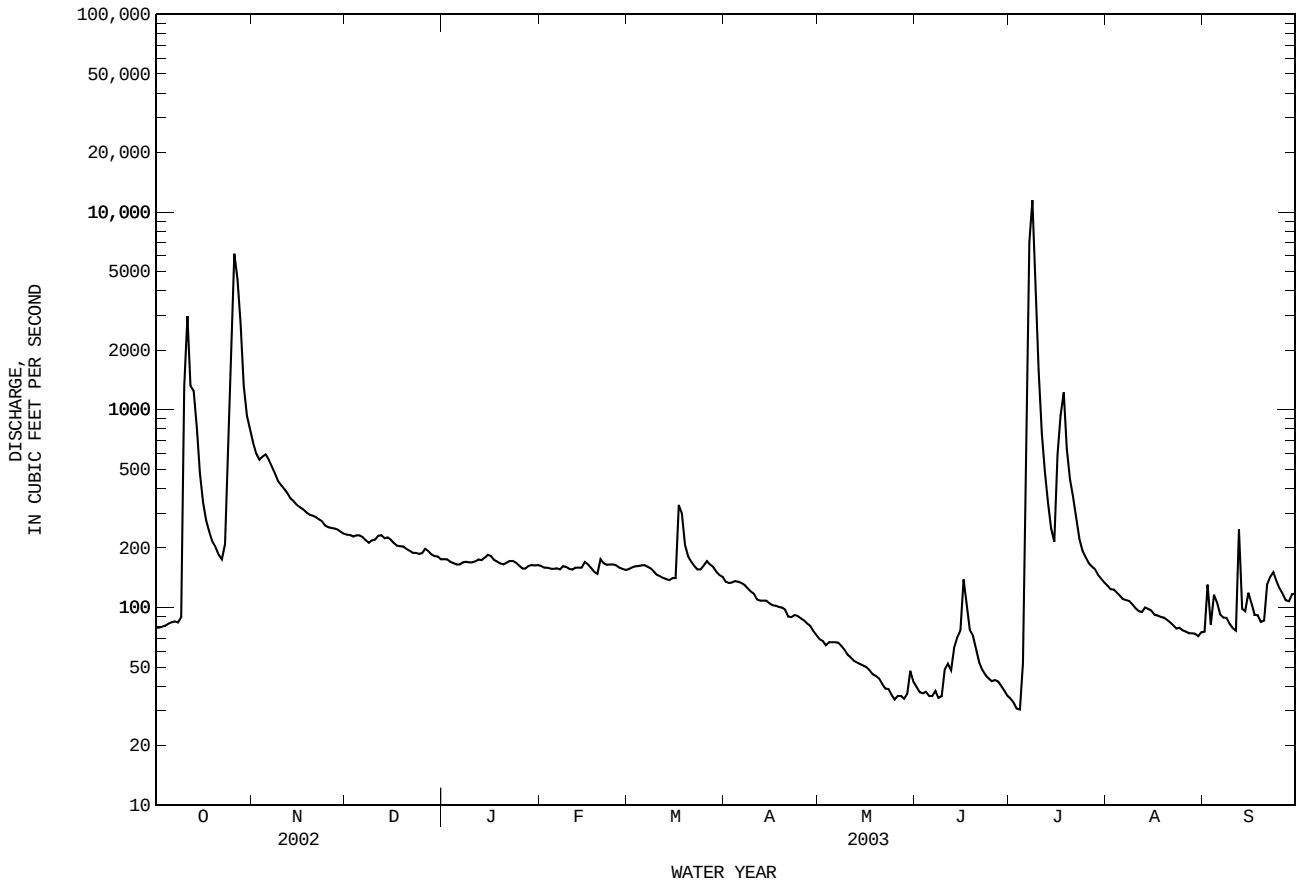
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2003, BY WATER YEAR (WY)

MEAN	175	61.1	47.4	51.6	59.8	50.1	112	189	360	314	142	198
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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1918	1916	1916	1916	1916	1916	1917	1917	1918	1918	1917	1922

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1915 - 2003		
ANNUAL TOTAL	258776.85		110308				
ANNUAL MEAN	709		302		147		
HIGHEST ANNUAL MEAN					1087		1935
LOWEST ANNUAL MEAN					1.76		1952
HIGHEST DAILY MEAN	37200	Jul 7	11500	Jul 8	135000	Jul 4	1932
LOWEST DAILY MEAN	0.00	Jun 6	30	Jul 4	0.00	Aug 1	1915
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 6	35	Jun 28	0.00	Aug 1	1915
MAXIMUM PEAK FLOW			13600	Jul 8	i230000	Jul 4	1932
MAXIMUM PEAK STAGE			12.67	Jul 8	a29.45	Jul 4	1932
ANNUAL RUNOFF (AC-FT)	513300		218800		106500		
10 PERCENT EXCEEDS	843		404		159		
50 PERCENT EXCEEDS	47		155		6.3		
90 PERCENT EXCEEDS	1.3		48		0.00		

i From indirect measurement of peak flow.
a From floodmark.

08205500 Frio River near Derby, TX--Continued



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^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft above NGVD of 1929. July 14, 1978, to Sept. 13, 1994, at site 80 ft upstream at same datum. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. 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. Considerable flow into various permeable formations also occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	2070	191	157	143	116	104	78	42	44	142	73
2	122	1310	187	154	143	114	101	77	43	43	137	74
3	119	881	187	151	142	116	98	75	45	43	133	127
4	117	804	188	150	141	116	97	75	49	50	129	108
5	115	883	188	149	138	116	96	75	56	57	125	136
6	113	649	189	146	136	115	96	75	50	57	122	115
7	111	620	187	144	136	113	97	74	46	51	119	142
8	110	588	187	143	137	114	97	74	43	58	116	e142
9	113	545	193	144	138	112	93	74	41	245	113	e112
10	113	480	201	144	135	111	92	72	45	411	110	89
11	112	410	186	146	134	109	90	71	57	1360	109	e87
12	172	354	192	149	133	106	89	69	74	6320	106	e106
13	404	316	220	149	131	103	87	67	88	5630	103	105
14	846	295	204	151	130	101	87	65	258	2740	100	159
15	1590	279	199	153	133	105	86	64	310	1390	97	232
16	1320	264	197	152	131	115	84	62	305	1920	95	152
17	976	253	192	154	129	113	85	60	174	1530	93	119
18	606	243	187	157	131	105	85	59	107	1050	93	140
19	311	236	179	157	128	103	84	59	116	1070	92	415
20	211	230	176	154	127	169	84	57	102	928	90	196
21	186	224	173	152	121	183	85	54	82	861	88	197
22	172	220	171	150	121	131	85	52	72	936	87	227
23	172	216	169	148	131	111	84	51	67	764	85	183
24	240	214	190	148	131	105	82	50	61	540	95	170
25	704	210	175	149	122	101	81	49	56	293	89	152
26	636	206	165	151	120	167	82	46	52	213	80	142
27	836	200	162	150	120	129	82	46	50	186	78	132
28	1600	197	161	147	119	141	80	45	49	171	76	120
29	3520	194	165	144	---	125	80	43	47	161	73	111
30	4220	193	164	142	---	112	81	43	45	154	72	103
31	3120	---	158	143	---	107	---	43	---	148	71	---
TOTAL	23113	13784	5683	4628	3681	3684	2654	1904	2632	29424	3118	4366
MEAN	746	459	183	149	131	119	88.5	61.4	87.7	949	101	146
MAX	4220	2070	220	157	143	183	104	78	310	6320	142	415
MIN	110	193	158	142	119	101	80	43	41	43	71	73
AC-FT	45840	27340	11270	9180	7300	7310	5260	3780	5220	58360	6180	8660

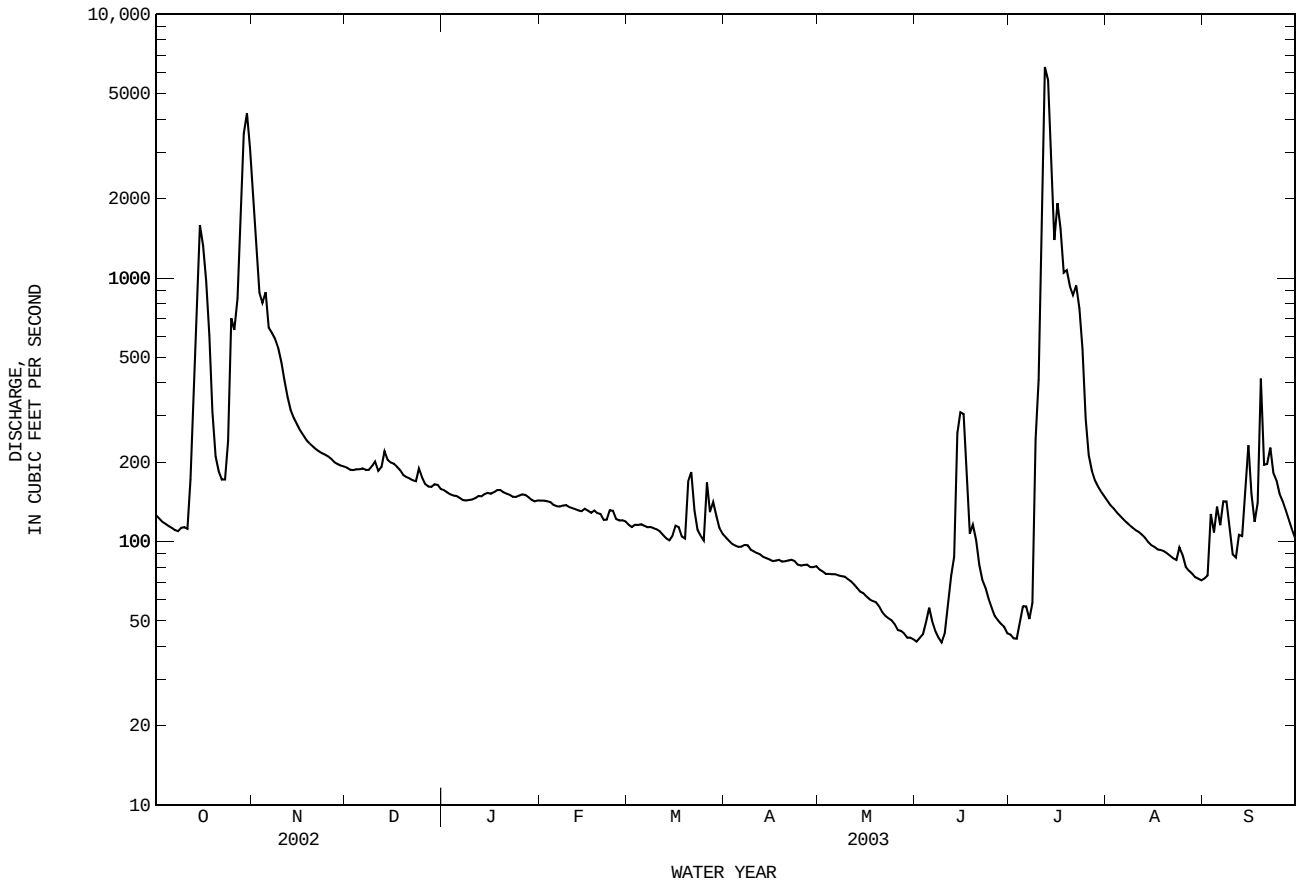
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY)

MEAN	206	106	104	102	114	100	113	169	695	547	114	276
MAX	861	459	1314	877	1745	1188	935	1171	8992	8637	842	4721
(WY)	1986	2003	1992	1992	1992	1992	1992	1980	1987	2002	1998	2002
MIN	0.12	0.24	0.27	0.45	0.32	2.91	0.55	0.46	0.025	0.000	0.000	0.000
(WY)	1991	1991	1991	1991	1990	1984	1984	1998	1998	1996	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003	
ANNUAL TOTAL	458867.43		98671			
ANNUAL MEAN	1257		270		219	
HIGHEST ANNUAL MEAN					1176	2002
LOWEST ANNUAL MEAN					7.06	1984
HIGHEST DAILY MEAN	31500	Jul 10	6320	Jul 12	31500	Jul 10 2002
LOWEST DAILY MEAN	0.00	Jun 9	41	Jun 9	0.00	Apr 16 1984
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 20	43	May 28	0.00	Apr 22 1984
MAXIMUM PEAK FLOW			7300	Jul 12	33000	Jul 10 2002
MAXIMUM PEAK STAGE			23.88	Jul 12	30.29	Jul 10 2002
ANNUAL RUNOFF (AC-FT)	910200		195700		158900	
10 PERCENT EXCEEDS	1630		441		232	
50 PERCENT EXCEEDS	57		129		26	
90 PERCENT EXCEEDS	0.89		58		0.22	

e Estimated

08206600 Frio River at Tilden, TX--Continued



08206600 Frio River at Tilden, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Dec. 1997 to current year.
BIOCHEMICAL DATA: Dec. 1997 to current year.
PESTICIDE DATA: Dec. 1997 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)
DEC													
20...	1450	175	1740	7.8	14.0	10.0	97	530	300	156	33.2	155	3
APR													
03...	1440	97	1880	8.0	19.0	8.6	94	550	330	158	37.4	169	3
JUN													
18...	1250	105	1410	7.9	28.0	5.9	76	390	220	112	26.6	143	3
SEP													
09...	1230	98	1800	8.0	26.5	7.1	89	530	350	157	33.5	159	3

Date	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)
DEC													
20...	39	2.86	2	269	224	225	262	.18	12.4	1010	5.94	.009	5.95
APR													
03...	40	3.93	2	257	215	254	301	.18	13.3	1090	--	E.007	5.35
JUN													
18...	44	7.59	1	205	170	179	228	.2	17.8	827	1.92	.010	1.93
SEP													
09...	39	4.84	2	217	182	246d	316d	.2	12.2	1060	--	E.005n	4.25

Date	Ammonia water, fltrd, mg/L as N (00608)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)
DEC													
20...	<.04	.22	E.02	<.02	--	<2	<.30	<2	91	<.06	<.04	<.8	.36
APR													
03...	<.04	.32	.04	.03	.104	<2	<.30	E1	81	<.06	<.04	<.8	.62
JUN													
18...	<.04	.65	.14	.11	.350	M	<.30	4	106	<.06	<.04	<.8	.58
SEP													
09...	<.04	.44	.06	.05	.144	E1n	<.30	5	84	<.06	E.02n	<.8	.47

Date	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Mercury water, fltrd, ug/L (71890)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)
DEC													
20...	1.2	<10	<.08	30	4.2	<.02	1.0	4.97	<3	<.20	1070	<8	2
APR													
03...	1.7	<10	<.08	34	4.4	<.02	1.1	2.17	E1	<.20	1160	E7	2
JUN													
18...	2.9	8	<.08	38	10.2	<.02	1.6	2.72	<3	<.20	885	10	2
SEP													
09...	3.1	<8	<.08	35	6.1	<.02	1.0	1.32	7	<.20	1170	7	2

08206600 Frio River at Tilden, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Uranium natural water, fltrd, ug/L (22703)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbo-furan, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-di-nitro-phenol, wat flt 0.7u GF ug/L (49299)	Aceto-chlor, water, fltrd, ug/L (49260)	Aci-fluor-fen, water, fltrd 0.7u GF ug/L (49315)	Ala-chlor, water, fltrd, ug/L (46342)	Aldi-carb, water, fltrd 0.7u GF ug/L (49312)	Aldi-carb sulfone water, fltrd 0.7u GF ug/L (49313)
DEC													
20...	1.82	<.07	<.16	<.25	<.006	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20
APR													
03...	1.83	<.07	<.16	<.25	<.006	<.03	<.11	<.25	.043	<.05	.145	<.21	<.20
JUN													
18...	1.16	<.07	<.16	<.25	<.006	<.03b	<.11	<.25	<.006	<.05	<.004	<.21	<.20
SEP													
09...	1.39	<.07	<.16	<.25	<.006	<.03b	<.11	<.25	<.006	<.05	<.004	<.21	<.20

Date	Aldi-carb sulf-oxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)	Broma-cil, water, fltrd, ug/L (04029)	Brom-oxynil, water, fltrd 0.7u GF ug/L (49311)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (49310)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (49309)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)
DEC													
20...	<.27	<.005	.008	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020
APR													
03...	<.27	<.005	.545	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020
JUN													
18...	<.27	<.005	.021	<.050	<.010	<.06	<.09	<.07	<.002	<.080	<.041	<.15	<.020
SEP													
09...	<.27	<.005	E.006n	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020

Date	Chloro-thalo-nil, water, fltrd 0.7u GF ug/L (49306)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Clopyr-alid, water, fltrd 0.7u GF ug/L (49305)	Cyana-zine, water, fltrd, ug/L (04041)	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)
DEC													
20...	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.016	E.009	<.11	<.09	<.12	<.005
APR													
03...	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.061	<.005	<.11	<.09	<.12	<.005
JUN													
18...	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.012	<.005	<.12	<.09	<.12	<.005
SEP													
09...	<.25	--m	<.006	<.42	<.018	<.07	<.003	E.009	--m	<.11	<.09	<.12	<.005

Date	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)
DEC													
20...	<.09	<.02	<.12	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027
APR													
03...	<.09	<.02	<.12	.003	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027
JUN													
18...	<.09	<.02	<.26	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027
SEP													
09...	<.09	--m	<.12	<.002	<.009	--m	<.07	<.06	--m	<.004	<.06	<.035	--m

Date	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)
DEC													
20...	<.20	<.26	<.07	<.22	E.006n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003
APR													
03...	<.20	<.26	<.07	<.22	.043	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003
JUN													
18...	<.20	<.26	<.07	<.22	.025	<.006	<.002	<.007	<.07	<.07	<.28	<.16	<.003
SEP													
09...	<.20	<.26	<.07	<.22	E.006t	<.006	<.002	<.007	<.07	<.04	<.29	<.16	<.003

08206600 Frio River at Tilden, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)	Pronamide, water, fltrd 0.7u GF ug/L (82676)
DEC													
20...	<.010	<.006	<.004	<.022	<.011	<.09	Mn	<.010	<.011	<.02	<.22	<.12	<.004
APR													
03...	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004
JUN													
18...	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.41	<.12	<.004
SEP													
09...	--m	--m	<.004	<.022	--m	<.10	E.01t	<.010	<.011	<.02	<.22	<.12	<.004

Date	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)
DEC								
20...	<.005	<.02	<.034	<.02	<.005	<.002	<.16	<.009
APR								
03...	.015	<.02	<.034	<.02	<.005	<.002	<.07	<.009
JUN								
18...	<.005	<.02	<.034	<.02	<.005	<.002	<.11	<.009
SEP								
09...	<.005	<.02	<.034	--m	<.005	<.002	<.07	<.009

Remark codes used in this report:
  < -- Less than
  E -- Estimated value
  M -- Presence verified, not quantified

Value qualifier codes used in this report:
  b -- Value was extrapolated below
  d -- Diluted sample: method hi range exceeded
  n -- Below the NDV
  t -- Below the long-term MDL

Null value qualifier codes used in this report:
  m -- Results sent by separate memo

THIS PAGE IS INTENTIONALLY BLANK

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, 3.0 mi upstream from San Patricio Creek, 7.0 mi downstream from Clear Creek, 8.7 mi north of Tilden, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--783 mi^2.

PERIOD OF RECORD.--Jan. 1964 to current year.
Water-quality records.--Chemical data: July 1978 to Sept. 1984. Biochemical data: July 1978 to Sept. 1984.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 242.95 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation. There are five diversions above station, but amounts are unknown. At times, 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). No flow at times.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	112	18	18	12	e17	10	5.8	1.9	2.4	5.4	1.0
2	30	93	19	17	12	e17	9.8	5.4	1.8	2.3	4.8	115
3	28	79	19	16	13	e16	9.2	5.3	1.7	2.3	4.4	115
4	26	204	21	16	13	e16	9.0	4.9	6.2	9.3	4.0	60
5	24	815	27	15	13	e16	8.7	4.7	7.1	75	3.7	161
6	22	336	22	15	13	e16	8.6	4.3	2.6	30	3.3	798
7	22	308	21	15	13	e16	8.2	4.0	2.4	25	3.1	180
8	20	188	20	15	14	e16	8.1	3.8	7.9	12	2.8	41
9	26	116	117	15	13	e15	7.7	3.6	4.3	26	2.6	18
10	29	82	27	14	13	e15	7.4	3.6	77	29	2.3	10
11	320	61	122	14	13	e14	7.3	3.5	61	21	2.2	6.6
12	1550	47	172	15	12	e15	7.2	3.2	42	15	1.9	65
13	502	43	174	15	12	14	6.7	3.2	33	11	1.8	158
14	134	36	58	14	12	13	7.3	3.1	313	8.1	1.6	63
15	85	33	33	14	13	249	8.0	2.9	433	166	1.5	46
16	60	30	28	14	12	172	7.6	2.8	197	1100	1.4	13
17	50	29	25	18	11	48	7.3	3.1	48	812	1.2	13
18	38	27	23	19	12	23	7.0	3.0	22	306	1.1	166
19	34	26	21	18	12	17	6.8	2.6	14	301	0.88	456
20	31	25	19	17	14	14	6.9	2.5	9.9	115	0.54	45
21	28	24	19	17	95	13	7.1	2.7	7.5	54	0.22	101
22	26	23	18	15	143	12	7.0	2.8	6.1	32	0.17	209
23	31	22	22	14	56	14	6.8	2.8	5.1	23	0.18	53
24	509	22	21	14	29	12	6.8	2.5	4.7	18	0.16	22
25	2080	21	18	14	22	11	6.5	2.4	4.0	14	0.22	14
26	5700	21	17	13	20	13	6.2	2.4	3.5	11	0.21	11
27	5600	20	17	13	18	18	6.1	2.5	3.2	9.4	0.16	9.2
28	1310	20	16	13	e17	18	5.9	2.7	3.0	8.3	0.16	8.2
29	250	19	17	13	---	13	5.9	2.3	2.7	7.4	0.16	6.5
30	185	19	19	12	---	12	5.9	2.3	2.5	6.7	0.13	5.6
31	141	---	18	12	---	11	---	2.2	---	6.0	0.37	---
TOTAL	18924	2901	1188	464	652	886	223.0	102.9	1328.1	3258.2	52.66	2970.1
MEAN	610	96.7	38.3	15.0	23.3	28.6	7.43	3.32	44.3	105	1.70	99.0
MAX	5700	815	174	19	143	249	10	5.8	433	1100	5.4	798
MIN	20	19	16	12	11	11	5.9	2.2	1.7	2.3	0.13	1.0
AC-FT	37540	5750	2360	920	1290	1760	442	204	2630	6460	104	5890

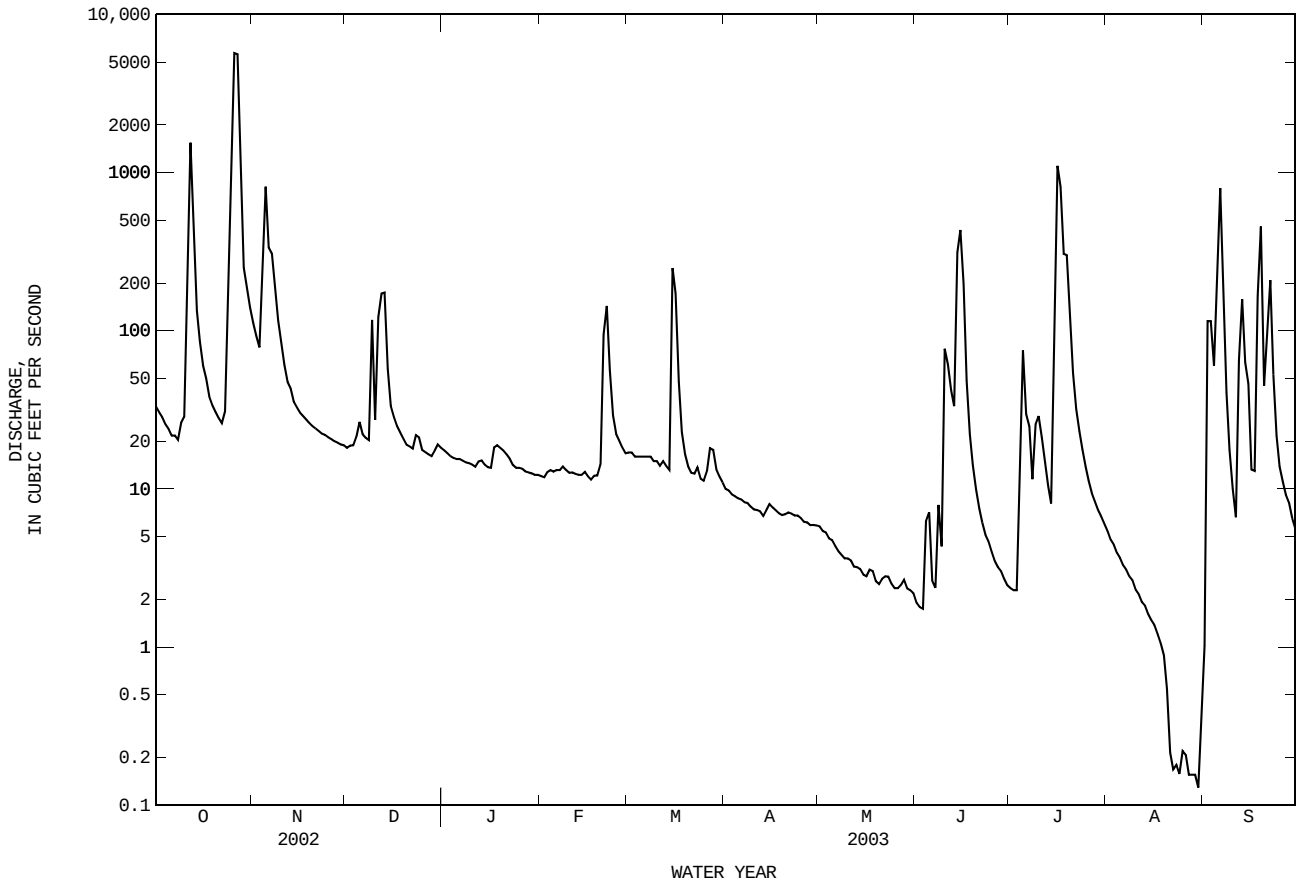
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	79.1	24.5	16.1	24.8	23.0	9.82	52.9	110	93.6	82.5	48.8	126
MAX	610	286	226	641	352	78.0	1065	900	690	1828	741	1755
(WY)	2003	1993	1987	1968	1992	1992	1977	1980	1987	2002	1980	2002
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1980	1995	1989	1989	1995	1996	1996	1971	1967	1996	1991	1999

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	133897.83		32949.96			
ANNUAL MEAN	367		90.3		58.7	
HIGHEST ANNUAL MEAN					309	2002
LOWEST ANNUAL MEAN					2.43	1984
HIGHEST DAILY MEAN	22400	Sep 10	5700	Oct 26	22400	Sep 10 2002
LOWEST DAILY MEAN	0.00	Jan 1	0.13	Aug 30	0.00	Feb 1 1964
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.17	Aug 24	0.00	Feb 7 1964
MAXIMUM PEAK FLOW			6480	Oct 26	29500	Sep 10 2002
MAXIMUM PEAK STAGE			20.28	Oct 26	31.64	Sep 10 2002
ANNUAL RUNOFF (AC-FT)	265600		65360		42490	
10 PERCENT EXCEEDS	226		137		38	
50 PERCENT EXCEEDS	0.32		14		1.8	
90 PERCENT EXCEEDS	0.00		2.5		0.00	

e Estimated

08206700 San Miguel Creek near Tilden, TX--Continued



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^2.

WATER-CONTENT RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Satellite telemeter at station.

REMARKS.--No estimated daily contents. Records good. 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. The dam is owned by the City of Corpus Christi. Conservation pool storage is 695,271 acre-ft. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	241.1
Top of spillway gates	222.5
Crest of spillway	199.5
Lowest gated outlet (invert)	136.3

COOPERATION.--Capacity table computed June 1, 1983, provided by the City of Corpus Christi. Prior to Oct. 1, 1999, elevation and reservoir contents record provided by the City of Corpus Christi.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 733,100 acre-ft June 21, 1987, elevation, 222.10 ft; minimum daily, 4,500 acre-ft Oct. 1-9, 1984, elevation, 156.91 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 710,000 acre-ft, Oct. 27, 28, elevation, 221.20 ft; minimum contents, 678,000 acre-ft, on several days, elevation, 219.99 ft.

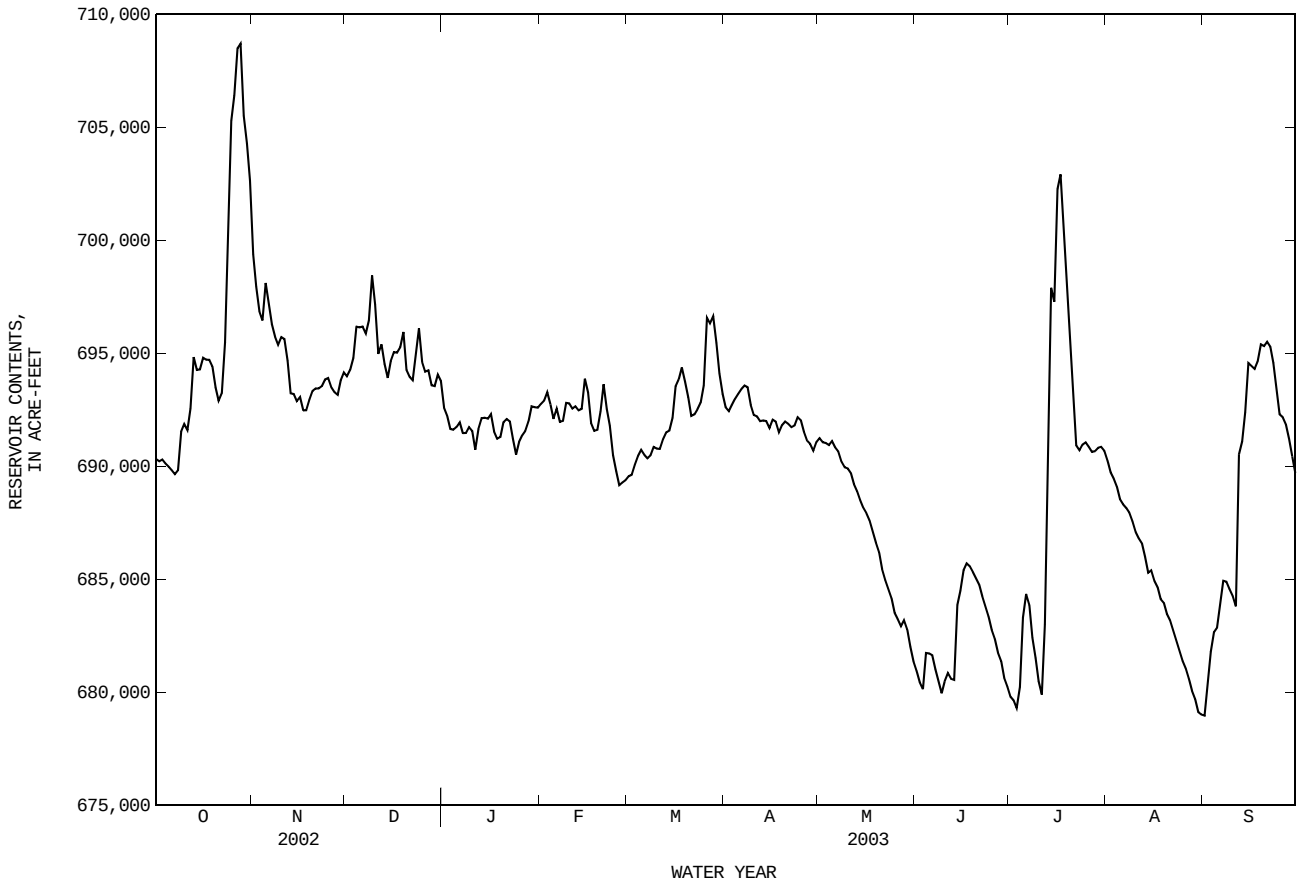
RESERVOIR STORAGE, IN (ACRE-FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	690000	699000	694000	693000	693000	690000	693000	691000	681000	680000	690000	679000
2	690000	698000	694000	692000	693000	690000	692000	691000	680000	680000	690000	680000
3	690000	697000	695000	692000	693000	690000	693000	691000	680000	679000	689000	682000
4	690000	696000	696000	692000	693000	690000	693000	691000	682000	680000	689000	683000
5	690000	698000	696000	692000	692000	691000	693000	691000	682000	683000	689000	683000
6	690000	697000	696000	692000	693000	691000	693000	691000	682000	684000	688000	684000
7	690000	696000	696000	691000	692000	690000	694000	691000	681000	684000	688000	685000
8	690000	696000	696000	691000	692000	690000	693000	690000	681000	682000	688000	685000
9	692000	695000	698000	692000	693000	691000	693000	690000	680000	682000	688000	685000
10	692000	696000	697000	692000	693000	691000	692000	690000	680000	680000	687000	684000
11	692000	696000	695000	691000	693000	691000	692000	690000	681000	680000	687000	684000
12	693000	695000	695000	692000	693000	691000	692000	689000	681000	683000	687000	691000
13	695000	693000	695000	692000	692000	692000	692000	689000	681000	693000	686000	691000
14	694000	693000	694000	692000	693000	692000	692000	688000	684000	698000	685000	692000
15	694000	693000	695000	692000	694000	692000	692000	688000	684000	697000	685000	695000
16	695000	693000	695000	692000	693000	694000	692000	688000	685000	702000	685000	694000
17	695000	692000	695000	692000	692000	694000	692000	688000	686000	703000	685000	694000
18	695000	692000	695000	691000	692000	694000	692000	687000	686000	700000	684000	695000
19	694000	693000	696000	691000	692000	694000	692000	687000	685000	698000	684000	695000
20	693000	693000	694000	692000	692000	693000	692000	686000	685000	696000	683000	695000
21	693000	693000	694000	692000	694000	692000	692000	685000	685000	693000	683000	696000
22	693000	693000	694000	692000	693000	692000	692000	685000	684000	691000	683000	695000
23	695000	694000	695000	691000	692000	693000	692000	685000	684000	691000	682000	695000
24	699000	694000	696000	691000	690000	693000	692000	684000	683000	691000	682000	693000
25	705000	694000	695000	691000	690000	694000	692000	684000	683000	691000	681000	692000
26	706000	693000	694000	691000	689000	697000	692000	683000	682000	691000	681000	692000
27	708000	693000	694000	692000	689000	696000	691000	683000	682000	691000	681000	692000
28	709000	693000	694000	692000	689000	697000	691000	683000	681000	691000	680000	691000
29	706000	694000	694000	693000	---	695000	691000	683000	681000	691000	680000	690000
30	704000	694000	694000	693000	---	694000	691000	682000	680000	691000	679000	690000
31	703000	---	694000	693000	---	693000	---	681000	---	691000	679000	---
MEAN	696000	695000	695000	692000	692000	692000	692000	687000	682000	689000	685000	689000
MAX	709000	699000	698000	693000	694000	697000	694000	691000	686000	703000	690000	696000
MIN	690000	692000	694000	691000	689000	690000	691000	681000	680000	679000	679000	679000
(+)	220.93	220.61	220.59	220.55	220.42	220.57	220.49	220.12	220.07	220.47	220.03	220.44
(@)	+12000	-9000	0	-1000	-4000	+4000	-2000	-10000	-1000	+11000	-12000	+11000

CAL YR 2002 MAX 767000 MIN 244000 (@) +411000
WTR YR 2003 MAX 709000 MIN 679000 (@) -1000

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

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued



08206900 Choke Canyon Reservoir near Three Rivers, TX

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Mar. 1999 to current year.
PESTICIDE DATA: Mar. 1999 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Time	Reser-voir storage acre-ft (00054)	Sam-pling depth, feet (00003)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, water, deg C (00010)	Trans-parency Secchi disc, meters (00078)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hard-ness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
MAR													
25...	0800	694000	1.00	418	8.4	17.5	1.95	10.2	108	150	27	49.1	6.37
MAR													
25-25	0800	--	--	--	--	--	--	--	--	--	--	--	--
25...	0802	--	10.0	417	8.4	17.0	--	9.9	104	--	--	--	--
25...	0804	--	20.0	428	7.9	15.0	--	7.8	78	--	--	--	--
25...	0806	--	30.0	435	7.8	15.0	--	7.5	75	--	--	--	--
25...	0808	--	40.0	439	7.8	14.5	--	7.3	72	--	--	--	--
25...	0810	--	50.0	438	7.8	14.5	--	7.3	72	--	--	--	--
25...	0812	--	60.0	429	7.8	14.0	--	7.2	71	--	--	--	--
25...	0814	--	70.0	485	7.6	14.0	--	5.9	58	--	--	--	--
25...	0816	--	80.0	802	7.2	13.5	--	2.1	20	--	--	--	--
25...	0818	--	88.0	828	7.1	14.0	--	1.4	14	250	110	77.7	14.5
MAY													
21...	0750	686000	1.00	491	8.3	25.5	1.95	6.4	78	170	39	53.4	7.62
MAY													
21-21	0750	--	--	--	--	--	--	--	--	--	--	--	--
21...	0752	--	10.0	492	8.3	25.5	--	6.3	77	--	--	--	--
21...	0754	--	20.0	491	8.2	25.5	--	5.9	72	--	--	--	--
21...	0756	--	30.0	493	7.8	25.0	--	3.5	42	--	--	--	--
21...	0758	--	40.0	459	7.6	21.0	--	E.3e	--	--	--	--	--
21...	0800	--	50.0	453	7.6	19.5	--	E.1e	--	--	--	--	--
21...	0802	--	60.0	451	--e	19.5	--	E.1e	--	--	--	--	--
21...	0804	--	70.0	451	--e	19.0	--	E.1e	--	--	--	--	--
21...	0806	--	80.0	452	--e	19.0	--	E.1e	--	--	--	--	--
21...	0808	--	83.0	452	7.8	19.0	--	E.1e	--	160	29	52.2	6.98
JUL													
29...	0750	691000	1.00	491	8.2	29.0	1.46	7.7	100	150	44	48.1	8.14
JUL													
29-29	0750	--	--	--	--	--	--	--	--	--	--	--	--
29...	0752	--	10.0	499	7.9	28.5	--	6.1	79	--	--	--	--
29...	0754	--	20.0	501	7.7	28.0	--	5.2	67	--	--	--	--
29...	0756	--	30.0	501	7.7	28.0	--	5.2	67	--	--	--	--
29...	0758	--	40.0	500	7.2	27.0	--	1.3	16	--	--	--	--
29...	0800	--	50.0	499	7.1	26.0	--	E.2e	--	--	--	--	--
29...	0802	--	60.0	501	7.0	25.0	--	E.2e	--	--	--	--	--
29...	0804	--	70.0	502	6.9	23.0	--	E.2e	--	--	--	--	--
29...	0806	--	83.0	506	6.8	22.5	--	E.2e	--	170	19	56.9	7.70

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Sodium, water, fltrd, mg/L (00930)	Sodium adsorp-tion ratio (00931)	Sodium, percent (00932)	Potas-sium, water, fltrd, mg/L (00935)	Carbon-ate, wat flt incrm. titr., field, mg/L (00452)	Bicar-bonate, wat flt incrm. titr., field, mg/L (00453)	Alka-linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of consti-tuents mg/L (70301)	Oil and grease, water, unfltrd freon extract mg/L (00556)
MAR													
25...	26.8	1	27	6.13	2	145	122	32.4	35.6	.10	7.38	237	--
MAR													
25-25	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	64.9	2	35	6.22	<1	178	147	98.7	106	.12	8.74	466	--
MAY													
21...	32.7	1	29	6.24	1	151	126	40.0	49.0	<.2	8.05	273	<7
MAY													
21-21	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	<7
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	28.8	1	27	6.14	<1	159	131	32.2	41.1	<.2	10.1	257	--
JUL													
29...	35.2	1	32	6.21	2	129	110	42.8	55.0	<.2	9.14	271	--
JUL													
29-29	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	30.8	1	27	6.35	<1	189	155	32.4	47.1	<.2	12.9	288	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Alum-inum, water, fltrd, ug/L (01106)	Anti-mony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryll-ium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chrom-ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan-ese, water, fltrd, ug/L (01056)
MAR													
25...	E1	E.18	E2	60	<.06	<.04	<.8	.18	2.2	<10	.12	8	.5
MAR													
25-25	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	E1	E.17	E1	80	<.06	<.04	E.4	.70	5.7	25	.09	23	502
MAY													
21...	M	E.16	E2	57	<.06	<.04	<.8	.22	2.2	<10	E.07	11	.7
MAY													
21-21	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	<2	<.30	4	67	<.06	<.04	<.8	.62	1.4	80	E.05	8	551
JUL													
29...	Mn	<.30	3	54	<.06	<.04	<.8	.15	.6	<8	<.08	11	.8
JUL													
29-29	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	<2	<.30	4	83	<.06	<.04	<.8	.30	.4	73	<.08	10	695

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Mercury water, fltrd, ug/L (71890)	Molyb-denum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selen-ium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Stront-ium, water, fltrd, ug/L (01080)	Vanad-ium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)
MAR													
25...	<.02	.9	2.03	<3	<.20	230	E5	3	.52	--	--	--	--
MAR													
25-25	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.02	1.1	3.22	<3	<.20	467	<8	19	1.16	--	--	--	--
MAY													
21...	<.02	.8	.96	<3	<.20	270	<8	1	.56	--	--	--	--
MAY													
21-21	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	<.02	.8	1.07	<3	<.20	251	<8	5	.46	--	--	--	--
JUL													
29...	<.02	.9	1.11	<3	<.20	263	E3n	3	.48	--	--	--	--
JUL													
29-29	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	<.02	<.3	2.15	<3	--u	263	<6	<1	.30	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbo-furan, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-di-nitro-phenol, wat flt 0.7u GF ug/L (49299)	Aceto-chlor, water, fltrd, ug/L (49260)	Aci-fluor-fen, water, fltrd 0.7u GF ug/L (49315)	Ala-chlor, water, fltrd, ug/L (46342)	Aldi-carb, water, fltrd 0.7u GF ug/L (49312)	Aldi-carb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldi-carb sulf-oxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.014	<.050	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.021	<.050	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.03b	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.023	<.050	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)	Broma-cil, water, fltrd, ug/L (04029)	Brom-oxynil, water, fltrd 0.7u GF ug/L (49311)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (49310)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (49309)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chloro-thalo-nil, water, fltrd 0.7u GF ug/L (49306)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Clopyr-alid, water, fltrd 0.7u GF ug/L (49305)	Cyana-zine, water, fltrd, ug/L (04041)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.05	<.11	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<.003	E.007	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.07	<.003	<.006	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.07	<.003	E.004n	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	E.009n
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	E.013n
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	E.005t
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.006	<.002	<.007	<.07	<.05	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Pic-loram, water, fltrd 0.7u GF ug/L (49291)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Pro-poxur, water, fltrd 0.7u GF ug/L (38538)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004	<.005	<.02	<.034	<.02	<.005
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004	<.005	<.02	<.034	<.02	<.005
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.09	Mt	<.010	<.011	<.02	<.22	<.12	<.004	<.005	<.02	<.034	<.02	<.005
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206890 -- Choke Canyon Res Site AC

Date	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-clopyr, water, fltrd 0.7u GF ug/L (49235)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
MAR								
25...	--	--	--	--	--	--	--	--
MAR								
25-25	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
MAY								
21...	--	--	--	--	--	--	--	--
MAY								
21-21	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
JUL								
29...	--	--	--	--	--	--	--	--
JUL								
29-29	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--

08206880 -- Choke Canyon Res Site BC

Date	Time	Sam-pling depth, feet (00003)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, water, deg C (00010)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)
MAR							
25...	0900	1.00	417	8.5	18.5	10.3	111
25...	0902	10.0	418	8.5	18.0	10.2	109
25...	0904	20.0	417	8.4	17.0	9.7	101
25...	0906	30.0	429	7.9	14.5	7.4	73
25...	0908	38.0	431	7.8	14.5	7.5	74
MAY							
21...	0900	1.00	475	8.5	26.0	6.6	82
21...	0902	10.0	481	8.4	25.5	6.2	76
21...	0904	20.0	487	8.2	25.0	4.9	60
21...	0906	30.0	483	7.9	24.0	1.9	23
21...	0908	38.0	468	7.9	22.5	E.4e	--
JUL							
29...	0825	1.00	478	7.9	29.5	8.3	109
29...	0827	10.0	480	8.3	29.5	7.6	100
29...	0829	20.0	500	7.4	28.0	3.2	41
29...	0831	30.0	499	7.3	27.5	1.8	23
29...	0833	38.0	502	7.2	27.5	E.2e	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206870 -- Choke Canyon Res Site CC

Date	Time	Sam-pling depth, feet (00003)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, water, deg C (00010)	Trans-parency Secchi disc, meters (00078)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	Oil and grease, water, unfltrd freon extract mg/L (00556)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)
MAR													
25...	0930	1.00	430	8.4	18.5	1.77	9.5	102	--	--	--	--	--
MAR													
25-25	0930	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
25...	0932	10.0	430	8.4	18.0	--	9.3	99	--	--	--	--	--
25...	0934	20.0	431	8.4	17.5	--	9.2	97	--	--	--	--	--
25...	0936	30.0	460	8.2	17.0	--	7.9	83	--	--	--	--	--
25...	0938	40.0	612	7.5	15.5	--	4.1	42	--	--	--	--	--
25...	0940	50.0	682	7.4	15.0	--	3.6	36	--	--	--	--	--
25...	0942	60.0	1010	7.3	15.0	--	2.4	24	--	--	--	--	--
MAY													
21...	0920	1.00	496	8.7	27.0	1.46	7.4	93	E3n	--	--	--	--
MAY													
21-21	0920	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
21...	0922	10.0	496	8.7	27.0	--	7.4	93	--	--	--	--	--
21...	0924	20.0	496	8.7	27.0	--	7.3	92	--	--	--	--	--
21...	0926	30.0	496	8.7	26.5	--	6.7	83	--	--	--	--	--
21...	0928	40.0	477	7.7	21.0	--	E.1e	--	--	--	--	--	--
21...	0930	50.0	468	7.7	20.0	--	E.1e	--	--	--	--	--	--
21...	0932	60.0	--	--	--	--	--	--	--	--	--	--	--
21...	0932	60.0	468	7.7	20.0	--	E.2e	--	--	--	--	--	--
JUL													
29...	0850	1.00	502	8.0	29.5	1.16	5.7	75	--	--	--	--	--
JUL													
29-29	0850	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
29...	0852	10.0	503	7.9	29.0	--	5.6	73	--	--	--	--	--
29...	0854	20.0	502	7.8	29.0	--	4.9	64	--	--	--	--	--
29...	0856	30.0	505	7.9	29.0	--	6.6	86	--	--	--	--	--
29...	0858	40.0	503	7.2	27.0	--	E.1e	--	--	--	--	--	--
29...	0900	50.0	505	7.1	26.5	--	E.2e	--	--	--	--	--	--
29...	0902	60.0	522	6.9	25.5	--	E.3e	--	--	--	--	--	--

08206870 -- Choke Canyon Res Site CC

Date	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbo-furan, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-di-nitro-phenol, wat flt 0.7u GF ug/L (49299)	Aceto-chlor, water, fltrd, ug/L (49260)	Aci-fluor-fen, water, fltrd 0.7u GF ug/L (49315)	Ala-chlor, water, fltrd, ug/L (46342)	Aldi-carb, water, fltrd 0.7u GF ug/L (49312)	Aldi-carb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldi-carb sulf-oxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.03	<.31	<.25	<.006	<.05	.011	<.21	<.20	<.27	<.005	.596	<.050	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.029	<.050	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.03b	<.13	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.027	<.050	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206870 -- Choke Canyon Res Site CC

Date	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)	Broma-cil, water, fltrd, ug/L (04029)	Brom-oxynil, water, fltrd 0.7u GF ug/L (49311)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (49310)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (49309)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Carbo-pheno-thion, bed sedimnt ug/kg (39787)	Chloro-thalo-nil, water, fltrd 0.7u GF ug/L (49306)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Clopyr-alid, water, fltrd 0.7u GF ug/L (49305)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	<.4	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.05	<.12	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206870 -- Choke Canyon Res Site CC

Date	Cyana-zine, water, fltrd, ug/L (04041)	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, bed sedimnt ug/kg (39571)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.018	<.07	<.003	E.054	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	E.05
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.018	<.07	<.003	E.008	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	<.4	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.018	<.07	<.003	E.005n	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206870 -- Choke Canyon Res Site CC

Date	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Ethion, bed sedimnt ug/kg (39399)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, bed sedimnt ug/kg (39531)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	<.4	--	--	--	--	--	--	--	<.4	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206870 -- Choke Canyon Res Site CC

Date	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, bed sedimnt ug/kg (39541)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.26	<.07	<.22	.033	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.26	<.07	<.22	E.009n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	<.4
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.26	<.07	<.22	E.010n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206870 -- Choke Canyon Res Site CC

Date	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, bed sedimnt ug/kg (39601)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<2.20	<.12
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.010	--	<.006	<.004	<.022	<.011	<.12	<.01	<.010	<.011	<.02	<.22	<.12
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	<.4	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.010	--	<.006	<.004	<.022	<.011	<.09	Mt	<.010	<.011	<.02	<.22	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206870 -- Choke Canyon Res Site CC

Date	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.004	.009	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.004	<.005	E.01n	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206870 -- Choke Canyon Res Site CC

Date	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
MAR	
25...	--
MAR	
25-25	<.004
25...	--
25...	--
25...	--
25...	--
25...	--
25...	--
MAY	
21...	--
MAY	
21-21	<.004
21...	--
21...	--
21...	--
21...	--
21...	--
21...	--
21...	--
JUL	
29...	--
JUL	
29-29	<.004
29...	--
29...	--
29...	--
29...	--
29...	--
29...	--

08206860 -- Choke Canyon Res Site DC

Date	Time	Sam-pling depth, feet (00003)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, water, deg C (00010)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)
MAR							
25...	1025	1.00	442	8.6	18.5	10.5	113
25...	1027	10.0	442	8.6	18.5	10.2	110
25...	1029	20.0	445	8.5	18.5	9.9	107
25...	1031	33.0	483	7.6	16.5	4.0	41
MAY							
21...	1100	1.00	497	8.5	28.5	7.4	96
21...	1102	10.0	499	8.5	28.0	6.9	88
21...	1104	20.0	506	8.3	28.0	6.2	79
21...	1106	33.0	521	7.7	25.5	E.3	--
JUL							
29...	0940	1.00	500	8.3	30.0	7.3	97
29...	0942	10.0	499	8.3	30.0	7.3	97
29...	0944	20.0	500	8.2	29.5	7.0	92
29...	0946	33.0	503	7.2	29.0	E.4	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206850 -- Choke Canyon Res Site EC

Date	Time	Sam-pling depth, feet (00003)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, water, deg C (00010)	Trans-parency Secchi disc, meters (00078)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	Silvex, water, fltrd, ug/L (39762)
MAR													
25...	1000	1.00	450	8.5	18.5	1.62	9.9	107	--	--	--	--	--
MAR													
25-25	1000	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03
25...	1002	10.0	447	8.5	18.0	--	9.7	104	--	--	--	--	--
25...	1004	20.0	464	8.2	17.0	--	7.8	82	--	--	--	--	--
25...	1006	30.0	540	7.7	16.0	--	5.2	53	--	--	--	--	--
25...	1008	38.0	582	7.5	15.5	--	3.5	35	--	--	--	--	--
MAY													
21...	1120	1.00	505	8.5	28.0	1.10	7.2	92	--	--	--	--	--
MAY													
21-21	1120	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03
21...	1122	10.0	507	8.4	27.5	--	6.5	82	--	--	--	--	--
21...	1124	20.0	507	8.4	27.5	--	6.4	81	--	--	--	--	--
21...	1126	30.0	508	8.4	27.5	--	6.1	77	--	--	--	--	--
21...	1128	36.0	511	8.2	27.0	--	5.0	63	--	--	--	--	--
JUL													
29...	0920	1.00	497	8.2	29.5	1.34	6.8	89	--	--	--	--	--
JUL													
29-29	0920	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03b
29...	0922	10.0	498	8.2	29.5	--	6.7	88	--	--	--	--	--
29...	0924	20.0	511	7.8	29.0	--	4.7	61	--	--	--	--	--
29...	0926	30.0	515	7.5	29.0	--	2.8	36	--	--	--	--	--
29...	0928	38.0	515	7.3	29.0	--	.6	8	--	--	--	--	--

08206850 -- Choke Canyon Res Site EC

Date	3-Hydroxy carbo-furan, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-di-nitro-phenol, wat flt 0.7u GF ug/L (49299)	Aceto-chlor, water, fltrd, ug/L (49260)	Aci-fluor-fen, water, fltrd 0.7u GF ug/L (49315)	Ala-chlor, water, fltrd, ug/L (46342)	Aldi-carb, water, fltrd 0.7u GF ug/L (49312)	Aldi-carb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldi-carb sulf-oxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.21	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.017	<.050	<.010	<.05
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.13	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.030	<.050	<.010	<.05
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.025	<.050	<.010	<.05
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206850 -- Choke Canyon Res Site EC

Date	Bromacil, water, fltrd, ug/L (04029)	Bromoxynil, water, fltrd 0.7u GF ug/L (49311)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (49310)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (49309)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorothalonil, water, fltrd 0.7u GF ug/L (49306)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Clopyralid, water, fltrd 0.7u GF ug/L (49305)	Cyanazine, water, fltrd, ug/L (04041)	Dacthal monoacid, water, fltrd 0.7u GF ug/L (49304)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018	<.07
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018	<.07
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.11	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018	<.07
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206850 -- Choke Canyon Res Site EC

Date	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlobenil, water, fltrd 0.7u GF ug/L (49303)	Dichlorprop, water, fltrd 0.7u GF ug/L (49302)	Dieldrin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.003	<.006	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009	<.005
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.003	E.008	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009	<.005
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.003	E.005n	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009	<.005
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206850 -- Choke Canyon Res Site EC

Date	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	.014	<.006
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	E.008n	<.006
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	E.013n	<.006
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206850 -- Choke Canyon Res Site EC

Date	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Pic-loram, water, fltrd 0.7u GF ug/L (49291)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011	<.09
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011	<.09
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011	<.09
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206850 -- Choke Canyon Res Site EC

Date	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.01	<.010	<.011	<.02	<.22	<.12	<.004	<.005	<.02	<.034	<.02	<.005	<.002
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	Mn	<.010	<.011	<.02	<.22	<.12	<.004	<.005	E.01n	<.034	<.02	<.005	<.002
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.01	<.010	<.011	<.02	<.22	<.12	<.004	<.005	<.02	<.034	<.02	<.005	<.002
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206850 -- Choke Canyon Res Site EC

Date	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
MAR							
25...	--	--	--	--	--	--	--
MAR							
25-25	<.09	<.009	<.007	<.005	<.005	<.009	<.004
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--
MAY							
21...	--	--	--	--	--	--	--
MAY							
21-21	<.07	<.009	<.007	<.005	<.005	<.009	<.004
21...	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--
JUL							
29...	--	--	--	--	--	--	--
JUL							
29-29	<.07	<.009	<.007	<.005	<.005	<.009	<.004
29...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206840 -- Choke Canyon Res Site FC

Date	Time	Sampling depth, feet (00003)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Silvex, water, fltrd, ug/L (39762)
MAR													
25...	1045	1.00	521	8.5	20.5	1.25	10.1	113	--	--	--	--	--
MAR													
25-25	1045	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03
25...	1047	10.0	668	7.8	19.5	--	6.0	66	--	--	--	--	--
25...	1049	20.0	1170	7.3	18.5	--	3.8	41	--	--	--	--	--
25...	1051	30.0	1520	7.2	17.5	--	4.0	42	--	--	--	--	--
25...	1053	40.0	1670	7.2	17.5	--	4.0	42	--	--	--	--	--
25...	1055	46.0	1670	7.2	17.5	--	4.1	44	--	--	--	--	--
MAY													
21...	1015	1.00	555	7.9	28.0	--	4.4	56	--	--	--	--	--
MAY													
21-21	1015	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03
21...	1017	10.0	566	7.9	28.0	--	3.6	46	--	--	--	--	--
21...	1019	20.0	818	7.5	27.5	--	E.1e	--	--	--	--	--	--
21...	1021	30.0	1510	7.5	27.0	--	E.1e	--	--	--	--	--	--
21...	1023	40.0	1610	7.6	26.5	--	E.1e	--	--	--	--	--	--
21...	1025	46.0	--	--	--	--	--	--	--	--	--	--	--
21...	1025	46.0	1560	7.4	26.0	--	E.1e	--	--	--	--	--	--
JUL													
29...	1005	1.00	491	8.1	30.0	1.28	4.9	65	--	--	--	--	--
JUL													
29-29	1005	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006	<.03b
29...	1007	10.0	480	7.8	30.0	--	3.3	44	--	--	--	--	--
29...	1009	20.0	519	7.3	29.0	--	E.5	--	--	--	--	--	--
29...	1011	30.0	524	7.1	29.0	--	E.1e	--	--	--	--	--	--
29...	1013	40.0	491	7.0	28.5	--	E.1e	--	--	--	--	--	--
29...	1015	45.0	474	7.0	28.0	--	E.3e	--	--	--	--	--	--

08206840 -- Choke Canyon Res Site FC

Date	3-Hydroxycarbofuran, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-dinitrophenol, wat flt 0.7u GF ug/L (49299)	Acetochlor, water, fltrd, ug/L (49260)	Acifluorfen, water, fltrd 0.7u GF ug/L (49315)	Alachlor, water, fltrd, ug/L (46342)	Aldicarb, water, fltrd 0.7u GF ug/L (49312)	Aldicarb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldicarb sulfoxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Bentazon, water, fltrd 0.7u GF ug/L (38711)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.012	<.050	<.010	<.05
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.12	<.25	<.006	<.05	<.004	<.21	<.23	<.27	<.005	.052	<.050	<.010	<.05
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.029	<.050	<.010	<.05
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206840 -- Choke Canyon Res Site FC

Date	Bromacil, water, fltrd, ug/L (04029)	Bromoxynil, water, fltrd 0.7u GF ug/L (49311)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (49310)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (49309)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Carbophenothion, bed sedimnt ug/kg (39787)	Chlorothalonil, water, fltrd 0.7u GF ug/L (49306)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Clopyralid, water, fltrd 0.7u GF ug/L (49305)	Cyanazine, water, fltrd, ug/L (04041)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.09	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42	<.018
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.09	<.07	<.002	<.080	<.041	<.15	<.025	--	<.25	<.005	<.006	<.42	<.018
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	<2.0	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.09	<.07	<.002	<.080	<.041	<.21	<.020	--	<.25	<.005	<.006	<.42	<.018
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206840 -- Choke Canyon Res Site FC

Date	Dacthal monoacid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, bed sedimnt ug/kg (39571)	Diazinon, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlobenil, water, fltrd 0.7u GF ug/L (49303)	Dichlorprop, water, fltrd 0.7u GF ug/L (49302)	Dieldrin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<.003	E.012	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.07	<.003	E.013	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	<4.0	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.07	<.003	<.006	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206840 -- Choke Canyon Res Site FC

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Ethion, bed sedimnt ug/kg (39399)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, bed sedimnt ug/kg (39531)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20	<.26
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.009	--	<.005	<.07	<.07	<.003	<.004	<.06	<.035	--	<.027	<.20	<.26
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	<2.0	--	--	--	--	--	--	--	<2.0	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20	<.26
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206840 -- Choke Canyon Res Site FC

Date	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, bed sedimnt ug/kg (39541)	Para-thion, water, fltrd, ug/L (39542)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<.22	E.008n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.07	<.22	E.009n	<.006	<.002	<.007	<.07	<.04	<.28	<.35	<.003	--	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	<2.0	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.07	<.22	.059	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206840 -- Choke Canyon Res Site FC

Date	Methyl para-thion, bed sedimnt ug/kg (39601)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Pic-loram, water, fltrd 0.7u GF ug/L (49291)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Pro-poxur, water, fltrd 0.7u GF ug/L (38538)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	--	<.006	<.004	<.022	<.011	<.09	Mn	<.010	<.011	<.02	<.22	<.12	<.004
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	<2.0	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	--	<.006	<.004	<.022	<.011	<.09	E.01n	<.010	<.011	<.02	<.22	<.12	<.004
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08206900 Choke Canyon Reservoir near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

08206840 -- Choke Canyon Res Site FC

Date	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-clopyr, water, fltrd 0.7u GF ug/L (49235)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.005	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.005	E.01n	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.005	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
b -- Value was extrapolated below
e -- See field comment
n -- Below the NDV
t -- Below the long-term MDL

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail
u -- Unable to determine-matrix interference

THIS PAGE IS INTENTIONALLY BLANK

08206910 Choke Canyon Reservoir (Outlet Works Channel) near Three Rivers, TX
(Partial-record station)

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^2.

PERIOD OF RECORD.--Nov. 1991 to Sept. 1999 (daily mean discharges less than 73 ft^3/s), Oct. 1999 to current year (daily mean discharges less than 1,130 ft^3/s).

GAGE.--Water-stage recorder. Datum of gage is 124.06 ft above NGVD of 1929.

REMARKS.--Records fair. Since installation of gage in water year 1992, at least 10% of the contributing drainage area has been regulated. Flow at times is affected by backwater from the spillway of Choke Canyon Reservoir and from the Atascosa River. Np flow at times.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, about 38 ft (backwater), Sept. 11, 2002 (discharge not determined); minimum discharge, 0.00 ft^3/s, Oct. 21, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 22.04 ft (backwater) July 18 (discharge not determined); minimum discharge, 27 ft^3/s, Jan. 8, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e33	---	e36	250	60	167	62	30	e33	39	34	31
2	e33	---	e35	199	60	166	62	30	e33	141	34	30
3	e33	---	e35	121	103	166	46	30	32	141	35	29
4	e33	---	e36	70	145	163	31	30	33	36	36	29
5	e33	---	e53	70	145	162	31	30	33	36	37	30
6	e33	---	91	71	144	164	31	30	32	35	37	e30
7	e33	---	91	55	144	142	31	30	32	376	37	e30
8	e33	---	91	27	146	120	30	30	32	910	36	30
9	e33	---	---	28	147	121	e30	30	32	936	36	28
10	e33	---	---	28	148	97	30	31	31	972	35	29
11	e33	---	---	28	148	74	29	32	32	787	34	29
12	e33	e337	---	28	183	74	29	31	32	589	35	e30
13	e169	e450	---	28	e200	75	29	31	32	---	35	e30
14	e797	e300	---	28	e224	74	30	33	33	---	35	e29
15	e1000	e181	350	27	285	75	29	32	33	---	35	e29
16	e1000	e150	79	28	333	75	29	32	33	---	34	e29
17	e812	e150	97	28	332	75	29	32	34	---	34	e29
18	e750	e55	97	28	332	166	29	33	33	---	34	149
19	e750	e39	97	28	333	259	29	34	32	---	35	474
20	e562	39	98	28	334	259	29	34	33	---	35	---
21	e297	39	98	29	335	190	29	35	33	---	37	---
22	e275	39	97	30	334	73	29	35	33	---	37	---
23	e371	40	97	31	333	72	29	35	33	---	38	---
24	e188	40	193	31	335	35	29	34	35	32	38	---
25	---	40	250	31	279	e33	30	34	35	36	38	---
26	---	40	248	31	194	e33	30	34	34	36	37	---
27	---	40	249	32	169	e33	30	34	34	36	37	---
28	---	38	250	32	168	181	30	34	34	36	38	28
29	---	e37	249	48	---	289	30	34	35	35	36	33
30	---	e36	248	63	---	286	30	34	35	35	36	34
31	---	---	250	61	---	268	---	34	---	34	35	---
TOTAL	---	---	---	1617	6093	4167	971	1002	991	---	1110	---
MEAN	---	---	---	52.2	218	134	32.4	32.3	33.0	---	35.8	---
MAX	---	---	---	250	335	289	62	35	35	---	38	---
MIN	---	---	---	27	60	33	29	30	31	---	34	---
AC-FT	---	---	---	3210	12090	8270	1930	1990	1970	---	2200	---

e Estimated

THIS PAGE IS INTENTIONALLY BLANK

08207500 Atascosa River near McCoy, TX

LOCATION.--Lat 28°51'53", long 98°20'17", Live Oak County, Hydrologic Unit 12110111, on left bank at downstream side of bridge on Farm Road 541, 0.6 mi northeast of McCoy, and 40.2 mi upstream from mouth.

DRAINAGE AREA.--530 mi^2.

PERIOD OF RECORD.--July 1951 to Sept. 1957 (mean daily discharge below 74 ft^3/s), Aug. 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 272.4 ft above NGVD of 1929. July 1951 to Sept. 1957, water-stage recorder at site 2.2 mi downstream at datum 29.3 ft. lower. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,120 ft^3/s, Oct. 26, gage height, 24.41 ft; minimum discharge, 1.8 ft^3/s, Aug. 30, 31, Sept. 1, 2, gage height, 4.96 ft.

EXTREMES FOR WATER YEAR 2002.--Maximum discharge, 5,060 ft^3/s, Sept. 10, gage height, 23.38 ft; minimum discharge, 2.2 ft^3/s, Sept. 4, 5, gage height, 4.99 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,120 ft^3/s, Oct. 26, gage height, 24.41 ft; minimum discharge, 1.8 ft^3/s, Aug. 30, 31, Sept. 1, 2, gage height, 4.96 ft.

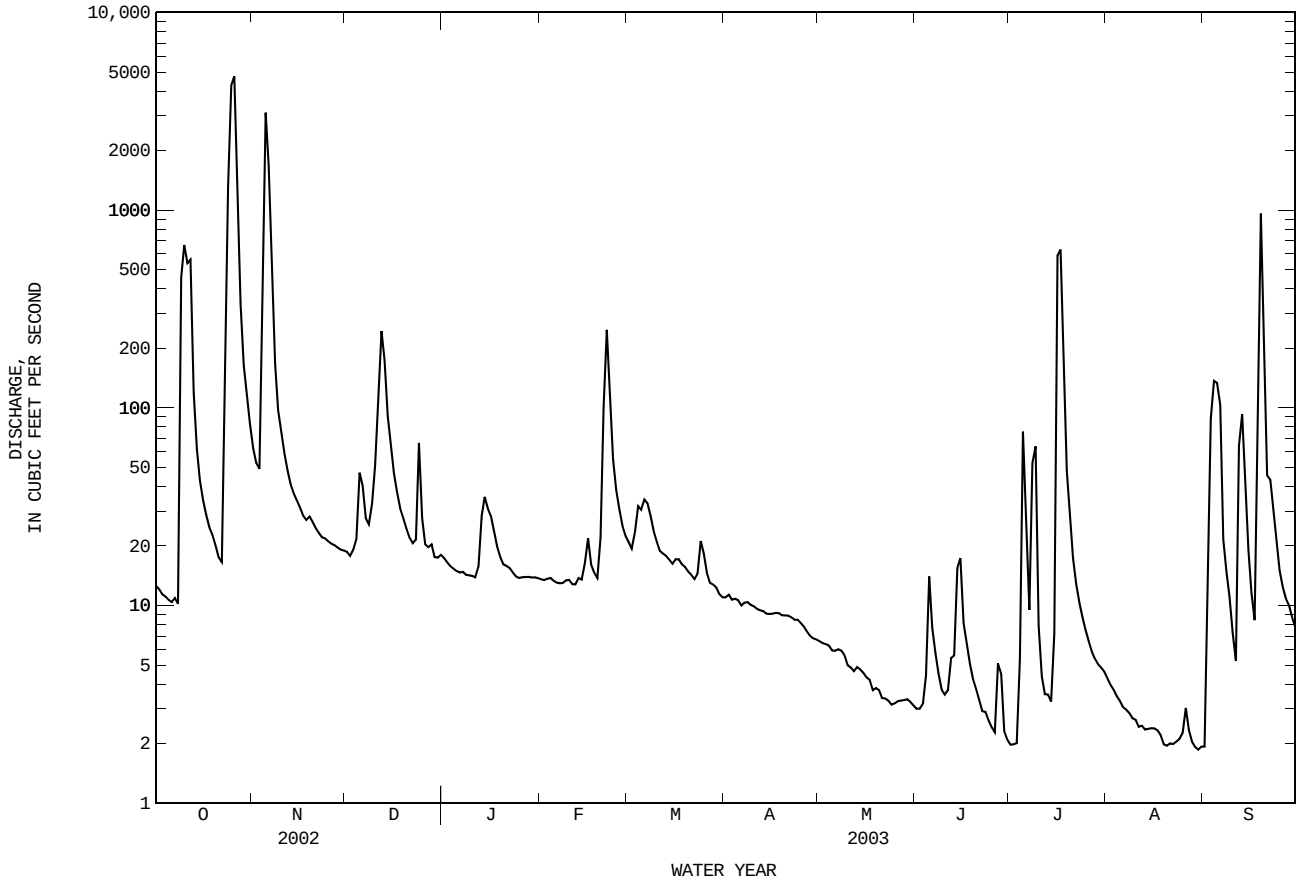
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	3.1
2	---	---	---	---	---	---	---	---	---	---	---	2.6
3	---	---	---	---	---	---	---	---	---	---	---	2.4
4	---	---	---	---	---	---	---	---	---	---	---	2.4
5	---	---	---	---	---	---	---	---	---	---	---	2.3
6	---	---	---	---	---	---	---	---	---	---	---	2.5
7	---	---	---	---	---	---	---	---	---	---	---	13
8	---	---	---	---	---	---	---	---	---	---	---	115
9	---	---	---	---	---	---	---	---	---	---	---	2070
10	---	---	---	---	---	---	---	---	---	---	---	4540
11	---	---	---	---	---	---	---	---	---	---	---	2610
12	---	---	---	---	---	---	---	---	---	---	---	956
13	---	---	---	---	---	---	---	---	---	---	---	188
14	---	---	---	---	---	---	---	---	---	---	---	76
15	---	---	---	---	---	---	---	---	---	---	---	570
16	---	---	---	---	---	---	---	---	---	---	---	477
17	---	---	---	---	---	---	---	---	---	---	---	305
18	---	---	---	---	---	---	---	---	---	---	---	107
19	---	---	---	---	---	---	---	---	---	---	---	63
20	---	---	---	---	---	---	---	---	---	---	---	87
21	---	---	---	---	---	---	---	---	---	---	---	35
22	---	---	---	---	---	---	---	---	---	---	---	27
23	---	---	---	---	---	---	---	---	---	---	---	23
24	---	---	---	---	---	---	---	---	---	---	---	20
25	---	---	---	---	---	---	---	---	---	---	---	18
26	---	---	---	---	---	---	---	---	---	---	e2.5	16
27	---	---	---	---	---	---	---	---	---	---	2.4	15
28	---	---	---	---	---	---	---	---	---	---	e2.3	14
29	---	---	---	---	---	---	---	---	---	---	e2.4	14
30	---	---	---	---	---	---	---	---	---	---	3.5	13
31	---	---	---	---	---	---	---	---	---	---	5.0	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	12387.3
MEAN	---	---	---	---	---	---	---	---	---	---	---	413
MAX	---	---	---	---	---	---	---	---	---	---	---	4540
MIN	---	---	---	---	---	---	---	---	---	---	---	2.3
AC-FT	---	---	---	---	---	---	---	---	---	---	---	24570

08207500 Atascosa River near McCoy, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	62	19	17	14	21	11	6.6	3.0	2.0	4.3	1.9
2	12	53	18	17	13	19	11	6.4	3.0	2.0	4.0	15
3	11	49	19	16	14	24	11	6.4	3.2	2.0	3.7	88
4	11	311	22	15	14	32	11	6.3	4.4	5.4	3.5	137
5	11	3110	47	15	13	31	11	5.9	14	76	3.3	134
6	10	1660	40	15	13	34	10	5.9	7.7	27	3.1	104
7	11	508	28	15	13	33	10	6.0	5.7	9.5	3.0	22
8	10	167	26	14	13	28	10	5.9	4.5	52	2.9	15
9	456	97	33	14	13	24	10	5.6	3.7	64	2.7	11
10	666	74	51	14	13	21	9.9	5.0	3.5	7.9	2.6	7.2
11	539	59	113	14	13	19	9.6	4.9	3.7	4.4	2.4	5.2
12	561	48	245	16	13	18	9.5	4.7	5.4	3.6	2.5	64
13	120	41	174	28	14	18	9.4	4.9	5.6	3.6	2.4	93
14	62	37	91	35	14	17	9.1	4.8	15	3.3	2.4	42
15	43	34	65	31	16	16	9.1	4.6	17	7.2	2.4	19
16	34	31	46	28	22	17	9.1	4.3	8.1	590	2.4	12
17	29	28	37	23	16	17	9.2	4.2	6.5	632	2.3	8.4
18	25	27	31	20	15	16	9.1	3.7	5.1	175	2.2	57
19	23	28	28	18	14	16	8.9	3.8	4.3	48	2.0	961
20	20	27	25	16	22	15	8.9	3.7	3.8	28	2.0	165
21	18	25	22	16	100	14	8.9	3.4	3.3	17	2.0	45
22	17	23	21	15	248	14	8.7	3.4	2.9	13	2.0	43
23	102	22	22	15	125	14	8.5	3.3	2.9	10	2.0	30
24	1310	22	66	14	55	21	8.5	3.1	2.6	8.7	2.1	22
25	4270	21	28	14	38	18	8.1	3.2	2.4	7.5	2.3	15
26	4750	21	20	14	31	15	7.8	3.3	2.3	6.6	3.0	12
27	1250	20	20	14	25	13	7.4	3.3	5.1	5.8	2.3	11
28	336	20	20	14	23	13	7.0	3.3	4.5	5.4	2.0	10
29	164	19	18	14	---	12	6.8	3.4	2.3	5.0	1.9	8.7
30	113	19	17	14	---	11	6.7	3.3	2.1	4.9	1.9	7.8
31	83	---	18	14	---	11	---	3.1	---	4.6	1.9	---
TOTAL	15080	6663	1430	539	937	592	275.2	139.7	157.6	1831.4	79.5	2166.2
MEAN	486	222	46.1	17.4	33.5	19.1	9.17	4.51	5.25	59.1	2.56	72.2
MAX	4750	3110	245	35	248	34	11	6.6	17	632	4.3	961
MIN	10	19	17	14	13	11	6.7	3.1	2.1	2.0	1.9	1.9
AC-FT	29910	13220	2840	1070	1860	1170	546	277	313	3630	158	4300



08208000 Atascosa River at Whitsett, TX

LOCATION.--Lat 28°37'19", long 98°16'52", Live Oak County, Hydrologic Unit 12110111, 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^2.

PERIOD OF RECORD.--Sept. 1924 to May 1926 (monthly discharge only), May 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 159.04 ft above NGVD of 1929. 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. Satellite telemeter at station.

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 12.0 mi upstream from this station to supplement streamflow during dry periods. No known regulation. There are several small diversions above station. No flow at times.

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^3/s), occurred in Sept. 1919.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	181	46	45	28	38	22	13	6.0	4.4	19	4.2
2	46	200	44	48	28	35	22	13	5.5	3.3	17	4.2
3	44	305	41	41	27	35	21	12	5.5	2.5	15	87
4	41	672	41	39	27	41	22	12	8.3	6.6	13	814
5	38	3780	56	38	26	82	21	12	13	45	12	1040
6	35	8740	77	36	27	63	21	12	14	156	11	1290
7	33	5330	88	35	27	55	20	12	19	85	10	1170
8	31	1650	63	35	28	51	20	12	14	37	9.5	702
9	35	434	92	34	28	43	19	11	11	93	8.9	190
10	978	275	451	33	28	37	18	11	11	252	8.4	86
11	1990	210	375	31	28	34	18	11	12	33	7.9	49
12	720	167	408	33	27	31	18	10	10	17	7.5	370
13	650	139	1690	51	26	31	18	10	9.8	12	7.2	776
14	197	125	2490	112	27	30	17	10	21	9.3	6.7	1450
15	113	115	548	99	27	30	17	10	46	94	6.5	554
16	81	105	227	69	29	31	17	10	74	1020	6.2	182
17	65	98	152	55	50	51	17	9.7	32	3250	6.0	113
18	55	90	112	46	35	74	16	9.2	19	4650	5.9	122
19	48	84	88	40	29	43	16	8.8	12	1850	5.7	1030
20	43	81	72	36	33	34	16	8.2	9.3	258	5.4	5720
21	40	78	62	33	53	30	15	7.6	7.2	145	5.1	4070
22	36	72	55	32	237	28	15	7.4	5.7	102	4.9	729
23	64	67	54	32	347	27	16	7.2	4.7	75	5.2	451
24	860	65	239	31	179	26	15	7.0	4.0	56	5.2	301
25	3680	62	397	31	91	29	15	6.8	3.5	45	4.9	219
26	8230	59	186	33	64	31	15	6.4	3.1	38	4.8	164
27	6360	57	95	33	51	27	14	6.4	2.6	40	4.7	140
28	2790	54	69	33	42	25	14	7.0	9.4	34	4.7	118
29	800	51	59	33	---	24	13	6.6	9.7	29	4.9	101
30	326	49	49	30	---	23	13	6.4	6.2	26	4.5	85
31	234	---	47	29	---	22	---	6.4	---	22	4.2	---
TOTAL	28711	23395	8473	1306	1649	1161	521	292.1	408.5	12490.1	241.9	22131.4
MEAN	926	780	273	42.1	58.9	37.5	17.4	9.42	13.6	403	7.80	738
MAX	8230	8740	2490	112	347	82	22	13	74	4650	19	5720
MIN	31	49	41	29	26	22	13	6.4	2.6	2.5	4.2	4.2
AC-FT	56950	46400	16810	2590	3270	2300	1030	579	810	24770	480	43900

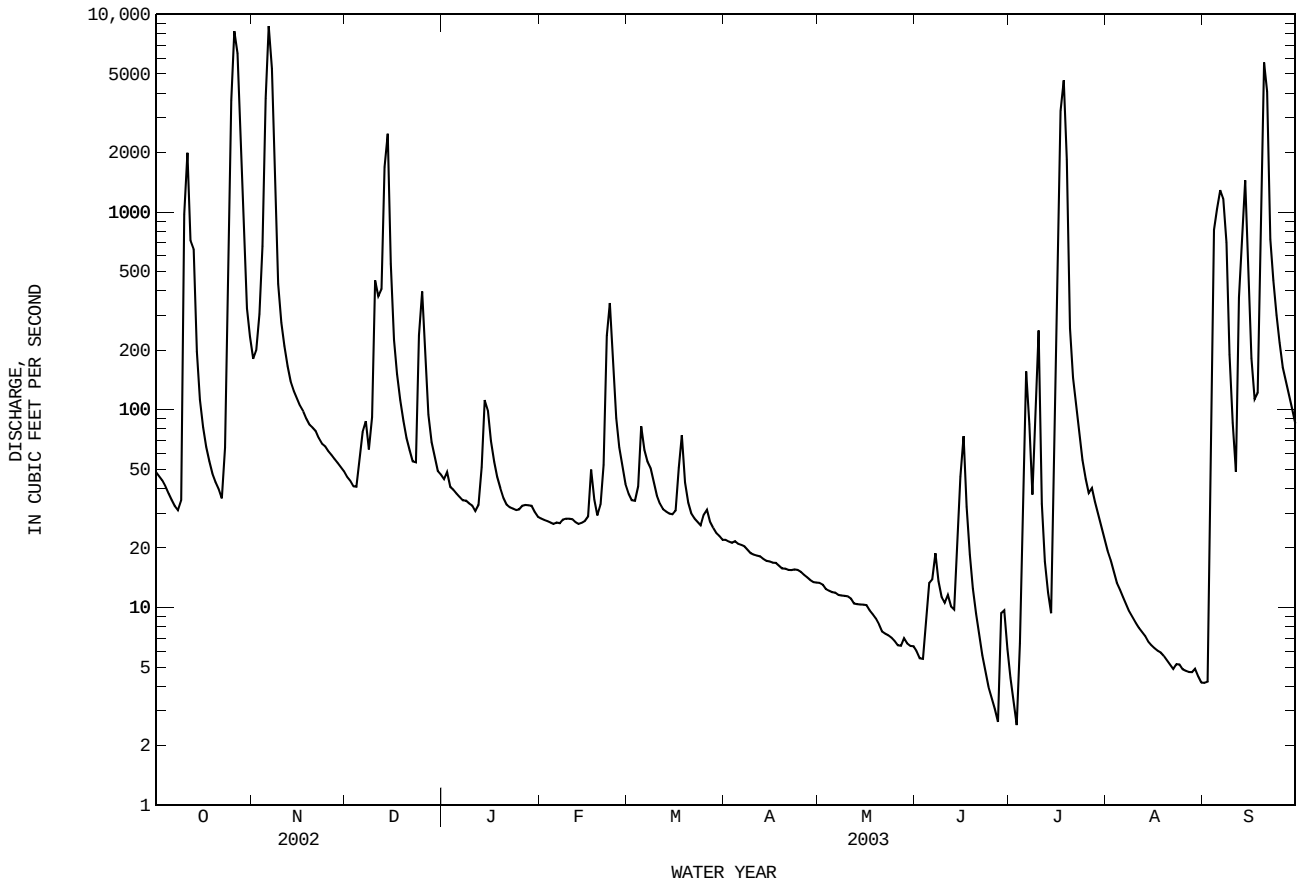
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

MEAN	112	70.5	61.1	75.8	91.3	33.4	142	216	230	144	72.4	258
MAX	926	780	1060	2053	1590	250	2298	1365	3445	2879	1207	5006
(WY)	2003	2003	1992	1968	1992	1970	1977	1957	1935	1942	1946	1967
MIN	0.048	0.21	0.19	1.52	1.57	1.51	0.57	0.000	0.000	0.000	0.000	0.001
(WY)	1989	1989	1989	1996	1990	1996	1996	1996	1989	1998	1954	1997

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	160013.3		100780.0			
ANNUAL MEAN	438		276		126	
HIGHEST ANNUAL MEAN					472	1935
LOWEST ANNUAL MEAN					2.29	1989
HIGHEST DAILY MEAN	11200	Sep 11	8740	Nov 6	65000	Sep 23 1967
LOWEST DAILY MEAN	1.6	Jun 21	2.5	Jul 3	0.00	Jun 11 1934
ANNUAL SEVEN-DAY MINIMUM	1.7	Jun 17	4.4	Jun 21	0.00	Jun 11 1934
MAXIMUM PEAK FLOW			9830	Nov 6	i121000	Sep 23 1967
MAXIMUM PEAK STAGE			28.40	Nov 6	a41.30	Sep 23 1967
ANNUAL RUNOFF (AC-FT)	317400		199900		91060	
10 PERCENT EXCEEDS	755		441		94	
50 PERCENT EXCEEDS	19		33		11	
90 PERCENT EXCEEDS	2.9		6.6		0.92	

i From indirect measurement of peak flow.
a From floodmark.

08208000 Atascosa River at Whitsett, TX--Continued



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^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to current year. Monthly discharge only for Nov. 1919 to Jan. 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 NGVD of 1929. 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, water-stage recorder at site 0.8 mi upstream at datum 1.87 ft higher. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Since Mar. 1948, at least 10% of contributing drainage area has been regulated. Part of the flow of the Nueces and Frio Rivers and their headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin upstream from U.S. Highway 90. Some loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. Flow of the Atascosa River at Whitsett (station 08208000) is supplemented during dry periods by discharge from the Campbellton water wells. There are many small diversions for irrigation and for municipal supply above this station. No flow at times.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--33 years (water years 1916-48) 945 ft^3/s (684,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1916-48).--Maximum discharge, 85,000 ft^3/s, Sept. 18, 1919, gage height, 46.0 ft, site and datum then in use; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	8680	306	457	179	279	198	62	39	43	164	42
2	260	7480	300	445	175	274	154	60	39	52	145	46
3	231	6300	294	346	180	276	149	59	38	209	126	48
4	205	5870	290	259	244	278	123	58	40	54	111	178
5	182	6500	288	243	254	290	117	57	47	70	99	776
6	163	9130	334	237	256	322	110	56	46	259	92	1310
7	148	13200	357	234	255	294	105	55	46	266	85	1240
8	140	13700	352	201	253	259	99	53	52	929	79	1060
9	151	10400	518	195	252	249	92	52	46	985	74	640
10	272	7360	1460	192	250	235	87	51	44	1090	70	318
11	1660	5600	1740	189	253	190	84	50	43	1030	67	198
12	1950	4530	1280	192	266	185	83	50	43	668	63	962
13	1140	3800	1940	197	313	190	84	49	57	733	60	1060
14	1270	3220	2390	218	310	190	86	48	61	2110	57	1060
15	1440	2510	2410	257	345	191	88	47	115	3340	57	1810
16	1440	1320	796	243	437	190	84	47	168	4240	56	674
17	1400	785	515	216	440	190	80	47	152	5340	54	620
18	1350	672	443	197	455	235	78	45	210	5780	53	695
19	1510	518	399	185	435	389	81	45	278	6310	50	1180
20	1560	475	370	179	441	365	83	44	280	5620	49	2020
21	1330	445	351	178	488	343	84	43	218	3970	48	3860
22	1040	421	338	179	576	192	81	42	126	3020	47	4110
23	1140	397	336	177	767	165	79	42	85	1730	47	1650
24	3000	380	419	173	869	157	76	42	64	804	47	1080
25	7510	368	765	171	637	118	73	41	53	696	46	1120
26	9870	357	780	167	421	204	70	41	46	668	43	879
27	12100	342	575	163	316	146	68	40	43	559	42	679
28	12900	333	502	161	290	178	66	41	40	393	41	312
29	11000	323	476	160	---	380	65	41	42	281	40	206
30	9130	314	465	185	---	384	64	40	46	226	41	168
31	8750	---	463	182	---	401	---	39	---	190	42	---
TOTAL	94542	115730	22252	6778	10357	7739	2791	1487	2607	51665	2095	30001
MEAN	3050	3858	718	219	370	250	93.0	48.0	86.9	1667	67.6	1000
MAX	12900	13700	2410	457	869	401	198	62	280	6310	164	4110
MIN	140	314	288	160	175	118	64	39	38	43	40	42
AC-FT	187500	229600	44140	13440	20540	15350	5540	2950	5170	102500	4160	59510

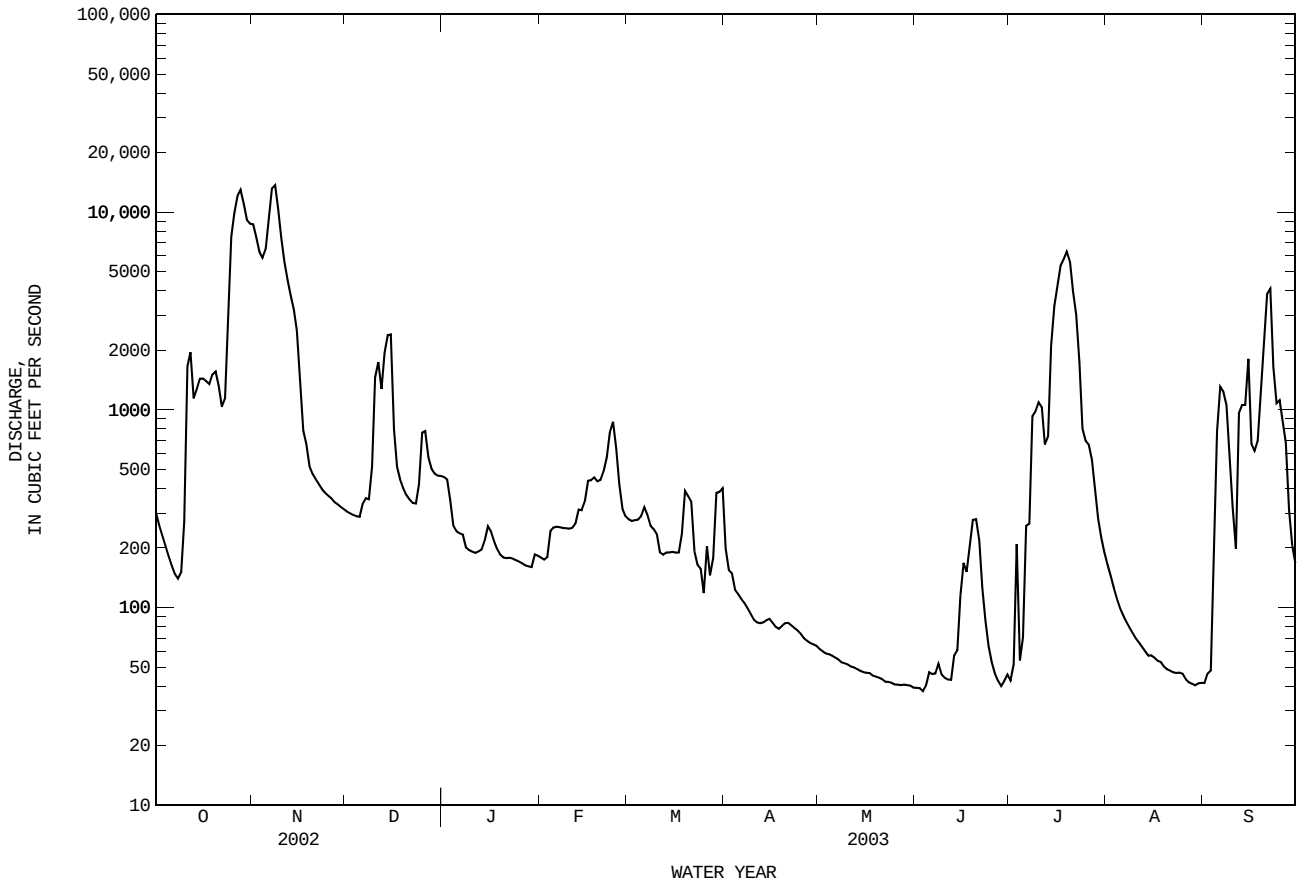
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003z, BY WATER YEAR (WY)

MEAN	1171	561	239	314	357	219	430	1048	1232	921	588	1524
MAX	13810	4944	1801	4833	7868	2285	5082	8645	8451	16010	10550	23650
(WY)	1972	1977	1977	1958	1958	1949	1977	1957	1987	2002	1971	1967
MIN	0.54	0.033	0.63	3.61	5.80	6.21	4.30	1.85	8.72	3.05	0.026	1.28
(WY)	1963	1951	1951	1967	1951	1963	1984	1971	1967	1967	1962	1984

08210000 Nueces River near Three Rivers, TX--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003z	
ANNUAL TOTAL	1138532		348044			
ANNUAL MEAN	3119		954		717	
HIGHEST ANNUAL MEAN					2764	2002
LOWEST ANNUAL MEAN					82.3	1984
HIGHEST DAILY MEAN	46200	Sep 12	13700	Nov 8	128000	Sep 23 1967
LOWEST DAILY MEAN	28	Jun 26	38	Jun 3	0.00	Aug 25 1950
ANNUAL SEVEN-DAY MINIMUM	29	Jun 20	39	May 29	0.00	Aug 28 1950
MAXIMUM PEAK FLOW			14500	Nov 7	141000	Sep 23 1967
MAXIMUM PEAK STAGE			37.63	Nov 7	49.21	Sep 23 1967
ANNUAL RUNOFF (AC-FT)	2258000		690300		519600	
10 PERCENT EXCEEDS	11300		2060		1430	
50 PERCENT EXCEEDS	198		235		91	
90 PERCENT EXCEEDS	37		46		6.5	

z Period of requlated streamflow.



08210000 Nueces River near Three Rivers, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Aug. 1941 to Sept. 1952, May 1965 to current year.
BIOCHEMICAL DATA: May 1965 to current year.
PESTICIDE DATA: Jan. 1968 to May 1982, Oct. 1996 to current year.
SEDIMENT DATA: Oct. 1941 to Aug. 1945, Mar. 1951 to Sept. 1952, Oct. 1974 to Aug. 1994.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct. 1941 to Sept. 1952, Oct. 1974 to Sept. 1981.
WATER TEMPERATURE: Oct. 1950 to Sept. 1952, Oct. 1974 to Sept. 1981.
SUSPENDED-SEDIMENT DISCHARGE: Oct. 1950 to Sept. 1951.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,310 microsiemens/cm, Jan. 17, 1977; minimum daily, 157 microsiemens/cm, 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 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)
DEC													
20...	0940	372	784	7.6	15.0	8.9	88	250	89	80.2	12.3	58.6	2
APR													
03...	0940	150	1360	7.7	19.0	8.8	95	330	150	105	15.9	134	3
JUN													
18...	0915	200	2240	7.5	28.0	5.7	73	280	130	91.9	12.2	358	9
SEP													
09...	0820	698	460	7.6	26.5	6.8	85	130	24	41.5	5.37	38.0	1

Date	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)
DEC													
20...	33	5.28	1	196	163	63.5	98.6	.20	14.3	432	--	E.006	.21
APR													
03...	46	7.03	2	220	183	114	244	.40	10.3	742	.16	.013	.18
JUN													
18...	73	11.3	1	186	154	179	496	.3	14.3	1260	.44	.030	.47
SEP													
09...	38	9.56	<1	125	104	26.5	58.3	.2	16.5	260	.20	.011	.21

Date	Ammonia water, fltrd, mg/L as N (00608)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)
DEC													
20...	.06	.25	.31	.06	.05	.159	<2	E.17	E2	106	<.06	<.04	<.8
APR													
03...	<.04	--	.30	E.03	.02	.074	<2	E.16	3	119	<.06	<.04	<.8
JUN													
18...	.09	.60	.69	.11	.04	.123	M	E.23	6	139	<.06	<.04	<.8
SEP													
09...	E.04n	--	.73	.24	.22	.678	E2n	E.16n	7	75	<.06	<.04	<.8

Date	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Mercury water, fltrd, ug/L (71890)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)
DEC													
20...	.32	1.0	<10	<.08	23	34.8	<.02	1.1	3.20	<3	<.20	459	E4
APR													
03...	.61	1.3	<10	<.08	40	40.5	<.02	1.4	4.04	<3	<.20	767	<8
JUN													
18...	.44	2.9	E8	<.08	98	3.0	<.02	2.7	3.10	<3	<.20	799	9
SEP													
09...	.32	1.5	34	E.05n	13	34.9	<.02	1.3	1.30	E2n	<.20	265	E5n

08210000 Nueces River near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbofuran, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-dinitrophenol, wat flt 0.7u GF ug/L (49299)	Acetochlor, water, fltrd, ug/L (49260)	Acifluorfen, water, fltrd 0.7u GF ug/L (49315)	Alachlor, water, fltrd, ug/L (46342)	Aldicarb, water, fltrd 0.7u GF ug/L (49312)
DEC													
20...	4	1.34	<.07	<.16	<.25	<.006	<.03	<.40	<.25	<.006	<.05	<.004	<.21
APR													
03...	1	1.61	<.07	<.16	<.25	<.006	<.03	<.23	<.25	<.006	<.05	<.004	<.21
JUN													
18...	2	1.20	<.07	<.16	<.25	<.006	<.03b	<.27	<.25	<.006	<.05	<.004	<.21
SEP													
09...	Mn	.39	<.07	<.16	<.25	<.006	<.03b	<.11	<.25	<.006	<.05	<.004	<.21

Date	Aldicarb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldicarb sulfoxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benflurralin, water, fltrd 0.7u GF ug/L (82673)	Bentazon, water, fltrd 0.7u GF ug/L (38711)	Bromacil, water, fltrd, ug/L (04029)	Bromoxynil, water, fltrd 0.7u GF ug/L (49311)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (49310)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (49309)
DEC													
20...	<.20	<.27	<.005	.154	<.050	<.010	<.05	<.99	<.07	<.002	<.080	<.041	<.15
APR													
03...	<.20	<.27	<.005	.056	<.050	<.010	<.05	<.11	<.07	<.002	<.080	<.041	<.15
JUN													
18...	<.20	<.27	<.005	.036	<.050	<.010	<.05	<.10	<.07	<.002	<.080	<.041	<.21
SEP													
09...	<.20	<.27	<.005	.009	<.050	<.010	<.05	<.09	<.07	<.002	<.080	<.041	<.16

Date	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorothalonil, water, fltrd 0.7u GF ug/L (49306)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Clopyralid, water, fltrd 0.7u GF ug/L (49305)	Cyanazine, water, fltrd, ug/L (04041)	Dacthal monoacid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlobenil, water, fltrd 0.7u GF ug/L (49303)	Dichlorprop, water, fltrd 0.7u GF ug/L (49302)
DEC													
20...	<.020	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.012	<.005	<.11	<.09	<.12
APR													
03...	<.020	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.008	<.005	<.11	<.09	<.12
JUN													
18...	<.020	<.25	<.005	<.006	<.42	<.018	<.07	<.003	E.009	<.005	<.11	<.10	<.12
SEP													
09...	<.020	<.25	--m	<.006	<.42	<.018	<.07	<.003	E.005n	--m	<.11	<.09	<.12

Date	Dieldrin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluometuron water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)
DEC													
20...	<.005	<.09	<.02	<.12	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
APR													
03...	<.005	<.09	<.02	<.12	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
JUN													
18...	<.005	<.09	<.02	<.31	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035
SEP													
09...	<.005	<.09	--m	<.12	<.002	<.009	--m	<.07	<.06	--m	<.004	<.06	<.035

Date	Malathion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methiocarb, water, fltrd 0.7u GF ug/L (38501)	Methomyl, water, fltrd 0.7u GF ug/L (49296)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflurazon, water, fltrd 0.7u GF ug/L (49293)	Oryzalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)
DEC													
20...	<.027	<.20	<.26	<.07	<.22	.047	<.006	<.002	<.007	<.07	<.04	<.28	<.28
APR													
03...	<.027	<.20	<.26	<.07	<.22	.015	<.006	<.002	<.007	<.07	<.04	<.28	<.16
JUN													
18...	<.027	<.20	<.26	<.07	<.22	<.013	<.006	<.002	<.007	<.07	<.05	<.28	<.16
SEP													
09...	--m	<.20	<.26	<.07	<.22	<.013	<.006	<.002	<.007	<.07	<.04	<.30	<.16

08210000 Nueces River near Three Rivers, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate fltrd 0.7u GF ug/L (82664)	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)
DEC													
20...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.68	<.12
APR													
03...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
JUN													
18...	<.003	<.010	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.37	<.12
SEP													
09...	<.003	--m	--m	<.004	<.022	--m	<.09	Mt	<.010	<.011	<.02	<.22	<.12

Date	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)
DEC													
20...	<.004	.175	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
APR													
03...	<.004	.022	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
JUN													
18...	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.09	<.009	<.007	<.005	<.005	<.009
SEP													
09...	<.004	<.005	<.02	<.034	--m	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009

Date	Desulfinyl fipronil, water, fltrd, ug/L (62170)
DEC	
20...	<.004
APR	
03...	<.004
JUN	
18...	<.004
SEP	
09...	<.004

Remark codes used in this report:
- < -- Less than
- E -- Estimated value
- M -- Presence verified, not quantified

Value qualifier codes used in this report:
- b -- Value was extrapolated below
- n -- Below the NDV
- t -- Below the long-term MDL

Null value qualifier codes used in this report:
- m -- Results sent by separate memo

THIS PAGE IS INTENTIONALLY BLANK

08210100 Nueces River at George West, TX

LOCATION.--Lat 28°19'58", long 98°05'08", Live Oak County, Hydrologic Unit 12110111, on downstream side of U.S. Highway 59 bridge, 2.0 mi east of Georgewest, and at mile 83.5.

DRAINAGE AREA.--15,724 mi^2.

PERIOD OF RECORD.--Dec. 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 69.91 ft above NGVD of 1988. Satellite telemeter at station.

REMARKS.--Records good. Since installation of gage in 2000, at least 10% of the contributing drainage area has been regulated. There are many small diversions for irrigation and municipal use above this station.

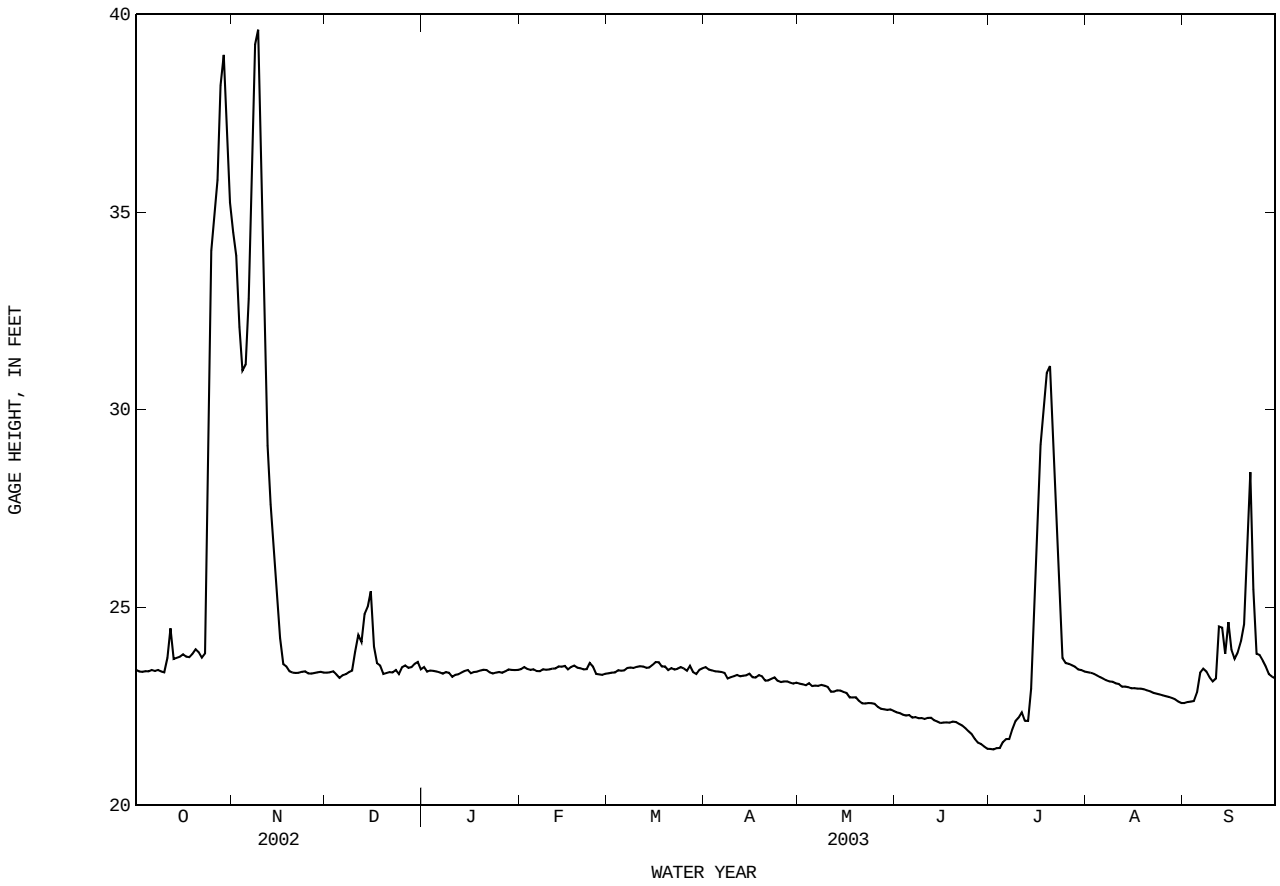
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 56.41 ft, July 19, 2002; minimum gage height, 11.64 ft, Aug 12, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 40.06 ft, Nov. 9; minimum gage height, 21.30 ft, July 4.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.42	34.49	23.35	23.49	23.44	23.34	23.49	23.07	22.35	21.42	23.37	22.58
2	23.38	33.90	23.36	23.38	23.50	23.35	23.43	23.06	22.33	21.41	23.35	22.61
3	23.37	32.10	23.39	23.41	23.44	23.36	23.41	23.03	22.29	21.44	23.32	22.62
4	23.39	30.99	23.31	23.40	23.42	23.41	23.38	23.08	22.27	21.45	23.29	22.64
5	23.39	31.14	23.22	23.38	23.44	23.40	23.38	23.01	22.28	21.59	23.24	22.85
6	23.42	32.80	23.28	23.36	23.39	23.41	23.37	23.02	22.21	21.67	23.20	23.35
7	23.39	36.02	23.31	23.32	23.39	23.47	23.35	23.02	22.23	21.67	23.16	23.45
8	23.42	39.25	23.37	23.37	23.44	23.48	23.20	23.04	22.20	21.92	23.13	23.38
9	23.38	39.61	23.40	23.35	23.42	23.47	23.23	23.02	22.20	22.13	23.12	23.24
10	23.36	36.55	23.88	23.25	23.43	23.50	23.26	22.99	22.18	22.22	23.08	23.13
11	23.73	31.89	24.31	23.30	23.45	23.51	23.29	22.87	22.21	22.35	23.06	23.20
12	24.47	29.09	24.13	23.31	23.46	23.51	23.26	22.87	22.21	22.13	23.00	24.52
13	23.70	27.61	24.83	23.36	23.51	23.48	23.27	22.90	22.15	22.13	23.00	24.49
14	23.72	26.62	25.02	23.39	23.50	23.48	23.28	22.90	22.12	22.94	22.98	23.83
15	23.75	25.54	25.41	23.42	23.52	23.55	23.32	22.86	22.08	25.07	22.96	24.63
16	23.81	24.23	24.01	23.33	23.43	23.62	23.23	22.84	22.09	27.07	22.96	23.94
17	23.76	23.57	23.59	23.37	23.49	23.61	23.23	22.72	22.09	29.11	22.95	23.70
18	23.74	23.51	23.53	23.38	23.53	23.51	23.29	22.73	22.08	30.08	22.95	23.85
19	23.83	23.38	23.32	23.40	23.48	23.51	23.26	22.73	22.11	30.93	22.93	24.13
20	23.94	23.35	23.34	23.42	23.46	23.42	23.15	22.64	22.10	31.11	22.90	24.58
21	23.87	23.35	23.37	23.42	23.43	23.47	23.15	22.58	22.05	28.88	22.88	26.56
22	23.73	23.35	23.35	23.36	23.44	23.43	23.19	22.57	22.01	26.76	22.84	28.42
23	23.83	23.37	23.42	23.33	23.59	23.45	23.23	22.58	21.94	25.12	22.82	25.46
24	26.62	23.38	23.32	23.35	23.51	23.49	23.15	22.58	21.87	23.72	22.80	23.83
25	34.02	23.33	23.49	23.37	23.32	23.46	23.11	22.56	21.79	23.60	22.78	23.80
26	34.95	23.33	23.53	23.35	23.31	23.40	23.13	22.49	21.68	23.57	22.76	23.65
27	35.81	23.34	23.48	23.39	23.29	23.53	23.13	22.44	21.58	23.54	22.74	23.51
28	38.21	23.36	23.49	23.44	23.33	23.36	23.10	22.43	21.54	23.50	22.71	23.31
29	38.98	23.37	23.58	23.42	---	23.31	23.07	22.41	21.48	23.44	22.67	23.25
30	37.39	23.35	23.62	23.42	---	23.42	23.10	22.42	21.42	23.42	22.62	23.21
31	35.24	---	23.44	23.42	---	23.46	---	22.38	---	23.38	22.58	---
MEAN	26.61	27.97	23.66	23.38	23.44	23.46	23.25	22.77	22.04	24.15	22.97	23.86
MAX	38.98	39.61	25.41	23.49	23.59	23.62	23.49	23.08	22.35	31.11	23.37	28.42
MIN	23.36	23.33	23.22	23.25	23.29	23.31	23.07	22.38	21.42	21.41	22.58	22.58

08210100 Nueces River at George West, TX--Continued



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^2.

WATER-CONTENT RECORDS

PERIOD OF RECORD.--Sept. 1948 to Sept. 1960 (end of month contents only), Oct. 1960 to current year.

REVISED RECORDS.--WSP 1923: 1953(M), 1957(M).

GAGE.--Water-stage recorder. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is NGVD of 1929. 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. Satellite telemeter at station.

REMARKS.--Records good. 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 Mar. 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 Aug. 1966. All gates in both spillways are 37.5 by 8.75 ft wide. The dam is owned by the City of Corpus Christi. 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 withdraw water from the lake for municipal use. Conservation pool storage is 269,900 acre-ft. Data regarding the dam are given in the following table:

	Elevation (feet)
Top of dam	106.0
Top of north spillway gates	94.5
Top of south spillway gates	94.0
Crest of spillways	88.0
Lowest gated outlet (invert)	55.5

COOPERATION.--Capacity curve 5-C from a Jan. 1987 survey provided by the City of Corpus Christi. Figures for new capacity curve were used beginning Oct. 1, 1989. Prior to Aug. 31, 1998, the City of Corpus Christi provided daily observer readings.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 320,000 acre-ft Sept. 22, 1967 and Sept. 12, 1971, elevation, 94.82 ft, Sept. 22, 1967; minimum contents, 14,740 acre-ft, May 5, 1951, elevation, 67.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 258,400 acre-ft, Oct. 25, elevation, 94.82 ft; minimum contents, 205,800 acre-ft, July 3, 5, elevation, 92.10 ft.

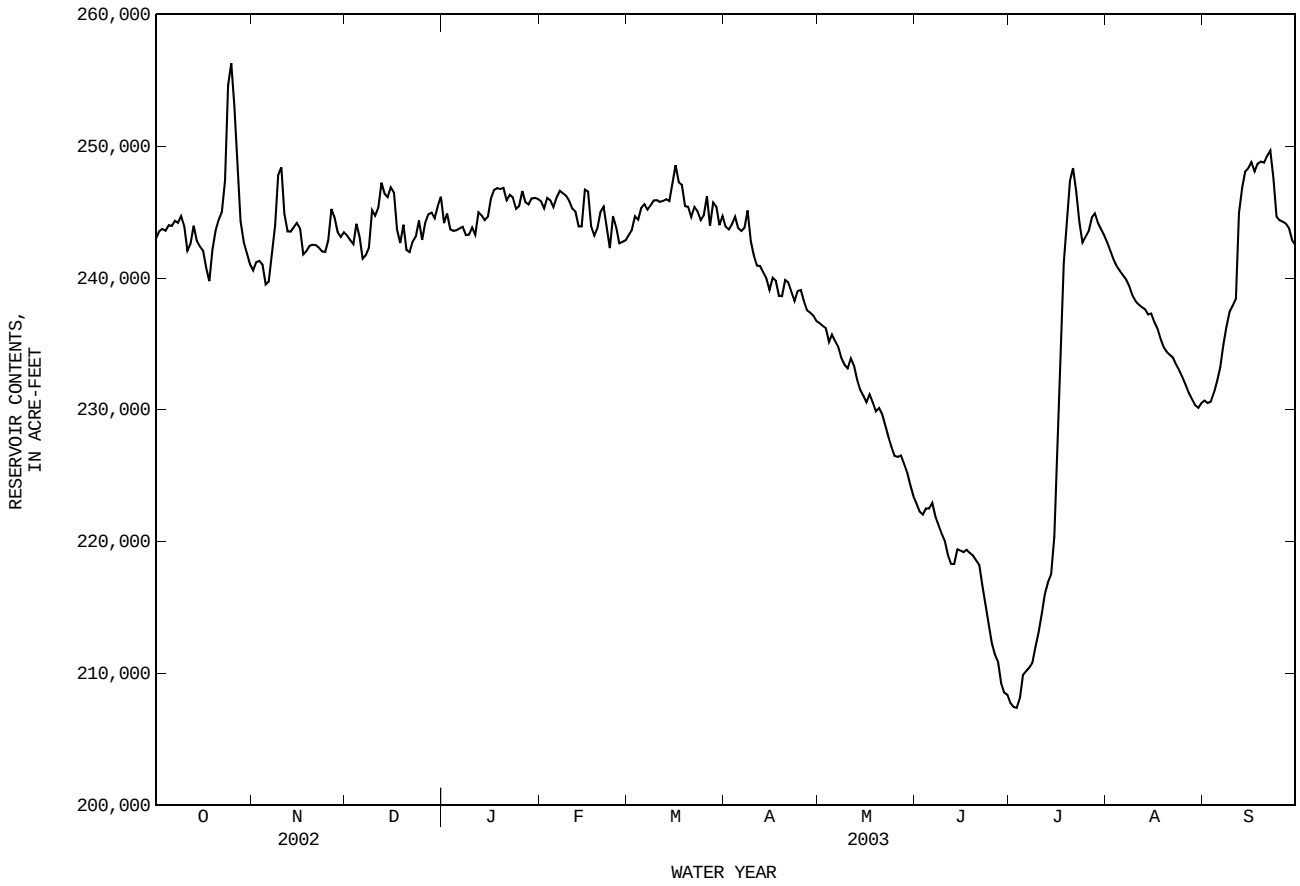
RESERVOIR STORAGE, IN (ACRE-FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	243000	240600	243200	244200	245800	243300	243900	236600	222900	207700	242600	230700
2	243500	241200	242900	244900	245300	243600	243700	236400	222300	207400	242000	230500
3	243700	241300	242600	243700	246100	244700	244100	236200	222000	207400	241400	230600
4	243600	241000	244100	243600	245900	244400	244600	235100	222500	208100	240900	231300
5	244000	239500	243100	243600	245400	245300	243800	235700	222500	209900	240500	232200
6	244000	239700	241500	243800	246100	245600	243600	235200	222900	210200	240200	233200
7	244300	242000	241700	243900	246600	245200	243800	234800	221900	210400	239900	234900
8	244200	244000	242300	243300	246400	245500	245100	233900	221300	210800	239400	236300
9	244700	247800	245100	243300	246200	245900	242800	233400	220600	212100	238700	237400
10	243900	248400	244700	243800	245900	245900	241700	233200	220100	213100	238200	237900
11	242100	244800	245300	243300	245300	245800	240900	233900	219000	214500	238000	238400
12	242600	243500	247200	245000	245000	245800	240900	233400	218300	216000	237800	244900
13	244000	243500	246400	244800	243900	246000	240400	232300	218300	216900	237600	246800
14	242800	243900	246100	244400	243900	245800	240000	231500	219400	217500	237200	248100
15	242400	244200	246900	244700	246700	247200	239100	231100	219300	220400	237300	248300
16	242100	243800	246500	246000	246600	248600	240000	230600	219200	228100	236600	248800
17	240800	241800	243700	246700	243900	247300	239800	231200	219400	235500	236100	248100
18	239800	242000	242700	246800	243200	247100	238700	230500	219100	241100	235400	248700
19	242100	242400	244000	246800	243800	245500	238600	229900	218900	244500	234700	248800
20	243600	242500	242100	246800	245000	245400	239900	230100	218600	247400	234400	248700
21	244400	242500	242000	245900	245400	244600	239700	229700	218200	248300	234100	249300
22	245000	242300	242800	246300	243800	245400	239000	228800	216700	246500	233900	249700
23	247400	242000	243200	246100	242300	245100	238300	228000	215200	244200	233400	247600
24	e254600	242000	244400	245300	244700	244400	239000	227200	213800	242700	233000	244700
25	e256300	242900	242900	245500	243800	244800	239100	226500	212300	243100	232400	244400
26	253100	245200	244200	246600	242600	246200	238200	226400	211500	243600	231900	244300
27	248200	244600	244800	245800	242700	244000	237500	226500	210900	244600	231300	244100
28	244300	243500	245000	245600	242800	245700	237400	225900	209200	244900	230800	243800
29	242700	243100	244500	246000	---	245400	237200	225200	208500	244100	230400	242800
30	241900	243500	245500	246100	---	244000	236700	224300	208400	243700	230200	242500
31	241100	---	246200	246000	---	244700	---	223400	---	243200	230500	---
MEAN	244500	243000	244100	245100	244800	245400	240600	230900	217800	228000	236200	241900
MAX	256300	248400	247200	246800	246700	248600	245100	236600	222900	248300	242600	249700
MIN	239800	239500	241500	243300	242300	243300	236700	223400	208400	207400	230200	230500
(+)	93.99	94.11	94.24	94.23	94.08	94.17	93.77	93.06	92.25	94.10	93.44	94.06
(@)	-2300	+2400	+2700	-200	-3200	+1900	-8000	-13300	-15000	+34800	-12700	+12000

CAL YR 2002 MAX 256300 MIN 182800 (@) +1800
WTR YR 2003 MAX 256300 MIN 207400 (@) -900

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

08210500 Lake Corpus Christi near Mathis, TX--Continued



08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Mar. 1971 to Sept. 1976, Mar. 1999 to current year.
BIOCHEMICAL DATA: Mar. 1971 to Sept. 1976.
PESTICIDE DATA: Mar. 1999 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280238097521301 -- Lk Corpus Christi Site AC

Date	Time	Reser- voir storage acre-ft (00054)	Sam- pling depth, feet (00003)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temper- ature, water, deg C (00010)	Trans- parency Secchi disc, meters (00078)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hard- ness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
MAR													
25...	1510	245000	1.00	446	8.0	18.0	.67	8.8	93	150	24	50.4	5.22
MAR													
25-25	1510	--	--	--	--	--	--	--	--	--	--	--	--
25...	1512	--	10.0	445	8.0	17.5	--	8.8	92	--	--	--	--
25...	1513	--	20.0	444	8.2	17.5	--	8.6	90	--	--	--	--
25...	1516	--	30.0	444	8.1	17.0	--	8.0	83	--	--	--	--
25...	1518	--	39.0	438	7.9	16.0	--	7.5	76	140	22	49.1	5.02
MAY													
21...	1550	229000	1.00	525	8.3	29.5	1.01	8.4	110	170	38	58.6	6.34
MAY													
21-21	1550	--	--	--	--	--	--	--	--	--	--	--	--
21...	1552	--	10.0	527	8.2	28.0	--	7.6	97	--	--	--	--
21...	1554	--	20.0	525	8.2	27.5	--	7.4	94	--	--	--	--
21...	1556	--	30.0	521	8.1	27.0	--	7.0	88	--	--	--	--
21...	1558	--	39.0	--	--	--	--	--	--	--	--	--	--
21...	1558	--	39.0	498	7.4	23.5	--	2.0	24	170	32	56.0	6.11
JUL													
29...	1305	244000	1.00	635	8.1	30.5	.58	7.4	98	180	61	60.4	7.86
JUL													
29-29	1305	--	--	--	--	--	--	--	--	--	--	--	--
29...	1307	--	10.0	638	7.9	29.0	--	6.1	79	--	--	--	--
29...	1309	--	20.0	638	7.9	29.0	--	5.4	70	--	--	--	--
29...	1311	--	30.0	643	7.3	28.5	--	1.0	13	--	--	--	--
29...	1313	--	39.0	646	7.1	28.5	--	E.2	--	190	59	61.6	7.92

280238097521301 -- Lk Corpus Christi Site AC

Date	Sodium, water, fltrd, mg/L (00930)	Sodium adsorp- tion ratio (00931)	Sodium, percent (00932)	Potas- sium, water, fltrd, mg/L (00935)	Carbon- ate, wat flt incrm. titr., field, mg/L (00452)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue water, fltrd, sum of consti- tuents mg/L (70301)	Oil and grease, water, unfltrd freon extract mg/L (00556)
MAR													
25...	28.7	1	29	6.20	1	148	123	28.2	41.5	.11	11.6	246	--
MAR													
25-25	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	26.8	1	28	6.31	<1	148	123	27.2	38.2	.11	11.5	238	--
MAY													
21...	36.7	1	31	7.17	2	159	134	34.8	56.2	<.2	12.6	293	<7
MAY													
21-21	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	<7
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	33.4	1	29	7.05	<1	162	134	31.8	51.0	<.2	13.8	279	--
JUL													
29...	52.1	2	37	7.71	2	146	123	46.6	89.9	<.2	11.1	350	--
JUL													
29-29	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	52.2	2	37	7.64	<1	156	129	44.3	89.3	<.2	15.2	356	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280238097521301 -- Lk Corpus Christi Site AC

Date	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)
MAR													
25...	<2	E.19	2	100	<.06	<.04	<.8	.14	2.5	<10	<.08	10	.4
MAR													
25-25	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<2	E.19	E2	99	<.06	<.04	<.8	.15	2.8	<10	<.08	9	6.8
MAY													
21...	M	E.19	2	104	<.06	<.04	<.8	.21	2.5	<10	<.08	12	.4
MAY													
21-21	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	<2	E.17	2	99	<.06	<.04	<.8	.23	2.2	<10	<.08	11	29.8
JUL													
29...	<2	E.21n	5	108	<.06	E.03n	<.8	.19	2.0	<8	<.08	19	.8
JUL													
29-29	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	<2	E.20n	6	108	<.06	E.03n	<.8	.38	1.1	21	<.08	19	296

280238097521301 -- Lk Corpus Christi Site AC

Date	Mercury water, fltrd, ug/L (71890)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)
MAR													
25...	<.02	1.1	2.21	<3	<.20	243	E6	1	.82	--	--	--	--
MAR													
25-25	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.02	1.2	2.15	<3	<.20	229	E5	3	.79	--	--	--	--
MAY													
21...	<.02	1.1	1.05	<3	<.20	290	E4	M	.87	--	--	--	--
MAY													
21-21	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	<.02	1.1	1.11	<3	<.20	273	<8	1	.73	--	--	--	--
JUL													
29...	<.02	1.4	1.49	<3	<.20	328	6	2	.84	--	--	--	--
JUL													
29-29	--	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	<.02	1.4	1.60	<3	<.20	330	E4n	7	.77	--	--	--	--

280238097521301 -- Lk Corpus Christi Site AC

Date	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbo-furan, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-di-nitro-phenol, wat flt 0.7u GF ug/L (49299)	Aceto-chlor, water, fltrd, ug/L (49260)	Aci-fluor-fen, water, fltrd 0.7u GF ug/L (49315)	Ala-chlor, water, fltrd, ug/L (46342)	Aldi-carb, water, fltrd 0.7u GF ug/L (49312)	Aldi-carb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldi-carb sulf-oxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.059	<.050	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.123	<.050	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.03b	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.101	<.050	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280238097521301 -- Lk Corpus Christi Site AC

Date	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)	Broma-cil, water, fltrd, ug/L (04029)	Brom-oxynil, water, fltrd 0.7u GF ug/L (49311)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (49310)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (49309)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Carbo-pheno-thion, bed sedimnt ug/kg (39787)	Chloro-thalo-nil, water, fltrd 0.7u GF ug/L (49306)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Clopyr-alid, water, fltrd 0.7u GF ug/L (49305)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.05	<.13	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.05	<.12	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	<.6	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.05	<.25	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.52
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280238097521301 -- Lk Corpus Christi Site AC

Date	Cyana-zine, water, fltrd, ug/L (04041)	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, bed sedimnt ug/kg (39571)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.018	<.07	<.003	<.006	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.018	<.07	<.003	E.009	--	E.003n	<.11	<.09	<.12	<.005	<.09	<.02	<.12
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	<1.0	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.018	<.07	<.003	E.008	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280238097521301 -- Lk Corpus Christi Site AC

Date	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Ethion, bed sedimnt ug/kg (39399)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, bed sedimnt ug/kg (39531)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	<.6	--	--	--	--	--	--	--	<.6	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	E.003t	<.20
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280238097521301 -- Lk Corpus Christi Site AC

Date	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, bed sedimnt ug/kg (39541)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.26	<.07	<.22	.018	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.26	<.07	<.22	.018	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	<.6
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.26	<.07	<.22	E.011n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280238097521301 -- Lk Corpus Christi Site AC

Date	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, bed sedimnt ug/kg (39601)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Pic-loram, water, fltrd 0.7u GF ug/L (49291)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Pro-poxur, water, fltrd 0.7u GF ug/L (38538)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.24	<.12
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	<.6	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280238097521301 -- Lk Corpus Christi Site AC

Date	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-clopyr, water, fltrd 0.7u GF ug/L (49235)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.004	.021	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.004	.040	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.004	.031	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280238097521301 -- Lk Corpus Christi Site AC

Date	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
MAR	
25...	--
MAR	
25-25	<.004
25...	--
25...	--
25...	--
25...	--
MAY	
21...	--
MAY	
21-21	<.004
21...	--
21...	--
21...	--
21...	--
21...	--
JUL	
29...	--
JUL	
29-29	<.004
29...	--
29...	--
29...	--
29...	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280656097542801 -- Lk Corpus Christi Site BC

Date	Time	Sampling depth, feet (00003)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Oil and grease, water, unfltrd freon extract mg/L (00556)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)
MAR													
25...	1450	1.00	536	8.2	19.5	.46	8.4	92	--	--	--	--	--
MAR													
25-25	1450	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
25...	1451	10.0	523	8.2	19.5	--	8.5	93	--	--	--	--	--
25...	1454	23.0	521	8.1	19.0	--	8.0	87	--	--	--	--	--
MAY													
21...	1516	1.00	608	8.2	30.5	.49	7.9	106	<7	--	--	--	--
MAY													
21-21	1516	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
21...	1518	10.0	625	8.2	28.5	--	7.2	93	--	--	--	--	--
21...	1520	23.0	611	8.1	28.5	--	6.4	83	--	--	--	--	--
JUL													
29...	1345	1.00	642	7.9	30.0	.27	6.1	80	--	--	--	--	--
JUL													
29-29	1345	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
29...	1347	10.0	646	7.8	29.5	--	5.7	75	--	--	--	--	--
29...	1349	24.0	644	7.7	29.5	--	4.3	56	--	--	--	--	--

280656097542801 -- Lk Corpus Christi Site BC

Date	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbofuran, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-dinitrophenol, wat flt 0.7u GF ug/L (49299)	Acetochlor, water, fltrd, ug/L (49260)	Acifluorfen, water, fltrd 0.7u GF ug/L (49315)	Alachlor, water, fltrd, ug/L (46342)	Aldicarb, water, fltrd 0.7u GF ug/L (49312)	Aldicarb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldicarb sulfoxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.082	<.050	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.144	<.050	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.03b	<.11	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.070	<.050	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280656097542801 -- Lk Corpus Christi Site BC

Date	Bentazon, water, fltrd 0.7u GF ug/L (38711)	Bromacil, water, fltrd, ug/L (04029)	Bromoxynil, water, fltrd 0.7u GF ug/L (49311)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (49310)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (49309)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorothalonil, water, fltrd 0.7u GF ug/L (49306)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Clopyralid, water, fltrd 0.7u GF ug/L (49305)	Cyanazine, water, fltrd, ug/L (04041)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.05	<.17	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.05	<.22	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.42	<.018
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.05	<.17	<.07	<.002	<.080	<.041	<.15	<.020	<.25	<.005	<.006	<.51	<.018
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280656097542801 -- Lk Corpus Christi Site BC

Date	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<.003	<.006	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.07	<.003	E.014	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.07	<.003	E.005n	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12	<.002	<.009
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280656097542801 -- Lk Corpus Christi Site BC

Date	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	.020
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20	<.26	<.07	<.22	.018
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.005	<.07	<.06	<.003	<.004	<.06	<.035	E.007t	<.20	<.26	<.07	<.22	E.010n
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280656097542801 -- Lk Corpus Christi Site BC

Date	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	<.010	<.006	<.004	<.022	<.011
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

280656097542801 -- Lk Corpus Christi Site BC

Date	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004	.030	<.02	<.034	<.02	<.005
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004	.037	<.02	<.034	<.02	<.005
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.09	<.01	<.010	<.011	<.02	<.22	<.12	<.004	.021	<.02	<.034	<.02	<.005
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

280656097542801 -- Lk Corpus Christi Site BC

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinyl fipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
MAR								
25...	--	--	--	--	--	--	--	--
MAR								
25-25	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
MAY								
21...	--	--	--	--	--	--	--	--
MAY								
21-21	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
JUL								
29...	--	--	--	--	--	--	--	--
JUL								
29-29	<.002	<.07	<.009	<.007	<.005	<.005	<.009	<.004
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--

280921097562701 -- Lk Corpus Christi Site CC

Date	Time	Sampling depth, feet (00003)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
MAR							
25...	1430	1.00	618	8.2	20.5	8.1	91
25...	1432	12.0	619	8.1	20.5	7.8	87
MAY							
21...	1502	1.00	707	8.2	30.0	8.0	106
21...	1504	12.0	717	7.9	30.0	5.5	73
JUL							
29...	1355	1.00	628	7.8	31.0	5.9	79
29...	1357	12.0	618	7.6	29.5	4.3	56

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

281108097544701 -- Lk Corpus Christi Site DC

Date	Time	Sampling depth, feet (00003)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
MAR							
25...	1415	1.00	789	8.0	20.5	7.4	83
25...	1417	10.0	870	7.8	20.0	6.7	74
25...	1419	19.0	1070	7.6	20.0	5.4	60
MAY							
21...	1450	1.00	757	8.0	29.0	6.5	85
21...	1452	10.0	828	7.8	28.0	5.4	69
21...	1454	19.0	831	7.8	28.0	4.5	58
JUL							
29...	1415	1.00	572	8.1	32.0	7.9	108
29...	1417	10.0	544	7.5	29.5	3.7	48
29...	1419	19.0	533	7.2	29.5	1.4	18

281411097564801 -- Lk Corpus Christi Site EC

Date	Time	Sampling depth, feet (00003)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Oil and grease, water, unfltrd freon extract mg/L (00556)	2,4,5-T water, fltrd, ug/L (39742)	2,4-D water, fltrd, ug/L (39732)	2,4-DB water, fltrd 0.7u GF ug/L (38746)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)
MAR													
25...	1354	1.00	1250	7.8	21.0	.30	7.5	85	--	--	--	--	--
MAR													
25-25	1354	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
25...	1356	10.0	1330	7.7	20.5	--	6.6	74	--	--	--	--	--
25...	1358	20.0	1390	7.4	19.5	--	5.3	58	--	--	--	--	--
25...	1400	25.0	1390	7.4	19.5	--	5.4	59	--	--	--	--	--
MAY													
21...	1420	1.00	1110	7.9	31.0	--	7.6	102	<7	--	--	--	--
MAY													
21-21	1420	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
21...	1422	10.0	1120	7.6	28.5	--	4.6	59	--	--	--	--	--
21...	1424	20.0	1290	7.1	28.0	--	E.2	--	--	--	--	--	--
21...	1428	25.0	--	--	--	--	--	--	--	--	--	--	--
21...	1428	25.0	1300	7.1	28.0	--	E.2	--	--	--	--	--	--
JUL													
29...	1430	1.00	504	7.6	31.5	.49	6.3	85	--	--	--	--	--
JUL													
29-29	1430	--	--	--	--	--	--	--	--	<.07	<.16	<.25	<.006
29...	1432	10.0	507	7.3	30.0	--	3.0	40	--	--	--	--	--
29...	1434	24.0	508	7.2	30.0	--	2.1	28	--	--	--	--	--

281411097564801 -- Lk Corpus Christi Site EC

Date	Silvex, water, fltrd, ug/L (39762)	3-Hydroxy carbofuran, wat flt 0.7u GF ug/L (49308)	2Methyl 4,6-dinitrophenol, wat flt 0.7u GF ug/L (49299)	Acetochlor, water, fltrd, ug/L (49260)	Acifluorfen, water, fltrd 0.7u GF ug/L (49315)	Alachlor, water, fltrd, ug/L (46342)	Aldicarb, water, fltrd 0.7u GF ug/L (49312)	Aldicarb sulfone water, fltrd 0.7u GF ug/L (49313)	Aldicarb sulfoxide, wat flt 0.7u GF ug/L (49314)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.03	<.37	<.25	<.006	<.05	<.004	<.21	<.20	<.27	<.005	.625	<.050	<.010
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.03	<.11	<.25	<.006	<.05	<.004	<.21	<.48	<.27	<.005	.194	<.050	<.010
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.03b	<.14	<.25	<.006	<.05	<.004	<.22	<.20	<.27	<.005	.019	<.050	<.010
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

281411097564801 -- Lk Corpus Christi Site EC

Date	Ben-tazon, water, fltrd 0.7u GF ug/L (38711)	Broma-cil, water, fltrd, ug/L (04029)	Brom-oxynil, water, fltrd 0.7u GF ug/L (49311)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (49310)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (49309)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Carbo-pheno-thion, bed sedimnt ug/kg (39787)	Chloro-thalo-nil, water, fltrd 0.7u GF ug/L (49306)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Clopyr-alid, water, fltrd 0.7u GF ug/L (49305)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.07	<1.90	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.05	<.38	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	<1.0	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.05	<.09	<.07	<.002	<.080	<.041	<.15	<.020	--	<.25	<.005	<.006	<.42
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

281411097564801 -- Lk Corpus Christi Site EC

Date	Cyana-zine, water, fltrd, ug/L (04041)	Dacthal mono-acid, water, fltrd 0.7u GF ug/L (49304)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, bed sedimnt ug/kg (39571)	Diazi-non, water, fltrd, ug/L (39572)	Dicamba water fltrd 0.7u GF ug/L (38442)	Dichlo-benil, water, fltrd 0.7u GF ug/L (49303)	Di-chlor-prop, water, fltrd 0.7u GF ug/L (49302)	Diel-drin, water, fltrd, ug/L (39381)	Dinoseb water, fltrd 0.7u GF ug/L (49301)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	Diuron, water, fltrd 0.7u GF ug/L (49300)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.018	<.08	<.003	E.032	--	<.005	<.11	<.09	<.85	<.005	<.09	<.02	<.16
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.018	<.07	<.003	E.019	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.13
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	<2.0	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.018	<.07	<.003	E.004n	--	<.005	<.11	<.09	<.12	<.005	<.09	<.02	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

281411097564801 -- Lk Corpus Christi Site EC

Date	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Ethion, bed sedimnt ug/kg (39399)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fenuron water, fltrd 0.7u GF ug/L (49297)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (38478)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, bed sedimnt ug/kg (39531)	Mala-thion, water, fltrd, ug/L (39532)	MCPA, water, fltrd 0.7u GF ug/L (38482)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	<.027	<.20
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	<1.0	--	--	--	--	--	--	--	<.4	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.002	<.009	--	<.005	<.07	<.06	<.003	<.004	<.06	<.035	--	E.010t	<.20
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

281411097564801 -- Lk Corpus Christi Site EC

Date	MCPB, water, fltrd 0.7u GF ug/L (38487)	Methio-carb, water, fltrd 0.7u GF ug/L (38501)	Meth-omyl, water, fltrd 0.7u GF ug/L (49296)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	Neburon water, fltrd 0.7u GF ug/L (49294)	Norflur azon, water, fltrd 0.7u GF ug/L (49293)	Ory-zalin, water, fltrd 0.7u GF ug/L (49292)	Oxamyl, water, fltrd 0.7u GF ug/L (38866)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, bed sedimnt ug/kg (39541)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.80	<.07	<.22	.139	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.26	<.07	<.22	.022	<.006	<.002	<.007	<.07	<.04	<.28	<.17	<.003	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	<1.0
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.26	<.07	<.22	E.013n	<.006	<.002	<.007	<.07	<.04	<.28	<.16	<.003	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

281411097564801 -- Lk Corpus Christi Site EC

Date	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, bed sedimnt ug/kg (39601)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Picloram, water, fltrd 0.7u GF ug/L (49291)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Propham water fltrd 0.7u GF ug/L (49236)	Propoxur, water, fltrd 0.7u GF ug/L (38538)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<2.10	<.12
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.010	--	<.006	<.004	<.022	<.011	<.09	Mn	<.010	<.011	<.02	<.22	<.12
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	<.4	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.010	--	<.006	<.004	<.022	<.011	<.09	<.01	<.010	<.011	<.02	<.22	<.12
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

281411097564801 -- Lk Corpus Christi Site EC

Date	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Triclopyr, water, fltrd 0.7u GF ug/L (49235)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25-25	<.004	.350	<.02	<.034	<.02	<.005	<.002	<.22	<.009	<.007	<.005	<.005	<.009
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
21-21	<.004	.077	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
29-29	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.07	<.009	<.007	<.005	<.005	<.009
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

08210500 Lake Corpus Christi near Mathis, TX--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

281411097564801 -- Lk Corpus Christi Site EC

Date	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
MAR	
25...	--
MAR	
25-25	<.004
25...	--
25...	--
25...	--
MAY	
21...	--
MAY	
21-21	<.004
21...	--
21...	--
21...	--
21...	--
JUL	
29...	--
JUL	
29-29	<.004
29...	--
29...	--

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
b -- Value was extrapolated below
n -- Below the NDV
t -- Below the long-term MDL

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, 4.0 mi southwest of Mathis, and at mile 46.7.

DRAINAGE AREA.--16,660 mi^2.

PERIOD OF RECORD.--Aug. 1939 to current year.
Water-quality records.--Chemical data: Oct. 1947 to Sept. 1991. Specific conductance: Oct. 1947 to Sept. 1991. Water temperature: Oct. 1947 to Sept. 1991.

GAGE.--Water-stage recorder. Datum of gage is 26.53 ft above NGVD of 1929. Aug. 5, 1939, to Aug. 29, 1984, on left bank 9.0 ft upstream at datum 1.0 ft higher. Aug. 29 to Nov. 5, 1984, on left bank 9.0 ft upstream at present datum. Nov. 5, 1984, to Aug. 5, 1987, on left bank 154 ft downstream at present datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Since installation of gage in water year 1939, at least 10% of contributing drainage area has been regulated. 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 the City of Corpus Christi is released from Lake Corpus Christi above gage and is diverted from river at Calallen 34.0 mi downstream.

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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	7760	315	553	162	95	251	83	117	73	149	75
2	111	7480	301	638	158	95	212	83	112	74	136	79
3	103	7510	301	312	251	252	97	82	111	75	135	83
4	93	7240	586	305	347	106	97	81	112	83	134	85
5	87	6560	647	305	284	117	101	83	112	65	133	88
6	84	6280	169	323	385	190	116	81	105	49	129	84
7	84	6770	17	195	484	97	115	81	98	81	111	85
8	75	9120	107	177	329	98	379	87	98	109	98	86
9	253	10500	549	290	394	106	154	92	99	109	87	163
10	489	11400	819	354	341	179	101	92	145	108	79	310
11	917	8670	1120	135	286	213	123	83	96	110	80	314
12	973	5790	2000	170	430	214	123	76	69	115	92	1060
13	1220	3780	2130	162	594	217	123	84	70	113	112	1070
14	1070	3460	1980	84	532	216	98	127	69	163	82	887
15	992	3110	2000	82	659	328	85	114	70	300	71	1020
16	1520	2030	2000	335	1130	777	98	83	90	430	70	1080
17	1450	965	1600	158	599	668	100	89	107	961	70	1030
18	805	665	809	89	539	750	100	96	68	2730	70	1250
19	506	620	1050	81	538	666	113	110	124	3760	76	1640
20	708	430	376	80	591	566	105	123	369	4630	124	1840
21	721	452	213	81	966	116	90	130	608	5120	91	3270
22	818	382	188	165	738	136	90	126	616	4890	95	4330
23	1200	306	279	219	592	155	90	115	618	3700	98	4670
24	1970	301	626	60	784	137	89	115	617	1610	90	2220
25	6890	327	268	83	1140	138	92	112	616	268	90	1000
26	9600	595	266	257	321	580	96	105	618	245	90	967
27	9930	640	302	143	121	214	94	124	617	284	90	833
28	10800	350	254	73	95	377	105	143	610	672	85	693
29	11400	308	249	115	---	356	105	112	122	586	74	362
30	10800	339	502	204	---	70	100	164	84	310	74	104
31	9150	---	1150	177	---	142	---	199	---	234	75	---
TOTAL	85089	114140	23173	6405	13790	8371	3642	3275	7367	32057	2990	30778
MEAN	2745	3805	748	207	492	270	121	106	246	1034	96.5	1026
MAX	11400	11400	2130	638	1140	777	379	199	618	5120	149	4670
MIN	75	301	17	60	95	70	85	76	68	49	70	75
AC-FT	168800	226400	45960	12700	27350	16600	7220	6500	14610	63590	5930	61050

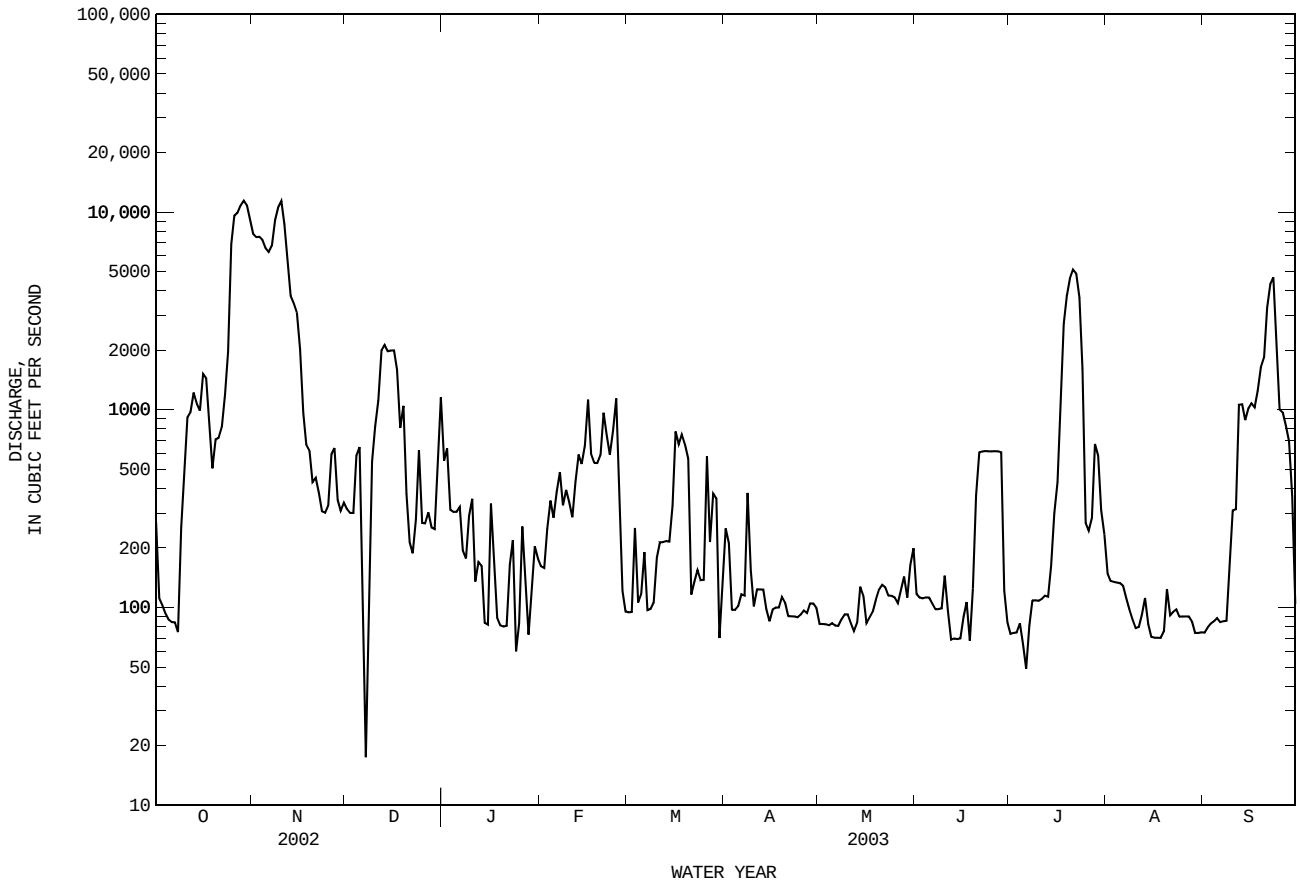
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	1223	500	218	287	323	274	417	1140	1221	1036	501	1645
MAX	14850	4552	1871	4994	5165	4377	4639	10500	8204	15180	10050	24950
(WY)	1972	1977	1977	1958	1958	1958	1977	1941	1987	2002	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 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	1126578.0		331077			
ANNUAL MEAN	3087		907		734	
HIGHEST ANNUAL MEAN					2743	2002
LOWEST ANNUAL MEAN					104	1964
HIGHEST DAILY MEAN	50800	Sep 15	11400	Oct 29	125000	Sep 25 1967
LOWEST DAILY MEAN	9.0	Sep 6	17	Dec 7	6.8	Aug 15 1940
ANNUAL SEVEN-DAY MINIMUM	29	Mar 4	71	Jul 1	15	Aug 9 1940
MAXIMUM PEAK FLOW			11600	Oct 29	i138000	Sep 24 1967
MAXIMUM PEAK STAGE			28.53	Oct 29	a48.70	Sep 24 1967
ANNUAL RUNOFF (AC-FT)	2235000		656700		531700	
10 PERCENT EXCEEDS	10500		2000		1210	
50 PERCENT EXCEEDS	163		195		130	
90 PERCENT EXCEEDS	49		82		54	

i From indirect measurement of peak flow.
a From floodmark.

08211000 Nueces River near Mathis, TX--Continued



08211200 Nueces River at Bluntzer, TX
(Partial-record station)

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^2.

PERIOD OF RECORD.--Jan. 1966 to Feb. 1967, Mar. 1992 to current year (daily mean discharges less than 2,950 ft^3/s). Prior to Oct. 1994, published as "above Calallen".

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 27, 1992, at same site at datum 6.04 ft higher. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since installation of gage in Jan. 1966, at least 10% of contributing drainage area has been regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 32.22 ft, Sept. 16, 2002; minimum discharge, no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,700 ft^3/s, Nov. 16, gage height, 19.99 ft; minimum discharge, no flow, Dec. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	567	---	345	857	185	125	253	104	168	130	253	84
2	408	---	313	558	169	116	267	94	113	120	203	85
3	321	---	301	434	168	127	146	93	110	124	187	91
4	275	---	337	253	301	245	e86	93	112	e118	180	97
5	225	---	557	239	289	115	e87	92	111	e123	175	144
6	185	---	415	231	283	165	e90	94	110	e63	171	105
7	143	---	46	241	408	160	e92	92	99	e88	163	87
8	131	---	26	133	379	103	e351	91	96	130	141	84
9	137	---	172	198	336	104	e183	98	95	140	132	86
10	374	---	739	255	347	120	e86	99	100	141	115	238
11	651	---	880	208	300	206	98	99	147	141	109	311
12	841	---	1560	100	285	214	115	88	77	140	104	776
13	1020	---	2550	171	457	214	116	85	70	141	129	1830
14	1240	---	2420	100	510	215	110	100	75	142	126	1210
15	1060	---	2340	69	581	221	93	147	70	223	101	1160
16	1130	2640	2350	99	1070	570	80	96	71	333	92	1170
17	1720	2040	2260	275	972	701	105	91	104	608	90	1160
18	1420	1090	1550	111	607	639	90	93	87	1530	92	1180
19	717	778	988	79	515	664	106	101	69	2580	89	1970
20	595	589	894	75	503	618	112	116	202	---	101	2010
21	664	509	361	77	596	380	101	127	428	---	143	2380
22	695	473	151	94	933	133	93	132	557	---	109	---
23	984	414	128	194	664	114	94	123	599	---	113	---
24	1620	380	363	145	570	120	95	116	622	2470	110	---
25	2620	366	412	84	1040	109	95	115	627	1460	106	2030
26	---	402	187	128	753	345	97	111	628	660	104	1410
27	---	622	199	244	314	371	102	107	632	401	102	1160
28	---	480	192	120	158	230	106	147	631	428	101	939
29	---	362	171	96	---	367	113	122	499	782	92	705
30	---	339	184	179	---	274	115	116	183	477	85	370
31	---	---	747	185	---	112	---	184	---	365	84	---
TOTAL	---	---	24138	6232	13693	8197	3677	3366	7492	---	3902	---
MEAN	---	---	779	201	489	264	123	109	250	---	126	---
MAX	---	---	2550	857	1070	701	351	184	632	---	253	---
MIN	---	---	26	69	158	103	80	85	69	---	84	---
AC-FT	---	---	47880	12360	27160	16260	7290	6680	14860	---	7740	---

e Estimated

THIS PAGE IS INTENTIONALLY BLANK

08211500 Nueces River at Calallen, TX

LOCATION.--Lat 27°52'58", long 97°37'30", Nueces County, Hydrologic Unit 12110111, below the Cunningham pumping station in Corpus Christi, 200 ft upstream from Calallen Dam, 1.0 mi northwest of Calallen, about 0.4 mi upstream from bridge on Interstate Highway 37, about 7.0 mi upstream from Nueces Bay, and about 0.5 mi upstream from Missouri-Pacific Railroad bridge.

DRAINAGE AREA.--16,920 mi^2.

PERIOD OF RECORD.--Oct. 1983 to Sept. 1989 (maximum annual gage height and discharge). Oct. 1989 to Sept. 1999 (daily mean discharges below base discharge), Oct. 1999 to current year.

REVISED RECORDS.--WSP 1312: Data Aug. 1915 to Mar. 1919 unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 0.84 ft above NGVD of 1929. Prior to June 15, 2000, water-stage recorder at site 0.5 mi upstream from Calallen Dam at same datum. Satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records fair. Since installation of gage in Oct. 1983, at least 10% of contributing drainage area has been regulated. There are numerous diversions above station for agricultural, municipal, and industrial supply. No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

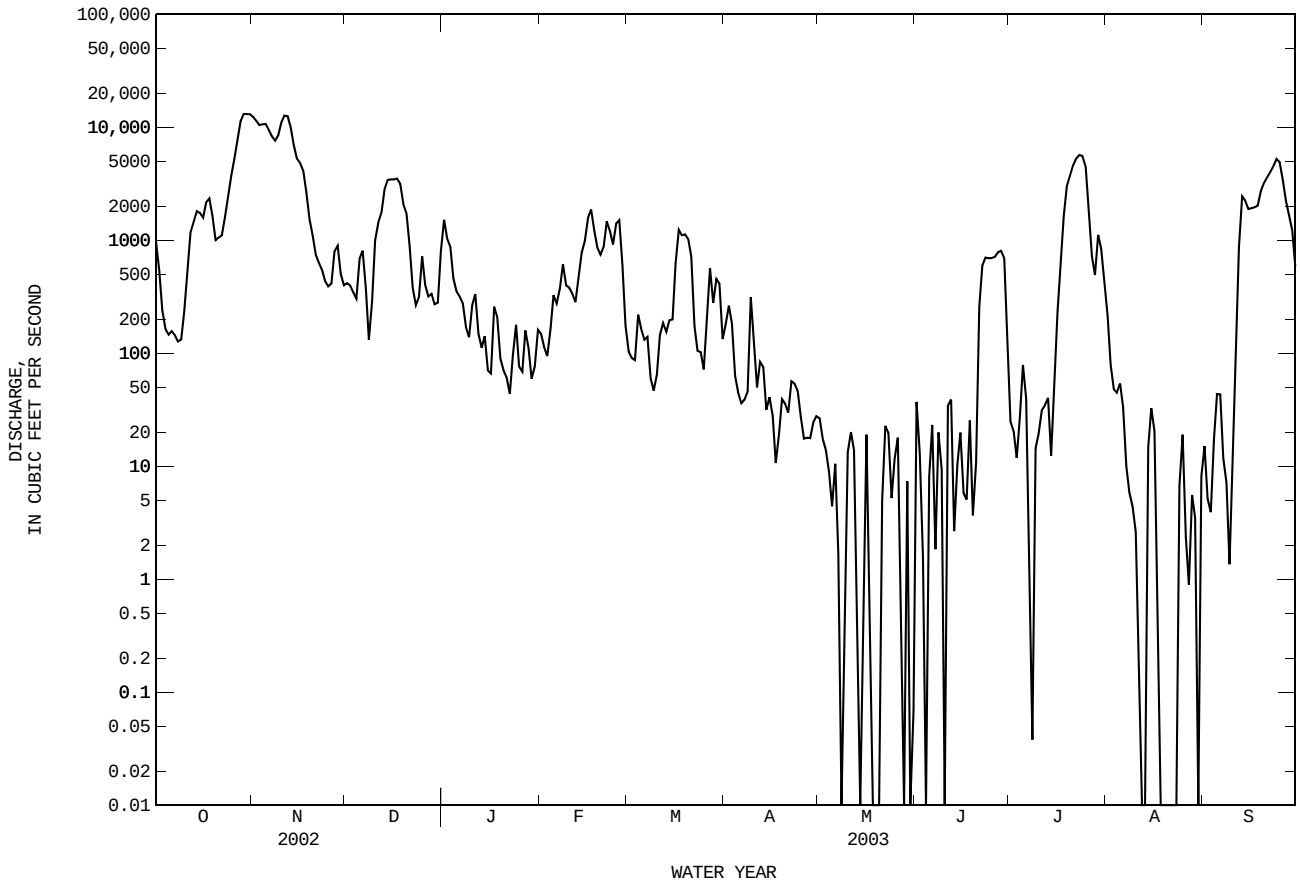
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	964	12400	418	1520	149	103	180	27	37	25	216	15
2	539	11400	399	1040	113	91	263	17	13	20	79	5.2
3	239	10500	347	882	94	87	184	14	1.6	12	48	3.9
4	164	10600	305	462	163	220	63	8.9	0.00	28	45	18
5	146	10700	687	353	328	165	45	4.4	8.1	79	54	44
6	157	9520	811	317	277	132	36	11	23	40	33	43
7	145	8340	377	278	377	140	39	1.7	1.8	0.65	10	12
8	128	7640	132	170	614	60	46	0.00	20	0.04	5.9	7.1
9	132	8490	288	139	399	47	314	0.17	9.4	14	4.4	1.4
10	235	11000	999	267	383	65	133	13	0.00	19	2.6	34
11	569	12700	1430	334	337	145	50	20	34	31	0.09	191
12	1170	12600	1770	148	284	186	84	14	39	35	0.00	876
13	1460	10100	2830	112	475	156	76	1.2	2.7	40	0.00	2450
14	1800	6930	3430	142	777	195	32	0.00	10	12	15	2260
15	1750	5310	3470	70	991	199	41	1.3	20	46	33	1900
16	1590	4860	3450	66	1590	628	28	19	5.8	232	20	1920
17	2160	4130	3530	259	1880	1240	11	0.59	5.1	576	1.1	1960
18	2350	2670	3170	212	1210	1110	19	0.00	25	1640	0.00	2030
19	1650	1540	2080	90	865	1130	39	0.00	3.7	3000	0.00	2740
20	1010	1120	1740	71	748	1020	36	0.00	11	3730	0.00	3220
21	1060	750	882	61	870	718	30	5.0	258	4580	0.00	3610
22	1110	639	379	44	1470	174	57	23	596	5310	0.00	4030
23	1620	549	266	96	1220	105	54	20	704	5700	0.00	4520
24	2490	435	314	179	921	102	46	5.2	696	5580	6.7	5260
25	3740	391	721	76	1420	72	27	12	698	4490	19	4940
26	5240	415	403	69	1510	228	18	18	712	1840	2.4	3420
27	7800	796	318	159	597	570	18	0.58	784	725	0.90	2270
28	11300	895	336	111	176	280	18	0.00	806	494	5.6	1680
29	13200	507	272	60	---	454	24	7.4	697	1120	3.5	1230
30	13100	400	281	77	---	413	28	0.00	161	840	0.00	587
31	13100	---	802	162	---	134	---	0.07	---	410	8.2	---
TOTAL	92118	168327	36637	8026	20238	10369	2039	244.51	6382.20	40668.69	613.39	51277.6
MEAN	2972	5611	1182	259	723	334	68.0	7.89	213	1312	19.8	1709
MAX	13200	12700	3530	1520	1880	1240	314	27	806	5700	216	5260
MIN	128	391	132	44	94	47	11	0.00	0.00	0.04	0.00	1.4
AC-FT	182700	333900	72670	15920	40140	20570	4040	485	12660	80670	1220	101700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	772	2073	713	92.4	254	101	26.3	25.3	97.2	4372	163	3940
MAX	2972	5611	1639	259	723	334	68.0	81.1	213	16170	604	13950
(WY)	2003	2003	2002	2003	2003	2003	2003	2002	2003	2002	2002	2002
MIN	4.45	4.33	10.6	4.55	12.5	4.67	4.67	4.64	1.59	2.90	4.52	4.46
(WY)	2000	2000	2000	2000	2002	2000	2000	2000	2001	2001	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	1245507.70		436940.39			
ANNUAL MEAN	3412		1197		1396	
HIGHEST ANNUAL MEAN					2953	2002
LOWEST ANNUAL MEAN					39.0	2001
HIGHEST DAILY MEAN	45800	Sep 16	13200	Oct 29	45800	Sep 16 2002
LOWEST DAILY MEAN	0.00	Jan 9	0.00	May 8	0.00	Oct 1 2000
ANNUAL SEVEN-DAY MINIMUM	0.00	Mar 9	0.16	Aug 17	0.00	May 11 2001
MAXIMUM PEAK FLOW			13500	Oct 29	49000	Sep 16 2002
MAXIMUM PEAK STAGE			8.90	Oct 29	13.21	Sep 16 2002
ANNUAL RUNOFF (AC-FT)	2470000		866700		1012000	
10 PERCENT EXCEEDS	12600		3490		3170	
50 PERCENT EXCEEDS	94		184		27	
90 PERCENT EXCEEDS	0.00		3.2		0.00	

08211500 Nueces River at Calallen, TX--Continued



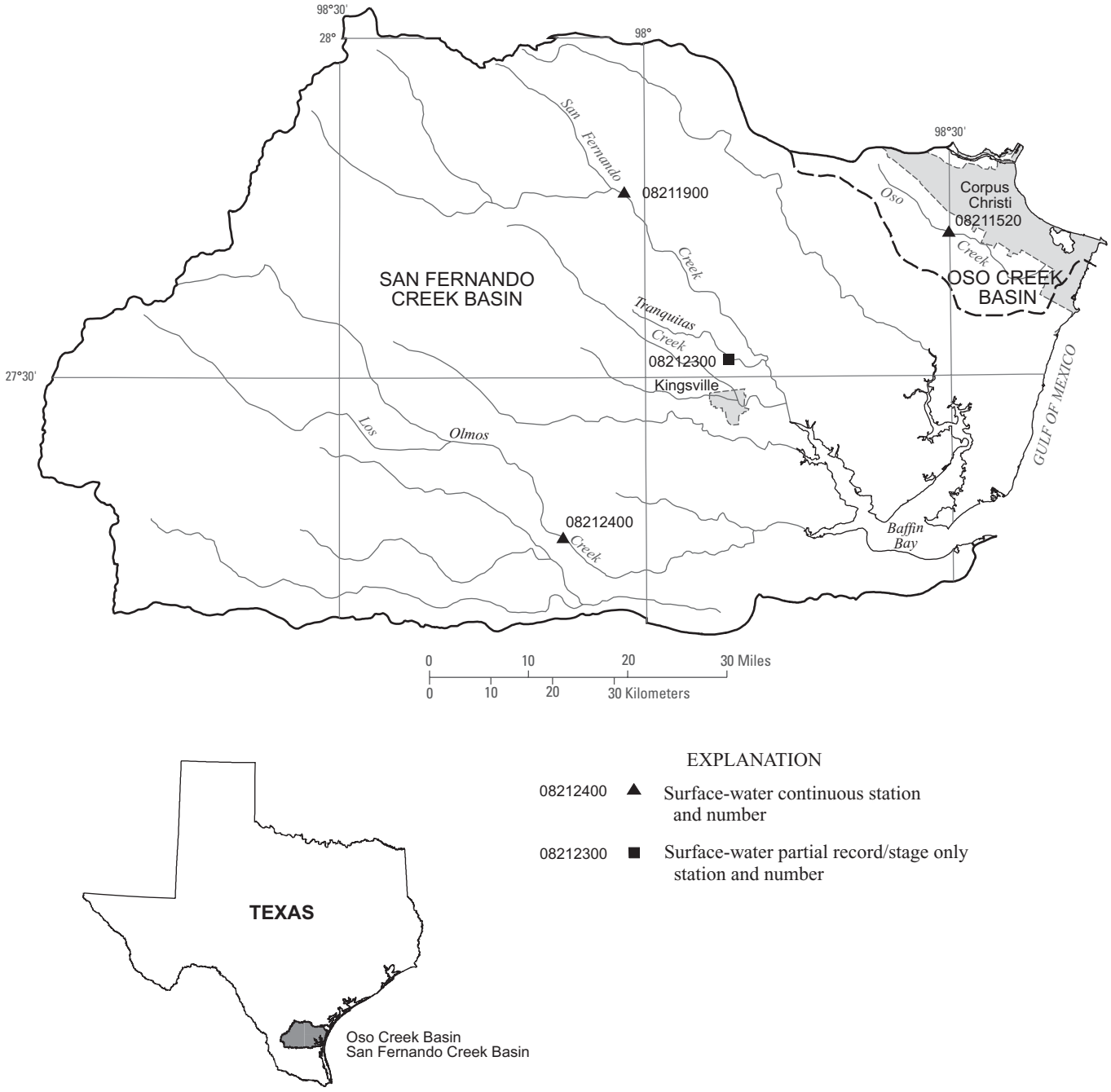


Figure 8.--Map showing location of gaging stations in the Oso Creek and San Fernando Creek Basins

08211520 Oso Creek at Corpus Christi, TX 316
08211900 San Fernando Creek at Alice, TX 318
08212300 Tranquitas Creek at Kingsville, TX 391
08212400 Los Olmos Creek near Falfurias, TX 320

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^2.

PERIOD OF RECORD.--Sept. 1972 to current year.
Water-quality records.--Chemical data: July 1972 to Aug. 1988. Biochemical data: July 1972 to Aug. 1988. Pesticide data: July 1972 to July 1981.

GAGE.--Water-stage recorder. Datum of gage is 1.91 ft below NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known regulation or diversions. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	30	2.1	3.6	3.1	2.3	1.6	1.6	1.7	0.78	0.87	1.6
2	2.4	47	2.1	3.8	3.0	2.3	1.5	1.6	1.6	0.79	2.1	8.0
3	2.3	110	2.1	3.6	3.0	2.3	1.4	1.6	1.5	1.1	3.9	9.8
4	2.1	e79	2.1	3.5	2.9	2.5	1.6	1.6	1.3	1.8	5.3	12
5	2.8	e805	2.0	3.2	2.8	2.5	1.6	1.6	1.4	4.9	6.3	28
6	2.2	e666	1.9	3.0	2.8	e2.4	1.6	1.5	2.4	15	5.0	16
7	1.9	e345	2.0	3.0	2.9	2.3	1.6	1.6	2.8	9.3	1.1	6.1
8	1.7	e167	2.1	2.9	3.2	2.2	1.6	1.6	1.7	4.8	1.1	3.0
9	1.7	e67	11	2.8	3.9	2.1	1.6	1.5	1.3	2.1	1.1	1.8
10	1.7	e31	27	2.7	4.3	1.8	1.5	1.6	2.1	1.5	1.0	1.9
11	1.6	e13	14	2.9	3.7	1.7	1.5	1.6	1.3	1.2	1.1	2.2
12	1.6	e6.1	57	3.7	3.4	1.7	1.5	1.6	1.1	1.1	1.1	88
13	1.5	e3.5	21	3.8	3.2	1.6	1.6	1.5	0.98	1.1	1.1	155
14	1.5	e3.0	8.4	4.0	3.0	1.6	1.6	1.5	1.1	0.90	1.5	74
15	1.6	e3.0	5.3	4.2	16	1.8	1.6	1.5	3.1	0.93	1.9	43
16	1.5	e2.9	4.3	3.6	18	2.0	1.6	1.5	2.4	1.4	1.9	27
17	1.5	e2.9	3.6	3.1	14	3.6	1.6	1.5	1.8	1.9	1.8	35
18	1.5	e3.0	3.4	3.0	6.9	3.2	1.6	1.5	4.1	3.6	1.9	65
19	36	e3.0	3.2	3.0	4.8	2.1	1.6	1.5	2.6	2.8	1.8	167
20	391	3.0	3.0	3.0	3.8	1.7	1.6	1.5	1.4	1.8	1.7	113
21	88	2.8	2.6	2.9	3.4	1.5	1.6	1.5	1.1	1.3	e1.4	62
22	89	2.8	2.7	2.9	3.0	1.5	1.6	1.5	0.92	1.1	1.3	67
23	1370	2.6	2.8	2.9	2.9	1.4	1.6	1.5	0.77	1.1	1.2	44
24	2090	2.5	2.7	2.8	2.6	1.5	1.6	1.5	0.58	1.0	1.2	18
25	3480	2.6	2.7	3.1	2.6	1.5	1.7	1.5	0.72	1.0	1.2	7.9
26	1040	2.4	2.7	3.1	2.5	1.7	1.6	1.6	0.73	1.0	1.6	4.8
27	552	2.4	2.7	3.1	2.4	8.8	1.6	3.4	0.72	0.98	1.5	3.2
28	1040	2.2	e2.9	3.2	2.3	5.3	1.5	18	0.75	0.88	1.3	2.3
29	2190	2.3	e3.0	3.4	---	2.7	1.5	6.5	0.75	0.82	1.2	1.8
30	281	2.3	e3.4	3.3	---	1.9	1.6	2.8	0.76	0.77	1.2	2.0
31	63	---	3.3	3.2	---	1.7	---	1.8	---	0.75	1.2	---
TOTAL	12743.9	2415.3	209.1	100.3	130.4	73.2	47.3	72.6	45.48	69.50	57.87	1070.4
MEAN	411	80.5	6.75	3.24	4.66	2.36	1.58	2.34	1.52	2.24	1.87	35.7
MAX	3480	805	57	4.2	18	8.8	1.7	18	4.1	15	6.3	167
MIN	1.5	2.2	1.9	2.7	2.3	1.4	1.4	1.5	0.58	0.75	0.87	1.6
AC-FT	25280	4790	415	199	259	145	94	144	90	138	115	2120

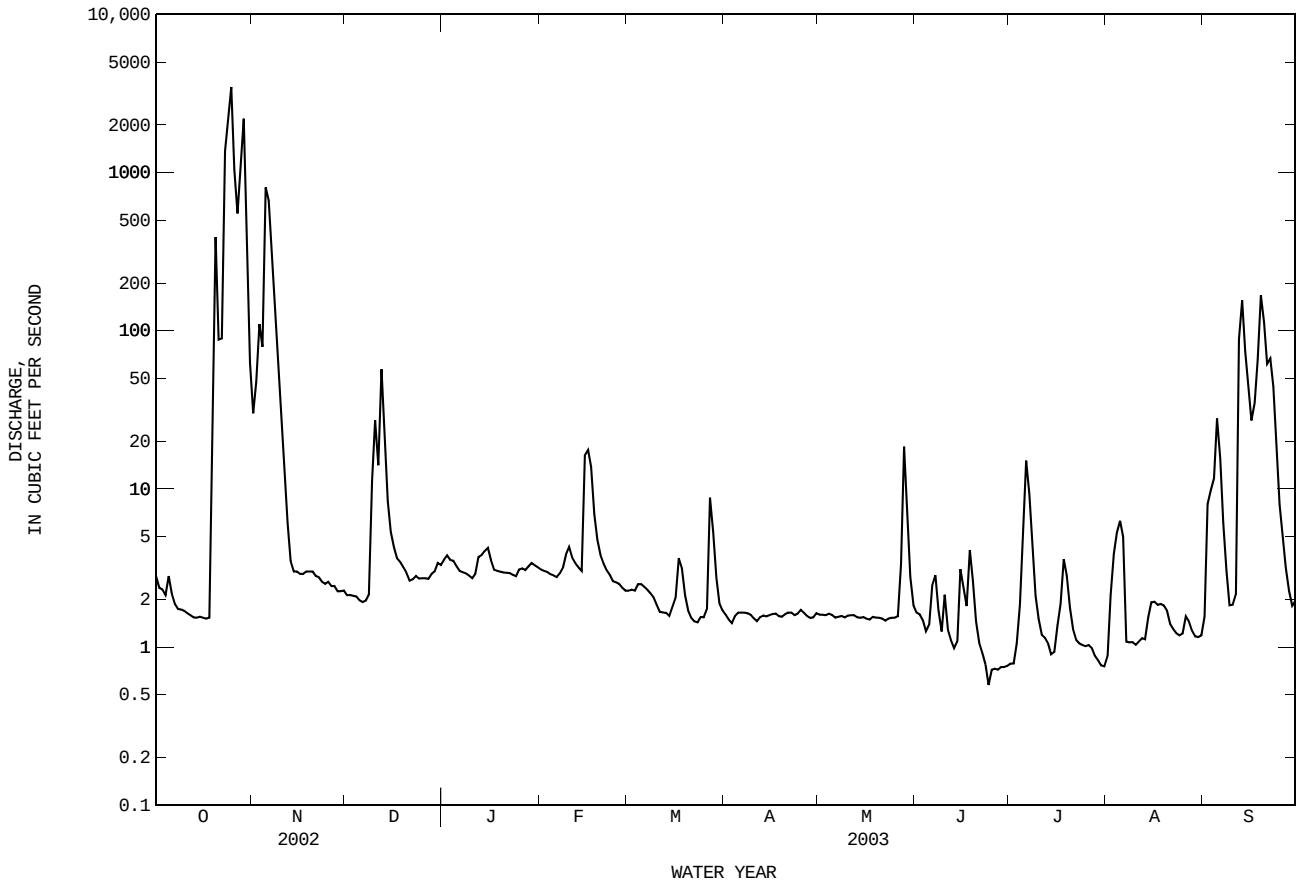
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2003, BY WATER YEAR (WY)

MEAN	78.3	30.1	13.1	11.0	18.1	16.2	18.5	27.8	46.7	20.6	25.2	49.4
MAX	477	226	181	130	238	128	176	185	379	339	454	228
(WY)	1998	2002	1992	1984	1982	1995	1997	1993	1993	1976	1980	1979
MIN	1.26	1.40	1.15	1.33	1.19	0.89	0.88	1.02	1.09	0.86	1.07	1.56
(WY)	1991	1994	2000	2000	2002	1988	2002	2002	1998	1996	1997	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1972 - 2003	
ANNUAL TOTAL	21343.08		17035.35			
ANNUAL MEAN	58.5		46.7		29.6	
HIGHEST ANNUAL MEAN					54.3	1992
LOWEST ANNUAL MEAN					3.03	1989
HIGHEST DAILY MEAN	3480	Oct 25	3480	Oct 25	6160	Aug 11 1980
LOWEST DAILY MEAN	0.56	Aug 5	0.58	Jun 24	0.14	Aug 15 2001
ANNUAL SEVEN-DAY MINIMUM	0.59	Jul 31	0.72	Jun 24	0.15	Aug 13 2001
MAXIMUM PEAK FLOW			4530	Oct 25	12100	Aug 10 1980
MAXIMUM PEAK STAGE			25.61	Oct 25	29.37	Aug 10 1980
ANNUAL RUNOFF (AC-FT)	42330		33790		21440	
10 PERCENT EXCEEDS	23		27		18	
50 PERCENT EXCEEDS	1.3		2.3		2.2	
90 PERCENT EXCEEDS	0.79		1.1		1.1	

e Estimated

08211520 Oso Creek at Corpus Christi, TX--Continued



08211900 San Fernando Creek at Alice, TX

LOCATION.--Lat 27°46'20", long 98°02'00", Jim Wells County, Hydrologic Unit 12110204, on left bank 34 ft downstream from downstream bridge of two bridges on State Highways 44 and 359, 0.5 mi downstream from confluence of San Diego and Chiltipin Creeks, 2.3 mi upstream from head of Pintas Creek, and 2.7 mi northeast of Alice.

DRAINAGE AREA.--507 mi^2.

PERIOD OF RECORD.--Dec. 1964 to Mar. 1987, Apr. 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 160.05 ft above NGVD of 1929. Prior to Mar. 1987 at datum 1.63 ft higher at same site. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. San Diego Creek joins Chiltipin Creek below Lake Alice to form San Fernando Creek. Since installation of gage in Dec. 1964, at least 10% of contributing drainage area has been regulated. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures. These structures control runoff from 170 mi^2 in the San Diego-Rosita drainage basins. Records furnished by city of Alice show that sewage effluent is discharged into San Diego Creek 1.3 mi upstream, which comprises most of the low flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.33	1.3	1.4	1.5	1.6	2.0	0.45	1.2	0.84	2.8	1.9	1.6
2	0.62	1.4	0.82	1.5	1.4	2.1	1.4	1.4	0.39	2.6	2.1	1.1
3	0.50	1.4	0.67	1.5	0.80	3.2	1.1	0.90	1.7	4.1	2.0	1.5
4	0.95	2.6	1.4	1.5	1.9	2.4	1.2	1.3	1.4	4.4	2.1	1.6
5	0.86	4.3	2.1	1.6	1.4	2.9	1.7	1.4	0.54	4.4	2.1	2.8
6	0.87	6.4	2.7	1.8	1.4	2.7	1.6	1.1	1.6	2.9	1.7	2.6
7	0.62	2.9	3.2	1.5	2.0	2.5	1.0	0.09	1.7	2.8	0.32	0.64
8	0.87	2.5	e2.9	1.4	1.9	2.4	1.4	0.23	0.80	2.9	1.7	0.66
9	0.87	1.8	e57	1.8	2.0	2.5	1.2	0.78	0.07	3.2	0.82	0.61
10	0.62	1.5	18	1.5	2.1	2.3	0.55	1.4	0.61	3.4	0.12	0.57
11	0.60	1.3	4.9	1.6	2.2	2.2	0.58	0.57	1.6	3.2	0.51	0.29
12	0.84	1.2	4.3	1.9	2.1	2.3	1.2	0.29	1.1	3.0	0.36	31
13	0.42	1.1	4.2	1.7	1.9	2.3	1.0	1.3	0.90	3.0	1.2	60
14	0.46	1.2	3.0	1.6	1.8	1.7	1.2	1.2	1.7	1.9	1.6	38
15	0.78	1.2	2.3	1.6	28	2.7	0.72	1.1	1.6	3.4	1.5	295
16	0.46	1.1	2.1	1.6	38	3.2	1.0	0.81	1.7	3.7	1.6	143
17	0.19	1.1	2.0	1.8	16	3.3	0.70	1.5	1.2	3.5	1.5	111
18	0.83	0.93	2.0	1.5	6.2	2.8	1.2	0.81	1.2	3.4	1.6	1190
19	0.81	0.46	1.5	1.4	4.4	2.3	0.59	1.3	1.4	2.9	1.5	2080
20	0.78	1.1	1.2	1.1	4.7	1.6	0.07	1.7	0.09	1.6	1.2	340
21	0.73	0.80	1.4	1.6	5.4	1.8	0.67	1.2	0.61	0.86	0.31	117
22	0.91	0.83	1.6	1.7	3.8	1.7	1.1	0.24	0.80	3.0	0.87	71
23	8.9	1.1	1.8	1.6	2.8	1.8	1.2	1.0	0.31	2.2	1.4	36
24	52	1.0	1.7	1.6	2.5	1.4	1.1	0.83	1.5	0.30	0.94	16
25	30	1.3	1.5	2.0	2.1	1.0	1.2	0.79	1.6	1.5	0.61	6.1
26	26	1.3	1.6	1.9	2.0	2.6	1.1	0.90	0.80	2.0	1.3	3.1
27	16	1.4	1.7	1.8	2.0	2.2	1.0	2.0	0.74	1.2	1.3	9.1
28	5.7	1.3	1.6	1.9	2.1	2.1	0.92	2.2	1.6	0.98	1.0	1.4
29	3.1	1.3	1.6	2.0	---	1.7	1.2	1.6	1.5	0.68	0.31	7.3
30	2.0	1.4	1.6	1.7	---	1.5	0.75	0.34	0.35	1.8	1.2	1.1
31	1.4	---	1.7	1.2	---	1.4	---	2.0	---	2.0	1.5	---
TOTAL	160.02	48.52	135.49	50.4	144.50	68.6	30.10	33.48	31.95	79.62	38.17	4570.07
MEAN	5.16	1.62	4.37	1.63	5.16	2.21	1.00	1.08	1.06	2.57	1.23	152
MAX	52	6.4	57	2.0	38	3.3	1.7	2.2	1.7	4.4	2.1	2080
MIN	0.19	0.46	0.67	1.1	0.80	1.0	0.07	0.09	0.07	0.30	0.12	0.29
AC-FT	317	96	269	100	287	136	60	66	63	158	76	9060

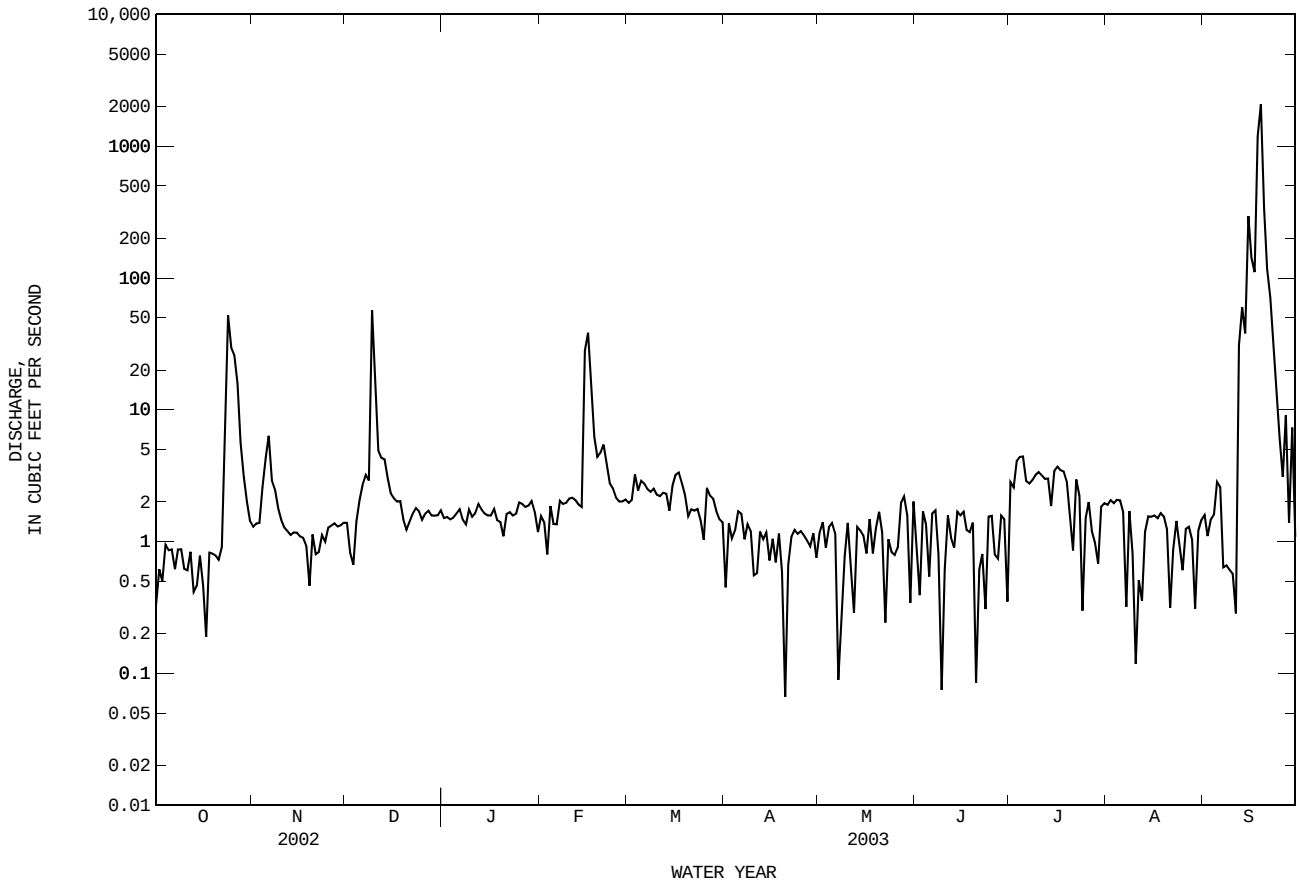
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003h, BY WATER YEAR (WY)

MEAN	40.5	22.7	4.06	2.75	3.19	3.21	6.82	14.6	8.36	31.6	29.6	113
MAX	827	492	38.6	17.0	18.5	28.6	93.7	96.4	59.8	591	403	1419
(WY)	1972	2002	2002	1980	1969	1965	1985	1985	1981	2002	1980	1971
MIN	0.84	0.95	0.93	0.92	0.84	0.94	0.72	1.02	0.79	0.63	0.69	0.70
(WY)	2001	2000	2000	2000	2000	2000	2000	2002	2001	2000	2000	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003h	
ANNUAL TOTAL	21404.10		5390.92			
ANNUAL MEAN	58.6		14.8		24.6	
HIGHEST ANNUAL MEAN					126	1971
LOWEST ANNUAL MEAN					0.94	2000
HIGHEST DAILY MEAN	3990	Jul 5	2080	Sep 19	22200	Sep 12 1971
LOWEST DAILY MEAN	0.19	Oct 17	0.07	Apr 20	0.07	Apr 20 2003
ANNUAL SEVEN-DAY MINIMUM	0.54	Oct 11	0.54	Oct 11	0.39	Aug 22 1965
MAXIMUM PEAK FLOW			3530	Sep 19	26800	Sep 12 1971
MAXIMUM PEAK STAGE			10.03	Sep 19	16.51	Sep 12 1971
ANNUAL RUNOFF (AC-FT)	42460		10690		17840	
10 PERCENT EXCEEDS	57		4.3		4.3	
50 PERCENT EXCEEDS	1.3		1.5		1.9	
90 PERCENT EXCEEDS	0.77		0.61		1.0	

e Estimated
h See PERIOD OF RECORD paragraph.

08211900 San Fernando Creek at Alice, TX--Continued



08212400 Los Olmos Creek near Falfurias, TX

LOCATION.--Lat 27°15'51", long 98°08'08", Brooks County, Hydrologic Unit 12110205, at downstream side of bridge on U.S. Highway 281 and 2.6 mi north of Falfurrias.

DRAINAGE AREA.--480 mi^2, of which 4.5 mi^2 probably is noncontributing.

PERIOD OF RECORD.--Jan. 1967 to Sept. 1983, Mar. 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 116.58 ft above NGVD of 1929. Satellite telemeter at station.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 15.0 ft, Sept. 13, 1951, from information by Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	8.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	8.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	3.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.7
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.1
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.5
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.2
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.7
24	5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2
25	4.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
26	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
27	0.80	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
28	0.51	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
29	0.16	0.00	e0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.02
30	0.07	0.00	e0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.01
31	0.04	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	13.68	23.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	32.04
MEAN	0.44	0.77	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.07
MAX	5.9	8.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.5
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	27	46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	64

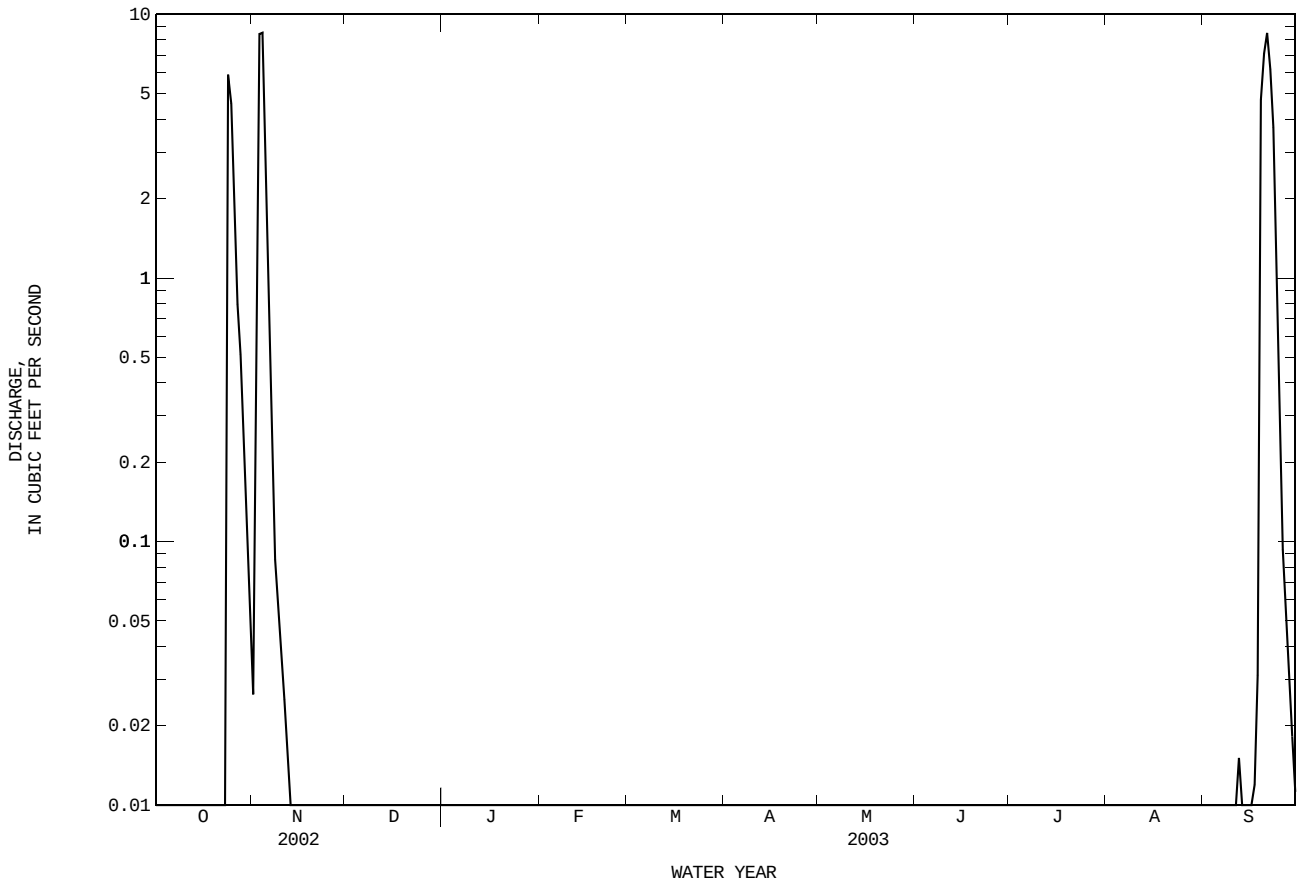
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003h, BY WATER YEAR (WY)

MEAN	1.45	0.38	0.12	0.12	0.11	3.16	0.30	9.99	4.76	3.42	7.37	46.9
MAX	8.95	4.89	0.75	0.69	0.67	50.8	3.31	146	52.8	36.1	62.5	491
(WY)	1977	1977	1970	1970	1970	1974	1979	1982	1973	1976	1980	1967
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1973	1971	1971	1972	1973	1971	1971	1971	1980	1972	1972	1972

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003h	
ANNUAL TOTAL	72.83		68.95			
ANNUAL MEAN	0.20		0.19		4.76	
HIGHEST ANNUAL MEAN					34.1	1971
LOWEST ANNUAL MEAN					0.000	1983
HIGHEST DAILY MEAN	30	Jul 7	8.5	Nov 4	3790	Sep 14 1971
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Aug 10 1970
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Sep 4 1970
MAXIMUM PEAK FLOW			15	Nov 3	5300	Sep 13 1971
MAXIMUM PEAK STAGE			3.27	Nov 3	12.66	Sep 13 1971
ANNUAL RUNOFF (AC-FT)	144		137		3450	
10 PERCENT EXCEEDS	0.00		0.01		0.64	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

e Estimated
h See PERIOD OF RECORD paragraph.

08212400 Los Olmos Creek near Falfurias, TX--Continued



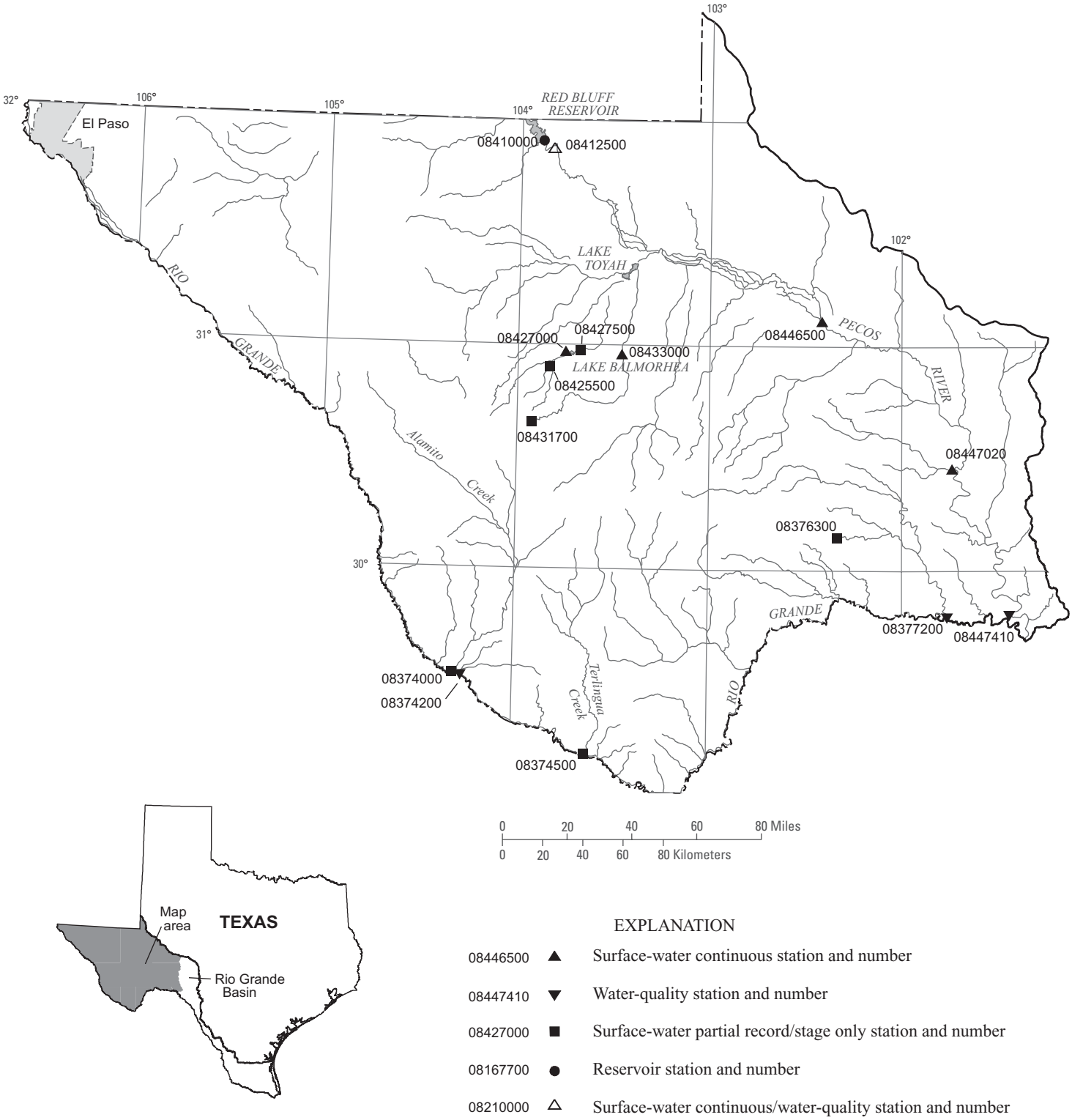


Figure 9.--Map showing location of gaging stations in the first section of the Rio Grande Basin

08374000 Alamito Creek near Presidio, TX 392
08374200 Rio Grande below Rio Conchos near Presidio, TX 324
08374500 Terlingua Creek near Terlingua, TX 392
08376300 Sanderson Creek at Sanderson, TX 328
08377200 Rio Grande at Foster Ranch near Langtry, TX 332
08410000 Red Bluff Reservoir near Orla, TX 336
08412500 Pecos River near Orla, TX 338
08425500 Phantom Lake Springs near Toyahvale, TX 389
08427000 Giffin Springs at Toyahvale, TX 342
08427500 San Solomon Springs at Toyahvale, TX 390
08431700 Limpia Creek above Fort Davis, TX 346
08433000 Barilla Draw near Saragosa, TX 350
08446500 Pecos River near Girvin, TX 354
08447020 Independence Creek near Sheffield, TX 356
08447410 Pecos River near Langtry, TX 360

08374200 Rio Grande below Rio Conchos near Presidio, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°31'10", long 104°17'10", Presidio County, Hydrologic Unit 13040203, at gaging station 0.4 miles downstream from Alamito Creek and 8.9 river miles downstream from the International Highway bridge between Presidio, Texas and Ojinaga, Chihuahua.

DRAINAGE AREA.-- 66,200 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Apr. 1999 to current year.
BIOCHEMICAL DATA: Apr. 1999 to current year.
PESTICIDE DATA: Aug. 1999 to current year.
SEDIMENT DATA: Apr. 1999 to current year.

REMARKS.--Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since 1999, quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
20...	1200	188	3320	8.3	11.0	11.9	117	72	.129	.096	2.6	<.1	.18
JAN													
29...	1030	101	3570	8.3	11.5	--e	--	48	.103	.075	10.6	<.1	1.37
FEB													
19...	1100	88	3960	7.9	15.0	9.0	88	18	.085	.062	2.6	<.1	.46
APR													
22...	1510	48	4370	7.9	26.5	16.2	200	97	.101	.071	8.3	<.1	.76
AUG													
12...	1500	12	1220	7.7	31.5	8.8	117	240	.104	.079	5.6	1.1	.29
SEP													
03...	1500	168	1500	7.5	27.0	7.1	87	E740d	.101	.074	21.2	12.4	.95

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
20...	600	350	173	41.0	482	9	63	11.9	4	304	257	584	577
JAN													
29...	580	430	155	46.2	552	10	67	11.8	4	176	151	692	643
FEB													
19...	750	520	215	50.6	558	9	62	10.6	2	277	231	802	674
APR													
22...	830	630	239	56.6	655	10	63	14.9	3	247	207	1060	718
AUG													
12...	380	300	132	11.0	122	3	41	7.75	<1	96	80	427d	80.3
SEP													
03...	440	290	147	16.0	157	3	44	6.83	1	175	145	484d	117

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
20...	.92	18.2	2170	2060	2.51	.026	2.53	.05	3.8	1.3	.62	.67	1.3
JAN													
29...	.94	8.01	2310	2200	--	<.008	<.06	<.04	--	--	--	.38	1.9
FEB													
19...	1.27	14.0	2630	2470	--	<.008	<.06	<.04	--	--	--	.31	.88
APR													
22...	1.39	17.3	3030	2890	--	<.008	<.06	<.04	--	--	--	.43	1.3
AUG													
12...	.8	15.4	889	849	.73	.033	.77	<.04	1.4	--	--	.26	.59
SEP													
03...	.9	17.2	1100	1040	.65	.023	.67	.23	2.3	1.4	.42	.65	1.7

08374200 Rio Grande below Rio Conchos near Presidio, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Suspended sediment load, tons/d (80155)	Suspended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
20...	.50	.31	.30	.917	8.1	2.5	85	168	100	<3	E.36n	7.1	125
JAN													
29...	.25	<.04	<.02	--	5.4	10.6	14	51	99	<2	E.25	1.6	36
FEB													
19...	.14	<.04	<.02	--	5.2	2.5	10	42	90	--	--	2.5	--
APR													
22...	.14	<.04	<.02	--	7.4	8.2	28	219	100	<3	E.36n	2.0	86
AUG													
12...	.18	<.04	<.18d	--	3.5	4.5	8.2	254	100	4	E.26n	1.9	123
SEP													
03...	.50	<.04	<.02	--	8.3	8.8	369	814	100	3	.38	2.0	124

Date	Beryllium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)
NOV													
20...	<.12	483	.08	<.8	1.03	2.6	<30	E.10n	196	22.7	13.8	10.1	1.3
JAN													
29...	<.06	596	<.04	<.8	.62	1.4	<30	E.04	251	63.8	6.4	4.03	.7
FEB													
19...	--	622	--	--	--	--	E19n	--	210	--	--	--	E.9n
APR													
22...	<.12	694	E.06n	<.8	1.41	6.0	<30	<.16	223	134	15.2	4.57	2.4
AUG													
12...	<.06	191	E.02n	<.8	.71	2.1	<8	<.08	40.9	26.9	7.6	4.83	1.4
SEP													
03...	<.06	271	.04	<.8	.68	5.1	<8	<.08	64.0	10.3	8.3	2.60	1.5

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
20...	<.40	2970	6.9	4	5.15	-62.20	-6.90	<.006	<.006	<.004	<.005	<.007	<.050
JAN													
29...	<.20	1550	1.9	1	2.67	-58.40	-6.52	<.006	<.006	<.004	<.005	<.007	<.050
FEB													
19...	--	3730	3.4	--	--	-49.50	-5.38	<.006	<.006	<.004	<.005	<.007	<.050
APR													
22...	<.40	4020	2.0	4	8.63	-36.70	-2.59	<.006	<.006	<.004	<.005	<.007	<.050
AUG													
12...	<.20	2890d	6.4	2	2.36	-12.70	-1.90	<.006	<.006	<.004	<.005	<.007	<.050
SEP													
03...	<.20	2230	3.3	1	4.30	-44.30	-5.65	<.006	<.006	<.004	<.005	<.007	<.050

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
20...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	.013	<.005	<.02	<.002
JAN													
29...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	.009	<.005	<.02	<.007
FEB													
19...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
APR													
22...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
AUG													
12...	<.010	<.002	<.041	<.020	E.003t	<.006	<.018	<.003	E.002t	<.005	<.005	<.02	<.002
SEP													
03...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002

08374200 Rio Grande below Rio Conchos near Presidio, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ethalflur-alin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)
NOV													
20...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
29...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.010	<.007	<.003	<.010	<.006
FEB													
19...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
APR													
22...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
AUG													
12...	<.009	<.005	<.003	<.004	<.035	E.007t	<.013	<.006	<.002	<.007	<.003	<.010	<.006
SEP													
03...	<.009	<.005	<.003	<.004	<.035	E.022n	<.013	<.006	<.002	<.007	<.003	<.010	.030

Date	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
NOV													
20...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JAN													
29...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
FEB													
19...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
APR													
22...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
AUG													
12...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
SEP													
03...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
NOV							
20...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
29...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
FEB							
19...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
APR							
22...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
AUG							
12...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
SEP							
03...	<.002	<.009	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
d -- Diluted sample: method hi range exceeded
n -- Below the NDV
t -- Below the long-term MDL

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

THIS PAGE IS INTENTIONALLY BLANK

08376300 Sanderson Creek at Sanderson, TX

LOCATION.--Lat 30°07'42", long 102°23'04", Terrell County, Hydrologic Unit 13040208, on left bank at upstream side of bridge on U.S. Highway 90, 1.0 mi south of Sanderson, 2.9 mi downstream from Three Mile Draw, and 30.0 mi upstream from mouth.

DRAINAGE AREA.--195 mi^2.

PERIOD OF RECORD.--Feb. 1968 to Sept. 1980 (daily mean discharge), Aug. 2001 to current year (gage heights only). Published as "Sanderson Canyon" prior to Oct. 1979.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,706.35 ft above the NGVD of 1929. Prior to Oct. 19, 1977, at site on right bank 95 ft downstream at same datum. Satellite telemeter at station.

REMARKS.--Records fair. No known regulation or diversions. Flow is affected at times by discharge from the flood-detention pools of floodwater-retarding structures. No flow most of time each year.

AVERAGE DISCHARGE.--12 years (water years 1969-80), 8.51 ft^3/s (6,170 acre-ft/year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft^3/s, Sept. 18, 1969, gage height, 9.18 ft, from rating curve based on a step-backwater analysis below 10,000 ft^3/s and two combined slope-area measurements of about 100,000 ft^3/s; maximum gage height, 9.44 ft, Apr. 30, 1974; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1935, 14.2 ft June 11, 1965, discharge about 100,000 ft^3/s, by combining two slope-area measurements within 4.0 mi upstream from gage. A flood in 1935 reached a discharge of about 20,000 ft^3/s, estimated channel capacity by Corps of Engineers.

EXTREMES FOR WATER YEAR 2001.--No flow Aug. 1 to Sept. 30.

EXTREMES FOR WATER YEAR 2002.--Maximum gage height, 3.41 ft, July 7; minimum gage height, 0.99 ft, Nov. 16, Apr. 26, July 8, Aug. 10.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 3.16 ft, Aug. 30, from floodmark; minimum gage height, 0.99 ft, July 7, Sept. 25.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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

08376300 Sanderson Creek at Sanderson, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	1.34	1.15	---	---	---	---	---	---	---	---
15	---	---	3.01	1.15	---	---	---	---	---	---	---	---
16	---	---	1.14	0.99	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08376300 Sanderson Creek at Sanderson, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	2.57	1.51	---	---	---	---
7	---	---	---	---	---	---	3.41	1.02	---	---	---	---
8	---	---	---	---	---	---	1.07	0.99	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	1.02	0.99	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	1.18	0.99	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	1.25	1.00	---	---	---	---	---	---	---	---	---	---
8	1.04	1.00	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08376300 Sanderson Creek at Sanderson, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	1.92	0.99	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	1.27	0.99
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	3.16	1.47	---	---
31	---	---	---	---	---	---	---	---	1.42	1.00	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

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, 12.3 mi west of Langtry, and 597.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--80,742 mi^2, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--
CHEMICAL DATA: Apr. 1944 to current year.
BIOCHEMICAL DATA: Oct. 1975 to Aug. 1982, Oct. 1995 to current year.
PESTICIDE DATA: July 1975 to June 1982, Oct. 1995 to current year.
SEDIMENT DATA: Oct. 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct. 1974 to Sept. 1981 (local observer).
WATER TEMPERATURE: Oct. 1974 to Sept. 1981 (local observer).

REMARKS.--Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since Sept. 1995, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,110 microsiemens/cm, Dec. 4, 1974; minimum daily, 225 microsiemens/cm, 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 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
06...	1100	427	1420	8.1	17.0	8.4	90	280	.054	.040	10.1	.2	.43
JAN													
14...	1200	466	1850	8.5	13.2	9.8	96	44	.052	.039	2.2	<.1	.15
MAR													
12...	1100	244	1050	8.2	21.4	8.1	96	92	.032	.024	2.5	<.1	.15
APR													
16...	1030	206	950	8.2	22.3	7.1	86	34	.022	.017	--	<.1	.07
MAY													
21...	1130	206	726	8.1	22.3	6.7	80	220	.209	.158	4.6	.4	.37
JUL													
22...	1120	851	745	7.8	27.8	6.0	80	E10000	.080	.061	456	313	12.6
AUG													
27...	1110	316	674	7.7	26.4	5.5	71	530d	.116	.090	21.0	9.7	.94

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
06...	350	190	103	22.1	175	4	52	5.70	2	187	157	310	176
JAN													
14...	380	220	100	31.2	247	6	58	7.00	2	195	163	358	275
MAR													
12...	340	190	101	20.9	89.6	2	36	4.92	3	180	153	263	78.3
APR													
16...	260	130	64.6	24.6	96.0	3	44	4.69	2	164	137	204	86.5
MAY													
21...	240	80	78.5	10.9	60.8	2	35	5.46	2	194	162	116	55.2
JUL													
22...	220	120	76.5	6.61	72.8	2	41	5.14	<1	117	96	228	14.4
AUG													
27...	240	150	73.7	12.8	44.2	1	28	5.12	<1	104	86	181	32.6

08377200 Rio Grande at Foster Ranch near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
06...	.98	17.9	950	910	--	E.002	.790	E.010	1.4	--	--	.16	.56
JAN													
14...	1.04	10.0	1210	1130	.41	.003	.416	.023	.91	.47	.25	.27	.49
MAR													
12...	1.05	18.1	702	676	1.04	.008	1.04	.016	1.3	.23	.14	.16	.25
APR													
16...	1.14	16.7	606	585	.45	.006	.457	E.014	.63	--	--	.12	.17
MAY													
21...	.6	20.0	483	452	1.24	.036	1.27	.070	2.2	.89	.47	.54	.96
JUL													
22...	.8	16.0	503	484	--	<.002	1.16	E.011	14	--	--	.23	13
AUG													
27...	.7	13.0	433	419	.91	.015	.928	.028	2.2	1.2	.53	.55	1.3

Date	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Suspended sediment load, tons/d (80155)	Suspended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
06...	.20	E.003	<.007	--	2.3	9.8	304	264	100	E1	.33	2.7	128
JAN													
14...	.074	.005	<.007	--	3.3	2.2	65	52	100	E1	E.21	3.1	89
MAR													
12...	.103	.007	<.007	--	1.2	2.5	86	131	100	--	--	2.7	--
APR													
16...	.039	.005	<.007	--	1.2	--	27	48	100	E1	<.30	2.9	77
MAY													
21...	--	.029	.021	.064	6.0	4.2	154	276	100	--	--	2.7	--
JUL													
22...	11.4	.009	E.006	--	2.4	143	39500	17200	100	3	E.24	1.3	59
AUG													
27...	.38oc	.005	<.007	--	4.6	11.3	412	483	100	--	--	2.0	--

Date	Beryllium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)
NOV													
06...	<.06	207	E.03	<.8	.26	2.6	<10	<.08	83.3	.6	9.5	3.90r	1.7
JAN													
14...	<.06	312	E.04	<.8	.43	1.8	<10	E.06	135	.9	10.5	4.42	1.3
MAR													
12...	--	176	--	--	--	--	<10	--	66.9	--	--	--	1.5
APR													
16...	<.06	203	E.02	<.8	.19	1.1	<10	<.08	82.6	3.9	9.7	2.95	1.7
MAY													
21...	--	134	--	--	--	--	<10	--	27.1	--	--	--	.8
JUL													
22...	<.06	96	<.04	<.8	.19	1.8	E5	<.08	19.1	<.2	6.7	2.80	2.1
AUG													
27...	--	107	--	--	--	--	8	--	33.7	--	--	--	.8

08377200 Rio Grande at Foster Ranch near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
06...	<.20	1910	5.1	2	4.75	-43.20	-5.89	<.006	<.006	<.004	<.005	<.007	<.050
JAN													
14...	<.20	2370	3.1	1	4.97	-49.90	-6.41	<.006	<.006	<.004	<.005	<.007	<.050
MAR													
12...	--	2100	5.5	--	--	-44.80	-6.39	<.006	<.006	<.004	<.005	<.007	<.050
APR													
16...	<.20	1840	6.4	M	3.97	-40.00	-5.36	<.006	<.006	<.004	<.005	<.007	<.050
MAY													
21...	--	893	6.7	--	--	-33.53	-4.64	<.006	<.006	<.004	<.005	<.007	<.050
JUL													
22...	<.20	1230	6.0	M	3.69	-86.67r	-11.90r	<.006	<.006	<.004	<.005	<.007	<.050
AUG													
27...	--	1250	6.2	--	--	-30.77	-4.51	--	--	--	--	--	--

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
06...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
JAN													
14...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.010	<.005	<.02	<.002
MAR													
12...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
APR													
16...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
MAY													
21...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
JUL													
22...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
AUG													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)
NOV													
06...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
14...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAR													
12...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
APR													
16...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAY													
21...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
22...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
AUG													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--

08377200 Rio Grande at Foster Ranch near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
NOV													
06...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JAN													
14...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAR													
12...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
APR													
16...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAY													
21...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUL													
22...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
AUG													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
NOV							
06...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
14...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAR							
12...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
APR							
16...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAY							
21...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUL							
22...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
AUG							
27...	--	--	--	--	--	--	--

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

Value qualifier codes used in this report:
c -- See laboratory comment
d -- Diluted sample: method hi range exceeded
o -- Result determined by alternate method
r -- Value verified by rerun, same method

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^2, approximately (contributing area).

PERIOD OF RECORD.--February 1937 to current year. Monthly contents only for some periods, published in WSP 1312.

GAGE.--Water-stage recorder with satellite telemetry. Datum of gage is 0.43 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by a rock-faced earthfill dam 9,200 ft long. The dam was completed and storage began in Sept. 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.

COOPERATION.--Gage-height records and capacity curve provided by Red Bluff Water Power 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, 60,490 acre-ft, Mar. 19-26, gage height, 2,808.42 ft; minimum observed, 42,920 acre-ft, Oct. 5, gage height, 2,802.63 ft.

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

Gage height	Contents	Gage height	Contents	Gage height	Contents	Gage height	Contents
2,802	41,350	2,805	49,440	2,808	59,010		
2,803	43,880	2,806	52,460	2,809	62,530		
2,804	46,580	2,807	55,650				

Reservoir storage, acre feet
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 0800 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43,070	44,960	46,140	56,630	58,240	59,820	60,420	58,940	58,540	56,830	54,310	52,100
2	43,070	45,010	46,170	56,660	58,270	59,850	60,420	58,940	58,470	56,790	54,220	52,040
3	43,020	45,120	46,440	56,690	58,300	59,850	60,380	58,840	58,370	56,730	54,120	51,980
4	42,970	45,170	46,440	56,730	58,340	59,890	60,350	58,770	58,300	56,690	54,060	51,920
5	42,920	45,230	46,490	56,760	58,370	59,920	60,350	58,670	58,170	56,660	53,960	51,860
6	42,940	45,230	46,520	56,830	58,400	59,960	60,310	58,570	58,070	56,630	53,870	51,800
7	43,270	45,230	47,150	56,860	58,440	60,000	60,310	58,500	57,970	56,590	53,740	51,740
8	43,400	45,520	47,720	56,890	58,470	60,030	60,280	58,370	57,940	56,560	53,740	51,710
9	43,450	45,580	48,610	56,930	58,500	60,060	60,240	58,300	57,870	56,460	53,470	51,620
10	43,450	45,630	49,380	56,960	58,540	60,100	60,210	58,200	57,760	56,360	53,470	51,620
11	43,450	45,550	50,280	57,000	58,610	60,140	60,170	58,100	57,670	56,260	53,670	51,580
12	43,450	45,500	51,160	57,060	58,880	60,170	60,140	58,000	57,600	56,120	53,610	51,430
13	43,470	45,440	51,950	57,100	58,740	60,240	60,100	57,900	57,530	56,020	53,510	51,340
14	43,450	45,500	52,750	57,130	58,810	60,280	60,060	57,830	57,460	55,890	53,420	51,250
15	43,450	45,520	53,510	57,160	58,840	60,310	60,030	57,660	57,400	55,720	53,360	51,190
16	43,470	45,580	54,280	57,200	58,880	60,350	59,960	57,500	57,330	55,330	53,290	51,130
17	43,520	45,630	54,820	57,230	58,910	60,420	59,890	57,360	57,260	55,270	53,230	51,070
18	43,600	45,680	55,430	57,260	58,940	60,450	59,820	57,330	57,160	55,210	53,160	51,010
19	43,580	45,740	55,820	57,300	59,010	60,490	59,710	57,230	57,100	55,140	53,100	50,920
20	43,650	45,740	55,890	57,330	59,150	60,490	59,610	57,160	57,000	55,080	53,040	50,830
21	43,700	45,740	56,090	57,400	59,430	60,490	59,500	57,130	56,930	55,010	52,840	50,740
22	43,730	45,770	56,120	57,430	59,470	60,490	59,430	57,100	56,860	54,950	52,780	50,710
23	43,750	45,790	56,160	57,460	59,570	60,490	59,360	57,060	56,790	54,890	52,750	50,680
24	43,880	45,850	56,190	57,560	59,570	60,490	59,320	57,060	56,730	54,820	52,650	50,650
25	43,880	45,870	56,260	57,700	59,570	60,490	59,290	57,060	56,660	54,760	52,620	50,620
26	44,010	45,900	56,290	57,770	59,640	60,490	59,220	58,240	56,660	54,700	52,560	50,620
27	44,200	45,930	56,320	57,800	59,710	60,450	59,150	58,500	56,630	54,630	52,460	50,560
28	44,660	45,960	56,360	57,900	59,820	60,450	59,080	58,570	56,590	54,570	52,400	50,520
29	44,740	45,980	56,420	58,040	---	60,450	59,010	58,640	56,560	54,500	52,340	50,500
30	44,850	46,010	56,490	58,100	---	60,450	58,940	58,610	57,030	54,440	52,310	50,430
31	44,850	---	56,560	58,200	---	60,450	---	58,570	---	54,380	52,190	---
MAX	44,850	46,010	56,560	58,200	59,820	60,490	60,420	58,940	58,540	56,830	54,310	52,100
MIN	42,920	44,960	46,140	56,630	58,240	59,820	58,940	57,060	56,560	54,380	52,190	50,430
(+)	2,803.36	2,803.79	2,807.27	2,807.76	2,808.23	2,808.41	2,807.98	2,807.87	2,807.41	2,806.60	2,805.91	2,805.33
(++)	+1,780	+1,160	+10,550	+1,640	+1,620	+630	-1,510	-370	-1,540	-2,650	-2,190	-1,760

CAL YR 2002 MAX 56,560 MIN 38,060 (++) +18,590
WTR YR 2003 MAX 60,490 MIN 42,920 (++) +7,360

(+) Gage height in feet, at end of month.
(++) Change in contents, in acre-feet.

THIS PAGE IS INTENTIONALLY BLANK

08412500 Pecos River near Orla, TX

LOCATION.--Lat 31°52'21", long 103°49'52", Reeves County, Hydrologic Unit 13070001, on right bank at bridge on Farm Road 652, 5.5 mi downstream form 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^2, approximately (contributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1937 to current year.

REVISED RECORDS.--WSP 928: 1937.

GAGE.--Water-stage recorder with satellite telemetry. Datum of gage is 2,730.86 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1969, at site 6.9 mi downstream at datum 12.81 ft lower.

REMARKS.--Water-discharge records fair. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	12	5.6	4.9	8.5	4.7	3.1	6.1	2.6	16	3.8	4.0
2	26	9.9	5.6	5.2	8.8	4.6	3.2	6.3	11	16	3.7	4.2
3	9.7	9.2	8.3	5.0	8.8	4.6	3.0	6.6	18	16	3.6	4.3
4	5.7	9.4	11	4.9	8.7	4.6	3.1	6.7	18	16	3.6	4.4
5	5.7	8.8	7.6	4.8	8.4	4.3	3.1	6.5	18	15	3.5	4.5
6	24	9.4	6.4	4.7	8.3	4.3	3.0	6.7	9.4	16	3.3	4.7
7	327	8.9	5.9	4.9	8.2	4.1	2.9	7.1	7.1	142	3.1	4.8
8	108	7.8	5.9	5.0	8.3	4.1	3.0	7.5	7.3	442	3.0	4.8
9	68	7.0	5.9	4.9	8.4	4.1	3.0	7.8	8.6	92	3.0	4.8
10	39	6.2	5.8	4.7	8.0	4.1	3.0	7.9	9.5	25	34	5.3
11	19	6.0	5.8	4.7	8.0	4.1	3.1	8.0	9.6	13	6.3	4.8
12	26	6.3	5.6	4.8	7.1	4.0	3.0	9.1	9.5	9.3	3.7	4.7
13	9.0	6.3	5.6	4.9	6.6	3.8	3.1	9.7	9.9	8.2	3.4	4.6
14	11	6.3	5.4	4.9	6.6	3.9	3.3	9.7	11	7.0	3.2	4.6
15	17	6.3	5.4	5.1	6.3	3.9	3.4	10	12	5.6	3.5	4.7
16	9.6	6.7	5.5	5.2	6.2	3.8	3.1	10	13	5.4	3.3	4.7
17	8.7	7.2	5.5	5.3	6.1	3.7	3.6	11	13	5.6	3.3	4.8
18	13	7.0	5.6	5.1	5.9	3.7	4.6	12	14	4.7	3.2	4.7
19	47	6.8	5.2	5.3	5.7	3.4	5.2	12	14	4.8	3.0	4.7
20	16	6.5	5.0	5.4	5.8	3.5	5.2	12	14	4.8	3.0	4.8
21	12	6.2	5.0	5.5	5.7	3.7	5.5	14	14	4.6	3.1	4.9
22	11	6.1	5.0	5.5	5.6	3.8	5.9	14	15	4.5	3.1	4.9
23	10	6.3	5.1	5.6	5.6	3.7	6.2	15	25	4.5	3.2	4.9
24	277	6.3	5.0	5.5	5.5	3.6	5.8	15	19	4.4	5.0	5.0
25	98	6.1	4.9	5.7	5.5	3.5	5.9	72	17	4.3	4.3	5.0
26	12	6.0	4.9	6.8	5.3	3.5	6.0	178	16	4.0	3.2	5.0
27	260	5.7	5.0	7.6	5.1	3.3	5.7	17	16	4.0	3.5	5.0
28	311	5.5	5.1	7.7	4.9	3.2	6.0	11	16	4.1	4.9	5.0
29	296	5.7	5.1	7.9	---	3.3	6.2	6.3	16	4.2	3.8	5.0
30	54	5.7	5.1	8.2	---	3.2	6.2	4.5	16	4.1	5.0	5.0
31	17	---	5.1	8.4	---	3.1	---	3.4	---	3.9	4.1	---
TOTAL	2,171.4	213.6	177.9	174.1	191.9	119.2	127.4	522.9	399.5	911.0	143.7	142.6
MEAN	70.0	7.12	5.74	5.62	6.85	3.85	4.25	16.9	13.3	29.4	4.64	4.75
MAX	327	12	11	8.4	8.8	4.7	6.2	178	25	442	34	5.3
MIN	5.7	5.5	4.9	4.7	4.9	3.1	2.9	3.4	2.6	3.9	3.0	4.0
AC-FT	4,310	424	353	345	381	236	253	1,040	792	1,810	285	283

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

MEAN	147	66.1	39.3	36.4	41.5	79.9	193	192	215	229	185	216
MAX	5,717	1,474	838	712	617	288	601	2,717	3,481	1,425	686	6,515
(WY)	(1942)	(1942)	(1942)	(1942)	(1942)	(1955)	(1942)	(1941)	(1941)	(1941)	(1941)	(1941)
MIN	1.78	1.38	1.77	0.76	0.46	0.84	1.05	5.86	8.31	8.11	0.74	4.75
(WY)	(1948)	(1960)	(1962)	(1965)	(1965)	(1965)	(1965)	(1978)	(2002)	(1984)	(1965)	(2003)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	5,315.2		5,295.2			
ANNUAL MEAN	14.6		14.5		137	
HIGHEST ANNUAL MEAN					1,284	1941
LOWEST ANNUAL MEAN					13.1	1953
HIGHEST DAILY MEAN	327	Oct 7	442	Jul 8	23,700	Sep 28, 1941
LOWEST DAILY MEAN	4.9	Dec 25	2.6	Jun 1	0.00	Sep 9, 1946
ANNUAL SEVEN-DAY MINIMUM	5.0	Dec 20	3.0	Apr 6	0.00	Jul 7, 1965
MAXIMUM PEAK FLOW			632	Jul 8	23,700	Sep 29, 1941
MAXIMUM PEAK STAGE			6.74	Jul 8	20.74	Sep 29, 1941
INSTANTANEOUS LOW FLOW			1.9	Jun 1	0.00	Sep 9, 1946
ANNUAL RUNOFF (AC-FT)	10,540		10,500		99,220	
10 PERCENT EXCEEDS	16		16		352	
50 PERCENT EXCEEDS	7.4		5.6		30	
90 PERCENT EXCEEDS	5.7		3.4		5.0	

08412500 Pecos River near Orla, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1937 to April 2003 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1937 to January 2003.
WATER TEMPERATURE: March 1953 to January 2003. REMARKS.--October 1937 to September 1969, this station was published as 08410100 Pecos River below Red Bluff Dam, near Orla, TX. 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, 1,590 microsiemens, June 22, 1999.
WATER TEMPERATURE: Maximum daily, 32.5 oC, July 20, 1998; minimum daily, 0.0 oC, many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 19,900 microsiemens, Oct. 27; minimum daily, 2,480 microsiemens, Oct. 29.
WATER TEMPERATURE: Maximum daily, 23.0 oC, Oct. 9; minimum daily, 6.0 oC, Dec. 22, 23, 26, 28, 29, and 31.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
NOV													
06...	1245	9.0	700	9.6	111	8.2	12,800	20.0	16.0	2,600	688	219	30.6
DEC													
10...	1400	5.7	694	11.2	131	8.0	14,600	12.0	16.0	2,900	705	266	36.0
FEB													
18...	1330	6.0	695	9.5	129	8.3	12,000	26.0	24.0	2,800	683	255	34.4
APR													
29...	0900	6.0	692	7.9	100	7.3	12,200	25.0	20.0	2,800	680	265	42.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)
NOV													
06...	18	2,090	96	112	2	3,300	0.97	8.9	2,240	8,630	9,140	1,340	<100
DEC													
10...	19	2,320	109	128	--	3,870	0.95	6.4	2,410	9,680	10,100	1,300	<100
FEB													
18...	15	1,760	75	92	--	2,990	0.86	1.2	2,240	8,000	8,630	650	<100
APR													
29...	15	1,850	47	58	--	3,060	0.94	4.8	2,400	8,330	8,920	690	<50

Remark codes used in this table:
< -- Less than

08412500 Pecos River near Orla, TX--Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	13.0	12.0	---	---	---	---	---	---	---	---	---
2	22.0	13.0	12.0	---	---	---	---	---	---	---	---	---
3	22.0	13.0	---	---	---	---	---	---	---	---	---	---
4	21.0	13.0	11.0	---	---	---	---	---	---	---	---	---
5	22.0	13.0	10.0	---	---	---	---	---	---	---	---	---
6	22.0	---	---	---	---	---	---	---	---	---	---	---
7	19.0	---	---	---	---	---	---	---	---	---	---	---
8	21.0	---	---	---	---	---	---	---	---	---	---	---
9	23.0	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	8.0	---	---	---	---	---	---	---	---
11	---	13.0	10.0	8.0	---	---	---	---	---	---	---	---
12	20.0	14.0	10.0	11.0	---	---	---	---	---	---	---	---
13	---	14.0	9.0	11.0	---	---	---	---	---	---	---	---
14	---	13.0	10.0	11.0	---	---	---	---	---	---	---	---
15	19.0	14.0	8.5	10.0	---	---	---	---	---	---	---	---
16	---	12.0	8.0	11.0	---	---	---	---	---	---	---	---
17	---	12.0	8.0	11.0	---	---	---	---	---	---	---	---
18	---	12.0	7.0	---	---	---	---	---	---	---	---	---
19	17.0	12.0	7.0	12.0	---	---	---	---	---	---	---	---
20	---	12.0	8.0	15.0	---	---	---	---	---	---	---	---
21	---	12.0	8.0	---	---	---	---	---	---	---	---	---
22	---	11.0	6.0	---	---	---	---	---	---	---	---	---
23	---	11.0	6.0	7.0	---	---	---	---	---	---	---	---
24	13.0	11.0	---	7.0	---	---	---	---	---	---	---	---
25	---	11.0	---	---	---	---	---	---	---	---	---	---
26	13.0	---	6.0	---	---	---	---	---	---	---	---	---
27	13.0	11.0	6.5	---	---	---	---	---	---	---	---	---
28	11.0	12.0	6.0	---	---	---	---	---	---	---	---	---
29	15.0	---	6.0	7.0	---	---	---	---	---	---	---	---
30	---	---	---	16.0	---	---	---	---	---	---	---	---
31	---	---	6.0	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13,100	12,200	13,700	---	---	---	---	---	---	---	---	---
2	13,100	12,200	13,700	---	---	---	---	---	---	---	---	---
3	13,300	12,300	---	---	---	---	---	---	---	---	---	---
4	13,100	12,200	13,000	---	---	---	---	---	---	---	---	---
5	13,200	12,300	17,400	---	---	---	---	---	---	---	---	---
6	13,100	---	---	---	---	---	---	---	---	---	---	---
7	3,020	---	---	---	---	---	---	---	---	---	---	---
8	4,200	---	---	---	---	---	---	---	---	---	---	---
9	5,870	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	12,500	---	---	---	---	---	---	---	---
11	---	15,000	14,600	12,300	---	---	---	---	---	---	---	---
12	8,420	15,100	14,300	12,400	---	---	---	---	---	---	---	---
13	---	14,200	14,200	12,300	---	---	---	---	---	---	---	---
14	---	14,100	14,200	12,200	---	---	---	---	---	---	---	---
15	10,900	14,100	14,100	12,200	---	---	---	---	---	---	---	---
16	---	14,200	14,100	12,200	---	---	---	---	---	---	---	---
17	---	14,000	13,600	12,200	---	---	---	---	---	---	---	---
18	---	13,900	13,500	---	---	---	---	---	---	---	---	---
19	10,400	14,600	13,500	12,200	---	---	---	---	---	---	---	---
20	---	14,600	13,500	12,200	---	---	---	---	---	---	---	---
21	---	14,000	13,400	---	---	---	---	---	---	---	---	---
22	---	14,000	13,700	---	---	---	---	---	---	---	---	---
23	---	14,200	13,500	12,500	---	---	---	---	---	---	---	---
24	4,610	14,100	---	12,300	---	---	---	---	---	---	---	---
25	4,920	13,700	---	---	---	---	---	---	---	---	---	---
26	17,900	---	13,600	---	---	---	---	---	---	---	---	---
27	19,900	13,700	13,400	---	---	---	---	---	---	---	---	---
28	8,280	13,800	13,000	---	---	---	---	---	---	---	---	---
29	2,480	---	12,800	11,700	---	---	---	---	---	---	---	---
30	---	---	---	11,600	---	---	---	---	---	---	---	---
31	---	---	13,000	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

THIS PAGE IS INTENTIONALLY BLANK

08427000 Giffin Springs at Toyahvale, TX

LOCATION.--Lat 30°56'51", long 103°47'19", Reeves County, Hydrologic Unit 13070003, on left bank, 0.10 mi north of U.S. Highway 290, 0.15 mi below spring source, 0.20 mi northwest of entrance to Balmorhea State Park, and 4.0 mi southwest of Balmorhea.

DRAINAGE AREA.--Not applicable.

PERIOD OF RECORD.--Oct. 1931 to Sept. 1933, published as "Giffen", July 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,302.32 ft above the NGVD of 1929. Prior to July 25, 2002, water-stage recorder 700 ft upstream at unknown datum. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges and discharges above 6.0 ft^3/s, which are poor. Computed discharge includes all flow passing gage and may include runoff and diversion from San Solomon Springs through canal that enters between the spring source and the gage. No known regulation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24 ft^3/s, July 29, 2002, gage height, 5.44 ft, from rating curve extended above 5.22 ft^3/s; minimum daily discharge, 3.5 ft^3/s, June 24, 25, 2003.

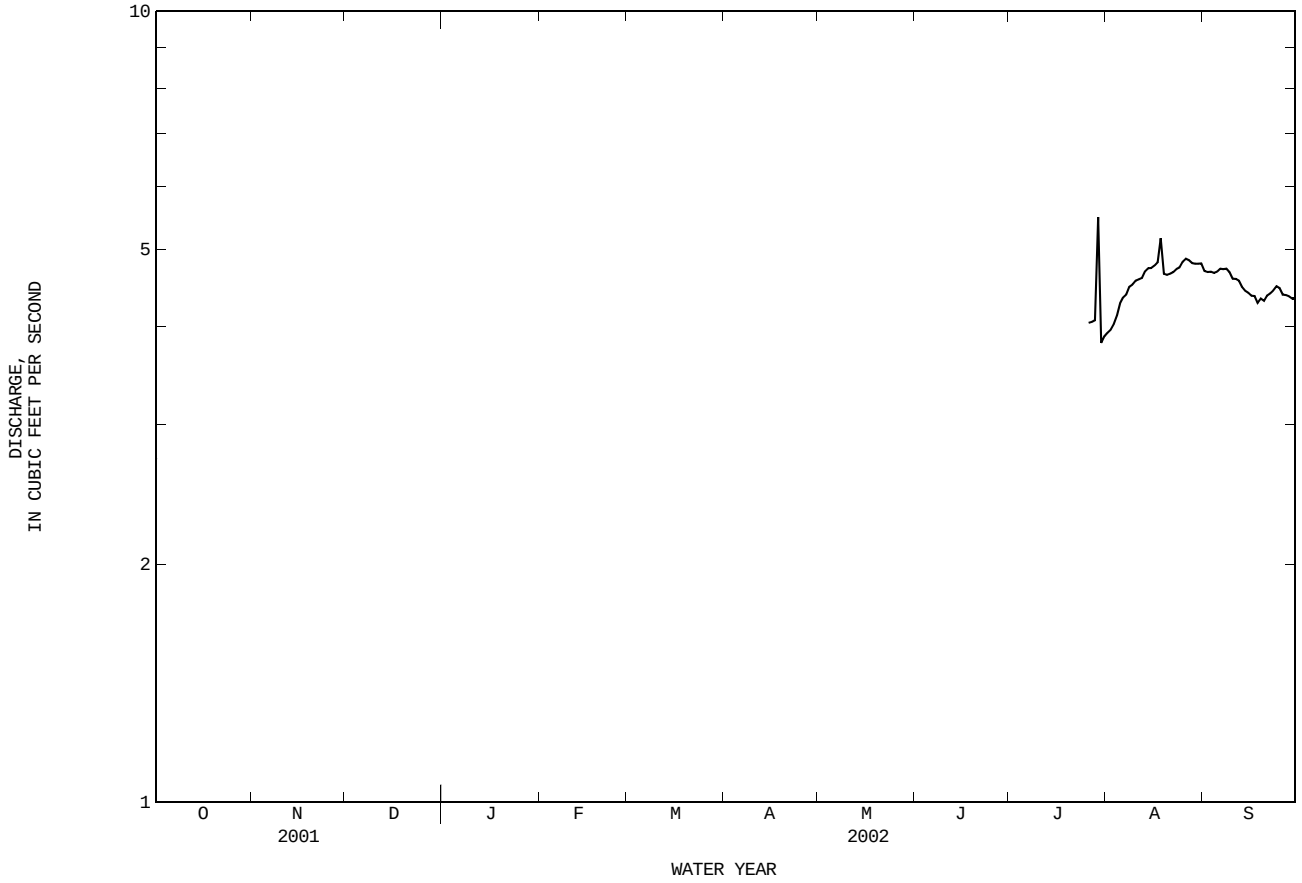
EXTREMES FOR WATER YEAR 2002.--Maximum discharge, 24 ft^3/s, July 29, 2002, gage height, 5.44 ft, from rating curve extended above 5.22 ft^3/s; minimum daily discharge, 3.8 ft^3/s, July 30.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.2 ft^3/s, June 23, gage height, 4.42 ft, from rating curve extended above 5.22 ft^3/s; minimum daily discharge, 3.5 ft^3/s, June 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	3.9	4.7
2	---	---	---	---	---	---	---	---	---	---	4.0	4.7
3	---	---	---	---	---	---	---	---	---	---	4.0	4.7
4	---	---	---	---	---	---	---	---	---	---	4.1	4.7
5	---	---	---	---	---	---	---	---	---	---	4.3	4.7
6	---	---	---	---	---	---	---	---	---	---	4.3	4.7
7	---	---	---	---	---	---	---	---	---	---	4.4	4.7
8	---	---	---	---	---	---	---	---	---	---	4.5	4.7
9	---	---	---	---	---	---	---	---	---	---	4.5	4.7
10	---	---	---	---	---	---	---	---	---	---	4.6	4.6
11	---	---	---	---	---	---	---	---	---	---	4.6	4.6
12	---	---	---	---	---	---	---	---	---	---	4.6	4.6
13	---	---	---	---	---	---	---	---	---	---	4.7	4.5
14	---	---	---	---	---	---	---	---	---	---	4.7	4.4
15	---	---	---	---	---	---	---	---	---	---	4.7	4.4
16	---	---	---	---	---	---	---	---	---	---	4.8	4.4
17	---	---	---	---	---	---	---	---	---	---	4.8	4.4
18	---	---	---	---	---	---	---	---	---	---	5.2	4.3
19	---	---	---	---	---	---	---	---	---	---	4.7	4.3
20	---	---	---	---	---	---	---	---	---	---	4.6	4.3
21	---	---	---	---	---	---	---	---	---	---	4.7	4.4
22	---	---	---	---	---	---	---	---	---	---	4.7	4.4
23	---	---	---	---	---	---	---	---	---	---	4.7	4.4
24	---	---	---	---	---	---	---	---	---	---	4.7	4.5
25	---	---	---	---	---	---	---	---	---	---	4.8	4.5
26	---	---	---	---	---	---	---	---	---	4.0	4.9	4.4
27	---	---	---	---	---	---	---	---	---	4.0	4.8	4.4
28	---	---	---	---	---	---	---	---	---	4.1	4.8	4.4
29	---	---	---	---	---	---	---	---	---	5.5	4.8	4.3
30	---	---	---	---	---	---	---	---	---	3.8	4.8	4.3
31	---	---	---	---	---	---	---	---	---	3.9	4.8	---
TOTAL	---	---	---	---	---	---	---	---	---	---	142.5	135.1
MEAN	---	---	---	---	---	---	---	---	---	---	4.60	4.50
MAX	---	---	---	---	---	---	---	---	---	---	5.2	4.7
MIN	---	---	---	---	---	---	---	---	---	---	3.9	4.3
AC-FT	---	---	---	---	---	---	---	---	---	---	283	268

08427000 Giffin Springs at Toyahvale, TX--Continued

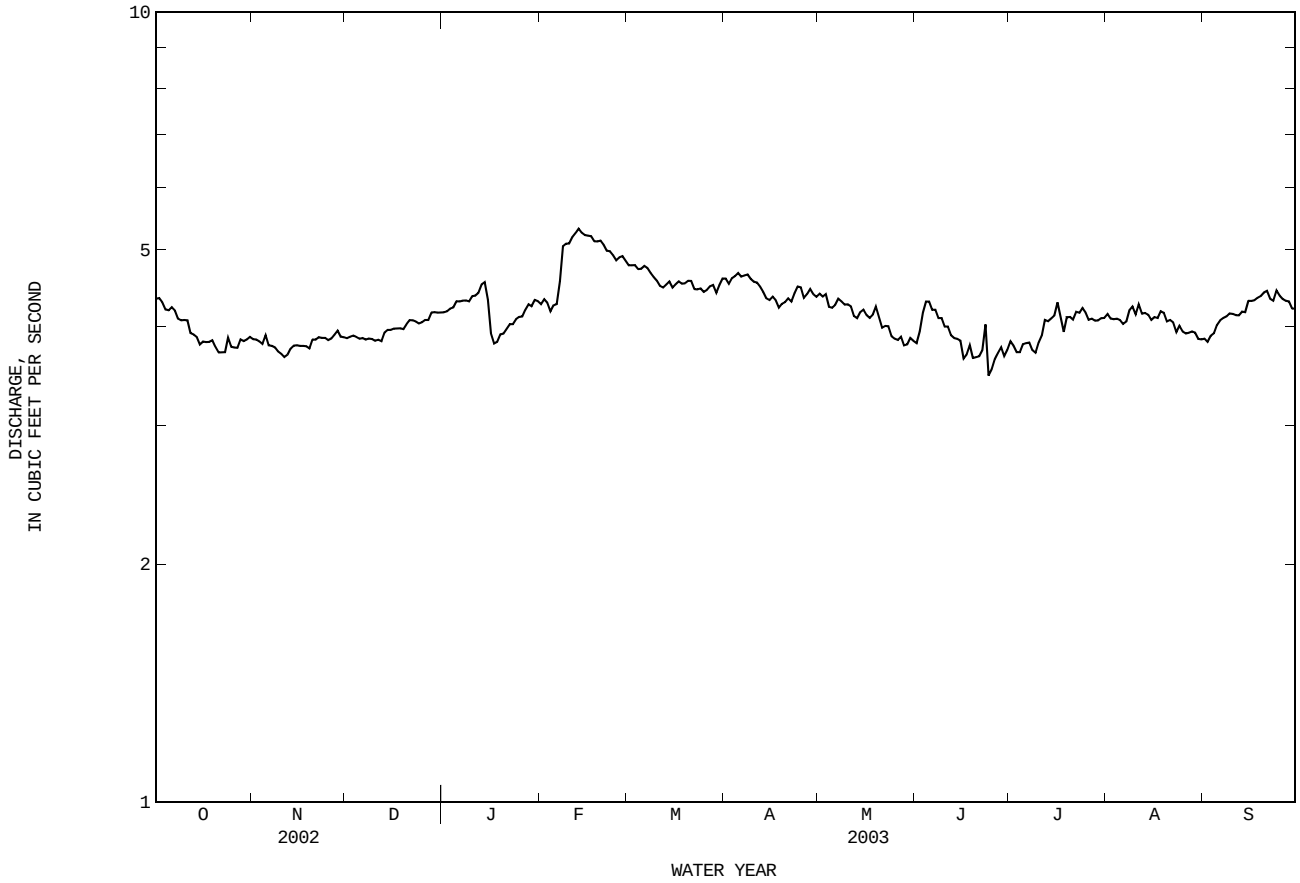


08427000 Giffin Springs at Toyahvale, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	3.9	3.9	4.2	4.3	4.8	4.6	4.4	3.8	3.8	4.1	3.9
2	4.3	3.9	3.9	4.2	4.3	4.8	4.5	4.4	3.9	3.8	4.1	3.8
3	4.3	3.8	3.9	4.2	4.3	4.8	4.6	4.4	4.2	3.7	4.1	3.9
4	4.2	3.8	3.9	4.2	4.2	4.7	4.6	4.2	4.3	3.7	4.1	3.9
5	4.2	3.9	3.9	4.3	4.3	4.7	4.7	4.2	e4.3	3.8	4.1	4.0
6	4.2	3.8	3.9	4.3	4.3	4.8	4.6	4.3	e4.2	3.8	4.0	4.1
7	4.2	3.8	3.8	4.3	4.6	4.7	4.6	4.3	e4.2	3.8	4.1	4.1
8	4.1	3.8	3.9	4.3	5.1	4.7	4.7	4.3	e4.1	3.7	4.2	4.1
9	4.1	3.7	3.9	4.3	5.1	4.6	4.6	4.3	e4.1	3.7	4.2	4.2
10	4.1	3.7	3.8	4.4	5.1	4.6	4.6	4.3	e4.0	3.8	4.1	4.1
11	4.1	3.7	3.8	4.4	5.2	4.5	4.5	4.2	4.0	3.9	4.3	4.1
12	3.9	3.7	3.8	4.4	5.2	4.5	4.5	4.1	3.9	4.1	4.2	4.1
13	3.9	3.8	3.9	4.5	5.3	4.5	4.4	4.1	3.9	4.1	4.2	4.2
14	3.9	3.8	4.0	4.6	5.3	4.6	4.3	4.2	3.9	4.1	4.1	4.2
15	3.8	3.8	4.0	4.3	5.2	4.5	4.3	4.2	3.8	4.1	4.1	4.3
16	3.8	3.8	4.0	3.9	5.2	4.5	4.4	4.1	3.6	4.3	4.1	4.3
17	3.8	3.8	4.0	3.8	5.2	4.6	4.3	4.1	3.7	4.1	4.1	4.3
18	3.8	3.8	4.0	3.8	5.1	4.5	4.2	4.1	3.8	3.9	4.2	4.4
19	3.8	3.8	4.0	3.9	5.1	4.5	4.3	4.2	3.6	4.1	4.2	4.4
20	3.8	3.9	4.0	3.9	5.1	4.6	4.3	4.1	3.7	4.1	4.1	4.4
21	3.7	3.8	4.1	4.0	5.1	4.6	4.3	4.0	3.7	4.1	4.1	4.4
22	3.7	3.9	4.1	4.0	5.0	4.5	4.3	4.0	3.7	4.2	4.0	4.3
23	3.7	3.9	4.1	4.0	5.0	4.5	4.4	4.0	4.0	4.2	3.9	4.3
24	3.9	3.9	4.0	4.1	4.9	4.5	4.5	3.9	3.5	4.2	4.0	4.4
25	3.8	3.8	4.1	4.1	4.8	4.4	4.5	3.9	3.5	4.2	3.9	4.4
26	3.8	3.9	4.1	4.1	4.9	4.5	4.3	3.8	3.6	4.1	3.9	4.3
27	3.8	3.9	4.1	4.2	4.9	4.5	4.4	3.9	3.7	4.1	3.9	4.3
28	3.9	4.0	4.2	4.3	4.8	4.5	4.5	3.8	3.8	4.1	3.9	4.3
29	3.8	3.9	4.2	4.2	---	4.4	4.4	3.8	3.7	4.1	3.9	4.2
30	3.9	3.9	4.2	4.3	---	4.5	4.4	3.9	3.7	4.1	3.9	4.2
31	3.9	---	4.2	4.3	---	4.6	---	3.8	---	4.1	3.9	---
TOTAL	122.5	114.9	123.7	129.8	136.9	142.0	133.6	127.3	115.9	123.9	126.0	125.9
MEAN	3.95	3.83	3.99	4.19	4.89	4.58	4.45	4.11	3.86	4.00	4.06	4.20
MAX	4.3	4.0	4.2	4.6	5.3	4.8	4.7	4.4	4.3	4.3	4.3	4.4
MIN	3.7	3.7	3.8	3.8	4.2	4.4	4.2	3.8	3.5	3.7	3.9	3.8
AC-FT	243	228	245	257	272	282	265	252	230	246	250	250

e Estimated



THIS PAGE IS INTENTIONALLY BLANK

08431700 Limpia Creek above Fort Davis, TX

LOCATION.--Lat 30°36'48", long 104°00'04", Jeff Davis County, Hydrologic Unit 13070005, on left downstream side of bridge on State Highway 118, about 1,400 ft upstream from Jones Creek, and 6.8 mi west of Fort Davis.

DRAINAGE AREA.--52.4 mi^2.

PERIOD OF RECORD.--Oct. 1965 to Sept. 1986 (daily mean discharge), July 2001 to current year (gage heights only).
Water-quality records.--Chemical data: May 1965 to June 1986.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 5,175 ft above the NGVD of 1929. Prior to Mar. 1, 1979, at site 600 ft upstream at datum 3.71 ft higher. Satellite telemeter at station.

REMARKS.--Records fair. No known diversions above station.

AVERAGE DISCHARGE.--21 years (water years 1966-86), 3.12 ft^3/s (2,260 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,610 ft^3/s, June 19, 1984, gage height, 9.00 ft (from floodmark); present datum, from rating curve extended above 720 ft^3/s on basis of slope-area measuement of 8,610 ft^3/s; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, about 9.00 ft in 1939, from information by local resident.

EXTREMES FOR WATER YEAR 2001.--Maximum gage height, 3.34 ft (from floodmark), Sept. 22, 2001; minimum gage height, 1.58 ft, Sept. 1, 21, 26, 2001.

EXTREMES FOR WATER YEAR 2002.--Maximum gage height, 2.01 ft, Oct. 5, 2001; minimum gage height, 1.58 ft, Oct. 6, 2001.

EXTREMES FOR CURRENT YEAR.--No flow for the year.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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

08431700 Limpia Creek above Fort Davis, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	1.65	1.58
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	1.78	1.62
21	---	---	---	---	---	---	---	---	---	---	1.61	1.58
22	---	---	---	---	---	---	---	---	---	---	3.34	1.95
23	---	---	---	---	---	---	---	---	---	---	1.94	1.69
24	---	---	---	---	---	---	---	---	---	---	1.69	1.63
25	---	---	---	---	---	---	---	---	---	---	1.63	1.59
26	---	---	---	---	---	---	---	---	---	---	1.60	1.58
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	1.89	1.65	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	2.01	1.64	---	---	---	---	---	---	---	---	---	---
6	1.63	1.58	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08431700 Limpia Creek above Fort Davis, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

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

08431700 Limpia Creek above Fort Davis, TX--Continued

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

08433000 Barrilla Draw near Saragosa, TX

LOCATION.--Lat 30°57'28", long 103°27'33", Reeves County, Hydrologic Unit 13070005, on right bank at downstream side of bridge on Interstate Highway 10, 12.2 mi east of Saragosa, 17.0 mi east of Balmorhea, and 34.4 mi west of Fort Stockton.

DRAINAGE AREA.--612 mi^2.

PERIOD OF RECORD.--Dec. 1924 to July 1926, June to Sept. 1932 (published as "Barrilla Creek"), Oct. 1975 to Sept. 1983, Aug. 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,078.36 ft above the NGVD of 1929. Prior to Oct. 1, 1975, water-stage recorder at site 600 ft upstream at datum 6.07 ft higher. Satellite telemeter at station.

REMARKS.--Records poor. Considerable diversion for irrigation by spreader dams above station. No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	e0.00
2	---	---	---	---	---	---	---	---	---	---	---	0.00
3	---	---	---	---	---	---	---	---	---	---	---	0.00
4	---	---	---	---	---	---	---	---	---	---	---	0.00
5	---	---	---	---	---	---	---	---	---	---	---	0.00
6	---	---	---	---	---	---	---	---	---	---	---	0.00
7	---	---	---	---	---	---	---	---	---	---	---	0.00
8	---	---	---	---	---	---	---	---	---	---	---	e0.00
9	---	---	---	---	---	---	---	---	---	---	---	e0.00
10	---	---	---	---	---	---	---	---	---	---	---	e0.00
11	---	---	---	---	---	---	---	---	---	---	---	e0.00
12	---	---	---	---	---	---	---	---	---	---	---	e0.00
13	---	---	---	---	---	---	---	---	---	---	---	355
14	---	---	---	---	---	---	---	---	---	---	---	59
15	---	---	---	---	---	---	---	---	---	---	---	e0.92
16	---	---	---	---	---	---	---	---	---	---	---	0.00
17	---	---	---	---	---	---	---	---	---	---	---	0.00
18	---	---	---	---	---	---	---	---	---	---	---	0.00
19	---	---	---	---	---	---	---	---	---	---	---	0.00
20	---	---	---	---	---	---	---	---	---	---	---	0.00
21	---	---	---	---	---	---	---	---	---	---	---	0.00
22	---	---	---	---	---	---	---	---	---	---	---	0.00
23	---	---	---	---	---	---	---	---	---	---	---	0.00
24	---	---	---	---	---	---	---	---	---	---	---	0.00
25	---	---	---	---	---	---	---	---	---	---	---	0.00
26	---	---	---	---	---	---	---	---	---	---	---	0.00
27	---	---	---	---	---	---	---	---	---	---	---	0.00
28	---	---	---	---	---	---	---	---	---	---	0.00	0.00
29	---	---	---	---	---	---	---	---	---	---	0.00	0.00
30	---	---	---	---	---	---	---	---	---	---	0.00	0.00
31	---	---	---	---	---	---	---	---	---	---	0.00	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	414.92
MEAN	---	---	---	---	---	---	---	---	---	---	---	13.8
MAX	---	---	---	---	---	---	---	---	---	---	---	355
MIN	---	---	---	---	---	---	---	---	---	---	---	0.00
AC-FT	---	---	---	---	---	---	---	---	---	---	---	823

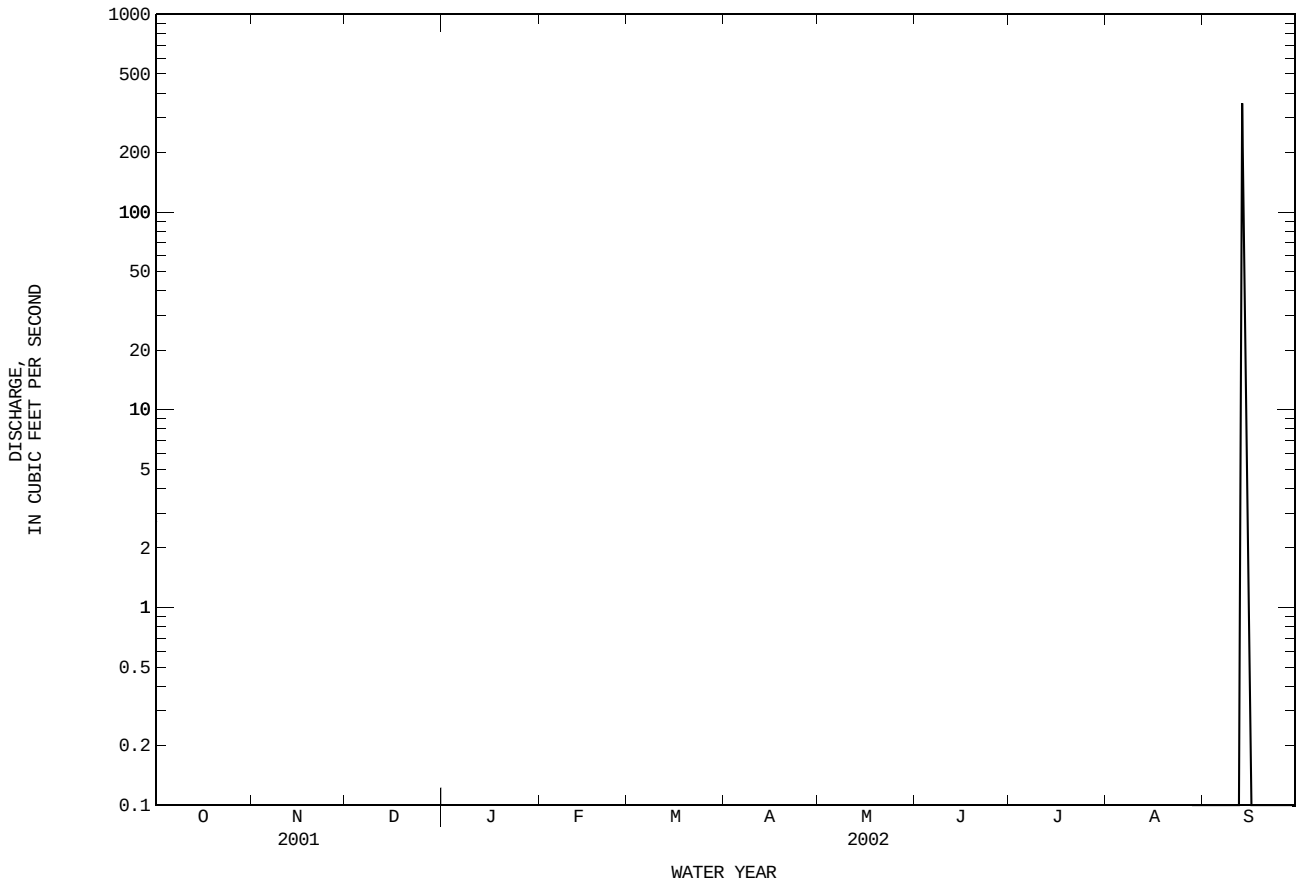
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002h, BY WATER YEAR (WY)

MEAN	0.39	0.000	0.000	0.091	0.044	0.000	0.043	1.33	0.22	0.21	23.2	37.3
MAX	3.50	0.000	0.000	0.82	0.30	0.000	0.25	9.25	1.19	1.72	208	284
(WY)	1979	1926	1926	1983	1982	1926	1983	1926	1978	1932	1932	1978
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1926	1926	1926	1926	1926	1926	1926	1976	1926	1977	1976	1976

SUMMARY STATISTICS	FOR 2002 WATER YEAR		WATER YEARS 1925 - 2002h	
ANNUAL MEAN			3.41	
HIGHEST ANNUAL MEAN			23.5	1978
LOWEST ANNUAL MEAN			0.000	1977
HIGHEST DAILY MEAN			4260	Sep 26 1978
LOWEST DAILY MEAN			0.00	Dec 1 1924
ANNUAL SEVEN-DAY MINIMUM			0.00	Dec 1 1924
MAXIMUM PEAK FLOW	728	Sep 13	g15500	Aug 30 1932
MAXIMUM PEAK STAGE	5.20	Sep 13	g10.45	Aug 30 1932
ANNUAL RUNOFF (AC-FT)			2470	
10 PERCENT EXCEEDS			0.00	
50 PERCENT EXCEEDS			0.00	
90 PERCENT EXCEEDS			0.00	

e Estimated
h See PERIOD OF RECORD paragraph.
g At site and datum then in use.

08433000 Barrilla Draw near Saragosa, TX--Continued



08433000 Barrilla Draw near Saragosa, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.41	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	4.2	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	86	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	2.5	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	e0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	e0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	50	e0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	e20	e0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	534	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	95	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	e105	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	160	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	35	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	1.3	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	53	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	258	0.00	0.00	0.00
28	e35	0.00	0.00	0.00	0.00	0.00	0.00	e0.00	0.56	0.00	0.00	0.00
29	e0.10	0.00	0.00	0.00	---	0.00	0.00	e0.00	0.00	17	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	e0.00	e0.00	0.00	6.1	&26	0.00
31	0.00	---	0.00	0.00	---	0.00	---	e0.00	---	0.00	&33	---
TOTAL	35.10	0.00	0.00	0.00	0.00	0.00	70.00	0.00	1241.86	116.21	59.00	0.00
MEAN	1.13	0.000	0.000	0.000	0.000	0.000	2.33	0.000	41.4	3.75	1.90	0.000
MAX	35	0.00	0.00	0.00	0.00	0.00	50	0.00	534	86	33	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	70	0.00	0.00	0.00	0.00	0.00	139	0.00	2460	231	117	0.00

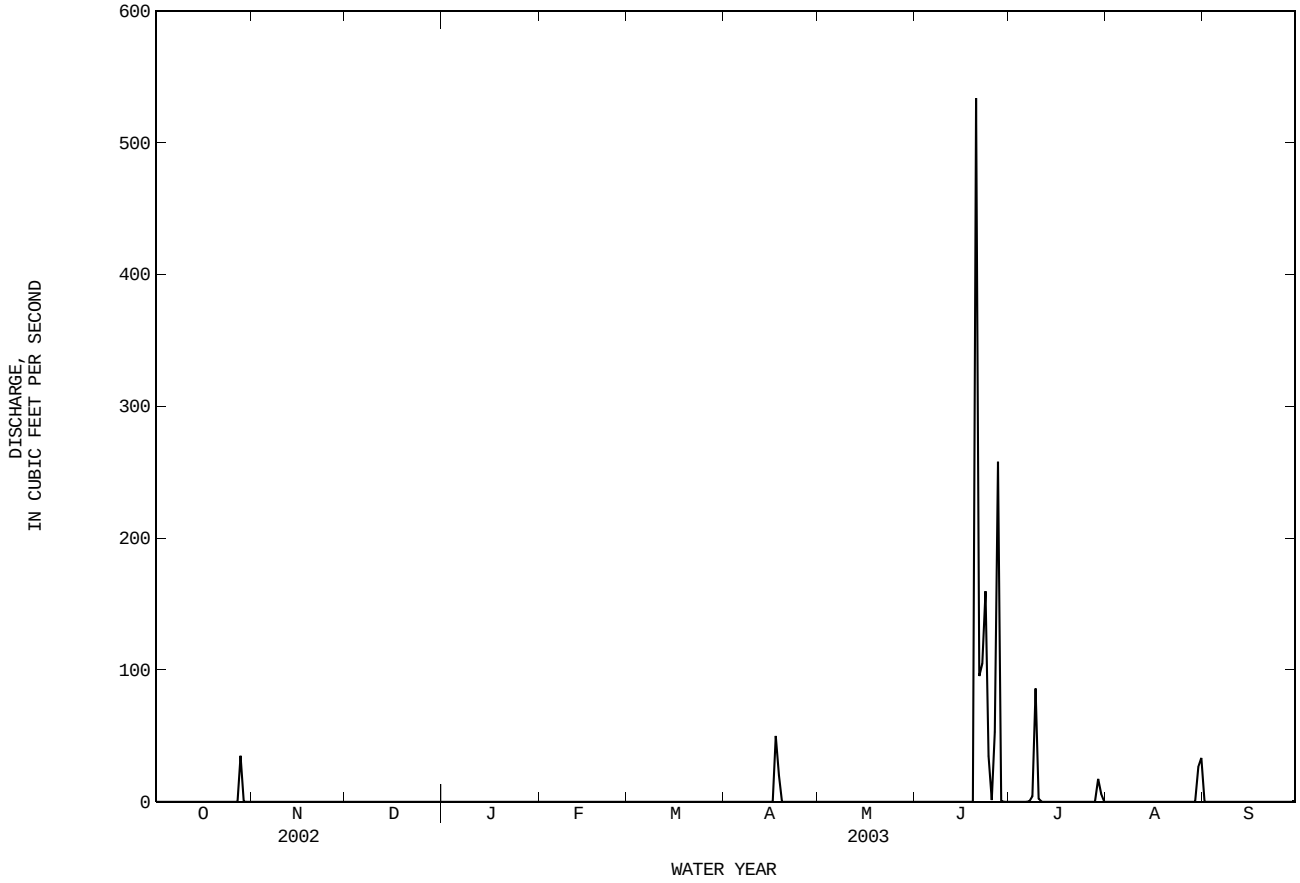
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2003h, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	0.46	0.000	0.000	0.082	0.039	0.000	0.27	1.20	4.34	0.57	21.0	33.5
MAX	3.50	0.000	0.000	0.82	0.30	0.000	2.33	9.25	41.4	3.75	208	284
(WY)	1979	1926	1926	1983	1982	1926	2003	1926	2003	2003	1932	1978
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1926	1926	1926	1926	1926	1926	1926	1976	1926	1977	1976	1976

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 1925 - 2003h	
ANNUAL TOTAL	1522.17			
ANNUAL MEAN	4.17		3.49	
HIGHEST ANNUAL MEAN			23.5	1978
LOWEST ANNUAL MEAN			0.000	1977
HIGHEST DAILY MEAN	534	Jun 20	4260	Sep 26 1978
LOWEST DAILY MEAN	0.00	Oct 1	0.00	Dec 1 1924
ANNUAL SEVEN-DAY MINIMUM	0.00	Oct 1	0.00	Dec 1 1924
MAXIMUM PEAK FLOW	1880	Jun 22	g15500	Aug 30 1932
MAXIMUM PEAK STAGE	a7.42	Jun 22	g10.45	Aug 30 1932
ANNUAL RUNOFF (AC-FT)	3020		2530	
10 PERCENT EXCEEDS	0.00		0.00	
50 PERCENT EXCEEDS	0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00	

e Estimated
& Value was computed from affected unit values
h See PERIOD OF RECORD paragraph.
g At site and datum then in use.
a From floodmark.

08433000 Barrilla Draw near Saragosa, TX--Continued



08446500 Pecos River near Girvin, TX

LOCATION.--Lat 31°06'47", long 102°25'02", Pecos County, Hydrologic Unit 13070001, 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^2, approximately, which is contributing area of supplementary gage 7.2 mi downstream.

PERIOD OF RECORD.--Aug. 1939 to current year.
Water-quality records.--Chemical data: Oct. 1939 to June 1941, Oct. 1946 to Sept. 1947, Oct. 1953 to Aug. 1982. Pesticide data: May 1968 to July 1974. Specific conductance: Oct. 1939 to June 1941, Oct. 1946 to Sept. 1947, Oct. 1953 to Sept. 1982. Water temperature: Oct. 1953 to Jan. 1959, Mar. 1964 to Sept. 1982.

GAGE.--Water-stage recorder with concrete control and measuring flume. Elevation of gage is 2,290 ft above NGVD of 1929, from topographic map. Supplementary water-stage recorder, 7.2 mi downstream at datum 2,269.65 ft above NGVD of 1929, used as regular gage prior to July 17, 1951, is now used only for peaks exceeding about 750 ft^3/s. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since installation of gage in water year 1939, at least 10% of contributing drainage area has been regulated. 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 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	53	18	20	18	17	16	10	3.6	7.2	4.9	e5.0
2	12	35	17	20	18	17	16	10	3.6	7.9	4.5	e6.0
3	12	34	18	20	18	17	16	9.5	3.6	8.8	4.3	10
4	18	38	18	20	18	18	16	9.6	6.2	9.4	4.3	32
5	8.3	37	19	20	18	18	16	9.0	9.2	9.9	4.2	37
6	8.7	38	19	21	18	16	17	9.1	8.2	16	4.3	32
7	20	40	19	21	18	16	16	8.8	4.6	22	4.2	18
8	53	39	19	21	18	16	16	8.7	3.6	26	4.0	11
9	36	35	19	21	18	16	16	8.0	3.7	34	4.1	9.4
10	46	30	19	21	18	15	17	8.1	5.5	34	4.1	7.5
11	32	27	19	21	18	15	17	7.7	4.5	30	4.1	7.5
12	22	26	18	21	18	15	17	7.4	3.6	25	4.2	7.3
13	19	25	18	21	17	15	17	7.4	3.6	21	4.2	7.1
14	17	25	17	21	17	14	18	7.0	8.9	16	4.3	6.5
15	15	26	17	21	18	15	19	6.3	39	12	4.4	e6.5
16	15	26	17	20	18	16	19	5.9	43	10	4.9	e6.5
17	15	25	17	20	18	17	19	5.2	20	12	5.2	e6.5
18	19	24	17	20	18	17	19	4.4	11	8.9	5.5	e6.0
19	18	24	18	20	17	17	18	3.9	7.0	8.0	5.5	6.0
20	15	24	18	20	18	15	17	3.7	5.8	7.3	5.5	e5.5
21	14	23	18	20	24	16	16	4.4	5.5	5.6	5.7	e5.5
22	14	23	18	19	25	17	15	5.9	5.4	5.0	6.0	e6.0
23	18	23	19	19	22	17	16	4.1	5.3	5.0	7.2	5.8
24	19	23	18	19	19	18	14	3.6	5.1	5.5	7.4	e5.5
25	42	22	18	19	19	17	13	3.6	4.8	5.2	11	e16
26	34	21	19	19	19	17	12	4.2	4.8	5.4	9.2	e13
27	26	20	19	19	18	17	12	4.6	4.8	5.7	9.0	44
28	33	19	19	19	18	17	11	4.9	4.8	5.9	9.7	44
29	25	19	19	19	---	17	11	4.8	5.1	5.5	31	48
30	56	18	20	18	---	18	11	4.3	6.1	5.2	10	36
31	59	---	20	18	---	18	---	3.7	---	5.1	7.4	---
TOTAL	753.0	842	568	618	521	511	473	197.8	249.9	384.5	204.3	457.1
MEAN	24.3	28.1	18.3	19.9	18.6	16.5	15.8	6.38	8.33	12.4	6.59	15.2
MAX	59	53	20	21	25	18	19	10	43	34	31	48
MIN	8.3	18	17	18	17	14	11	3.6	3.6	5.0	4.0	5.0
AC-FT	1490	1670	1130	1230	1030	1010	938	392	496	763	405	907

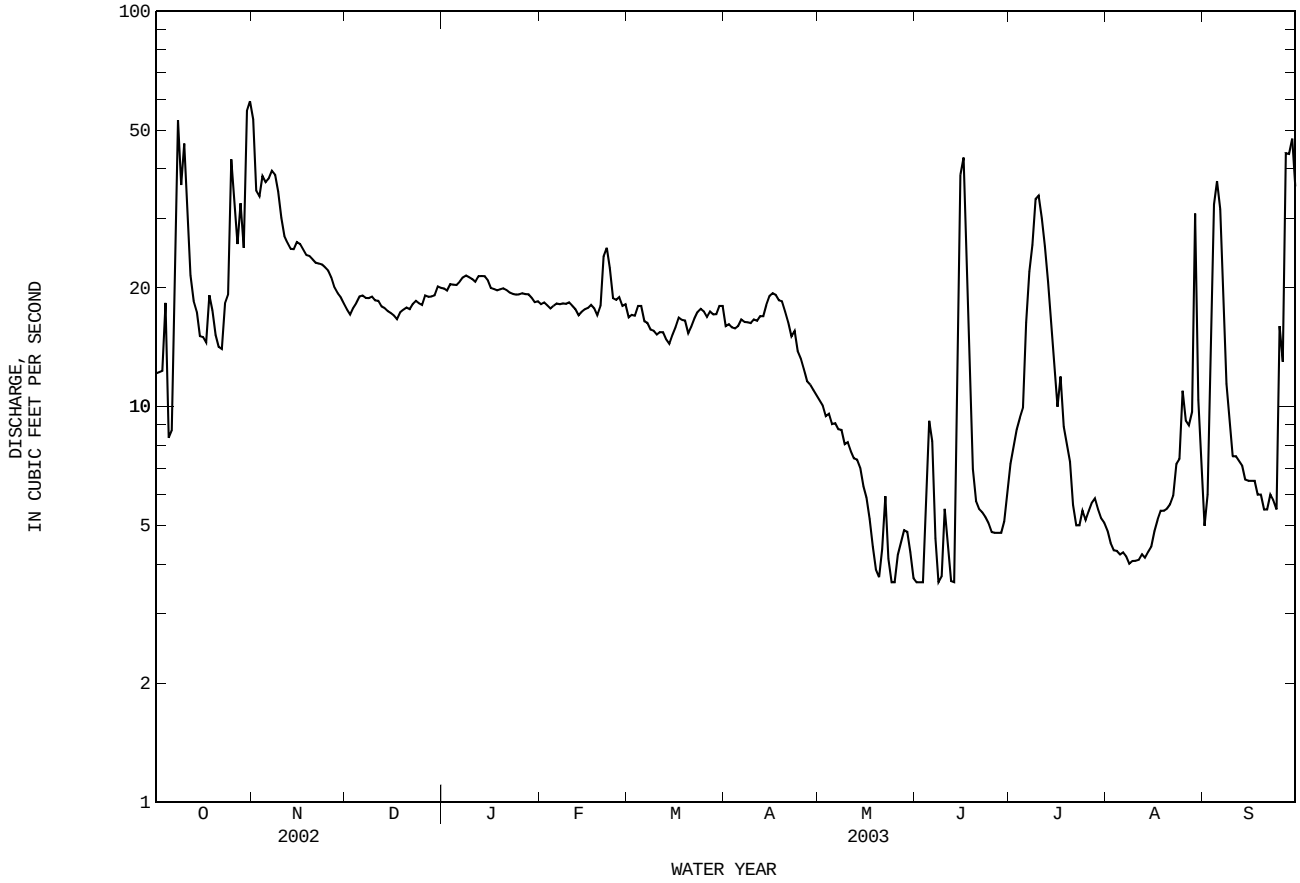
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	187	100	65.5	61.7	52.7	44.2	35.0	44.1	95.8	44.9	33.3	61.8
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	16.5	11.3	6.38	2.84	3.86	4.13	6.05
(WY)	1980	1974	1984	1984	1982	2003	1985	2003	1983	1964	1969	1983

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	5792.1		5779.6			
ANNUAL MEAN	15.9		15.8		68.9	
HIGHEST ANNUAL MEAN					1386	1942
LOWEST ANNUAL MEAN					15.1	2002
HIGHEST DAILY MEAN	100	Jul 8	59	Oct 31	19400	Oct 5 1941
LOWEST DAILY MEAN	2.6	Jun 24	3.6	May 24	1.9	Jun 19 1982
ANNUAL SEVEN-DAY MINIMUM	2.8	Jun 20	4.1	May 28	2.3	Jul 1 1983
MAXIMUM PEAK FLOW			163	Aug 29	k20000	Oct 5 1941
MAXIMUM PEAK STAGE			2.11	Aug 29	pk20.49	Oct 5 1941
ANNUAL RUNOFF (AC-FT)	11490		11460		49950	
10 PERCENT EXCEEDS	25		26		82	
50 PERCENT EXCEEDS	17		17		27	
90 PERCENT EXCEEDS	4.3		4.8		10	

e Estimated
k From supplementary gage.
p Observed.

08446500 Pecos River near Girvin, TX--Continued



08447020 Independence Creek near Sheffield, TX

LOCATION.--Lat 30°27'07", long 101°43'58", Terrell County, Hydrologic Unit 13070010, on left bank 0.5 mi downstream from Joe Chandler Ranch Headquarters, 1.0 mi upstream from mouth, 6.0 mi downstream from bridge on FM 1217, and 17.0 mi southeast of Sheffield.

DRAINAGE AREA.--763 mi^2.

PERIOD OF RECORD.--Jan. 1974 to Sept. 1985, Aug. 2002 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,883 ft above NGVD of 1929, by Topographic Division plane table survey. Satellite telemeter at station.

REMARKS.--Records good except those for estimated daily discharges and discharges above 500 ft^3/s, which are poor. The Chandler Estate and the Roden Ranch have permits to divert 243 and 530 acre-ft annually, respectively.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	13
2	---	---	---	---	---	---	---	---	---	---	---	14
3	---	---	---	---	---	---	---	---	---	---	---	15
4	---	---	---	---	---	---	---	---	---	---	---	14
5	---	---	---	---	---	---	---	---	---	---	---	17
6	---	---	---	---	---	---	---	---	---	---	---	17
7	---	---	---	---	---	---	---	---	---	---	---	18
8	---	---	---	---	---	---	---	---	---	---	---	19
9	---	---	---	---	---	---	---	---	---	---	---	24
10	---	---	---	---	---	---	---	---	---	---	---	28
11	---	---	---	---	---	---	---	---	---	---	---	29
12	---	---	---	---	---	---	---	---	---	---	---	28
13	---	---	---	---	---	---	---	---	---	---	---	26
14	---	---	---	---	---	---	---	---	---	---	---	31
15	---	---	---	---	---	---	---	---	---	---	---	37
16	---	---	---	---	---	---	---	---	---	---	---	40
17	---	---	---	---	---	---	---	---	---	---	---	37
18	---	---	---	---	---	---	---	---	---	---	---	38
19	---	---	---	---	---	---	---	---	---	---	---	41
20	---	---	---	---	---	---	---	---	---	---	---	41
21	---	---	---	---	---	---	---	---	---	---	---	41
22	---	---	---	---	---	---	---	---	---	---	---	49
23	---	---	---	---	---	---	---	---	---	---	---	54
24	---	---	---	---	---	---	---	---	---	---	---	50
25	---	---	---	---	---	---	---	---	---	---	---	53
26	---	---	---	---	---	---	---	---	---	---	---	29
27	---	---	---	---	---	---	---	---	---	---	10	7.8
28	---	---	---	---	---	---	---	---	---	---	9.7	7.6
29	---	---	---	---	---	---	---	---	---	---	9.9	7.7
30	---	---	---	---	---	---	---	---	---	---	11	7.7
31	---	---	---	---	---	---	---	---	---	---	11	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	833.8
MEAN	---	---	---	---	---	---	---	---	---	---	---	27.8
MAX	---	---	---	---	---	---	---	---	---	---	---	54
MIN	---	---	---	---	---	---	---	---	---	---	---	7.6
AC-FT	---	---	---	---	---	---	---	---	---	---	---	1650

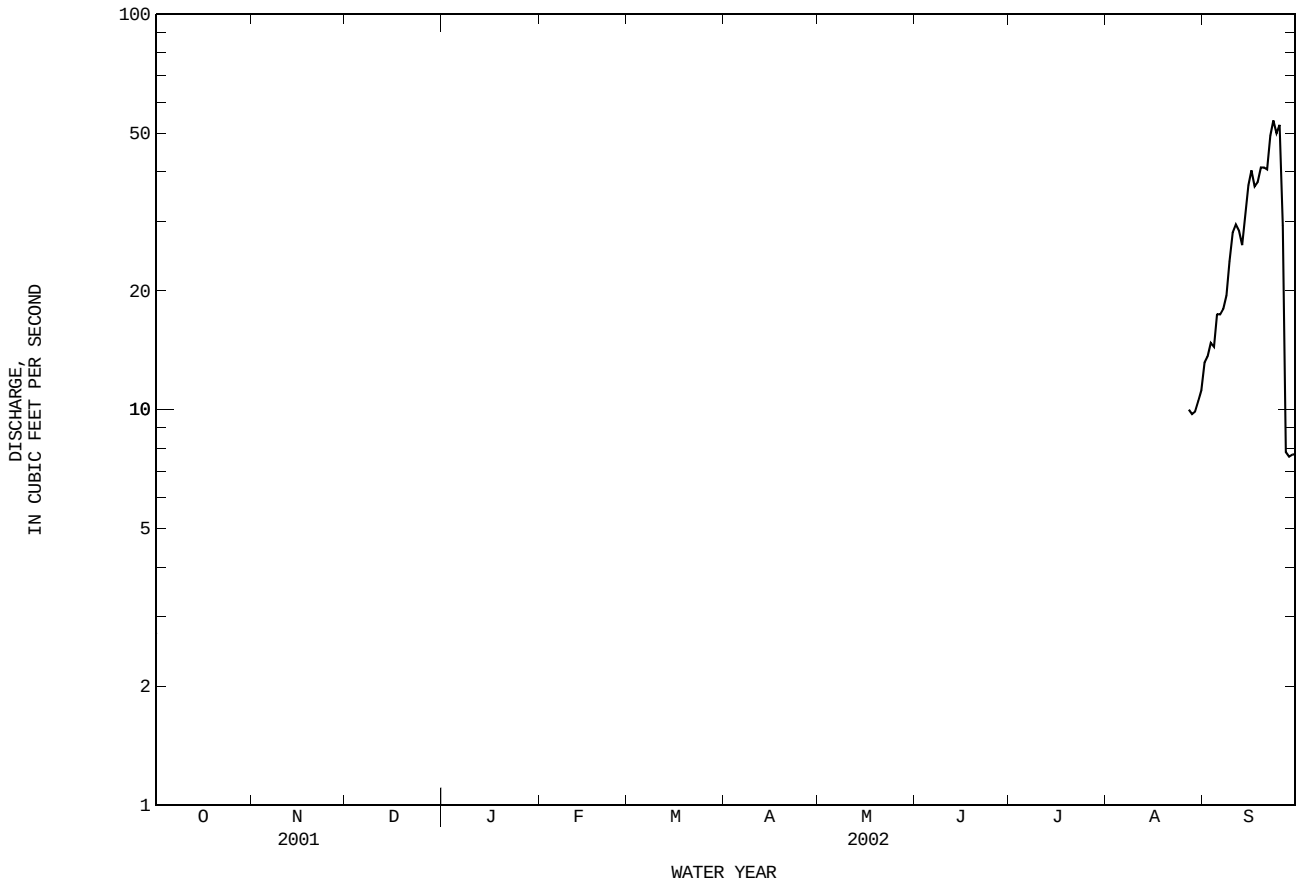
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2002h, BY WATER YEAR (WY)

MEAN	36.1	36.0	27.9	26.5	24.8	24.9	31.4	28.0	24.1	25.2	22.4	122
MAX	120	98.6	49.5	39.3	37.4	37.2	71.7	61.5	33.5	54.8	29.5	1299
(WY)	1975	1979	1975	1975	1975	1975	1977	1981	1978	1976	1975	1974
MIN	19.5	19.9	20.2	21.6	20.2	20.8	20.0	18.4	16.1	14.6	15.8	16.2
(WY)	1981	1985	1985	1985	1985	1978	1984	1983	1974	1974	1985	1983

SUMMARY STATISTICS	FOR 2002 WATER YEAR		WATER YEARS 1974 - 2002h	
ANNUAL MEAN			27.8	
HIGHEST ANNUAL MEAN			43.8	1975
LOWEST ANNUAL MEAN			20.0	1983
HIGHEST DAILY MEAN			22700	Sep 20 1974
LOWEST DAILY MEAN			7.6	Sep 28 2002
ANNUAL SEVEN-DAY MINIMUM			11	Aug 27 2002
MAXIMUM PEAK FLOW	66	Sep 23	i78100	Sep 20 1974
MAXIMUM PEAK STAGE	3.15	Sep 23	16.74	Sep 20 1974
ANNUAL RUNOFF (AC-FT)			20150	
10 PERCENT EXCEEDS			36	
50 PERCENT EXCEEDS			23	
90 PERCENT EXCEEDS			18	

h See PERIOD OF RECORD paragraph.
i From slope-area measurement of peak flow.

08447020 Independence Creek near Sheffield, TX--Continued



08433000 Barrilla Draw near Saragosa, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	43	24	19	18	16	16	16	17	18	16	18
2	7.6	42	23	19	18	17	15	16	17	17	17	18
3	7.5	40	24	19	18	17	15	16	16	17	17	17
4	7.4	40	24	19	18	17	15	16	16	17	17	17
5	7.3	38	23	19	19	17	15	16	16	18	17	17
6	7.4	36	23	19	18	17	15	15	17	21	17	18
7	130	35	23	19	18	16	15	15	16	21	16	18
8	768	35	23	20	17	16	15	15	17	20	16	17
9	60	34	23	19	17	17	15	15	17	19	16	17
10	47	32	23	19	17	17	15	14	17	19	16	17
11	43	32	23	19	17	17	15	15	17	18	17	17
12	39	32	22	19	17	16	15	15	17	18	17	17
13	37	30	22	19	18	16	15	15	19	18	17	17
14	37	29	22	19	18	16	16	15	17	18	17	21
15	34	29	21	19	18	17	16	15	18	18	18	21
16	33	29	21	19	18	17	15	15	17	18	18	19
17	32	28	21	19	18	17	16	15	17	19	17	19
18	30	28	21	19	17	16	16	15	17	18	17	19
19	30	27	21	18	18	16	15	15	17	17	17	19
20	29	27	e21	18	19	16	16	15	17	17	17	19
21	28	26	e21	18	24	16	16	15	17	17	17	19
22	30	26	e21	19	20	17	16	15	17	17	17	19
23	36	26	21	19	19	16	17	14	17	16	18	19
24	539	25	21	19	18	16	17	14	17	17	19	19
25	85	26	21	19	18	16	16	17	17	16	18	23
26	58	25	20	19	18	16	16	22	17	17	18	29
27	51	25	20	19	17	16	16	20	17	17	18	24
28	49	24	20	18	17	16	16	18	17	17	18	23
29	47	24	20	18	---	16	16	17	18	17	17	22
30	45	24	20	18	---	16	16	17	19	17	18	21
31	44	---	19	18	---	16	---	17	---	17	18	---
TOTAL	2405.8	917	672	583	507	508	468	490	512	551	533	580
MEAN	77.6	30.6	21.7	18.8	18.1	16.4	15.6	15.8	17.1	17.8	17.2	19.3
MAX	768	43	24	20	24	17	17	22	19	21	19	29
MIN	7.3	24	19	18	17	16	15	14	16	16	16	17
AC-FT	4770	1820	1330	1160	1010	1010	928	972	1020	1090	1060	1150

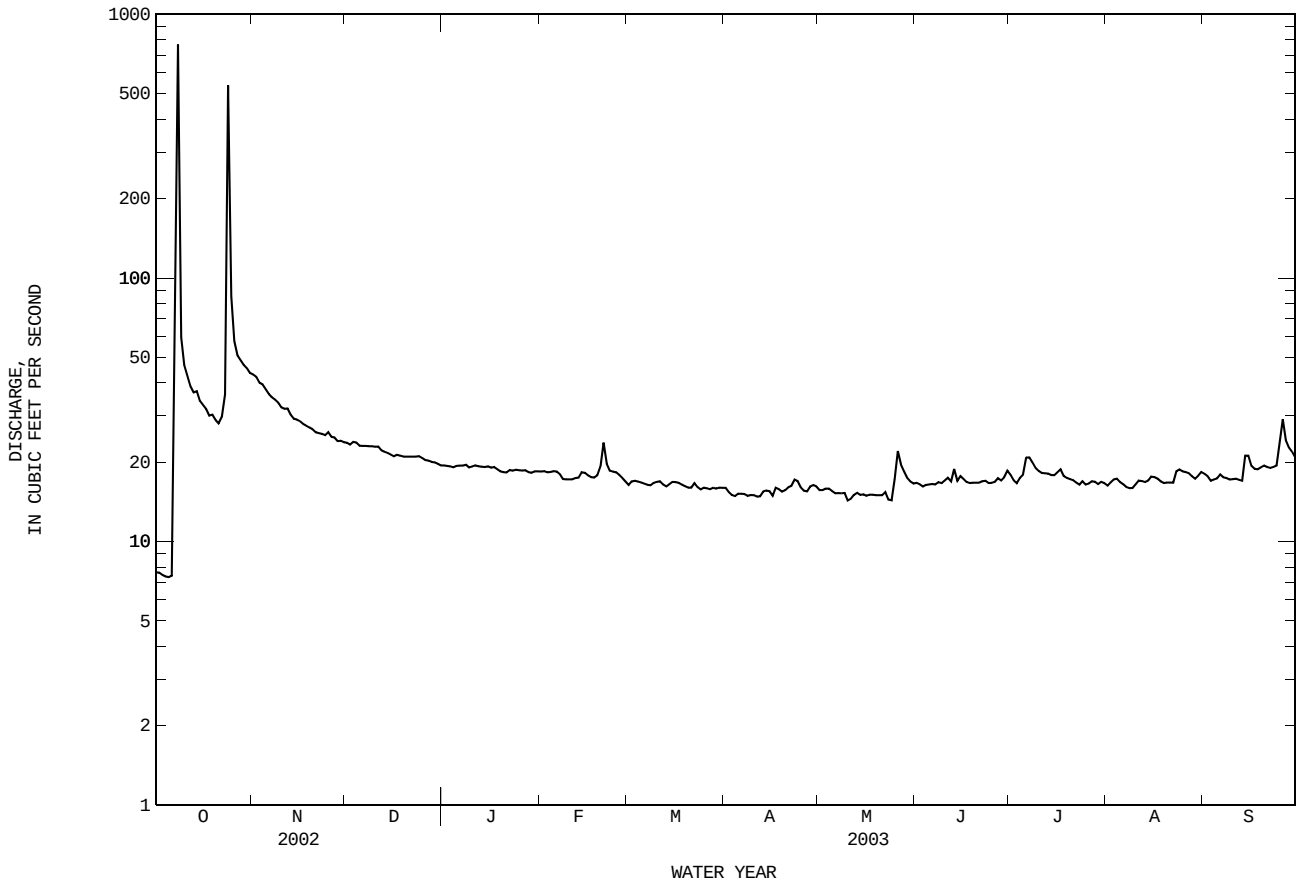
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003h, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	39.6	35.6	27.4	25.9	24.3	24.2	30.2	27.0	23.5	24.6	22.0	114
MAX	120	98.6	49.5	39.3	37.4	37.2	71.7	61.5	33.5	54.8	29.5	1299
(WY)	1975	1979	1975	1975	1975	1975	1977	1981	1978	1976	1975	1974
MIN	19.5	19.9	20.2	18.8	18.1	16.4	15.6	15.8	16.1	14.6	15.8	16.2
(WY)	1981	1985	1985	2003	2003	2003	2003	2003	1974	1974	1985	1983

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 1974 - 2003h	
ANNUAL TOTAL	8726.8			
ANNUAL MEAN	23.9		27.5	
HIGHEST ANNUAL MEAN			43.8	1975
LOWEST ANNUAL MEAN			20.0	1983
HIGHEST DAILY MEAN	768	Oct 8	22700	Sep 20 1974
LOWEST DAILY MEAN	7.3	Oct 5	7.3	Oct 5 2002
ANNUAL SEVEN-DAY MINIMUM	15	May 18	7.5	Sep 30 2002
MAXIMUM PEAK FLOW	i5080	Oct 24	i78100	Sep 20 1974
MAXIMUM PEAK STAGE	6.70	Oct 24	16.74	Sep 20 1974
ANNUAL RUNOFF (AC-FT)	17310		19920	
10 PERCENT EXCEEDS	29		36	
50 PERCENT EXCEEDS	18		23	
90 PERCENT EXCEEDS	15		18	

e Estimated
h See PERIOD OF RECORD paragraph.
i From slope-area measurement of peak flow.

08447020 Independence Creek near Sheffield, TX--Continued



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 13070008, 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^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Oct. 1954 to current year.
BIOCHEMICAL DATA: Oct. 1974 to current year.
PESTICIDE DATA: July 1975 to June 1982, Oct. 1995 to current year.
SEDIMENT DATA: Oct. 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct. 1970 to Sept. 1976 and Oct. 1980 (local observer), Nov. 1980 to Sept. 1985.
WATER TEMPERATURE: Oct. 1970 to Sept. 1976 and Oct. 1980 (local observer), Nov. 1980 to Sept. 1985.

INSTRUMENTATION.--Water-quality monitor Nov. 1980 to Sept. 1985.

REMARKS.--Instantaneous discharges published in the table were provided by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since Oct. 1995, suspended sediment chemistry and quality assurance data 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, 6,000 microsiemens/cm, Mar. 21, 22, 1981; minimum, 230 microsiemens/cm, Oct. 11, 1981.
WATER TEMPERATURE: Maximum, 32.5°C, June 8, 1981; minimum, 1.5°C, Dec. 26, 27, 1983.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
05...	1300	291	2370	8.2	16.4	9.4	101	2.1	.050	.037	<.1	<.1	<.02
JAN													
13...	1400	162	3020	8.4	10.7	10.3	96	2.6	.024	.019	<.1	<.1	<.02
MAR													
11...	1400	136	3400	8.2	20.7	8.6	101	1.2	.026	.020	<.1	<.1	<.02
APR													
15...	1330	114	3370	8.2	22.3	8.6	105	1.1	.028	.021	.1	<.1	<.02
MAY													
20...	1300	78	3050	8.2	28.2	7.4	99	1.2	.036	.026	.2	<.1	.04
JUL													
15...	1230	93	2470	8.0	31.5	6.5	93	1.5	.042	.031	.3	<.1	.04
AUG													
26...	1200	80	2180	8.2	29.2	7.2	98	1.2	.038	.028	.8	<.1	.04

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
05...	500	320	120	48.7	295	6	56	6.11	3	224	189	304	489
JAN													
13...	620	440	139	65.8	391	7	58	6.73	2	215	180	384	657
MAR													
11...	670	520	143	74.5	458	8	60	7.75	4	167	143	441	779
APR													
15...	650	530	136	74.1	436	7	59	6.79	1	145	121	438	780
MAY													
20...	560	460	113	66.4	407	8	61	8.08	1	112	94	386	682
JUL													
15...	480	370	98.2	55.4	350	7	61	6.81	<1	125	104	306d	530d
AUG													
26...	390	280	79.3	45.6	263	6	59	5.70	1	124	104	270d	458d

08447410 Pecos River near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)
NOV													
05...	.88	16.4	1470	1400	E.006	.80	E.02	--	--	--	.21	--	--
JAN													
13...	.87	13.4	1890	1770	E.005	.74	<.04	.90	--	--	.13	.17	.005
MAR													
11...	.87	9.42	2070	2000	E.007	.29	E.02	.54	--	--	.15	.25	.004
APR													
15...	.86	8.82	2080	1960	<.008	.07	<.04	.30	--	--	.22	.23	<.004
MAY													
20...	.9	11.9	1850	1730	<.008	<.06	<.04	--	--	--	.32	.37	.006
JUL													
15...	.9	13.8	1450	1420	<.008	<.06	.07	--	.33	.20	.27	.40	.007
AUG													
26...	.8	16.1	1290	1200	<.008	<.06	E.04n	--	--	--	.34	.34	.007

Date	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Suspended sediment load, tons/d (80155)	Suspended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Arsenic water, fltrd, ug/L (01000)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Lithium water, fltrd, ug/L (01130)	Selenium, water, fltrd, ug/L (01145)	Strontium, water, fltrd, ug/L (01080)
NOV													
05...	E.003	<.007	1.9	<.1	1.6	2	100	.9	155	<10	45.4	V.6	2020
JAN													
13...	<.004	<.007	1.0	<.1	--	<.001	--	.7	217	<10	64.4	E.8n	2470
MAR													
11...	E.003	<.007	1.5	<.1	.37	1	100	1.1	248	<30	74.3	E.9n	2780
APR													
15...	E.004	<.007	3.3	.1	.31	1	100	1.6	237	<30	75.1	1.7	2680
MAY													
20...	E.004	<.007	1.1	.2	.42	2	55	1.7	120	<30	64.5	E.6n	2380
JUL													
15...	.004	<.007	2.4d	.3	.25	1	43	1.9	171	E7n	46.3	1.0	2030
AUG													
26...	E.003n	<.007	2.3d	.7	.43	2	60	1.2	196	<8	48.9	<.5	1810

Date	Vanadium, water, fltrd, ug/L (01085)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)
NOV													
05...	6.6	-34.40	-5.41	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
JAN													
13...	7.3	-34.00	-4.92	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
MAR													
11...	7.7	-31.90	-4.49	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
APR													
15...	8.2	-29.20	-3.94	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
MAY													
20...	8.3	-24.45	-3.16	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
JUL													
15...	8.0	-26.29	-3.50	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020
AUG													
26...	8.2	-24.42	-3.12	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020

08447410 Pecos River near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)
NOV													
05...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
JAN													
13...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
MAR													
11...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
APR													
15...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
MAY													
20...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
JUL													
15...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
AUG													
26...	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004

Date	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)
NOV													
05...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
JAN													
13...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
MAR													
11...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
APR													
15...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
MAY													
20...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
JUL													
15...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01
AUG													
26...	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01

Date	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)
NOV													
05...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
JAN													
13...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
MAR													
11...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
APR													
15...	<.010	<.011	<.02	<.004	E.003n	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
MAY													
20...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
JUL													
15...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005
AUG													
26...	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005

08447410 Pecos River near Langtry, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
NOV			
05...	<.005	<.009	<.004
JAN			
13...	<.005	<.009	<.004
MAR			
11...	<.005	<.009	<.004
APR			
15...	<.005	<.009	<.004
MAY			
20...	<.005	<.009	<.004
JUL			
15...	<.005	<.009	<.004
AUG			
26...	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
V -- Contamination

Value qualifier codes used in this report:
d -- Diluted sample: method hi range exceeded
n -- Below the NDV

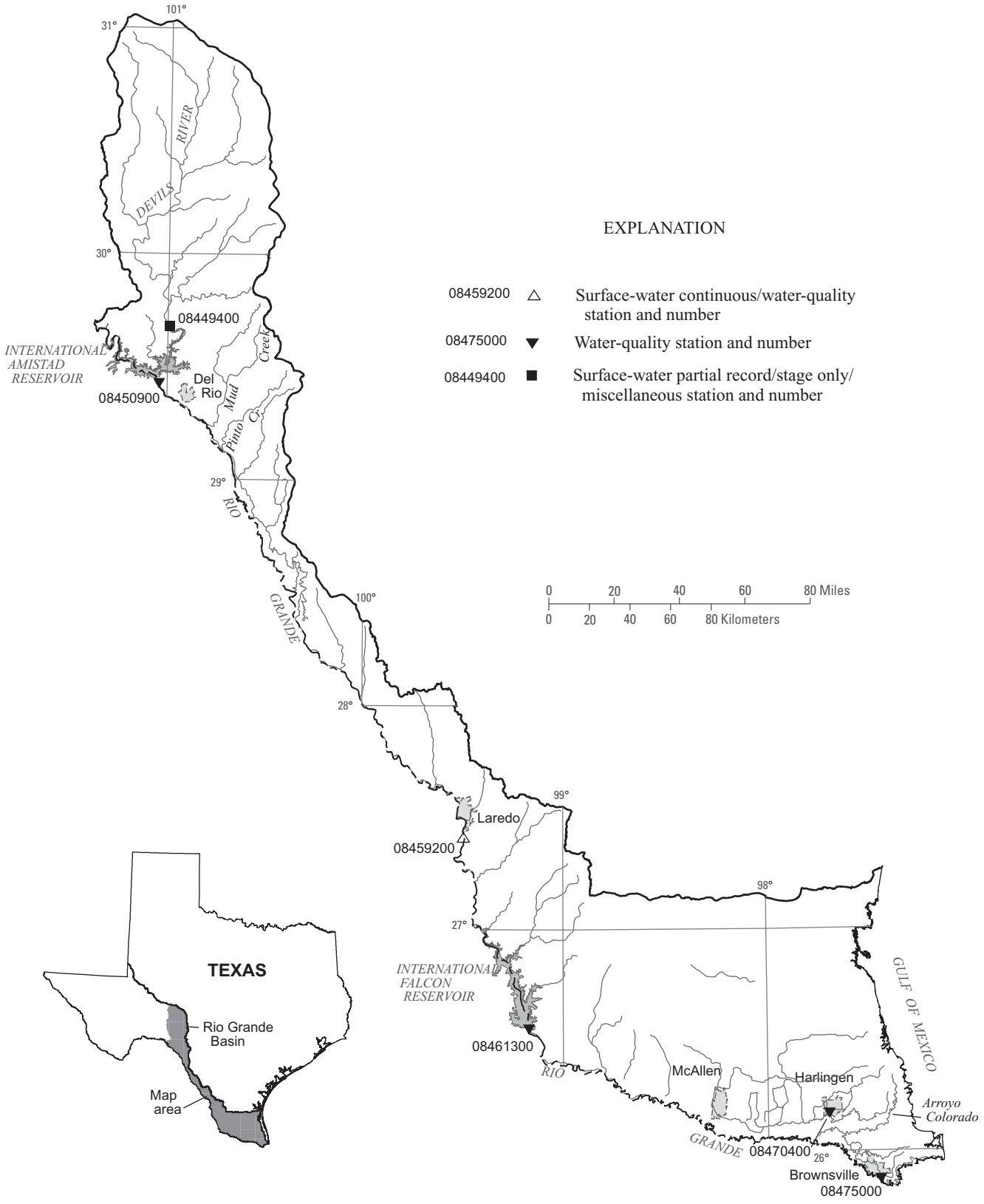


Figure 10.--Map showing location of gaging stations in the second section of the Rio Grande Basin

08449400 Devils River at Pafford Crossing near Comstock, TX 392
08450900 Rio Grande below Amistad Dam near Del Rio, TX 366
08459200 Rio Grande at Pipeline Crossing below Laredo, TX 370
08461300 Rio Grande below Falcon Dam, TX 376
08470400 Arroyo Colorado at Harlingen, TX 380
08475000 Rio Grande near Brownsville, TX 384

08450900 Rio Grande below Amistad Dam near Del Rio, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°25'30", long 101°02'27", Val Verde County, Hydrologic Unit 13080001, 2.2 mi downstream from Amistad Dam and 10.0 mi northwest of Del Rio.

DRAINAGE AREA.--123,143 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: July 1968 to current year.
BIOCHEMICAL DATA: Oct. 1995 to current year.
PESTICIDE DATA: Oct. 1995 to current year.
SEDIMENT DATA: Oct. 1995 to current year.

REMARKS.--The flow is controlled largely by releases from Amistad Reservoir. Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since June 1996, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
07...	1000	466	896	8.0	19.7	7.7	87	1.5	.045	.032	.2	<.1	<.02
JAN													
15...	1100	523	976	8.3	12.6	9.6	93	4.2	.047	.034	.2	<.1	<.02
APR													
17...	0830	1110	1010	8.0	14.8	6.8	70	2.7	.047	.036	.3	<.1	<.02
MAY													
22...	1000	3790	1010	7.8	18.3	2.6	29	2.0	.040	.028	.2	<.1	<.02
JUL													
21...	1150	484	967	7.8	22.8	8.5	102	1.4	.047	.034	.3	<.1	.03
AUG													
28...	0950	1170	996	7.3	20.6	1.7	20	--	--	--	--	--	--

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
07...	240	140	62.2	19.8	99.0	3	47	4.11	<1	125	104	175	112
JAN													
15...	250	130	68.5	19.8	103	3	47	3.96	1	145	121	179	125
APR													
17...	270	140	70.8	21.4	101	3	45	4.10	<1	150	123	179	129
MAY													
22...	260	140	69.3	20.8	104	3	46	4.46	<1	152	125	170	123
JUL													
21...	260	140	68.5	20.5	99.7	3	45	4.24	<1	142	117	165	125
AUG													
28...	260	140	67.5	21.4	92.8	3	44	4.03	<1	148	122	163	126

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)
NOV													
07...	.66	14.8	570	551	--	<.008	.26	<.04	.46	.17	.21	.010	.005
JAN													
15...	.66	14.1	623	591	--	<.008	.40	<.04	.57	.16	.17	.005	E.003
APR													
17...	.66	13.3	628	596	.33	.016	.35	E.03	.55	.21	.21	.006	E.003
MAY													
22...	.7	13.2	613	584	--	<.008	.38	<.04	.60	.16	.22	E.003	.004
JUL													
21...	.6	14.1	596	569	--	<.008	.28	<.04	.49	.19	.22	.006	E.004
AUG													
28...	.7	14.8	606	564	--	--	--	--	--	--	--	--	--

08450900 Rio Grande below Amistad Dam near Del Rio, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Sus-pended sedi-ment load, tons/d (80155)	Sus-pended sedi-ment concen-tration mg/L (80154)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Arsenic water, fltrd, ug/L (01000)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Lithium water, fltrd, ug/L (01130)	Selen-ium, water, fltrd, ug/L (01145)	Stront-ium, water, fltrd, ug/L (01080)	Vanad-ium, water, fltrd, ug/L (01085)
NOV													
07...	<.007	2.4	.2	2.5	2	100	2.6	126	<10	34.6	.7	1050	4.6
JAN													
15...	<.007	2.3	.2	2.8	2	92	1.5	161	E8	43.8	.8	1220	5.3
APR													
17...	<.007	2.3	.3	12	4	86	1.3	146	<10	40.6	.8	1180	5.0
MAY													
22...	<.007	2.0	.2	10	1	88	1.1	153	<10	41.3	.7	1150	5.0
JUL													
21...	<.007	2.2	.3	1.3	1	89	2.1	129	<8	34.1	.8	1150	3.6
AUG													
28...	--	--	--	6.3	2	94	3.0	142	<8	38.3	.6	1160	2.3

Date	Deu-terium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)
NOV													
07...	-20.90	-2.54	<.006	<.006	<.004	<.005	E.005n	<.050	<.010	<.002	<.041	<.020	<.005
JAN													
15...	-23.80	-3.16	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020	<.005
APR													
17...	-24.60	-3.19	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020	<.005
MAY													
22...	-22.42	-3.21	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020	<.005
JUL													
21...	-24.16	-3.18	<.006	<.006	<.004	<.005	<.007	<.050	<.010	<.002	<.041	<.020	<.005
AUG													
28...	-24.21	-3.25	--	--	--	--	--	--	--	--	--	--	--

Date	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)
NOV													
07...	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
JAN													
15...	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
APR													
17...	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
MAY													
22...	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
JUL													
21...	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
AUG													
28...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)
NOV													
07...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
JAN													
15...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
APR													
17...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
MAY													
22...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
JUL													
21...	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006	<.004	<.022	<.011	<.01	<.010
AUG													
28...	--	--	--	--	--	--	--	--	--	--	--	--	--

08450900 Rio Grande below Amistad Dam near Del Rio, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)
NOV													
07...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
JAN													
15...	<.011	<.02	<.004	<.005	E.01n	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
APR													
17...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
MAY													
22...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
JUL													
21...	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005	<.002	<.009	<.007	<.005	<.005
AUG													
28...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
NOV		
07...	<.009	<.004
JAN		
15...	<.009	<.004
APR		
17...	<.009	<.004
MAY		
22...	<.009	<.004
JUL		
21...	<.009	<.004
AUG		
28...	--	--

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
n -- Below the NDV

THIS PAGE IS INTENTIONALLY BLANK

08459200 Rio Grande at Pipeline Crossing below Laredo, TX
(National stream-quality accounting network)

LOCATION.--Lat 27°24'01", long 99°29'18", Webb County, Hydrologic Unit 13080002, 8.7 mi (14.0 km) downstream from Texas-Mexican Railway bridge near Laredo, and at mile 352.60 (567.47 km).

DRAINAGE AREA.--132,578 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 335.00 ft above NGVD of 1929. Satellite telemeter at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Since installation of gage in Oct. 1997, at least 10% of contributing drainage area has been regulated. Extensive withdrawals during the year for municipal and agricultural usage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	585	2380	1020	855	801	873	538	3810	1650	700	1340	1300
2	573	2490	1000	844	788	852	551	3100	1290	640	1290	2390
3	566	2190	992	878	786	887	567	3810	1370	617	1180	2210
4	584	2470	1000	870	812	849	538	3730	1110	1030	1110	1740
5	590	2330	955	854	830	841	464	3760	1040	2810	1020	5510
6	568	2040	930	811	826	832	471	3800	1010	1950	909	3090
7	545	1820	950	806	951	814	467	3850	1000	2800	901	2270
8	525	1660	957	831	906	787	456	3710	978	4610	1330	1520
9	e1500	1570	929	834	861	742	461	3700	955	2910	1330	1310
10	e34100	1510	921	794	890	741	557	3770	2900	2830	1370	1180
11	e40200	1480	915	857	892	722	690	3790	7160	1710	1360	1090
12	e7750	1460	930	953	880	731	561	3750	7150	1150	1400	1500
13	e4750	1410	920	876	897	762	524	3720	2630	962	1440	1210
14	e3260	1390	899	877	881	755	460	3750	2640	878	1610	1570
15	e2580	1350	887	894	1070	727	462	3730	2170	766	1900	2260
16	e2100	1310	886	886	862	721	467	3670	2820	770	1790	1680
17	e1920	1290	869	863	819	714	452	3660	1880	896	1350	1330
18	e1840	1260	852	861	817	672	463	3670	1440	1750	1280	1090
19	e1760	1250	825	841	834	649	856	3620	1320	1240	1320	1260
20	e1690	1240	796	856	850	630	1170	3640	1220	2200	1310	1180
21	e1580	1210	772	844	870	639	1170	3610	1110	1970	1320	1350
22	e1360	1210	803	858	863	615	1690	3610	1160	1740	1250	1890
23	6350	1190	823	856	859	617	1630	3570	1050	1940	1270	1860
24	10900	1190	826	837	871	616	1380	3660	1010	1850	1680	1310
25	20800	1160	844	835	878	632	1290	3670	925	1730	1360	1100
26	25000	1120	834	804	865	798	1230	3720	791	1590	1330	1010
27	11200	1080	850	819	858	696	1190	3880	669	1500	1250	1420
28	5240	1070	889	838	860	647	1100	3410	610	1410	1220	7130
29	3680	1050	892	845	---	622	1160	5790	601	1470	1220	3800
30	2940	1030	875	839	---	595	3330	5490	1370	1650	1260	1920
31	2560	---	863	827	---	552	---	2280	---	1400	1260	---
TOTAL	199596	45210	27704	26343	24177	22330	26345	116730	53029	51469	40960	59480
MEAN	6439	1507	894	850	863	720	878	3765	1768	1660	1321	1983
MAX	40200	2490	1020	953	1070	887	3330	5790	7160	4610	1900	7130
MIN	525	1030	772	794	786	552	452	2280	601	617	901	1010
AC-FT	395900	89670	54950	52250	47960	44290	52260	231500	105200	102100	81240	118000

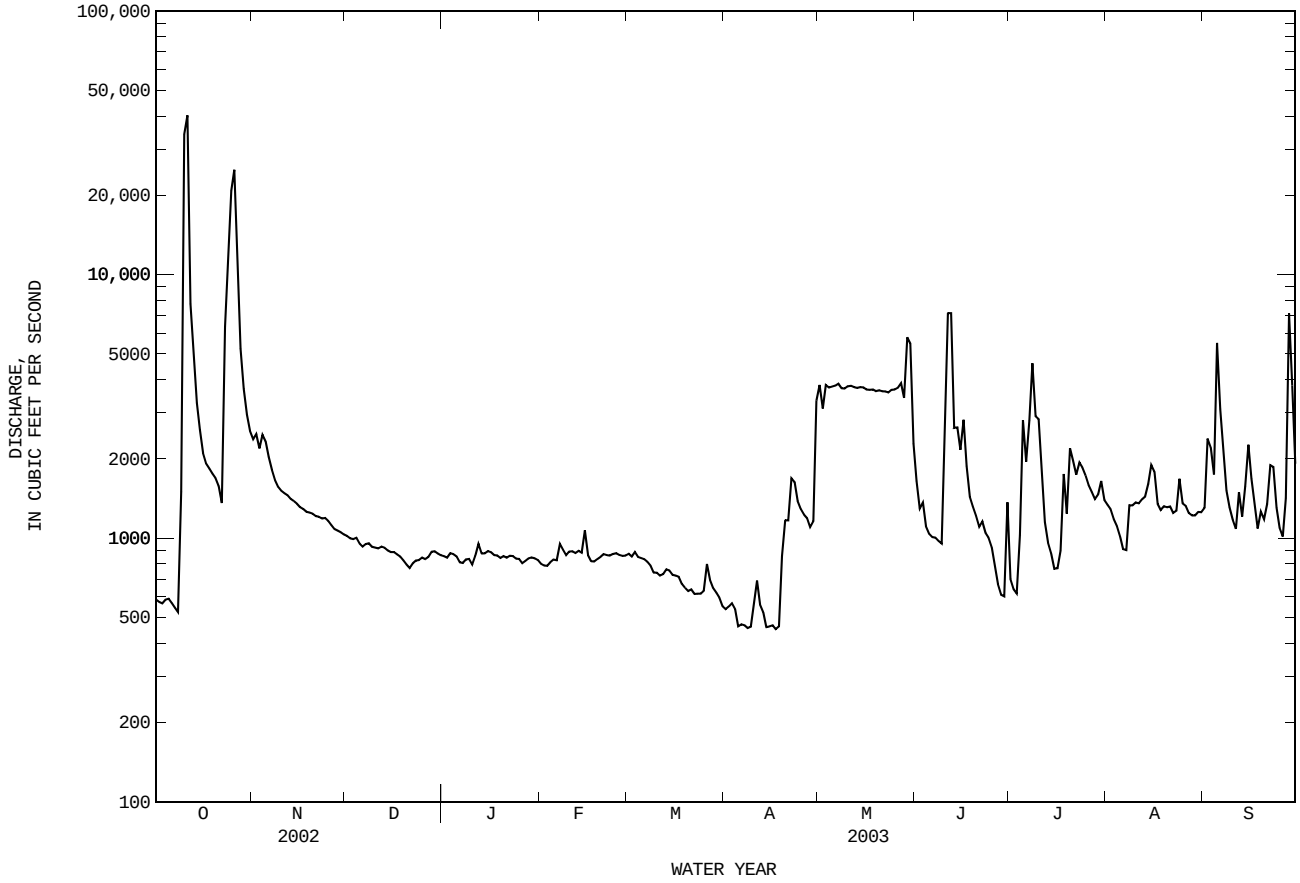
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2003, BY WATER YEAR (WY)

MEAN	2186	1259	958	927	1074	1467	2456	3708	2374	1865	3501	1907
MAX	6439	1659	1478	1451	1427	3092	4417	5832	3707	2467	7561	2869
(WY)	2003	1998	1998	1998	2001	1999	1999	1998	1999	2002	1998	2001
MIN	690	781	586	489	779	720	878	2026	1390	1261	1141	1138
(WY)	2002	1999	1999	1999	2002	2003	2003	1999	2002	2001	2002	2000

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1998 - 2003	
ANNUAL TOTAL	708785		693373			
ANNUAL MEAN	1942		1900		1980	
HIGHEST ANNUAL MEAN					2713	1998
LOWEST ANNUAL MEAN					1400	2002
HIGHEST DAILY MEAN	40200	Oct 11	40200	Oct 11	88000	Aug 27 1998
LOWEST DAILY MEAN	525	Oct 8	452	Apr 17	414	Feb 7 1999
ANNUAL SEVEN-DAY MINIMUM	564	Oct 2	484	Apr 12	439	Feb 1 1999
MAXIMUM PEAK FLOW			e52100	Oct 11	91000	Aug 27 1998
MAXIMUM PEAK STAGE			26.64	Oct 11	a34.61	Aug 27 1998
ANNUAL RUNOFF (AC-FT)	1406000		1375000		1434000	
10 PERCENT EXCEEDS	3490		3670		3750	
50 PERCENT EXCEEDS	1060		1110		1300	
90 PERCENT EXCEEDS	761		636		755	

e Estimated
a From floodmark.

08459200 Rio Grande at Pipeline Crossing below Laredo, TX--Continued
(National stream-quality accounting network)



08459200 Rio Grande at Pipeline Crossing below Laredo, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Jan. 1998 to current year.
BIOCHEMICAL DATA: Apr. 1977 to Dec. 1981, Jan. 1998 to current year.
PESTICIDE DATA: Jan. 1998 to current year.
SEDIMENT DATA: Jan. 1998 to current year.

REMARKS.--Since Jan. 1998, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
25...	1630	1170	998	8.1	18.5	10.0	108	2.8	.050	.036	.5	<.1	.05
JAN													
15...	1300	897	993	7.9	13.0	15.0	143	5.0	.056	.042	.4	<.1	.12
MAR													
31...	1300	551	1170	8.1	19.5	8.9	98	6.4	.069	.050	1.1	<.1	.16
MAY													
27...	1500	3950	1010	8.1	26.0	7.1	89	34	.053	.039	1.6	<.1	.09
JUN													
25...	1100	922	931	8.2	29.5	6.6	88	13	.072	.052	1.4	<.1	.09
JUL													
24...	1000	1850	685	7.8	30.0	7.0	94	68	.055	.041	1.7	<.1	.06
AUG													
27...	1120	1170	834	7.7	29.0	5.8	77	57	.061	.045	2.0	.1	.14
SEP													
10...	1130	1170	616	7.6	28.5	6.6	87	67	.082	.061	2.3	<.1	.17

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
25...	270	160	74.9	19.6	93.8	2	43	3.45	1	130	108	189	118
JAN													
15...	250	150	70.1	18.9	95.4	3	45	3.59	<1	132	110	183	116
MAR													
31...	310	170	86.0	23.2	125	3	46	4.21	2	165	138	220	145
MAY													
27...	250	130	66.6	19.4	100	3	46	4.06	1	146	122	175	128
JUN													
25...	260	140	74.9	18.5	91.4	2	42	5.28	2	150	126	158	106
JUL													
24...	220	78	64.5	13.1	53.6	2	35	3.13	2	165	138	106	62.2
AUG													
27...	250	120	68.3	17.9	80.6	2	41	4.17	1	150	126	136	95.3
SEP													
10...	180	74	54.6	11.0	49.8	2	37	4.55	<1	132	110	94.1	60.5

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
25...	.46	1.13	615	572	1.07	.021	1.09	.08	1.5	.28	.22	.30	.36
JAN													
15...	.47	1.72	598	562	.94	.034	.97	.32	1.7	.41	.32	.64	.73
MAR													
31...	.58	5.38	730	699	.27	.106	.38	1.07	2.0	.51	.45	1.5	1.6
MAY													
27...	.7	9.74	625	579	.26	.016	.28	E.03	.76	--	--	.32	.48
JUN													
25...	.5	14.8	577	550	.70	.045	.74	<.04	1.5	--	--	.49	.75
JUL													
24...	.4	14.1	432	405	.92	.016	.94	<.04	1.4	--	--	.32	.45
AUG													
27...	.5	13.4	520	496	.55	.020	.57	.11	1.2	.47	.28	.39	.59
SEP													
10...	.4	10.4	375	356	.91	.028	.93	.14	1.5	.47	.29	.43	.61

08459200 Rio Grande at Pipeline Crossing below Laredo, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Suspended sediment load, tons/d (80155)	Suspended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
25...	.22	.20	.18	.552	3.4	.5	25	8	90	7	.37	1.4	77
JAN													
15...	.36	.33	.33	.997	2.9	.4	24	10	94	--	--	1.4	--
MAR													
31...	.27	.25	.22	.671	--	1.0	10	7	99	31	.45	3.2	86
MAY													
27...	.12	.07	.05	.150	V2.5	1.6	576	54	98	3	.32	1.9	92
JUN													
25...	.23	.20	.14	.417	4.3	1.4	85	34	99	--	--	3.5	--
JUL													
24...	.21	.12	.10	.310	4.6	1.6	669	134	100	6	E.24n	2.8	81
AUG													
27...	.23	.16	.14	.438	3.5	1.8	218	69	100	26	.36	2.9	84
SEP													
10...	.32	.22	.21	.644	--	2.2	240	76	100	20	.30	2.4	76

Date	Beryllium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)
NOV													
25...	<.06	169	<.04	<.8	.22	1.0	E6	E.06	30.6	5.9	3.9	3.13r	.9
JAN													
15...	--	200	--	--	--	--	E6	--	34.8	--	--	--	.7
MAR													
31...	<.06	214	<.04	<.8	.47	1.8	<10	E.04	39.3	17.6	5.7	3.67	.5
MAY													
27...	<.06	169	E.02	<.8	.22	1.3	<8	<.08	42.3	1.8	6.2	3.25	E.5
JUN													
25...	--	196	--	--	--	--	<8	--	31.7	--	--	--	.9
JUL													
24...	<.06	104	E.03n	<.8	.29	1.1	E5n	<.08	17.4	.8	3.4	1.98	.7
AUG													
27...	<.06	154	E.02n	<.8	.30	1.4	E5n	<.08	29.7	4.1	4.7	2.33	E.3n
SEP													
10...	<.06	118	E.02n	<.8	.27	1.6	<8	<.08	17.8	3.6	3.2	.76	E.4n

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
25...	<.20	1110	2.7	3	2.23	-22.40	-3.28	<.006	<.006	<.004	<.005	<.007	<.050
JAN													
15...	--	1180	3.4	--	--	-18.70	-2.33	<.006	<.006	<.004	<.005	<.007	<.050
MAR													
31...	<1	1370	6.0	5	2.97	--	--	<.006	<.006	<.004	<.005	.009	<.050
MAY													
27...	<.20	1190	6.7	M	2.82	-22.90	-3.04	<.006	<.006	<.004	<.005	<.007	<.050
JUN													
25...	--	1130	8.9	--	--	-19.10	-2.60	<.006	<.006	<.004	<.005	.008	<.050
JUL													
24...	<.20	956	7.5	Mn	1.76	-27.40	-3.86	<.006	<.006	<.004	<.005	<.007	<.050
AUG													
27...	<.20	1030	6.2	3	2.06	-21.60	-2.94	<.006	<.006	<.004	<.005	<.007	<.050
SEP													
10...	<.20	803	5.5	1	1.23	-28.60	-4.34	<.006	<.006	<.004	<.005	<.007	<.050

08459200 Rio Grande at Pipeline Crossing below Laredo, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Benflur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
25...	<.010	<.002	E.002	<.020	<.005	<.006	<.018	<.003	<.006	E.007	<.005	<.02	<.002
JAN													
15...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	E.003n	<.006	<.005	<.005	<.02	<.002
MAR													
31...	<.010	<.002	E.006	<.020	.005	<.006	<.018	<.003	<.006	.009	<.005	<.02	<.002
MAY													
27...	<.010	<.002	E.003	<.020	<.005	<.006	<.018	<.003	<.006	E.004n	<.005	<.02	<.002
JUN													
25...	<.010	<.002	E.001	<.020	.007	<.006	<.018	<.003	E.002	E.007	<.005	<.02	<.002
JUL													
24...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
AUG													
27...	<.010	<.002	E.001	<.020	E.004	<.006	<.018	<.003	<.006	.006	<.005	<.02	<.002
SEP													
10...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	E.005n	<.005	<.02	<.002

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)
NOV													
25...	<.009	<.005	<.003	<.004	<.035	<.027	.020	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
15...	<.009	<.005	<.003	<.004	<.035	<.027	E.005n	<.006	<.002	<.007	<.003	<.010	<.006
MAR													
31...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.006	<.007	<.003	<.010	<.006
MAY													
27...	<.009	<.005	<.003	E.002n	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUN													
25...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
24...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
AUG													
27...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
SEP													
10...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006

Date	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)
NOV													
25...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JAN													
15...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAR													
31...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAY													
27...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUN													
25...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUL													
24...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
AUG													
27...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
SEP													
10...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005

08459200 Rio Grande at Pipeline Crossing below Laredo, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
NOV							
25...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
15...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAR							
31...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAY							
27...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUN							
25...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUL							
24...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
AUG							
27...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
SEP							
10...	<.002	<.009	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified
V -- Contamination

Value qualifier codes used in this report:
n -- Below the NDV
r -- Value verified by rerun, same method

08461300 Rio Grande below Falcon Dam, TX
(National stream-quality accounting network)

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13090001, at International Boundary and Water Commission, Chapeno gaging station, 2.5 mi below Falcon Dam.

DRAINAGE AREA.--159,270 mi^2, United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--
CHEMICAL DATA: July 1955 to current year.
BIOCHEMICAL DATA: Oct. 1995 to current year.
PESTICIDE DATA: Oct. 1995 to current year.
SEDIMENT DATA: Oct. 1995 to current year.

REMARKS.--The flow is controlled by releases from Falcon Reservoir. Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since Sept. 1995, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
25...	1210	706	638	8.0	19.0	9.1	99	6.7	.083	.062	.8	<.1	.07
JAN													
14...	1420	389	694	8.2	15.0	10.3	102	8.7	.086	.064	.8	<.1	.12
MAR													
03...	1400	459	743	8.2	16.5	--e	--	4.6	.093	.070	.5	<.1	.09
MAY													
28...	0900	3180	925	8.0	27.0	4.8	61	9.1	.077	.056	1.0	<.1	.17
JUN													
24...	1600	1760	894	8.3	31.0	9.7	133	8.2	.075	.054	1.8	<.1	.20
JUL													
23...	1500	1340	834	8.0	30.5	7.8	106	12	.078	.057	1.7	<.1	.23

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
25...	180	81	51.3	12.0	56.9	2	40	4.62	<1	118	98	102	65.5
JAN													
14...	200	86	57.4	12.6	61.5	2	40	4.47	<1	134	112	110	70.9
MAR													
03...	210	86	61.6	13.4	64.2	2	39	4.92	2	148	125	119	76.7
MAY													
28...	220	110	60.1	16.9	87.9	3	46	4.77	<1	137	112	157	109
JUN													
24...	220	120	58.2	17.7	90.4	3	47	5.46	2	118	100	160	112
JUL													
23...	200	110	53.9	15.7	88.7	3	48	5.04	1	111	94	149	108

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of constituents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitrogen, water, unfltrd mg/L (00600)	Organic nitrogen, water, unfltrd mg/L (00605)	Organic nitrogen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
25...	.4	8.44	393	361	.18	.023	.20	.07	.64	.36	.29	.37	.43
JAN													
14...	.38	7.97	417	392	--	<.008	E.05	E.03	--	--	--	.33	.46
MAR													
03...	.40	8.11	463	425	--	<.008	<.06	.05	--	.41	.32	.38	.46
MAY													
28...	.5	10.0	552	516	--	.011	E.03	.06	--	.59	.32	.38	.65
JUN													
24...	.5	10.8	544	516	.03	.031	.06	<.04	.60	--	--	.35	.54
JUL													
23...	.5	9.91	517	488	--	<.008	<.06	<.04	--	--	--	.33	.59

08461300 Rio Grande below Falcon Dam, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, water, fltrd, mg/L (00666)	Orthophosphate, water, fltrd, mg/L as P (00671)	Orthophosphate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Suspended sediment load, tons/d (80155)	Suspended sediment concentration mg/L (80154)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
25...	.020	.025	.013	.040	8.2	.7	13	7	100	<2	.71	2.7	86
JAN													
14...	.014	.014	E.006	--	4.5	.8	6.3	6	94	<2	.81	2.3	95
MAR													
03...	.036	.022	.011	.034	--	.5	5.0	4	100	<2	.60	2.2	92
MAY													
28...	.062	.016	.008	.025	V3.2	1.0	52	6	96	--	--	3.4	--
JUN													
24...	.052	.017	E.004	--	3.1	1.8	43	9	88	--	--	3.6	--
JUL													
23...	.067	.019	<.007	--	5.0	1.6	43	12	98	--	--	3.6	--

Date	Beryllium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)
NOV													
25...	<.06	119	<.04	<.8	.18	.9	<10	<.08	20.2	1.9	3.7	2.48r	.6
JAN													
14...	<.06	146	<.04	<.8	.25	1.3	<10	<.08	23.6	1.6	4.2	2.81	.5
MAR													
03...	<.06	145	<.04	<.8	.36	1.7	<10	<.08	23.3	3.0	3.9	3.75	.7
MAY													
28...	--	188	--	--	--	--	<8	--	34.5	--	--	--	E.4
JUN													
24...	--	189	--	--	--	--	<8	--	32.3	--	--	--	.9
JUL													
23...	--	147	--	--	--	--	<8	--	27.2	--	--	--	.7

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
25...	<.20	695	4.8	M	1.39	-25.40	-3.86	<.006	<.006	<.004	<.005	.009	<.050
JAN													
14...	<.20	798	5.2	M	1.71	-23.30	-3.65	<.006	<.006	<.004	<.005	.008	<.050
MAR													
03...	<.20	843	4.5	M	1.69	-20.60	-3.33	<.006	<.006	<.004	<.005	E.006n	<.050
MAY													
28...	--	1060	6.9	--	--	-16.00	-2.17	<.006	<.006	<.004	<.005	<.007	<.050
JUN													
24...	--	995	5.8	--	--	-16.30	-2.18	<.006	<.006	<.004	<.005	.013	<.050
JUL													
23...	--	947	6.5	--	--	-15.10	-1.95	<.006	<.006	<.004	<.005	<.010	<.050

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
25...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	.004	<.006	E.008	<.005	<.02	<.002
JAN													
14...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
MAR													
03...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	E.002n	<.006	E.003n	<.005	<.02	<.002
MAY													
28...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
JUN													
24...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	E.003	<.005	<.005	<.02	<.002
JUL													
23...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002

08461300 Rio Grande below Falcon Dam, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)
NOV													
25...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	E.005n	<.003	<.010	<.006
JAN													
14...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAR													
03...	<.009	<.005	<.003	<.004	<.035	<.027	E.002n	<.006	<.002	<.007	<.003	<.010	<.006
MAY													
28...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUN													
24...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
23...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006

Date	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)
NOV													
25...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JAN													
14...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	E.01n	<.034	<.02	<.005
MAR													
03...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAY													
28...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUN													
24...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JUL													
23...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005

Date	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Fipro-nil, water, fltrd, ug/L (62166)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)
NOV							
25...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
14...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAR							
03...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAY							
28...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUN							
24...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUL							
23...	<.002	<.009	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified
V -- Contamination

Value qualifier codes used in this report:
n -- Below the NDV
r -- Value verified by rerun, same method

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

THIS PAGE IS INTENTIONALLY BLANK

08470400 Arroyo Colorado at Harlingen, TX
(National stream-quality accounting network)

LOCATION.--Lat 26°10'24", long 97°42'01", Cameron County, Hydrologic Unit 12110208, on downstream side of northbound service road on U.S. Highways 83 and 77, about 18.0 mi from point of main floodway that divides into North Floodway and Arroyo Colorado.

DRAINAGE AREA.--182 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Nov. 1986 to current year.
BIOCHEMICAL DATA: Nov. 1986 to current year.
PESTICIDE DATA: Oct. 1995 to current year.
SEDIMENT DATA: Oct. 1995 to current year.

REMARKS.--Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since Sept. 1995, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
14...	0930	137	4190	8.0	21.0	--e	--	140	.107	.078	5.4	.1	.45
JAN													
08...	1000	169	4440	7.8	17.5	6.4	67	120	.085	.062	5.1	.2	.54
APR													
15...	1330	153	4400	7.6	24.5	8.3	101	170	.100	.072	8.5	.3	.70
MAY													
22...	0930	252	2990	7.8	27.5	6.1	78	220	.112	.082	6.1	<.1	.40
JUN													
10...	1530	229	3680	8.2	31.5	7.3	101	210	.120	.088	11.7	2.5	.90
JUL													
08...	1330	211	3610	7.7	27.5	6.3	81	180	.124	.089	7.0	2.1	.50
AUG													
19...	1130	320	2700	7.5	29.5	5.9	78	270	.152	.111	12.8	1.1	.81
SEP													
16...	1140	364	1480	7.5	27.0	5.6	71	530d	.148	.111	19.2	6.9	.90

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
14...	890	640	224	80.4	595	9	59	5.84	2	306	254	777	832
JAN													
08...	920	680	225	86.4	637	9	60	9.80	3	287	240	829	913
APR													
15...	940	700	226	89.5	637	9	59	9.75	2	281	233	793	855
MAY													
22...	680	500	156	71.2	421	7	57	11.3	2	217	182	518	525
JUN													
10...	700	--	170	66.2	465	8	59	11.0	--	--	--	642	671
JUL													
08...	770	580	191d	70.1d	487d	8	58	10.7d	2	229	191	645d	681d
AUG													
19...	630	470	162d	54.4d	395d	7	57	11.3d	<1	195	160	457d	491d
SEP													
16...	310	200	80.7	25.0	189	5	57	7.84	<1	125	104	237	252

08470400 Arroyo Colorado at Harlingen, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of consti-tuents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitro-gen, water, unfltrd mg/L (00600)	Organic nitro-gen, water, unfltrd mg/L (00605)	Organic nitro-gen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
14...	.84	28.3	2880	2720	4.75	.117	4.86	E.02	5.9	--	--	.45	1.0
JAN													
08...	.85	23.1	3050	2900	5.64	.147	5.79	.10	6.9	1.0	.47	.57	1.1
APR													
15...	.79	24.3	2970	2800	4.07	.075	4.14	<.04	5.5	--	--	.47	1.3
MAY													
22...	.7	23.1	1910	1850	3.02	.058	3.08	<.04	4.5	--	--	.58	1.4
JUN													
10...	.8	23.4	2370		3.00	.052	3.06	<.04	4.5	--	--	.59	1.4
JUL													
08...	.8	34.2d	2360	2260	3.21	.061	3.27	E.02	4.6	--	--	.57	1.3
AUG													
19...	.6	19.2d	1750	1700	1.99	.062	2.05	<.04	3.6	--	--	.61	1.5
SEP													
16...	.4	15.3	915	881	1.88	.052	1.93	E.03n	3.4	--	--	.43	1.4

Date	Phos-phorus, water, unfltrd mg/L (00665)	Phos-phorus, water, fltrd, mg/L (00666)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Ortho-phos-phate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Sus-pended sedi-ment load, tons/d (80155)	Sus-pended sedi-ment concen-tration mg/L (80154)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Alum-inum, water, fltrd, ug/L (01106)	Anti-mony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
14...	.73	.47	.47	1.43	8.1	5.3	88	238	99	<3	.61	8.5	138r
JAN													
08...	.82	.61	.62	1.90	4.3	4.9	153	336	99	<3	.60	7.0	80
APR													
15...	.88	.54	.50	1.54	4.8	8.2	216	522	100	--	--	7.6	--
MAY													
22...	.61	.28	.23	.711	V4.4	6.0	308	453	99	27	E.55n	9.5	83
JUN													
10...	.71	.34	.24	.739	--	9.2	295	477	100	--	.78	11.3	92
JUL													
08...	.74	.45	.29	.883	8.0d	4.9	186	327	99	1120d	E.50nd	8.5d	82d
AUG													
19...	.75	.34	.29d	.883	5.6d	11.7	294	340	100	--	--	7.6d	--
SEP													
16...	1.06	.33	.28	.852	17.6d	12.2	708	720	100	2	.42	10.7	73

Date	Beryll-ium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chrom-ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan-ese, water, fltrd, ug/L (01056)	Molyb-denum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selen-ium, water, fltrd, ug/L (01145)
NOV													
14...	<.12	1330	E.07n	<.8	.80	3.3	<30	.19	105	12.3	22.3	8.46r	1.6
JAN													
08...	<.12	1570	.07	<.8	.92	4.2	<30	E.15n	115	9.5	19.8	12.6	6.5
APR													
15...	--	1690	--	--	--	--	<30	--	127	--	--	--	2.8
MAY													
22...	<.12	963	.08	<.8	.76	6.8	<30	E.09n	74.3	.8	15.4	3.10	2.4
JUN													
10...	<.12	1330p	E.07n	<.8	.92	7.0	E19n	E.11n	94.8	3.4	19.0	6.92	4.6
JUL													
08...	E.10nd	1110d	.57d	E.5n	1.22d	5.0d	1580d	1.24d	108d	75.7d	16.1d	6.39d	2.6d
AUG													
19...	--	937d	--	--	--	--	<24d	--	73.3d	--	--	--	E.9nd
SEP													
16...	<.06	549d	.05	<.8	.38	3.9	<8	E.06n	39.6	1.0	8.8	1.56	1.1

08470400 Arroyo Colorado at Harlingen, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
14...	<.40	4090	14.5	5	12.0	-18.30	-2.66	<.006	<.006	<.004	<.005	.137	<.050
JAN													
08...	<.20	4240	11.7	8	10.3	-20.00	-2.76	<.006	<.006	<.004	<.005	.026	<.050
APR													
15...	--	4250	15.5	--	--	-17.30	-2.31	<.006	<.006	<.004	<.005	1.15	<.050
MAY													
22...	<.40	2800	14.7	4	6.88	-18.40	-2.44	<.006	<.006	<.004	<.005	.384	<.050
JUN													
10...	<.40	3500	17.1	4	8.48	-15.90	-1.91	<.006	<.006	<.004	<.005	.666	E.136
JUL													
08...	<.40d	3680d	16.4d	10d	8.18d	-15.40	-1.94	<.006	<.006	<.004	<.005	.071	<.050
AUG													
19...	--	1290d	14.1d	--	--	-22.50	-3.28	<.006	<.006	<.004	<.005	.056	<.050
SEP													
16...	<.20	1360	20.6	1	2.71	-21.10	-3.63	<.006	<.010	<.004	<.005	.578	<.050

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
14...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	.018	E.022	.016	<.005	<.02	<.002
JAN													
08...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	.008	E.009	.020	<.005	.27	<.002
APR													
15...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	.003	E.078	.012	<.005	<.02	<.002
MAY													
22...	<.010	<.002	<.041	E.092	E.004n	<.006	<.018	<.003	E.105	.006	<.005	<.02	<.002
JUN													
10...	<.010	<.002	<.041	E.227	<.005	<.006	<.018	<.003	E.072	.005	<.005	<.02	<.002
JUL													
08...	<.010	<.002	E.014	E.070	<.005	<.006	<.018	E.002n	E.025	.016	<.005	<.02	<.002
AUG													
19...	<.010	<.002	E.011t	<.020	<.005	<.006	<.018	.031	E.014	.153	<.005	<.02	<.002
SEP													
16...	<.010	<.002	E.015t	<.020	<.005	<.006	<.018	.020	E.045	.222	<.005	<.02	<.002

Date	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)
NOV													
14...	<.009	<.005	<.003	<.004	<.035	E.019n	E.007n	<.006	<.002	<.007	E.002n	<.010	<.006
JAN													
08...	<.009	<.005	<.003	<.004	.073	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
APR													
15...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAY													
22...	<.009	<.005	<.003	<.004	<.035	<.027	E.004n	<.006	<.004	<.007	.003	<.010	<.006
JUN													
10...	<.009	<.005	<.003	<.004	<.035	<.027	E.004n	<.006	<.002	<.007	<.003	<.010	<.010
JUL													
08...	<.009	<.005	<.003	<.004	<.035	.082	<.013	<.006	<.002	<.007	E.002n	<.010	.049
AUG													
19...	<.009	<.005	<.003	<.004	<.035	E.017n	E.007n	<.006	<.002	.037	<.006	<.010	<.006
SEP													
16...	.011	<.005	<.003	<.004	<.035	<.027	.024	<.006	<.002	.049	.005	<.010	<.006

08470400 Arroyo Colorado at Harlingen, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
NOV													
14...	<.004	<.022	<.011	E.01n	<.010	<.011	<.02	<.004	.017	<.02	<.034	<.02	<.005
JAN													
08...	<.004	E.017n	<.011	<.01	<.010	<.011	<.02	<.004	<.010	<.02	<.034	<.02	<.005
APR													
15...	<.004	<.022	<.011	.02	<.010	<.011	<.02	<.004	.028	<.02	<.034	<.02	<.005
MAY													
22...	<.004	.030	<.011	<.01	<.010	<.011	<.02	<.004	.010	E.01n	<.034	<.02	<.005
JUN													
10...	<.004	.024	<.011	Mn	<.010	<.011	<.02	<.004	.011	<.02	<.034	<.02	<.005
JUL													
08...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	.051	<.02	<.034	<.02	<.005
AUG													
19...	<.004	<.022	<.011	.02	<.010	<.011	<.02	<.004	.020	<.02	<.034	<.02	<.005
SEP													
16...	<.004	.027	<.011	.02	<.010	<.011	<.05	<.013	.022	<.02	<.034	<.02	<.005

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
NOV							
14...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
08...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
APR							
15...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAY							
22...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUN							
10...	<.002	E.007n	<.007	<.005	<.005	<.009	<.004
JUL							
08...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
AUG							
19...	<.002	E.008n	<.007	<.005	<.005	<.009	<.004
SEP							
16...	<.002	.026	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value
M -- Presence verified, not quantified
V -- Contamination

Value qualifier codes used in this report:
d -- Diluted sample: method hi range exceeded
n -- Below the NDV
p -- Value reported is preferred
r -- Value verified by rerun, same method
t -- Below the long-term MDL

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

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, 900 feet above International Boundary and Water Commission gaging station, 1,000 ft downstream from El Jardin pumping plant on earthen dam, 6.8 mi below International Bridge between Brownsville and Matamoros, Tamaulipas, Mexico and 48.8 mi above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi^2.

PERIOD OF RECORD.--
CHEMICAL DATA: Jan. 1932, Mar. 1943 to Feb. 1944, Feb. 1966 to current year.
BIOCHEMICAL DATA: Oct. 1974 to current year.
PESTICIDE DATA: May 1975 to May 1982, Oct. 1995 to current year.
SEDIMENT DATA: Feb. 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Mar. 1943 to Feb. 1944, Apr. 1967 to Sept. 1983.
WATER TEMPERATURE: Oct. 1966 to Sept. 1983.
SUSPENDED SEDIMENT DISCHARGE: Feb. 1966 to Sept. 1983.

REMARKS.--The flow is controlled largely by releases from Falcon Reservoir. Instantaneous discharges published in the table were provided directly by International Boundary and Water Commission. Records of daily mean discharge for water year 2003 are published in International Boundary and Water Commission Water Bulletins Nos. 72 and 73. Since Sept. 1995, suspended sediment chemistry and quality assurance data for this station may be obtained from the U.S. Geological Survey Texas District Office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,130 microsiemens/cm, May 29, 1972; minimum daily, 337 microsiemens/cm, 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, 4.0 mg/L, Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.
SEDIMENT LOADS: Maximum daily, 181,000 tons, Feb. 28, 1983; minimum daily, 0.12 tons, Aug. 26, 1983.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf uS/cm 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, water, deg C (00010)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Particulate nitrogen, susp, water, mg/L (49570)
NOV													
13...	1230	191	874	7.6	23.0	--e	--	29	.102	.076	1.7	<.1	.20
JAN													
07...	1330	145	1210	7.8	18.5	9.0	95	12	.089	.065	.6	<.1	.16
MAR													
17...	1330	114	1540	7.4	24.5	4.5	54	--	--	--	--	--	--
APR													
15...	1600	227	1620	7.7	25.0	7.8	95	12	.101	.074	1.0	<.1	.12
MAY													
21...	1600	139	1020	7.5	30.0	4.3	57	12	.093	.068	1.4	<.1	.14
JUL													
08...	1510	286	1420	7.3	29.5	3.1	41	13	.112	.082	1.1	<.1	.12
AUG													
19...	1400	360	1100	7.4	30.5	4.1	55	22	.095	.069	1.4	<.1	.20
SEP													
16...	1415	480	1130	7.1	28.5	3.8	49	21	.102	.074	1.4	<.1	.15

Date	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	Sodium adsorption ratio (00931)	Sodium, percent (00932)	Potassium, water, fltrd, mg/L (00935)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Sulfate water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)
NOV													
13...	210	92	62.0	13.9	87.5	3	46	5.62	<1	147	121	122	116
JAN													
07...	310	160	85.7	21.8	132	3	48	5.53	<1	171	142	194	166
MAR													
17...	380	210	104	28.9	183	4	51	6.14	<1	204	169	282	220
APR													
15...	370	220	99.2	29.5	202	5	54	6.10	1	176	146	301	237
MAY													
21...	270	130	75.3	19.6	101	3	44	6.35	<1	166	137	172	119
JUL													
08...	330	200	85.9	27.5	181	4	54	8.76	<1	158	158	264	201
AUG													
19...	260	150	69.0	21.4	121	3	49	6.87	<1	131	108	202	146
SEP													
16...	270	160	71.8	22.5	129	3	50	7.19	<1	141	116	197	156

08475000 Rio Grande near Brownsville, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue water, fltrd, sum of consti-tuents mg/L (70301)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Total nitro-gen, water, unfltrd mg/L (00600)	Organic nitro-gen, water, unfltrd mg/L (00605)	Organic nitro-gen, water, fltrd, mg/L (00607)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
NOV													
13...	.36	12.7	525	498	.79	.008	.799	.072	1.4	.49	.29	.36	.57
JAN													
07...	.45	2.42	727	699	.87	.032	.902	.375	1.7	.46	.32	.69	.83
MAR													
17...	.55	7.14	986	935	--	--	--	--	--	--	--	--	--
APR													
15...	.51	4.55	1040	972	.30	.005	.309	E.013	.75	--	--	.39	.44
MAY													
21...	.5	11.0	632	589	.24	.007	.248	E.011	.86	--	--	.36	.62
JUL													
08...	.6	18.2	894	868	.10	.005	.101	.064	.74	.58	.39	.46	.64
AUG													
19...	.6	12.5	678	648	.32	.019	.340	<.015	1.0	--	--	.45	.70
SEP													
16...	.5	16.2	699	674	.57	.017	.585	.091	1.2	.56	.43	.52	.66

Date	Phos-phorus, water, unfltrd mg/L (00665)	Phos-phorus, water, fltrd, mg/L (00666)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Ortho-phos-phate, water, fltrd, mg/L (00660)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Sus-pended sedi-ment load, tons/d (80155)	Sus-pended sedi-ment concen-tration mg/L (80154)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Alum-inum, water, fltrd, ug/L (01106)	Anti-mony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)
NOV													
13...	.33	.28	.278	.852	3.3	1.7	22	42	100	<2	.90	4.3	91
JAN													
07...	.51	.46	.436	1.34	4.5	.6	3.1	8	99	E1	.73	4.0	95
MAR													
17...	--	--	--	--	--	--	4.3	14	100	--	--	4.9	--
APR													
15...	.35	.31	.305	.935	4.9	1.0	7.4	12	97	--	--	4.2	--
MAY													
21...	.22	.175	.156	.478	3.9	1.4	6.0	16	99	E1	.63	3.0	116
JUL													
08...	.31	.27	.255	.782	4.9d	1.0	14	18	99	--	--	5.5	--
AUG													
19...	.25oc	.189	.133	.408	6.2	1.4		--	--	--	--	4.4	--
SEP													
16...	.33oc	.30	.253d	.776	5.9d	1.4	32	25	100	--	--	5.1	--

Date	Beryll-ium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chrom-ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan-ese, water, fltrd, ug/L (01056)	Molyb-denum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selen-ium, water, fltrd, ug/L (01145)
NOV													
13...	<.06	229	<.04	<.8	.21	.9	<10	.10	20.2	9.2	4.3	2.97	<.5
JAN													
07...	<.06	260	<.04	<.8	.31	1.7	<10	E.07	32.3	9.1	5.5	5.44	1.4
MAR													
17...	--	466	--	--	--	--	<10	--	41.8	--	--	--	1.0
APR													
15...	--	588	--	--	--	--	<10	--	49.4	--	--	--	.7
MAY													
21...	<.06	236	E.02	<.8	.32	2.5	<10	<.08	28.7	9.5	5.6	1.80	.5
JUL													
08...	--	371	--	--	--	--	E4n	--	46.9	--	--	--	.7
AUG													
19...	--	279	--	--	--	--	<8	--	36.0	--	--	--	E.4n
SEP													
16...	--	315	--	--	--	--	<8	--	33.2	--	--	--	.6

08475000 Rio Grande near Brownsville, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)
NOV													
13...	<.20	783	7.2	1	1.76	-17.50	-3.29	<.006	<.006	<.004	<.005	.306	<.050
JAN													
07...	<.20	1200	5.6	2	2.25	-19.80	-2.99	<.006	<.006	<.004	<.005	.009	<.050
MAR													
17...	--	1570	5.4	--	--	-17.10	-2.51	--	--	--	--	--	--
APR													
15...	--	1560	6.3	--	--	-13.90	-1.90	<.006	<.006	<.004	<.005	.022	<.050
MAY													
21...	<.20	1110	5.9	3	2.30	-14.20	-1.86	<.006	<.006	<.004	<.005	.014	<.050
JUL													
08...	--	1420	6.5	--	--	-11.00	-1.32	<.006	<.006	<.010	<.005	.017	<.050
AUG													
19...	--	1150	7.8	--	--	-11.50	-1.20	<.006	<.006	<.010	<.005	.014	<.050
SEP													
16...	--	1160	7.6	--	--	-12.10	-1.56	<.006	<.006	<.004	<.005	.204	<.050

Date	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	CIAT, water, fltrd, ug/L (04040)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
NOV													
13...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	.005	E.044	.009	<.005	<.02	<.002
JAN													
07...	<.010	<.002	<.041	<.020	.006	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
MAR													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	<.005	<.005	<.02	<.002
MAY													
21...	<.010	<.002	E.012	<.020	<.005	<.006	<.018	<.003	E.004	.011	<.005	<.02	<.002
JUL													
08...	<.010	<.002	E.046	<.075	E.005n	<.006	<.018	<.003	E.005	.008	<.005	<.02	<.002
AUG													
19...	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.006	.010	<.005	<.02	<.002
SEP													
16...	<.010	<.002	E.007t	<.020	.005	<.006	<.018	<.003	E.004n	.019	<.005	<.02	<.002

Date	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)
NOV													
13...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JAN													
07...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAR													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
MAY													
21...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
JUL													
08...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
AUG													
19...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006
SEP													
16...	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.007	<.003	<.010	<.006

08475000 Rio Grande near Brownsville, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
NOV													
13...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
JAN													
07...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAR													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
MAY													
21...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	E.01	<.034	<.02	<.005
JUL													
08...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
AUG													
19...	<.004	<.022	<.011	<.01	<.010	<.011	<.02	<.004	<.005	<.02	<.034	<.02	<.005
SEP													
16...	<.004	<.022	<.011	E.01n	<.010	<.011	<.04	<.004	<.005	<.02	<.034	<.02	<.005

Date	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Fipronil, water, fltrd, ug/L (62166)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Desulfinylfipronil amide, wat flt ug/L (62169)	Desulfinyl fipronil, water, fltrd, ug/L (62170)
NOV							
13...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JAN							
07...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAR							
17...	--	--	--	--	--	--	--
APR							
15...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
MAY							
21...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
JUL							
08...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
AUG							
19...	<.002	<.009	<.007	<.005	<.005	<.009	<.004
SEP							
16...	<.002	<.009	<.007	<.005	<.005	<.009	<.004

Remark codes used in this report:
< -- Less than
E -- Estimated value

Value qualifier codes used in this report:
c -- See laboratory comment
d -- Diluted sample: method hi range exceeded
n -- Below the NDV
o -- Result determined by alternate method
t -- Below the long-term MDL

Null value qualifier codes used in this report:
e -- Required equipment not functional/avail

THIS PAGE IS INTENTIONALLY LEFT BLANK.

The U.S. Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 2003

Station number	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Guadalupe River Basin				
08168000	Hueco Springs near New Braunfels, TX	Lat 29°45'33", long 98°08'23", Comal County, two springs located 400 and 500 ft west of the Guadalupe River, 600 ft upstream from the mouth of Elm Creek, and 4.2 mi north of New Braunfels.	--	1944-2003	10-15-02 11-27-02 12-20-02 01-31-03 02-28-03 03-17-03 04-16-03 05-19-03 06-17-03 07-17-03 08-12-03 09-16-03	99.7 99.1 108 106 89.6 93.3 81.2 78.7 79.7 77.7 59.7 49.7
08177818	San Antonio Springs at San Antonio, TX	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrand Ave. in San Antonio.	--	1951-52, 1959-62, 1972, 1974-77, 1979-2003	12-03-02 03-10-03 04-29-03 06-24-03 07-30-03 09-16-03	170 177 99.8 69.1 91.1 81.9
08178090	San Pedro Springs at San Antonio, TX	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, 1979-2003	11-08-02 03-10-03 04-29-03 06-24-03 07-30-03 09-16-03	24.3 20.6 14.6 11.7 13.2 13.0
		Rio Grande Basin				
08425500	Phantom Lake Spring near Toyahvale, TX	Lat 30°56'01", 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 Balmorhea.	--	1931-33✠, 1934, 1941, 1942-66✠, 1967-2003	10-24-02 01-08-03 02-12-03 04-03-03 06-11-03 07-17-03	0 0 0 0 0 0

See footnote at end of table.

Discharge measurements made at low-flow partial-record station during water year 2003--Continued

Station number	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Dis-charge (ft^3/s)
		Rio Grande Basin--Continued				
08427500	San Solomon Springs at Toyahvale, TX	Lat 30°56'34", long 103°47'16", Reeves County, measurement of total spring flow from all canals at Balmorhea State Park, and 4.0 mi southwest of Balmorhea.	--	1919, 1922-25, 1931-33✞, 1934-36, 1941-65✞, 1966-86, 2003	10-24-02 01-08-03 02-12-03 04-03-03 06-12-03 07-17-03	13.0 24.4 18.8 24.1 25.4 26.5

✞ Operated as a continuous-record station.

1/ Measurements furnished by 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 inspection 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 2003

Station name and number	Location	Period of record	Water Year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		Guadalupe River Basin						
San Antonio River at Navarro St., San Antonio, TX 08177900	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio. Drainage area is unknown.	1973-2003	07-05-03	*634.63	--	10-17-98	*643.72	--
San Pedro Creek at Santa Rosa St., San Antonio, TX 08178100	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio. Drainage area is unknown.	1973-2003	07-05-03	*639.18	--	07-16-90	*648.38	--
Martinez Creek at Fredericksburg Rd., San Antonio, TX 08178350	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio. Drainage area is unknown.	1973-2003	07-05-03	*682.25	--	10-17-98	*685.46	--
		San Fernando Creek Basin						
Tranquitas Creek at Kingsville, TX 08212300	Lat 27°31'33", long 97°52'02", Kleberg County, at bridge on U.S. Highway 77 Business Route in Kingsville, 4.9 mi upstream from San Fernando Creek, and 5.9 mi downstream from Tranquitas Dam. Drainage area is 48.5 mi^2.	1965-82, 1984-90, 1992-2003	09-20-03	2.94	--	08-10-80	6.88	--

* Elevation, in feet above sea level.
✞ Operated as a continuous-record station.
a From floodmark.
i From indirect measurement of peak flow.

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 2003

Station number	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Dis-charge (ft^3/s)
		Rio Grande Basin				
Alamito Creek nr Presidio, TX 08374000	Rio Grande	Lat 29°31'25", long 104°17'15", Presidio County on downstream side of highway bridge on FM 170, about 0.25 mi upstream from the confluence with the Rio Grande, and about 6 mi southeast of Presidio.	1,504	1999-2003	10-24-02 01-07-03 02-12-03	0.70 0.69 0.69
Terlingua Creek nr Terlingua, TX 08374500	Rio Grande	Lat 29°11'50", long 103°36'20", Brewster County, on left bank, 2.6 mi upstream from the confluence with the Rio Grande, and about 8.5 mi south of Terlingua.	1,070	1999-2003	01-07-03 02-11-03	1.95 0.74
Devils River at Pafford Crossing nr Comstock, TX 08449400	Rio Grande	Lat 29°40'35", long 101°00'00", Val Verde County, on left bank, about 11.5 mi east of Comstock, and about 25.5 mi upstream from the confluence with the Rio Grande.	3,961	1999-2003	11-07-02 03-13-03	425 254

✞ Operated as a continuous-record station.

1/ Measurements furnished by International Boundary and Water Commission.

INDEX

	Page
Alamito Creek near Presidio	392
Aransas River near Skidmore	196
Arroyo Colorado at Harlingen	380
Atascosa River, at Whitsett	282
near McCoy	280
Barilla Draw near Saragosa	350
Blanco River, at Wimberley	70
near Kyle	72
Canyon Lake near New Braunfels	50
Choke Canyon Reservoir, near Three Rivers	250
Outlet Works Channel near Three Rivers	278
Cibolo Creek,at Interstate Highway 10 above Boerne	176
at Selma	178
near Falls City	180
Coleto Creek, at Arnold Road Crossing near Schroeder	92
near Victoria	98
Coleto Creek Reservoir near Victoria	96
Comal River at New Braunfels	60
Comal Springs at New Braunfels	58
Copano Creek near Refugio	190
Definition of terms	16
Devils River at Pafford Crossing near Comstock	392
Diversion Lake near Rio Medina	130
Dry Frio River near Reagan Wells	222
Elm Waterhole Creek Tributary at San Antonio	112
Fifteenmile Creek near Weser	90
Frio River, at Concan	218
at Tilden	242
below Dry Frio River near Uvalde	224
near Derby	240
Giffin Springs at Toyahvale	342
Guadalupe-Blanco River Authority Calhoun Canal Pump Station near Long Mott	184
Guadalupe River, above Bear Creek at Kerrville	42
above Comal River at New Braunfels	54
at Comfort	46
at Cuero	86
at Gonzales	80
at Hunt	38
at Kerrville	44
at New Braunfels	62
at Sattler	52
at Victoria	88
Guadalupe River:	
near Bloomington	100
near Spring Branch	48
near Tivoli	186
Guadalupe River Basin,	
crest-stage partial-record stations in	387
gaging-station records in	32-187
low-flow partial-record stations in	389
Helotes Creek at Helotes	152
Hondo Creek, at King Waterhole near Hondo	232
near Tarpley	230
Hueco Springs near New Braunfels	389
Independence Creek near Sheffield	356
Johnson Creek near Ingram	40
Lake Corpus Christi near Mathis	292
Leona River near Uvalde	238
Leon Creek, at Hausman Road at San Antonio	146
at Interstate Highway 35 at San Antonio	156
at Prue Road at San Antonio	148
at Senic Loop Road near Leon Springs	144
Limpia Creek above Fort Davis	346
Los Olmos Creek near Falfurias	320
Low-flow partial-record stations	385
Martinez Creek at Fredericksburg Road, San Antonio	391
Medina Canal near Riomedina	128
Medina Lake near San Antonio	126
Medina River, at Bandera	124
at Riomedina	132
at San Antonio	158
near Macdona	134
near Somerset	142
Medio Creek near Beeville	192
Mission River at Refugio	194
North Fork Guadalupe River near Hunt	36
Nueces River, at Bluntzer	310
at Calallen	312
at Cotulla	208
at George West	290
at Laguna	200
below Uvalde	204
near Asherton	206
near Mathis	308
near Three Rivers	284
near Tilden	212
Nueces River basin, gaging-station records in	198-313
Olmos Creek at Dresden Drive, San Antonio	102
Oso Creek at Corpus Christi	316
Panther Canyon at New Braunfels	56
Partial-record stations, crest-stage	391
low-flow	389
miscellaneous	392
Peach Creek below Dilworth	82
Pecos River, near Girvin	354
near Langtry	360
near Orla	338
Perdido Creek at Farm to Market Road 622 near Fannin	94
Phantom Lake Springs near Toyahvale	389
Plum Creek, at Lockhart	76
near Luling	78

Page

Red Bluff Reservoir near Orla 336
Rio Grande, at Foster Ranch near Langtry 332
at Pipeline Crossing below Laredo 370
below Amistad Dam near Del Rio 366
below Falcon Dam 376
below Rio Conchos near Presidio 324
near Brownsville 384
Rio Grande basin, gaging-station records in 322
low-flow partial-record stations in 385
miscellaneous partial-record stations in 388

Sabinal River, at Sabinal 228
near Sabinal 226
Salado Creek, at Wilderness Road at San Antonio 110
at Loop 13 at San Antonio 118
at Loop 410 at San Antonio 116
San Antonio River, at Goliad 182
at Loop 410,San Antonio 108
at Mitchell Street, San Antonio 106
at Navarro Street, San Antonio 391
at San Antonio 104
near Elmendorf 160
near Falls City 174

Page

San Antonio River Basin, gaging station records in 102-185
San Antonio Springs at San Antonio 389
San Casimiro Creek near Freer 210
San Fernando Creek at Alice 318
San Marcos River, at Luling 74
at San Marcos 68
San Marcos River Tributary at Sessions Road, San Marcos 64
San Marcos Springs at San Marcos 66
San Miguel Creek near Tilden 248
San Pedro Creek at Santa Rosa Street, San Antonio 391
San Pedro Springs at San Antonio 389
San Solomon springs at Toyahvale 390
Sanderson Creek at Sanderson 328
Sandies Creek near Westhoff 84
Seco Creek, at Rowe Ranch near D'Hanis 236
at Miller Ranch near Utopia 234

Terlingua Creek near Terlingua 392
Tranquitas Creek at Kingsville 391

West Nueces River near Brackettville 202

CALENDAR FOR WATER YEAR 2003

2002

OCTOBER

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

NOVEMBER

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

DECEMBER

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

2003

JANUARY

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

FEBRUARY

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

MARCH

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

APRIL

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

MAY

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

JUNE

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

JULY

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

AUGUST

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

SEPTEMBER

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

Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
	Area	
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
	Volume	
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubic hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	cubic meter (m^3)
	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second-per-day [($ft^3/s/d$]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.223×10^{3}	cubic meter (m^3)
	1.223×10^{-3}	cubic hectometer (hm^3)
	1.223×10^{-6}	cubic kilometer (km^3)
	Flow rate	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
	Mass	
ton, short (2,000 lb)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F = (1.8 \times °C) + 32$$