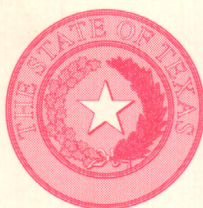


000)  
a3  
2x25  
992  
2



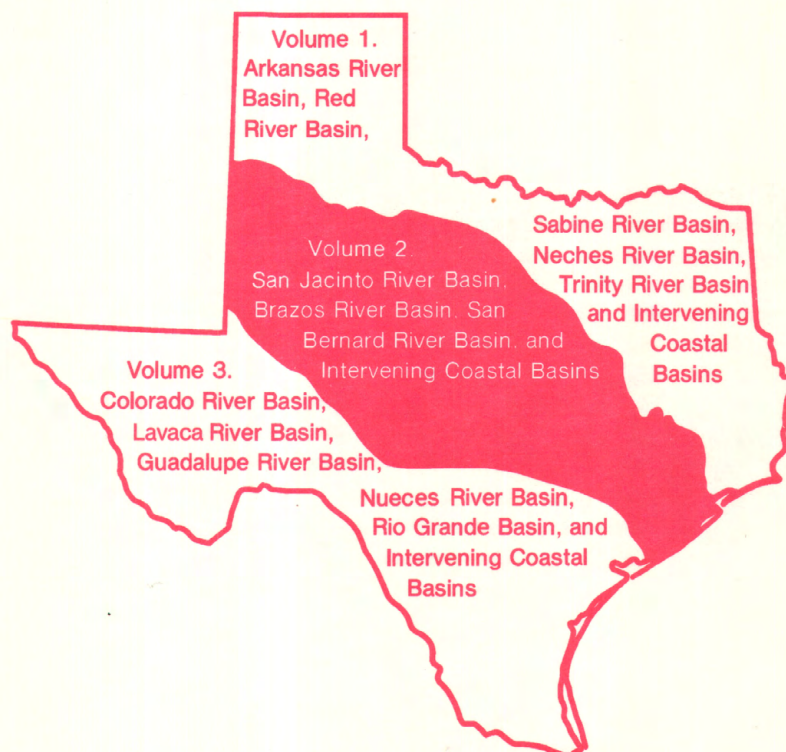
# Water Resources Data Texas Water Year 1992

U.S. GEOLOGICAL SURVEY  
RESTON, VA.

JAN 26 1994

SR  
LIBRARY

Volume 2. San Jacinto River Basin, Brazos River Basin, San Bernard River Basin, and Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-92-2  
Prepared in cooperation with the State of Texas  
and with other agencies



# CALENDAR FOR WATER YEAR 1992

1991

## 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				

1992

## 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	29

## 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			

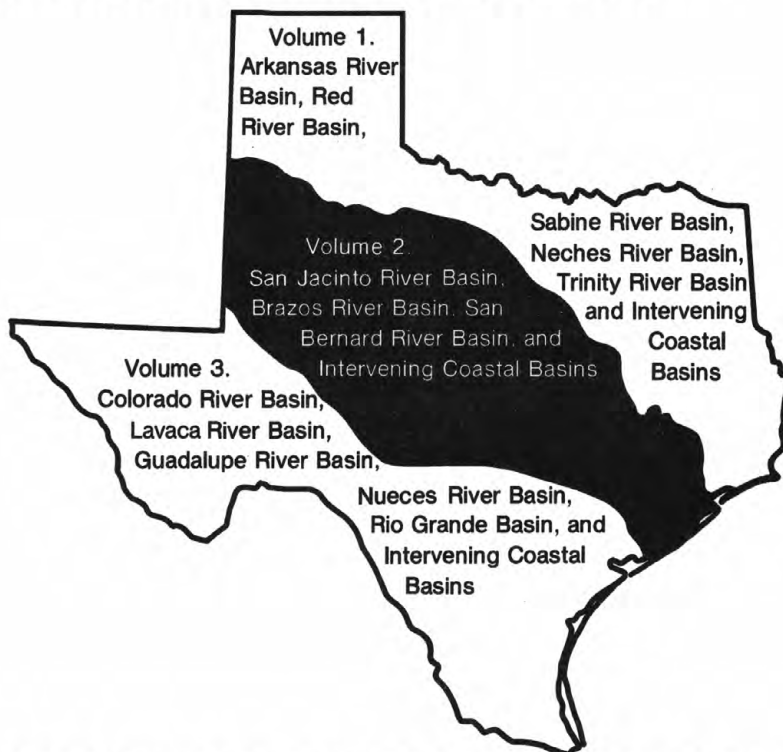




# Water Resources Data Texas Water Year 1992

## Volume 2. San Jacinto River Basin, Brazos River Basin, San Bernard River Basin, and Intervening Coastal Basins

by H.D. Buckner, F.L. Andrews, and B.A. Hinds



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-92-2  
Prepared in cooperation with the State of Texas  
and with other agencies



**UNITED STATES DEPARTMENT OF THE INTERIOR**

**BRUCE BABBITT, Secretary**

**GEOLOGICAL SURVEY**

**Dallas L. Peck, Director**

**For additional information write to:  
District Chief, Water Resources Division  
U.S. Geological Survey  
8011A Cameron Rd.  
Austin, Texas 78754-3898**

**1993**



## PREFACE

This edition of the annual hydrologic data report of Texas is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by Federal, State, local agencies, and the private sector for developing and managing land and water resources in Texas which are contained in 4 volumes:

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

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

Stanley Baldys  
Dana L. Barbie  
James C. Fisher  
Charles C. Kidwell  
William H. Martin  
Harry C. McWreath

Dennis R. Myers  
George B. Ozuna  
Roberto Perez  
William E. Reeves  
H. Dean Stephens

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

### District Office

Mike Dorsey                      Joyce Stewart  
Ruth E. Jones                  Phil Tovar

### San Antonio Subdistrict Office

James M. Briers                M.E. Torres-Pastor  
Robert J. Ferris                Brian L. Petri  
Allan R. Furlow                Richard N. Slattery  
Jon R. Gilhousen               Michael W. Thomas  
C.A. Hartmann, Jr.              John A. Tomlinson  
Addis M. Miller                Francis Wessels  
Olga H. Munoz                  John F. Wojcik

### Wichita Falls Field Office

Paul Bennett                    J.D. Kelly  
W.C. Damschen                Doris F. Tipps

### San Angelo Field Office

Henry Jacques, Jr.              Jimmy G. Pond  
Lawanna M. Kiser               James B. Schiller  
Jimmy N. Lee                    Tim E. Teagarden

### El Paso Field Office

Donald E. White

### Houston Subdistrict Office

Dexter W. Brown                Mark C. Kasmarek  
J. Pat Bruchmiller               Patrick O. Keefe  
Mike R. Burnich                Vidal A. Mendoza  
Al Campodonico                Edna M. Paul  
Lee B. Goldstein                C. San Ramirez  
Stan R. Cole                    Horacio X. Santos  
Laura S. Coplin                John S. Sawyer  
Rick L. Goss                    Alberta G. Swanson  
Jim S. Hutchison               J. Ken VanZandt

### Fort Worth Subdistrict Office

Jack D. Benton                Ralph H. Ollman  
Ben J. Carr                    Glenn A. Rivers  
Martin J. Danz                Jeffery T. Sandlin  
Judith H. Donohue              Clyde T. Schoultz  
Richard E. Faux                Martha E. Stokely  
Philip W. Golden               J.M. Taylor  
Vernon L. Hastings              David V. Tudor  
Charles M. Wood

### Austin Field Office

Keith D. Ging                  Raymond R. Salazar  
Searcy M. Jacobs                Venezia S. Shearer  
Milton M. Miller                Keith D. Snider  
C.E. Ranzau                    Milton W. Sunvison  
K. Craig Weiss

This report was prepared in cooperation with the State of Texas and other agencies under the supervision of Richard O. Hawkinson, District Chief.



<b>REPORT DOCUMENTATION PAGE</b>	<b>1. REPORT NO.</b> USGS/WRD/HD-92/295	<b>2.</b>	<b>3. Recipient's Accession No.</b>
<b>4. Title and Subtitle</b> Water Resources Data--Texas, Water Year 1992, Volume 2. San Jacinto River, Brazos River, San Bernard River basins and Intervening Coastal basins			<b>5. Report Date</b> June 1993
<b>7. Author(s)</b> H. D. Buckner, F. L. Andrews and B. A. Hinds			<b>6.</b>
<b>9. Performing Organization Name and Address</b>  U.S. Geological Survey, Water Resources Division Texas District 8011 Cameron Road, Bldg. 1 Austin, TX 78753			<b>8. Performing Organization Rept. No.</b> USGS-WDR-TX-92-2
<b>12. Sponsoring Organization Name and Address</b> U.S. Geological Survey, Water Resources Division Texas District 8011 Cameron Road, Bldg. 1 Austin, TX 78753			<b>10. Project/Task/Work Unit No.</b>
			<b>11. Contract (C) or Grant (G) No.</b>  (C)  (G)
<b>15. Supplementary Notes</b>  Prepared in cooperation with Federal, State, and local agencies.			<b>13. Type of Report &amp; Period Covered</b> Annual--Oct. 1, 1991 to Sept. 30, 1992
			<b>14.</b>
<b>16. Abstract (limit: 200 words)</b>  Water-resources data for the 1992 water year for Texas are presented in four volumes, and consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. Volume 2 contains records for water discharge at 86 gaging stations; stage only at 8 gaging stations; stage and contents at 20 lakes and reservoirs; water quality at 54 gaging stations; and data for 26 partial-record and 7 flood-hydrograph partial-record stations. Also included are lists of discontinued surface-water discharge or stage-only stations and discontinued surface-water-quality stations; crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. 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.			
<b>17. Document Analysis a. Descriptors</b>  *Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging Stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperature, Sampling sites, Water levels, Water analyses  <b>b. Identifiers/Open-Ended Terms</b>     <b>c. COSATI Field/Group</b>			
<b>18. Availability Statement</b> No restriction on distribution. This report may be purchased from National Technical Information Service Springfield, VA 22161		<b>19. Security Class (This Report)</b> Unclassified	<b>21. No. of Pages</b> 412
		<b>20. Security Class (This Page)</b> Unclassified	<b>22. Price</b>



## CONTENTS

	Page
Preface .....	iii
List of gaging stations, in downstream order, for which records are published .....	v
List of discontinued surface-water discharge or stage-only stations .....	ix
List of discontinued surface-water-quality stations .....	xi
Introduction .....	1
Cooperation .....	2
Hydrologic conditions .....	2
Streamflow .....	3
Water quality .....	6
Special networks and programs .....	8
Explanation of the records .....	8
Station identification numbers .....	8
Downstream order numbering .....	8
Records of stage and water discharge .....	9
Data collection and computation .....	9
Data presentation .....	10
Identifying estimated daily discharge .....	12
Accuracy of the records .....	12
Other records available .....	12
Records of surface-water quality .....	12
Classification of records .....	12
Arrangement of records .....	13
On-site measurements and sample collection .....	13
Water temperature .....	13
Sediment .....	14
Laboratory measurements .....	14
Data presentation .....	14
Remark codes .....	15
Access to WATSTORE data .....	15
Definition of terms .....	16
Publications of techniques of water-resources investigations .....	23
Gaging-station records .....	27
Discharge at partial-record stations .....	397
Low-flow partial-record stations .....	397
Crest-stage partial-record stations .....	398
Index .....	400

## ILLUSTRATION

Figure 1. Ten climatic divisions of the State .....	4
2. Area of Texas covered by volume 2 and location of selected streamflow and water-quality stations in volume 2 .....	5
3. Comparison of monthly mean discharges at four long-term hydrologic index gaging stations during the 1992 water year with median of the monthly mean discharges for 1951-80 water years .....	7

## TABLES

Table 1. Streamflow at six selected stations for water year 1992 .....	3
2. Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1992 water year .....	6

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.]

	Station number	Page
<b>WESTERN GULF OF MEXICO BASINS</b>		
<b>SAN JACINTO RIVER BASIN</b>		
West Fork San Jacinto River (head of San Jacinto River):		
Lake Conroe near Conroe (e) (c) (t) -----	08067600	27
West Fork San Jacinto River below Lake Conroe near Conroe (d) -----	08067650	34
West Fork San Jacinto River near Conroe (d) (c) (b) (t) (s) -----	08068000	35
West Fork San Jacinto River above Lake Houston near Porter (d) (c) (b) (t) -----	08068090	39
Spring Creek at Spring (d) (c) (b) (t) -----	08068520	41
Cypress Creek at Katy-Hockley Road near Hockley (d) -----	08068720	44
Cypress Creek at House and Hahl Road near Cypress (d) (c) (b) (t) -----	08068740	45
Little Cypress Creek near Cypress (d) -----	08068780	46
Cypress Creek at Grant Road near Cypress (d) -----	08068800	48
Cypress Creek near Westfield (d) (c) (b) (t) -----	08069000	49
East Fork San Jacinto River near Cleveland (d) -----	08070000	52
East Fork San Jacinto River near New Caney (d) (c) (b) (t) -----	08070200	54
Caney Creek near Splendor (d) (c) (b) (t) -----	08070500	61
San Jacinto River:		
Lake Houston:		
Luce Bayou above Lake Houston near Huffman (d) (c) (b) (t) -----	08071280	64
Lake Houston near Sheldon (e) (c) (b) (t) -----	08072000	67
San Jacinto River near Sheldon (e) -----	08072050	78
Buffalo Bayou near Katy (d) -----	08072300	80
Barker Reservoir near Addicks (e) -----	08072500	81
South Mayde Creek:		
Bear Creek near Barker (d) -----	08072730	82
Langham Creek at West Little York Road near Addicks (e) -----	08072760	84
Addicks Reservoir near Addicks (e) -----	08073000	85
Buffalo Bayou near Addicks (d) -----	08073500	86
Buffalo Bayou at West Belt Drive, Houston (d) (c) (b) (t) -----	08073600	87
Buffalo Bayou at Piney Point (d) -----	08073700	90
Buffalo Bayou at Houston (d) (c) (t) -----	08074000	91
Whiteoak Bayou at Houston (d) (c) (b) -----	08074500	97
Whiteoak Bayou at Main Street (e) (t) -----	08074598	100
Buffalo Bayou at Main Street, Houston (d) (c) (t) -----	08074600	105
Buffalo Bayou at McKee Street (e) (c) (t) -----	08074610	112
Buffalo Bayou at Turning Basin, Houston (e) (c) (t) -----	08074710	119
Brays Bayou at Houston (d) (c) (b) (t) -----	08075000	126
Sims Bayou at Houston (d) (c) (b) (t) -----	08075500	129
Berry Bayou at Forest Oaks Street, Houston (e) -----	08075650	131
Vince Bayou at Pasadena (d) -----	08075730	133
Hunting Bayou at Interstate Highway 610, Houston (d) (c) (b) (t) -----	08075770	134
Greens Bayou at U.S. Highway 75 near Houston (d) -----	08075900	136
Greens Bayou near Houston (d) (c) (b) (t) -----	08076000	138
Garners Bayou near Humble (d) -----	08076180	141
Halls Bayou at Houston (d) -----	08076500	143
Greens Bayou at Ley Road, Houston (e) -----	08076700	145
<b>CLEAR CREEK BASIN</b>		
Clear Creek near Pearland (d) -----	08077000	146
<b>COASTAL BASIN</b>		
Moses Lake-Galveston Bay near Texas City (e) -----	08077650	148
<b>HIGHLAND BAYOU BASIN</b>		
Highland Bayou Diversion Channel:		
LaMarque Levee pump station near LaMarque (e) -----	08077740	150
<b>CHOCOLATE BAYOU BASIN</b>		
Chocolate Bayou near Alvin (d) -----	08078000	153
<b>BRAZOS RIVER BASIN</b>		
Double Mountain Fork Brazos River (head of Brazos River):		
North Fork Double Mountain Fork Brazos River near Post (d) (c) (t) -----	08079575	155
Double Mountain Fork Brazos River at Justiceburg (d) (c) (t) -----	08079600	158



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

vii

	Station number	Page
<b>WESTERN GULF OF MEXICO BASINS—Continued</b>		
<b>BRAZOS RIVER BASIN--Continued</b>		
Double Mountain Fork Brazos River near Aspermont (d) (c) (b) (t) (s) -----	08080500	162
Salt Fork Brazos River:		
Salt Fork Brazos River near Aspermont (d) (c) (b) (t) (s) -----	08082000	167
Brazos River:		
Brazos River at Seymour (d) (c) (t) -----	08082500	171
Millers Creek near Munday (d) -----	08082700	174
Millers Creek Reservoir near Bomarton (e) -----	08082800	176
Clear Fork Brazos River near Roby (d) -----	08083100	177
Clear Fork Brazos River at Nugent (d) -----	08084000	179
Paint Creek:		
California Creek near Stamford (d) -----	08084800	181
Clear Fork Brazos River at Fort Griffin (d) -----	08085500	183
Hubbard Creek:		
Hubbard Creek below Albany (d) (c) (t) -----	08086212	184
Big Sandy Creek above Breckenridge (d) (c) (t) -----	08086290	191
Hubbard Creek Reservoir near Breckenridge (e) (c) (t) -----	08086400	198
Brazos River near South Bend (d) (c) (b) (t) (s) -----	08088000	205
Salt Creek:		
Lake Graham near Graham (e) -----	08088400	209
Possum Kingdom Lake near Graford (e) (c) (t) -----	08088500	210
Brazos River at Morris Sheppard Dam near Graford (d) (c) (t) -----	08088600	219
Brazos River near Palo Pinto (d) -----	08089000	220
Brazos River near Dennis (d) (c) (t) -----	08090800	222
Lake Granbury near Granbury (e) (c) (t) -----	08090900	225
Brazos River near Glen Rose (d) -----	08091000	234
Paluxy River:		
Paluxy River at Glen Rose (e) -----	08091500	236
Squaw Creek:		
Squaw Creek Reservoir near Glen Rose (e) -----	08091730	237
Squaw Creek near Glen Rose (d) -----	08091750	238
Nolan River at Blum (e) -----	08092000	239
Lake Whitney near Whitney (e) -----	08092500	240
Brazos River at Whitney Dam near Whitney (c) (t) -----	08092600	241
Brazos River near Aquilla (d) -----	08093100	244
Aquilla Creek near Peoria (c) -----	08093160	245
Hackberry Creek at Hillsboro (d) (c) (b) (t) -----	08093250	247
Hackberry Creek below Hillsboro (c) -----	08093260	251
Aquilla Lake above Aquilla (e) (c) (b) (t) -----	08093350	253
Aquilla Creek above Aquilla (d) -----	08093360	268
Aquilla Creek near Aquilla (d) (c) (b) (t) -----	08093500	269
North Fork Bosque River near Stephenville (c) (b) -----	08093675	273
South Fork Bosque River near Stephenville (c) (b) -----	08093685	274
North Bosque River above Stephenville (c) (b) -----	08093695	275
North Bosque River below Stephenville (c) (b) -----	08093800	276
North Bosque River at Hico (d) (c) (t) -----	08094800	277
North Bosque River near Clifton (d) -----	08095000	280
North Bosque River at Valley Mills (d) -----	08095200	282
South Bosque River:		
Middle Bosque River near McGregor (e) -----	08095300	284
Hog Creek near Crawford (e) -----	08095400	285
Waco Lake near Waco (e) -----	08095550	286
Brazos River at Waco (d) -----	08096500	287
Brazos River near Highbank (d) (c) (b) (t) (s) -----	08098290	289
Leon River near De Leon (e) (c) (b) (t) -----	08099100	296
Sabana River near De Leon (e) (c) (b) (t) -----	08099300	299
Proctor Lake near Proctor (e) (c) (b) (t) -----	08099400	302
Leon River near Hasse (c) -----	08099500	314
Leon River near Hamilton (d) -----	08100000	315
Leon River at Gatesville (d) -----	08100500	317
Cowhouse Creek at Pidcoke (d) -----	08101000	319

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

	Station number	Page
<b>WESTERN GULF OF MEXICO BASINS—Continued</b>		
<b>BRAZOS RIVER BASIN—Continued</b>		
Brazos River:		
Belton Lake near Belton (e) -----	08102000	321
Leon River near Belton (d) -----	08102500	322
Lampasas River:		
Lampasas River near Kempner (d) -----	08103800	324
Rocky Creek:		
South Fork Rocky Creek near Briggs (d) (c) (b) (t) (s) -----	08103900	326
Stillhouse Hollow Lake near Belton (e) (c) (b) (t) -----	08104050	329
Little River near Little River (d) -----	08104500	345
San Gabriel River:		
Lake Georgetown near Georgetown (e) -----	08104650	347
North Fork San Gabriel River near Georgetown (d) -----	08104700	348
South Fork San Gabriel River at Georgetown (d) -----	08104900	349
San Gabriel:		
Berry Creek near Georgetown (d) -----	08105100	351
Granger Lake near Granger (e) -----	08105600	353
San Gabriel River at Laneport (d) -----	08105700	354
San Gabriel River near Rockdale (d) -----	08106310	356
Little River near Rockdale (d) -----	08106350	357
Little River at Cameron (d) (c) (b) (t) (s) -----	08106500	358
Brazos River near Bryan (d) -----	08109000	363
Middle Yegua Creek (head of Yegua Creek) near Dime Box (d) -----	08109700	365
East Yegua Creek near Dime Box (d) -----	08109800	366
Somerville Lake near Somerville (e) (c) (b) (t) -----	08109900	368
Davidson Creek near Lyons (d) -----	08110100	369
Brazos River at Washington (e) -----	08110200	371
Navasota River above Groesbeck (d) -----	08110325	372
Big Creek near Freestone (d) -----	08110430	373
Lake Limestone near Marquez (e) (c) (t) -----	08110470	375
Navasota River near Easterly (d) -----	08110500	380
Navasota River near Bryan (d) -----	08111000	382
Brazos River near Hempstead (d) -----	08111500	384
Mill Creek near Bellville (d) -----	08111700	385
Brazos River at Richmond (d) (c) (b) (t) (s) -----	08114000	387
Big Creek near Needville (d) -----	08115000	392
Brazos River near Rosharon (d) -----	08116650	394
<b>SAN BERNARD RIVER BASIN</b>		
San Bernard River near Boling (d) -----	08117500	395



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

ix

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

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Lake Conroe Outflow Weir near Conroe (d)	08067610	445	1974 1977-89
Caney Creek near Dobbin (d)	08067700	40.40	1963-65
Cypress Creek at Stubner Airline Road near Westfield (d)	08068900*	248	1982-87
West Fork San Jacinto River near Humble (d)	08069500	1,741	1929-54
Peach Creek at Spendor (d)	08071000	117	1944-77
San Jacinto River near Huffman (d)	08071500	2,800	1937-53
Cole Creek at Deihl Road at Houston (d)	08074150*	7.50	1964-86
Brickhouse Gully at Costa Rica Street at Houston (d)	08074250*	11.4	1964-81 1984-85
Buffalo Bayou at 69th Street, Houston (e)	08074700	476	1985-86
Highland Bayou at Hitchcock (d)	08077700	N/A	1981-82
Oyster Creek near Angleton (d)	08079000	171	1945-80
North Fork Double Mountain Fork Brazos River at Lubbock (d)	08079500	5,300	1940-49
Double Mountain Fork Brazos River near Rotan (d)	08080000	8,536	1949-51
McDonald Creek near Post (d)	08080540	103	1966-78
Running Water Draw at Plainview (d)	08080700	1,291	1939-53 1957-78
Duck Creek near Girard (d)	08080950	431	1965-89
Salt Fork Brazos River near Peacock (d)	08081000	4,619	1950-51 1965-86
Croton Creek near Jayton (d)	08081200	290	1959-86
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
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
Cat Claw Creek at Abilene (d)	08083420	13	1971-79
Elm Creek at Abilene (d)	08083430	422	1980-83
Cedar Creek at Abilene	08083470	119	1971-84
Paint Creek near Haskell (d)	08085000	914	1950-51
Clear Fork Brazos River at Crystall Falls, Tx (d)	08086000		1922-29
Hubbard Creek near Sedwick (d)	08086015	128	1964-66
Deep Creek at Moran (d)	08086050	228	1963-75
Hubbard Creek near Albany (d)	08086100	454	1962-75
Salt Prong Hubbard Creek at U.S. 380 near Moran (d)	08086120	61	1964-68
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
Battle Creek near Moran	08086235	108	1967-68
Pecan Creek near Eolian (d)	08086260	26.40	1967-75
Hubbard Creek near Breckenridge (d)	08086500	1,089	1955-86
Clear Fork Brazos River at Eliasville (d)	08087300	5,697	1915-20 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
Big Cedar Creek near Ivan (d)	08088450	97	1964-89

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Palo Pinto Creek near Santo (d)	08090500	573	1925-1951-76
Cobb Creek near Abbott (d)	08093400	12.40	1966-79
North Bosque River at Stephenville (d)	08093700	95.90	1958-73
Green Creek near Alexander (d)	08094500	45.40	1958-73
South Bosque River near Speegleville (d)	08095500	386	1924-30
Bosque River near Waco (d)	08095600	1,656	1960-82
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
Little Pond Creek near Burlington (d)	08098300	23	1963-82
Cowhouse Creek near Kileen (d)	08101500	667	1924-25-1939-42
Nolan Creek at Belton (d)	08102600	112	1974-82
Lampasas River at Youngsfort (d)	08104000	1,240	1924-80
Lampasas River near Belton (d)	08104100	1,321	1963-89
Salado Creek below Salado Springs (d)	08104310*	N/A	1985-87
San Gabriel River at Georgetown	08105000	405	1924-25-1934-73-1984-87
Berry Creek at State Hwy. 971 near Georgetown	08105200*	N/A	1985-87
San Gabriel River near Weir (d)	08105300*	563	1976-90
San Gabriel River near Circleville (d)	08105400	599	1924-34-1967-76
Brushy Creek near Rockdale (d)	08106300	505	1968-80
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	08108000	32.20	1935-36
North Elm Creek near Cameron (d)	08108200	44.80	1963-73
Navasota River near Groesbeck (d)	08110400	311	1965-79
Navasota River near College Station (d)	08111010	1,809	1977-85
Burton Creek at Villa Maria Road at Bryan (d)	08111025	1.33	1968-70
Hudson Creek near Bryan (d)	08111050	1.94	1968-70
Brazos River Authority Canal A near Fulshear (d)	08112500	N/A	1932-54-1958-73
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 (d)	08114900	5.78	1968-72
Fairchild Creek near Needville (d)	08115500	26.20	1947-54
Big Creek near Guy (d)	08116000	116	1947-50
Dry Creek near Rosenberg	08116400	8.65	1959-79
Dry Creek below Rosenberg (d)	08116500	12.20	1947-50
Big Boggy Creek near Wadsworth (d)	08117900	10.30	1970-77
East Matagorda Bay near Matagorda (e)	08117985	N/A	1973-82



## DISCONTINUED SURFACE-WATER-QUALITY STATIONS

xi

The following stations were discontinued as continuous-record surface-water-quality stations prior to the 1991 water year. Daily records of specific conductance, temperature, sediment, color, pH, dissolved oxygen, or chloride were collected and published for the record shown for each station.

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
West Fork San Jacinto River near Conroe	08068000	828	SC, T	1961-90
Panther Branch near Spring	08068450	34.50	S	1974-76
West Fork San Jacinto River near Humble	08069500	1,741	SC, T	1945-46
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
Chocolate Bayou near Alvin	08078000	87.70	SC, T	1978-81
Double Mountain Fork Brazos River near Rotan	08080000	8,536	SC, T	1949-51
McDonald Creek near Post	08080540	103	SC, T	1949-51
				1964-78
Salt Fork Brazos River near Peacock	08081000	4,619	SC, T	1949-51
				1964-86
Croton Creek near Jayton	08081200	290	SC	1960-86
			T	1960-70
				1083-86
Salt Croton Creek near Aspermont	08081500	64.30	SC	1970-77
			T	1972-74
Salt Fork Brazos River near Aspermont	08082000	5,130	SC, T	1948-51
				1956-82
Stinking Creek near Aspermont	08082100	88.80	SC	1965-68
			T	1949-50
				1965-69
North Croton Creek near Knox City	08082180	251	SC, T	1965-86
Clear Fork Brazos River at Hawley	08083240	1,416	SC, T	1967-79
				1981-84
Clear Fork Brazos River at Nugent	08084000	2,199	SC, T	1948-53
California Creek near Stamford	08084800	478	SC, T	1962-79
Paint Creek near Haskell	08085000	914	SC, T	1949-51
Clear Fork Brazos River at Fort Griffin	08085500	3,988	SC, T, S	1949-51
			SC, T	1967-79
				1981-84
Hubbard Creek near Sedwick	08086015	128	SC, T	1963-66
Deep Creek at Moran	08086050	228	SC, T	1962-75
Hubbard Creek near Albany	08086100	454	SC, T	1962-75
North Fork Hubbard Creek near Albany	08086150	39.3	SC, T	1962-90
Salt Prong Hubbard Creek at U.S. Hwy. 380 near Albany	08086120	61	SC, T	1963-68
North Fork Hubbard Creek near Albany	08086150	39.30	SC, T	1962-90
Salt Prong Hubbard Creek near Albany	08086200	115	SC, T	1962-63
Snailum Creek near Albany	08086210	22.90	SC, T	1963-66
Battle Creek near Moran	08086235	108	SC, T	1966-68
Pecan Creek near Eolian	08086260	26.40	SC, T	1962-75
Big Sandy Creek near Breckenridge	08086300	288	SC, T	1962-76
Hubbard Creek near Breckenridge	08086500	1,089	SC, T	1955-75
Clear Fork Brazos River at Eliasville	08087300	5,697	SC, T	1961-82
Brazos River near South Bend	08088000	22,673	SC	1942-48
			SC, T	1977-81
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, T	1942-91
Brazos River near Aquilla	08093100	27,224	SC	1978-79
			T	1963-64
Aquilla Creek above Aquilla	08093360	255	SC, T	1979-83
Aquilla Creek near Aquilla	08093500	308	SC, T	1965-66
				1967-82

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
Leon River near Eastland	08098500	235	SC, T	1950-53
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 Youngsfort	08104000	1,240	SC, T	1961-64
Little River near Little River	08104500	5,228	SC, T	1964-73 1979-82
San Gabriel River near Weir	08105300	536	T	1976-82
San Gabriel River at Laneport	08105700	738	T	1976-82
Brazos River at State Hwy. 21 near Bryan	08108700	N/A	SC, T	1961-65
Brazos River near Bryan	08109000	39,515	SC, T	1965-66
Brazos River near College Station	08109500	39,599	SC, T	1966-84
Yegua Creek near Somerville	08110000	1,009	SC, T	1961-67
Navasota River above Groesbeck	08110325	239	SC, T	1967-89
Navasota River near Groesbeck	08110400	311	SC, T	1967-78
Navasota River near Easterly	08110500	968	SC	1941-42 1947
Navasota River near Bryan	08111000	1,454	SC, T S	1958-81 1975-81
Brazos River near Rosharon	08116650	45,399	SC, T	1968-80
Brazos River at Harris Reservoir near Angleton	08116700	N/A	SC, CI	1962-77
Brazos River at Brazoria Reservoir near Brazoria	08117200	N/A	SC, CI	1962-77
San Bernard River near Boling	08117500	727	SC, T	1978-81



# **WATER RESOURCES DATA - TEXAS, 1992**

## **VOLUME 2**

### **SAN JACINTO RIVER BASIN, BRAZOS RIVER BASIN, SAN BERNARD RIVER BASIN, AND INTERVENING COASTAL BASINS**

#### **INTRODUCTION**

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

This report series includes records of stage, discharge, and water quality of streams and canals; stage, contents, and water quality of lakes and reservoirs. Volume 2 contains records for water discharge at 86 gaging stations; stage only at 8 gaging stations; stage and contents at 20 lakes and reservoirs; and water quality at 54 gaging stations. Also included are data for 36 partial-record and 7 flood-hydrograph partial-record stations. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating City, State, and Federal 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.

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 Geological Survey for all States. These official 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-92-2." 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. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

Additional information, including the current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (512) 873-3000. A limited number of CD-ROM discs will be available for sale by the Books & Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

## COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1992 are:

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

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

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

## HYDROLOGIC CONDITIONS

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

Precipitation distribution for water year 1992 generally followed the long-term precipitation pattern. Greater than normal precipitation occurred over each of the 10 climatic divisions (fig. 1) in the State during the current water year. The distribution departure from formal annual precipitation was fairly uniform, with the exceptions of the Canadian River Basin, the Pecos River Basin, and a small tributary in the upper Colorado River Basin. Precipitation departures from normal (1951-80) for the current water year ranged from a high of 153 percent of normal in the North Central climatic division to a low of 121 percent of normal in East Texas and the Lower Rio Grande Valley divisions. Precipitation for all other climatic divisions ranged between 136 percent of normal along the Upper Coast to 149 percent of normal in the Trans Pecos climatic divisions.

Precipitation totals for the 10 climatic divisions (fig. 1) for water year 1992 ranged from a high of 62.61 inches along the Upper Coast division (8) to a low of 17.33 inches in the Trans Pecos division (5) of far west Texas. The East Texas division (4) had the second highest precipitation total of 54.29 inches, followed by North Central (3) and South Central (7) divisions with 49.14 inches each, the Edwards Plateau division (6) with 34.72 inches, the Southern division (9) with 33.18 inches, the Lower Rio Grande Valley division (10) with 30.07 inches, and the High Plains division (1) with 24.86 inches. Several locations in Texas reported December through February rainfall totals of more than 5 times the long-term normal precipitation for this period. Austin had the wettest December through February on record with over 25 inches of precipitation for the period.

Streamflow for the current water year followed precipitation patterns, except for three small areas where runoff was near normal. These areas were the Canadian River in the extreme northern Texas panhandle, a small area in the upper Colorado River Basin, and the Pecos River Basin of far west Texas. All other areas of the State indicated above normal runoff for water year 1992. Severe flooding occurred over a large area of Texas, following a week of almost continuous rainfall during December 17-23, 1991. Rainfall from 10 to 15 inches fell over much of Texas

during this period. Extensive flooding occurred from Dallas in north-central Texas to the coastal plains of south-central Texas, and from west Texas near San Angelo to east Texas near the State line. Major flooding occurred at more than 200 streamflow stations, with historical records exceeded at 21 stations. Nine stations experienced floods equal to or exceeding the 100-year recurrence interval.

Flooding also occurred during the week beginning February 2, 1992, when as much as 7 inches of rainfall fell over much of the Trinity, Brazos, Colorado, Guadalupe, Lavaca, and Navidad River Basins. Extensive flooding occurred the first week of March 1992 when as much as 8 inches of rainfall fell on already saturated soil in the Houston metropolitan area. Five streamflow stations in this area had historical records broken and two stations experienced floods equal to or exceeding the 100-year recurrence interval.

Conservation storage in 76 selected reservoirs throughout the State, with a combined conservation capacity of 34,848,000 acre-feet, increased from 87 percent of conservation capacity at the end of water year 1991, to 90 percent at the end of water year 1992. Records from the individual reservoirs indicate that storage increased in 35, decreased in 33, and remained the same in 8.

The area for which water-resources data are presented in volume 2 extends from the New Mexico border in northwestern Texas, southeastward across the central part of the State, to the upper middle Texas Gulf Coast. Normal annual precipitation ranges from less than 17 inches in the westernmost part of the area to nearly 50 inches along the Gulf Coast. Annual runoff ranges from less than 1.0 inch in the west to more than 15 inches in places along the Gulf Coast. The area described in volume 2 and the location of selected streamflow and water-quality stations in the area are shown in figure 2.

### Streamflow

Streamflow was above normal in the San Jacinto and Brazos River Basins for water year 1992. Several outstanding storms occurred in this area during the current year, but the most remarkable storm of the year in Texas occurred during December on the North Bosque River, a tributary to the middle Brazos River Basin. This storm produced the highest peak stages and discharges on the North Bosque River since 1854. All six representative streamflow stations in this area of the State had above normal streamflow during the current year. Discharge for water year 1992 and streamflow for the period of record at six selected streamflow stations (fig. 2), for which data are included in volume 2, is presented in table 1.

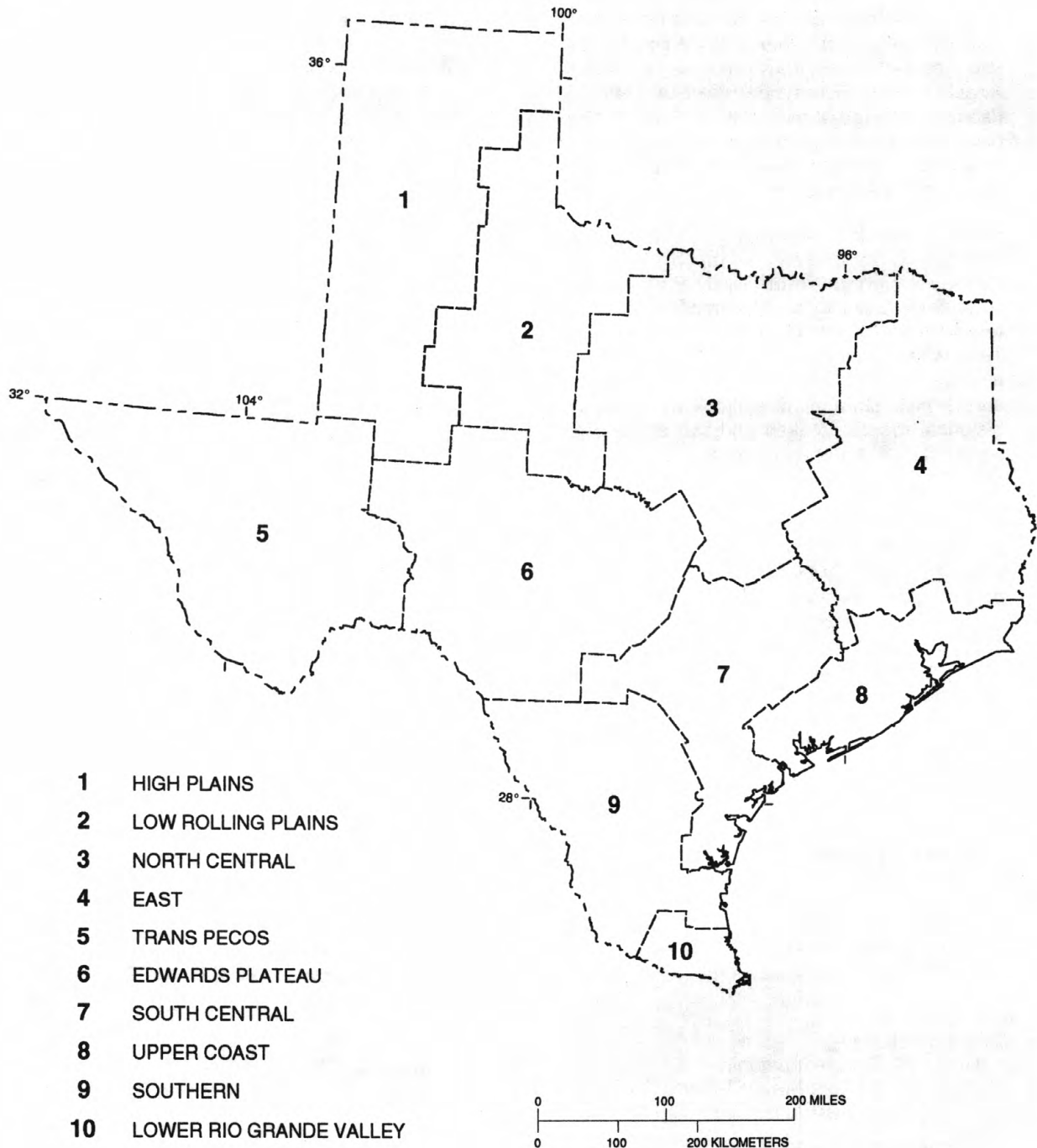
Table 1.—Streamflow at six selected stations for water year 1992

Station no. and name	Discharge during 1992 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Avg.	Max.	Min.	Avg.
<u>San Jacinto River Basin</u>						
08074500 Whiteoak Bayou at Houston, Tex.	25,100	22	267	25,100	0	91.3 (1937-92)
<u>Brazos River Basin</u>						
08080500 Double Mountain Fork Brazos River near Aspermont, Tex. <sup>1/</sup>	8,940	2.2	285	91,400	0	160 (1925-34, 1941-92)
08082500 Brazos River at Seymour, Tex.	11,500	33	703	95,400	0	380 (1925-92)
08095000 North Bosque River near Clifton, Tex. <sup>2/</sup>	200,000	18	1,366	200,000	0	221 (1968-92)
08111000 Navasota River near Bryan, Tex.	66,000	.32	1,476	66,600	0	591 (1961-92)
08114000 Brazos River at Richmond, Tex. <sup>1/</sup>	94,000	908	26,620	119,000	55	7,557 (1941-92)

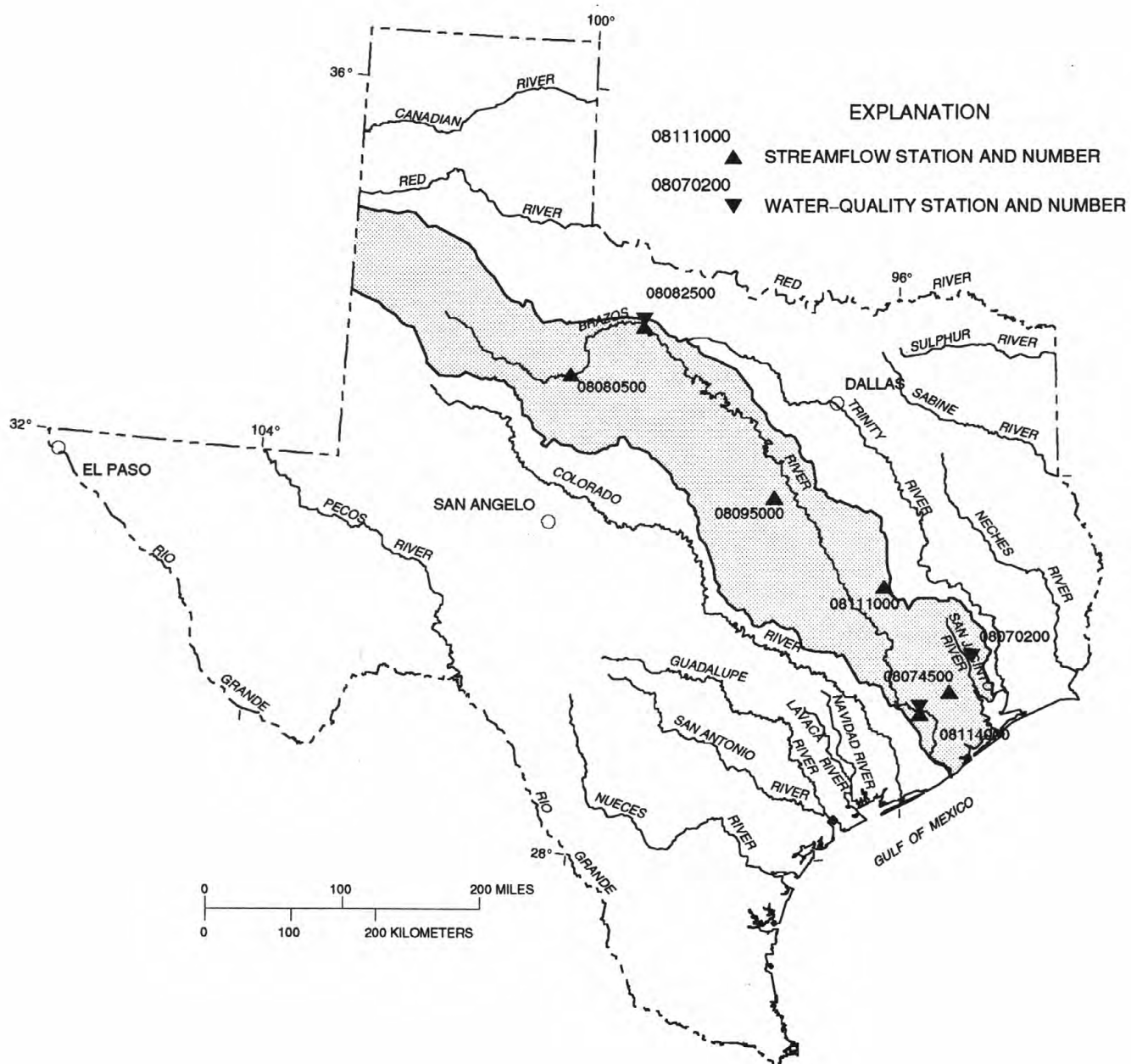
<sup>1/</sup> National Stream Quality Accounting Network (NASQAN) site.

<sup>2/</sup> Hydrologic index station.



**WATER RESOURCES DATA – TEXAS, 1992**

**Figure 1.** Ten climatic divisions of the State (Modified from U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1992 Climatological data, Texas; 1992: National Climatic Data Center, v. 97, no. 9.)



**Figure 2.** Area of Texas covered by volume 2 (shaded) and location of selected streamflow and water-quality stations in volume 2.

At the four long-term hydrologic index stations in the State, streamflow during water year 1992 was above normal at three stations and normal at one station. Monthly mean discharges for water year 1992 and the median of the long-term monthly means for water years 1951-80 for the four hydrologic index stations in the State are shown in figure 3. The North Bosque River near Clifton was in the upper quartile (within the highest 25 percent of record) for the entire year. Streamflow at the Neches River near Rockland was in the upper quartile from November through March and between the lower and upper quartile for the remaining 7 months. The North Concho River near Carlsbad had streamflow in the upper quartile from November through July, and normal for the remaining 3 months. Streamflow for the Guadalupe River near Spring Branch was in the upper quartile from December through August, and normal for the remaining 3 months of water year 1992.

Conservation storage in 21 selected reservoirs in this area of the State, with a total combined conservation capacity of 3,921,000 acre-feet, decreased from 98 percent of capacity at the end of September 1991 to

94 percent of capacity at the end of September 1992. Records from these reservoirs indicate that storage increased in 5, decreased in 11, and remained the same in 5 during the water year.

### Water Quality

Dissolved-solids concentrations in most streams in the State are inversely related to streamflow. During years when precipitation and runoff are less than normal, streamflow commonly is much 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 concentration may remain relatively constant despite substantial fluctuations in precipitation and runoff.

Records of discharge-weighted-average concentrations of dissolved solids for water year 1992 are compared with those for the water years 1988-92 for selected long-term daily or continuous-record water-quality stations (fig. 2) in the San Jacinto and Brazos River Basins. Results are shown in table 2.

Table 2.—Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1992 water year

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1992	1988-92	1992	1988-92
<u>San Jacinto River Basin</u>				
08070200 East Fork San Jacinto River near New Caney, Tex.	471	288	62	73
<u>Brazos River Basin</u>				
08082500 Brazos River at Seymour, Tex.	703	404	3,070	2,930
08114000 Brazos River at Richmond, Tex.	26,620	9,984	319	347



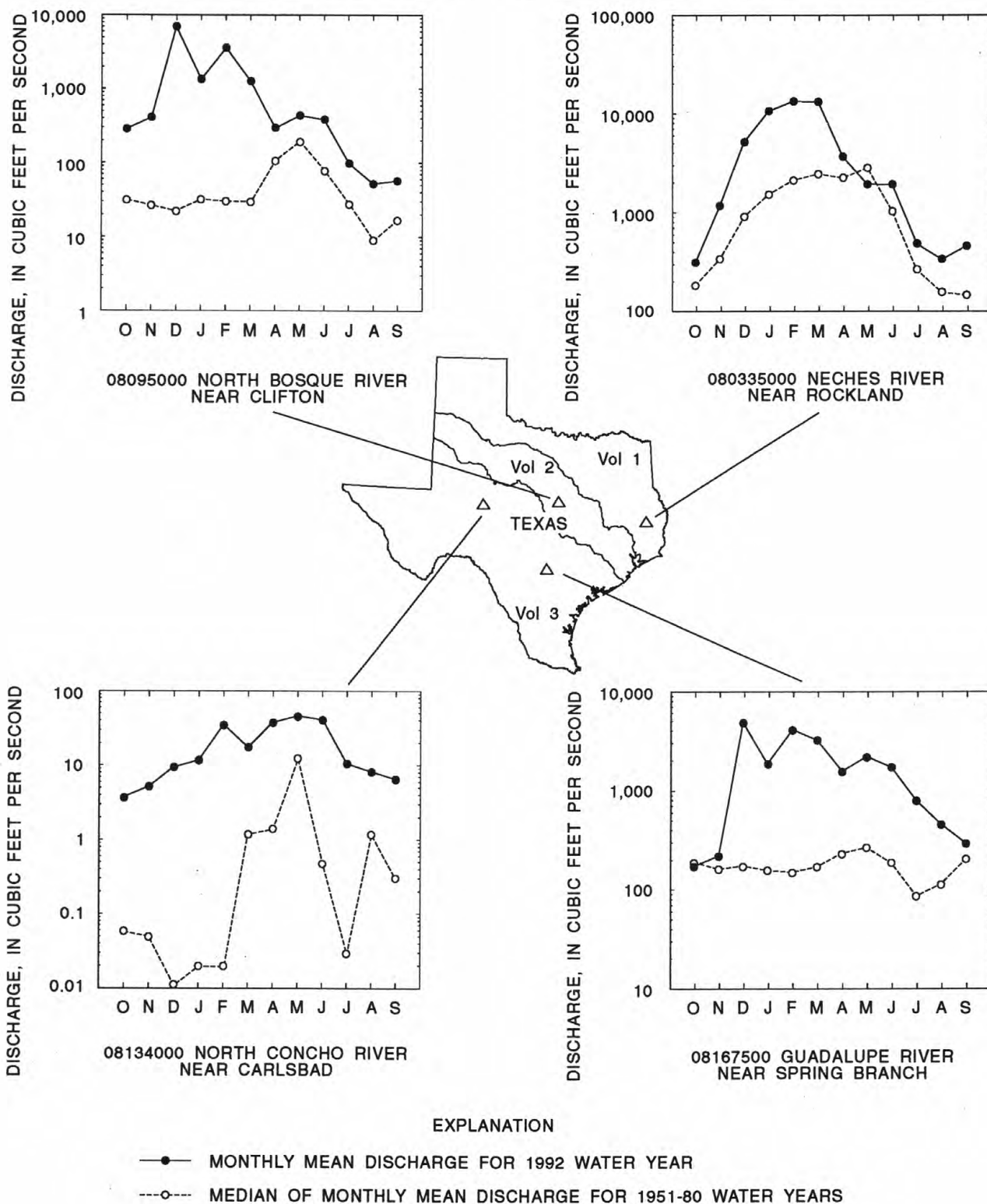


Figure 3. Monthly mean discharges at four long-term hydrologic index gaging stations during the 1992 water year and median of the monthly mean discharges for 1951-80 water years.

## **SPECIAL NETWORKS AND PROGRAMS**

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

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

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

### **EXPLANATION OF THE RECORDS**

The surface-water records published in this report are for the 1992 water year that began October 1, 1991,

and ended September 30, 1992. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

### **Station Identification Numbers**

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

### **Downstream Order Numbering**

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for

each station, such as 08057000, which appears just to the left of the station name, includes the 2-digit Part number "08" plus the 6-digit downstream-order number "057000." The Part number designates the major river basin; for example, Part "08" is the Western Gulf of Mexico basin.

### **Records of Stage and Water Discharge**

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

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report.

### **Data Collection and Computation**

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper

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

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

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

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



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

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

### Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

**LOCATION.**—Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were deter-

mined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

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

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

**REVISED RECORDS.**—Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years which the revisions apply to. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**—The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

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

outlet works and spillway, and purpose and use of the reservoir.

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

**AVERAGE DISCHARGE.**—The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for those stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

**EXTREMES FOR PERIOD OF RECORD.**—Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

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

**EXTREMES FOR CURRENT YEAR.**—Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not pub-

lished for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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

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

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Identifying Estimated Daily Discharge

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

### Accuracy of the Records

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

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

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

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

### Other Records Available

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

### Records of Surface-Water Quality

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

### Classification of Records

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

A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the



river basin. A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently.

### Arrangement of Records

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

### On site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory.

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

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the

concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the Texas District Office. The address is given on the back of the title page of this report.

### Water Temperature

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

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Texas District Office.

### Sediment

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

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

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

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

### Laboratory Measurements

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

Historical and current (1991) dissolved trace-element concentrations are reported herein for water that was collected, processed, and analyzed by using either ultraclean or other than ultraclean techniques. If ultraclean techniques were used, then those concentrations are reported in nanograms per liter. If other than ultraclean techniques were used, then those concentrations are reported in micrograms per liter and could reflect contamination introduced during some phase of the procedure.

### Data Presentation

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

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

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

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

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

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

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

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

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

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

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

#### Remark Codes

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

#### PRINTED OUTPUT

#### REMARK

E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

#### Remark codes -- Continued

L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

#### ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. A limited number of CD-ROM discs will be available for sale by the Books & Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.



## DEFINITION OF TERMS

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

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

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

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

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

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 24 hours at 35 °C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C 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 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C 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.

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

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

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

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

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

Dry mass refers to the mass of residue present after drying in an oven at 105 °C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic-foot-per-second day [(ft<sup>3</sup>/s)/d] is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

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

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

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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

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

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

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

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ( $\text{CaCO}_3$ ).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

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

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

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

Micrograms per gram ( $\mu\text{g/g}$ ) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

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

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

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

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are: (1) To obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for; (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs; (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics; and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

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

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and ad-



justed to the number per area habitat, usually square meter (m<sup>2</sup>), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

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

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

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

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

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

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

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

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

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

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

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

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

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

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

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

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

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements

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

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

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

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

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

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

Recoverable from bottom material is the amount of a given constituent that is in solution after a representa-

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

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

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

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

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

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

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

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

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

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

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

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

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

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

Solute is any substance that is dissolved in water.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hard-board) for benthic organism collection, and plexiglass strips for periphyton collection.

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

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

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are



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

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

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

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

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

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

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the

total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

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

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

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In

addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1991, is called the "water year 1991."

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

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

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

## PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey.

Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. ***Water temperature-influential factors, field measurement, and data presentation***, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 1-D2. ***Guidelines for collection and field analysis of ground-water samples for selected unstable constituents***, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 p.
- 2-D1. ***Application of surface geophysics to ground-water investigations***, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 p.
- 2-D2. ***Application of seismic-refraction techniques to hydrologic studies***, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.
- 2-E1. ***Application of borehole geophysics to water-resources investigations***, by W.S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 p.
- 2-E2. ***Borehole geophysics applied to ground-water investigations***, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 p.
- 2-F1. ***Application of drilling, coring, and sampling techniques to test holes and wells***, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 p.
- 3-A1. ***General field and office procedures for indirect discharge measurements***, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
- 3-A2. ***Measurement of peak discharge by the slope-area method***, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
- 3-A3. ***Measurement of peak discharge at culverts by indirect methods***, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. ***Measurement of peak discharge at width contractions by indirect methods***, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
- 3-A5. ***Measurement of peak discharge at dams by indirect methods***, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. ***General procedure for gaging streams***, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. ***Stage measurements at gaging stations***, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
- 3-A8. ***Discharge measurements at gaging stations***, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter 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, Chapter A9. 1989. 27 p.
- 3-A10. **Discharge ratings at gaging stations**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 p.
- 3-A11. **Measurement of discharge by moving-boat method**, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
- 3-A12. **Fluorometric procedures for dye tracing**, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A12, 1986. 41 p.
- 3-A13. **Computations of continuous records of streamflow**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13, 1983. 53 p.
- 3-A14. **Use of flumes in measuring discharge**, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 p.
- 3-A15. **Computation of water-surface profiles in open channels**, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 p.
- 3-A16. **Measurement of discharge using tracers**, by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 p.
- 3-A17. **Acoustic velocity meter systems**, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 p.
- 3-A18. **Determination of stream reaeration coefficients by use of tracers**, by F.A. Kilpatrick, R.E. Rathbun, N.Yotsukura, G.W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 p.
- 3-A19. **Levels of streamflow gaging stations**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 p.
- 3-B1. **Aquifer-test design, observation, and data analysis**, by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 p.
- 3-B2. **Introduction to ground-water hydraulics, a programmed text for self instruction**, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 p.
- 3-B3. **Type curves for selected problems of flow to wells in confined aquifers**, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 p.
- 3-B4. **Regression modeling of ground-water flow**, by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 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, Chapter 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, Chapter B6. 1987. 28 p.
- 3-B7. **Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow**, by Eliezer J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 90 p.
- 3-C1. **Fluvial sediment concepts**, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 3-C2. **Field methods for measurement of fluvial sediment**, by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
- 3-C3. **Computation of fluvial-sediment discharge**, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.
- 4-A1. **Some statistical tools in hydrology**, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.
- 4-A2. **Frequency curves**, by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p.
- 4-B1. **Low-flow investigations**, by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p.
- 4-B2. **Storage analyses for water supply**, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.
- 4-B3. **Regional analyses of streamflow characteristics**, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p.
- 4-D1. **Computation of rate and volume of stream depletion by wells**, by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 p.
- 5-A1. **Methods for determination of inorganic substances in water and fluvial sediments**, by M.J. Fishman and L.C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 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, Chapter 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, Chapter 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, Chapter 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, Chapter 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, Chapter A6. 1982. 181 p.
- 5-C1. **Laboratory theory and methods for sediment analysis**, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.
- 6-A1. **A modular three-dimensional finite-difference ground-water flow model**, by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 p.
- 6-A2. **Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model**, by S.A. Leake and D.E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 p.



- 7-C1. ***Finite difference model for aquifer simulation in two dimensions with results of numerical experiments***, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 p.
- 7-C2. ***Computer model of two-dimensional solute transport and dispersion in ground water***, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 p.
- 7-C3. ***A model for simulation of flow in singular and interconnected channels***, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.
- 8-A1. ***Methods of measuring water levels in deep wells***, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 p.
- 8-A2. ***Installation and service manual for U.S. Geological Survey manometers***, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.
- 8-B2. ***Calibration and maintenance of vertical-axis type current meters***, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.



## SAN JACINTO RIVER MAIN STEM

27

0806/600 LAKE CONROE NEAR CONROE, TX

LOCATION.--Lat 30°21'30", long 95°33'39", Montgomery County, Hydrologic Unit 12040101, at service outlet tower at Conroe Dam on West Fork San Jacinto River, 140 ft upstream from centerline of dam, and 7.4 mi west of Conroe.

DRAINAGE AREA.--445 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by an earthfill dam 11,300 ft long, including a controlled spillway. The dam was completed Sept. 1, 1972, and deliberate impoundment began Jan. 9, 1973. Water is used for municipal and industrial purposes in the Houston metropolitan area. In addition, a small diversion is made for cooling purposes at the Gulf State Utilities generating plant on Lewis Creek Reservoir near Conroe. During the current year 2,250 acre-ft was diverted to Lewis Creek Reservoir for that purpose. A spillway with five 40 x 30-foot tainter gates is located near the center of dam. Low-flow releases are made through a separate multi-gated inlet tower. The tower has three gated openings and one uncontrolled opening. It is connected to a stilling basin and a concrete weir by a 14-foot-diameter conduit through the dam. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	212.0	-
Design flood.....	205.5	532,000
Top of tainter gates.....	202.5	462,600
Top of conservation pool (uncontrolled tower outlet).....	201.0	430,300
Crest of spillway (sill of tainter gates).....	173.0	64,960
Lowest gated outlet (invert).....	144.5	300

COOPERATION.--The capacity table, furnished by the San Jacinto River Authority, is based on Geological Survey topographic maps dated 1950-59.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 512,000 acre-ft May 22, 1983 (elevation, 204.66 ft); minimum since normal operating level was reached, 336,900 acre-ft Jan. 11, 1989 (elevation, 196.17 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 459,800 acre-ft Dec. 23 at 1600 to 2000 hours (elevation, 202.37 ft); minimum, 408,800 acre-ft Sept. 30 (elevation, 199.96 ft).

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

199.0	389,700	202.0	451,600
200.0	409,600	203.0	473,700
201.0	430,300		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	426100	419900	421200	433500	431800	438200	432000	431300	437500	426500	420600	416400
2	425700	419300	420800	432200	431300	434500	431500	431300	441100	426500	422400	416000
3	425300	418500	420800	431300	434500	432800	431300	431500	438600	426100	423500	415800
4	424900	417700	420400	431100	445800	448000	430900	431500	435400	426100	423500	415800
5	424900	417100	419500	431500	456700	456200	432800	431500	433000	425500	423000	415800
6	424100	416700	419500	431500	457800	454500	432800	431800	433700	425100	422800	415400
7	423900	418700	419500	431500	454500	449500	432600	431100	433000	425300	422000	415200
8	423200	418100	420400	432000	449700	443700	432200	430300	432600	424900	421600	416200
9	423000	417500	424100	430700	444800	440100	431800	429200	432200	424700	421200	415800
10	423000	417500	423900	430500	439700	434100	431500	428800	431300	424300	421200	416000
11	422800	417500	423900	431800	436500	432400	431300	429000	431300	423700	423500	415600
12	422400	417300	424300	437300	435600	431300	431500	429600	431300	423500	423700	415400
13	422200	417100	425100	437500	434100	430500	431500	429400	430900	422200	423700	415000
14	422400	416700	425500	434500	433000	430500	431100	429400	430500	422200	423500	414800
15	422000	416700	425300	432800	432800	430300	431500	429000	429800	421600	423000	414800
16	421400	416700	425100	430700	432200	430300	431300	429200	429800	421200	422200	414400
17	420600	419500	425100	432000	432000	430300	438400	429600	429400	421600	421600	413800
18	420400	419500	426100	440300	431800	430900	438200	430100	429400	422800	421400	413600
19	420400	421400	426500	443500	431800	431500	437700	430900	429400	422800	421000	413400
20	420400	421400	427400	442600	431300	431300	442600	431800	429200	422800	420600	412900
21	419900	421400	441400	440300	431300	430900	442900	432000	429800	423200	420600	412100
22	419300	421400	457800	439400	439200	431300	438800	432200	429400	423500	420600	412700
23	419100	421600	459100	437300	443500	430900	434100	432400	429200	423000	418500	412100
24	419100	421400	455400	433500	448200	429800	437300	432400	428800	422600	418900	411500
25	418900	420800	449900	430900	456000	430900	439200	432400	428600	422600	418900	410900
26	418900	418900	449300	431100	456700	430500	436000	433000	428200	422400	418900	410700
27	418500	419300	450100	437100	453400	430300	433000	436200	428200	422200	418700	410700
28	418100	419100	448600	439200	448200	432000	431300	436200	427600	421800	418300	410100
29	419100	419300	444600	438200	443100	432200	431100	433000	427200	421000	417300	409200
30	419500	420400	439400	435400	---	432000	431800	431800	427000	421000	416900	408800
31	421000	---	434700	432800	---	431800	---	432800	---	420800	416400	---
MAX	426100	421600	459100	443500	457800	456200	442900	436200	441100	426500	423700	416400
MIN	418100	416700	419500	430500	431300	429800	430900	428800	427000	420800	416400	408800
(↑)	200.55	200.52	201.21	201.12	201.60	201.07	201.07	201.12	200.84	200.54	200.33	199.96
(Φ)	-5100	-600	-14300	-1900	+10300	-11300	0.0	+1000	-5800	-6200	-4400	-7600

CAI YR 1991 MAX 462200 MIN 394 (Φ) +11200  
WTR YR 1992 MAX 459100 MIN 408 (Φ) -45900

(↑) Elevation, in feet, at end of month.

(Φ) Change in contents, in acre-feet.



## SAN JACINTO RIVER MAIN STEM

0806/600 LAKE CONROE NEAR CONROE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical and biochemical analyses: September 1973 to current year.

302127095335501 - LAKE CONROE SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
FEB											
11...	1138	436000	1.00	205	7.9	11.5	1.22	10.2	93	76	12
11...	1140	--	10.0	205	7.8	11.5	--	9.9	90	--	--
11...	1142	--	20.0	205	7.7	11.0	--	9.5	85	--	--
11...	1144	--	30.0	205	7.7	11.0	--	9.4	84	--	--
11...	1146	--	40.0	205	7.7	11.0	--	9.2	83	--	--
11...	1148	--	56.0	210	7.8	11.0	--	9.2	83	73	7
JUN											
23...	1030	429000	1.00	175	8.2	29.5	1.19	7.4	98	62	10
23...	1032	--	10.0	175	7.8	29.0	--	6.7	88	--	--
23...	1034	--	20.0	175	7.2	26.5	--	0.8	10	--	--
23...	1036	--	30.0	175	7.1	23.5	--	0.2	2	--	--
23...	1038	--	40.0	185	7.2	22.0	--	0.2	2	--	--
23...	1040	--	52.0	210	7.3	20.5	--	0.2	2	71	0
AUG											
19...	1040	421000	1.00	180	8.5	28.5	1.10	6.8	88	67	4
19...	1042	--	10.0	180	8.4	28.5	--	6.4	82	--	--
19...	1044	--	20.0	180	8.1	28.0	--	6.1	78	--	--
19...	1046	--	30.0	180	7.4	28.0	--	3.0	38	--	--
19...	1048	--	40.0	200	7.1	22.5	--	0.2	2	--	--
19...	1050	--	52.0	235	7.0	21.0	--	0.2	2	78	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
FEB											
11...	27	2.0	12	0.6	3.1	64	5.4	22	0.20	3.8	114
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	26	2.0	11	0.6	3.1	66	5.6	22	0.20	4.2	114
JUN											
23...	22	1.8	9.4	0.5	2.8	52	5.0	19	<0.10	2.3	93
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	25	2.0	9.8	0.5	3.2	75	1.8	20	<0.10	9.4	122
AUG											
19...	24	1.7	10	0.5	2.7	63	4.3	15	0.20	4.4	100
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	28	2.0	9.5	0.5	3.1	92	0.30	15	0.10	13	133

0806/600 LAKE CONROE NEAR CONROE, TX--Continued

302127095335501 - LAKE CONROE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
11...	0.210	0.030	0.240	0.040	0.66	0.70	0.090	0.030	14	2
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	0.200	0.020	0.220	0.060	0.54	0.60	0.030	0.030	20	<10
11...	--	--	--	--	--	--	--	--	--	--
11...	0.200	0.020	0.220	0.070	0.63	0.70	0.020	0.030	32	10
JUN										
23...	--	<0.010	<0.050	0.010	0.69	0.70	0.050	0.010	<3	3
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	<0.010	<0.050	0.120	0.48	0.60	0.020	0.020	430	870
23...	--	--	--	--	--	--	--	--	--	--
23...	--	<0.010	<0.050	1.10	0.60	1.7	0.310	0.280	2500	3100
AUG										
19...	--	<0.010	<0.050	0.030	0.67	0.70	0.020	0.040	9	36
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	<0.010	<0.050	0.120	0.68	0.80	0.030	0.040	570	730
19...	--	--	--	--	--	--	--	--	--	--
19...	--	<0.010	<0.050	3.00	0.80	3.8	0.530	0.520	3600	3200

302132095333701 - LAKE CONROE SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1215	1.00	205	7.8	11.5	1.25	10.0	91
11...	1217	10.0	205	7.8	11.5	--	9.8	89
11...	1219	20.0	210	7.7	11.0	--	9.6	86
11...	1221	30.0	210	7.7	11.0	--	9.2	83
11...	1223	40.0	210	7.7	11.0	--	9.0	81
11...	1225	51.0	210	7.7	11.0	--	8.8	79
JUN								
23...	1120	1.00	175	8.2	29.5	1.25	7.7	102
23...	1122	10.0	175	7.6	28.5	--	6.7	87
23...	1124	20.0	175	7.2	27.0	--	2.0	25
23...	1126	30.0	175	7.1	23.5	--	0.1	1
23...	1128	40.0	180	7.2	22.0	--	0.2	2
23...	1130	50.0	180	7.2	22.0	--	0.2	2
23...	1132	64.0	180	7.5	22.5	--	0.4	5
AUG								
19...	1115	1.00	180	8.3	28.5	1.00	6.5	84
19...	1117	10.0	180	8.2	28.5	--	6.4	82
19...	1119	20.0	180	7.5	28.0	--	3.4	43
19...	1121	30.0	180	7.4	27.5	--	2.8	35
19...	1123	40.0	205	7.1	22.5	--	0.2	2
19...	1125	50.0	225	7.1	21.5	--	0.2	2
19...	1127	63.0	235	7.2	21.0	--	0.2	2

302245095365301 - LAKE CONROE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1100	1.00	200	8.5	12.0	0.64	10.4	95
11...	1102	10.0	200	8.5	12.0	--	10.3	95
11...	1104	20.0	200	8.5	12.0	--	10.2	94
11...	1106	29.0	200	8.4	12.0	--	9.5	87
JUN								
23...	1000	1.00	175	8.2	29.5	1.13	7.2	95
23...	1002	10.0	175	8.0	27.5	--	6.6	84
23...	1004	20.0	175	7.6	26.5	--	0.3	4
23...	1006	29.0	180	7.9	24.0	--	0.4	5
AUG								
19...	1010	1.00	180	8.6	28.5	0.80	6.1	78
19...	1012	10.0	180	8.6	28.5	--	5.9	76
19...	1014	20.0	180	8.6	28.5	--	5.9	76
19...	1016	30.0	180	8.3	28.0	--	3.3	42

## SAN JACINTO RIVER MAIN STEM

08067600 LAKE CONROE NEAR CONROE, TX--Continued

## 302323095341201 - LAKE CONROE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1300	1.00	200	7.8	11.5	1.01	10.1	92
11...	1302	10.0	200	7.8	11.5	--	10.0	91
11...	1304	20.0	200	7.8	11.5	--	10.0	91
11...	1306	30.0	200	7.8	11.5	--	10.0	91
11...	1308	40.0	195	7.8	11.5	--	9.9	90
11...	1310	52.0	195	7.7	11.0	--	9.4	84
JUN								
23...	1210	1.00	175	8.3	30.5	1.31	7.8	105
23...	1212	10.0	175	7.9	29.0	--	7.0	92
23...	1214	20.0	175	7.1	26.5	--	0.2	3
23...	1216	30.0	175	7.2	23.5	--	0.2	2
23...	1218	40.0	190	7.3	22.5	--	0.3	3
23...	1220	50.0	205	7.4	21.5	--	0.4	5
AUG								
19...	1145	1.00	180	8.0	28.5	1.05	5.8	75
19...	1147	10.0	180	7.9	28.0	--	5.4	69
19...	1149	20.0	180	7.8	28.0	--	5.1	65
19...	1151	30.0	180	7.7	28.0	--	5.0	64
19...	1153	40.0	210	7.1	23.0	--	0.3	3
19...	1155	50.0	220	7.2	22.5	--	0.3	3

## 302320095334001 - LAKE CONROE SITE CL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1322	1.00	200	7.9	11.5	1.07	10.3	94
11...	1324	10.0	200	7.9	11.5	--	10.2	93
11...	1326	20.0	200	7.8	11.5	--	10.2	93
11...	1328	30.0	200	7.8	11.5	--	10.0	91
11...	1330	41.0	200	7.8	11.5	--	10.0	91
JUN								
23...	1242	1.00	175	8.2	30.5	1.40	7.8	105
23...	1244	10.0	175	7.8	29.0	--	6.9	90
23...	1246	20.0	175	7.4	26.5	--	0.3	4
23...	1248	30.0	175	7.3	23.5	--	0.2	2
23...	1250	45.0	195	7.5	22.0	--	0.5	6
AUG								
19...	1210	1.00	180	8.0	28.5	1.00	5.8	75
19...	1212	10.0	180	7.7	28.0	--	5.0	64
19...	1214	20.0	180	7.6	28.0	--	4.2	54
19...	1216	30.0	180	7.4	27.5	--	3.4	43
19...	1218	43.0	210	7.1	23.0	--	0.3	3

## 302448095374101 - LAKE CONROE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1355	1.00	180	7.9	12.0	0.64	9.9	91
11...	1357	10.0	185	7.8	12.0	--	9.8	90
11...	1359	20.0	185	7.8	12.0	--	9.8	90
11...	1401	27.0	185	7.8	12.0	--	9.8	90
JUN								
23...	1310	1.00	175	8.4	31.0	1.10	7.8	106
23...	1312	10.0	175	8.1	29.5	--	7.0	92
23...	1314	20.0	175	7.4	25.0	--	0.3	4
23...	1316	29.0	180	7.6	24.0	--	0.6	7
AUG								
19...	1248	1.00	180	8.7	29.5	0.90	7.4	97
19...	1250	5.00	180	8.6	29.0	--	7.1	92
19...	1252	10.0	180	8.5	29.0	--	6.9	89
19...	1254	20.0	180	7.9	29.0	--	4.8	62
19...	1256	27.0	180	7.8	28.5	--	3.3	42



## SAN JACINTO RIVER MAIN STEM

31

08067600 LAKE CONROE NEAR CONROE, TX--Continued

302607095360901 - LAKE CONROE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB											
11...	1415	1.00	190	7.7	12.0	0.88	10.2	94	67	8	24
11...	1417	10.0	190	7.7	11.5	--	10.0	91	--	--	--
11...	1419	20.0	185	7.6	11.5	--	9.7	88	--	--	--
11...	1421	30.0	185	7.6	11.5	--	9.6	87	--	--	--
11...	1423	41.0	185	7.6	11.5	--	9.1	83	65	8	23
JUN											
23...	1330	1.00	175	8.4	31.0	1.34	8.0	108	62	10	22
23...	1332	10.0	175	8.0	29.5	--	6.6	87	--	--	--
23...	1334	20.0	175	7.2	25.5	--	0.2	2	--	--	--
23...	1336	30.0	180	7.3	23.0	--	0.2	2	--	--	--
23...	1338	39.0	185	7.4	23.0	--	0.3	4	65	4	23
AUG											
19...	1310	1.00	180	8.4	28.5	0.90	6.4	82	67	2	24
19...	1312	10.0	180	7.9	28.5	--	5.1	66	--	--	--
19...	1314	20.0	180	7.7	28.0	--	4.6	59	--	--	--
19...	1316	30.0	205	7.0	26.5	--	0.2	2	--	--	--
19...	1318	39.0	220	7.1	24.0	--	0.2	2	75	0	27

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
FEB										
11...	1.8	11	0.6	2.8	59	5.5	21	0.20	4.3	106
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	1.8	10	0.5	3.0	57	5.5	20	0.20	4.9	103
JUN										
23...	1.7	10	0.6	2.6	52	5.0	20	<0.10	2.2	95
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	1.9	9.3	0.5	2.5	61	3.6	20	<0.10	5.1	104
AUG										
19...	1.8	9.3	0.5	2.8	65	3.1	14	0.10	8.4	102
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	1.9	9.6	0.5	2.9	84	0.50	16	0.10	8.4	122

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
11...	0.170	0.020	0.190	0.030	0.77	0.80	0.030	0.030	39	2
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	0.150	0.030	0.180	0.070	0.63	0.70	0.040	0.030	55	7
JUN										
23...	--	<0.010	<0.050	<0.010	--	0.60	0.040	<0.010	4	4
23...	--	--	--	--	--	--	--	--	--	--
23...	--	<0.010	<0.050	0.060	0.44	0.50	0.010	<0.010	240	620
23...	--	--	--	--	--	--	--	--	--	--
23...	--	<0.010	<0.050	0.450	0.55	1.0	0.140	0.100	1100	1100
AUG										
19...	--	<0.010	<0.050	0.020	0.48	0.50	<0.010	0.020	5	7
19...	--	--	--	--	--	--	--	--	--	--
19...	--	<0.010	<0.050	0.020	0.58	0.60	0.010	0.030	20	320
19...	--	--	--	--	--	--	--	--	--	--
19...	--	<0.010	<0.050	1.80	0.90	2.7	0.280	0.240	1900	3000

## SAN JACINTO RIVER MAIN STEM

08067600 LAKE CONROE NEAR CONROE, TX--Continued

302714095372201 - LAKE CONROE SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
11...	1445	1.00	160	7.4	12.0	0.55	9.8	90
11...	1447	10.0	140	7.4	12.0	--	9.2	84
11...	1449	20.0	140	7.4	11.5	--	8.7	79
11...	1451	25.0	145	7.6	11.5	--	8.2	74
JUN								
23...	1410	1.00	175	8.6	31.0	1.22	8.4	114
23...	1412	10.0	175	8.2	30.0	--	6.9	92
23...	1414	20.0	185	7.6	25.5	--	0.5	6
AUG								
19...	1335	1.00	180	8.6	29.0	0.75	7.1	92
19...	1337	10.0	180	8.3	28.5	--	5.9	76
19...	1339	20.0	180	8.2	28.5	--	5.7	73
19...	1341	23.0	185	7.6	28.5	--	2.1	27

303129095360501 - LAKE CONROE SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB											
11...	1535	1.00	110	7.1	12.5	0.27	9.1	84	38	7	13
11...	1537	10.0	95	6.9	12.0	--	8.6	79	--	--	--
11...	1539	20.0	80	6.8	11.5	--	8.4	76	--	--	--
11...	1541	30.0	80	6.9	11.5	--	8.4	76	27	4	9.0
JUN											
23...	1445	1.00	175	8.2	32.0	0.79	8.3	114	63	11	22
23...	1447	10.0	175	7.6	30.0	--	4.8	64	--	--	--
23...	1449	15.0	175	7.4	30.0	--	4.8	64	--	--	--
23...	1451	20.0	175	7.5	30.0	--	4.6	61	--	--	--
23...	1453	28.0	175	7.8	29.5	--	4.7	62	60	9	21
AUG											
19...	1415	1.00	185	8.8	29.0	0.50	8.3	108	65	9	23
19...	1417	10.0	185	7.5	27.5	--	3.0	38	--	--	--
19...	1419	20.0	185	7.6	27.5	--	3.1	39	--	--	--
19...	1421	27.0	185	7.6	27.5	--	3.1	39	65	1	23

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
FEB										
11...	1.3	6.4	0.5	2.5	31	4.4	11	0.10	7.5	65
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	1.0	4.3	0.4	2.3	23	3.5	6.9	0.10	8.3	49
JUN										
23...	1.9	10	0.5	2.6	52	5.3	17	<0.10	5.5	95
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	1.9	10	0.6	2.7	51	5.5	18	<0.10	6.7	96
AUG										
19...	1.8	11	0.6	2.9	56	5.4	19	0.10	7.5	104
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	1.8	9.6	0.5	2.8	64	4.2	15	0.10	5.9	101

## SAN JACINTO RIVER MAIN STEM

33

08067600 LAKE CONROE NEAR CONROE, TX--Continued

303129095360501 - LAKE CONROE SITE GC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
11...	0.070	0.050	0.120	0.060	0.74	0.80	0.150	0.070	91	10
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	0.00	0.070	0.070	0.100	0.80	0.90	0.110	0.100	160	17
JUN										
23...	--	<0.010	<0.050	0.020	0.88	0.90	0.080	0.020	<3	2
23...	--	--	--	--	--	--	--	--	--	--
23...	--	0.020	<0.050	0.070	0.83	0.90	0.070	0.040	<10	30
23...	--	--	--	--	--	--	--	--	--	--
23...	--	0.020	<0.050	0.070	0.53	0.60	0.080	0.040	14	30
AUG										
19...	--	0.010	<0.050	0.040	0.86	0.90	0.070	0.030	4	1
19...	--	--	--	--	--	--	--	--	--	--
19...	--	0.010	<0.050	0.070	0.43	0.50	0.040	0.030	<10	30
19...	--	0.020	<0.050	0.070	0.53	0.60	0.040	0.040	4	27



## SAN JACINTO RIVER MAIN STEM

08067650 WEST FORK SAN JACINTO RIVER BELOW LAKE CONROE NEAR CONROE, TX

LOCATION.--Lat 30°20'31", long 95°32'34", Montgomery County, Hydrologic Unit 12040101, on right bank at downstream side of bridge on State Highway 105, 3.0 mi downstream from Lake Conroe Dam, and 5.9 mi west of Conroe.

DRAINAGE AREA.--451 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1972 to 1989 (discharge for periods of outflow from Lake Conroe only), Oct. 1, 1989 to current year (daily discharges 10 ft<sup>3</sup>/s or greater).

Water-quality records.--Chemical, biochemical and pesticide analyses: October 1972 to September 1986, and October 1987 to August 1989.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.06 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Daily discharges below 10 ft<sup>3</sup>/s are not published.

AVERAGE DISCHARGE.--17 years (water years 1973-89), 226 ft<sup>3</sup>/s (163,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,780 ft<sup>3</sup>/s May 22, 1983 (gage height, 35.50 ft); no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1940 reached a stage of 41.94 ft, from information by the Texas Department of Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft<sup>3</sup>/s Dec. 22 at 1900-2000 hours (gage height, 29.89 ft).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	765	560	2330	14	10	1150	---	---	---
2	---	---	---	909	408	2020	14	---	2100	---	---	---
3	---	---	---	286	695	1090	---	---	2250	---	---	---
4	---	---	---	255	2000	1690	---	---	2130	---	---	---
5	---	---	---	303	1600	2840	76	---	1170	---	---	---
6	---	---	---	296	1560	2820	273	---	942	---	---	---
7	---	---	---	290	1620	2800	266	---	1130	---	---	---
8	---	---	---	455	1470	2790	259	---	479	---	---	---
9	---	---	28	678	1500	2780	234	---	449	---	---	---
10	---	---	---	191	2440	1960	208	---	295	---	---	---
11	---	---	---	---	2180	602	18	---	16	---	---	---
12	---	---	---	1000	1810	675	---	---	10	---	10	---
13	---	---	---	1990	1790	343	---	---	---	---	---	---
14	---	---	---	897	1350	23	---	---	12	---	---	---
15	---	---	---	667	570	---	---	---	---	---	---	---
16	---	---	---	91	533	---	---	---	---	---	---	---
17	---	---	---	82	516	---	300	---	---	---	---	---
18	---	---	---	449	498	---	2080	---	---	---	---	---
19	---	---	---	748	55	10	2300	---	---	---	---	---
20	---	---	---	904	11	---	2720	---	---	---	---	---
21	---	---	692	1190	---	---	2610	---	---	---	---	---
22	---	---	2690	2180	725	12	2710	---	---	---	---	---
23	---	19	3030	1850	1560	20	2570	---	---	---	---	---
24	---	---	2540	1190	2020	---	1300	---	---	---	---	---
25	---	---	1580	903	2300	---	1350	---	---	---	---	---
26	---	---	1150	343	1680	---	1630	22	---	---	---	---
27	---	---	1430	656	1790	---	1580	611	---	---	---	---
28	---	---	2370	1640	2120	404	612	1690	---	---	---	---
29	---	---	1690	1810	2410	984	32	1310	---	---	---	---
30	---	---	1720	1810	---	240	15	459	---	---	---	---
31	13	---	1640	1190	---	19	---	413	---	---	---	---

## SUMMARY STATISTICS

WATER YEARS 1974 - 1992

HIGHEST DAILY MEAN 8760 May 22 1983  
INSTANTANEOUS PEAK FLOW 8780 May 22 1983  
INSTANTANEOUS PEAK STAGE 35.50 May 22 1983

CAI YR 1991	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---
WTR YR 1992	TOTAL	---	MEAN	---	MAN	---	MIN	---	AC-FT	---

## SAN JACINTO RIVER MAIN STEM

35

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX  
(National stream-quality accounting network)

LOCATION.--Lat 30°14'40", long 95°27'25", Montgomery County, Hydrologic Unit 12040101, near right bank at downstream side of pier of bridge on Interstate Highway 45 and U.S. Highway 75, 300 ft upstream from Missouri Pacific Railroad Co. bridge, 3.5 mi downstream from Lake Creek, 4.2 mi south of Conroe, and at mile 79.

DRAINAGE AREA.--828 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to September 1927, July 1939 to current year.

REVISED RECORDS.--WSP 1058: 1926. WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 95.03 ft above National Geodetic Vertical Datum of 1929. May 7, 1924, to Sept. 30, 1927, nonrecording gage at railroad bridge 285 ft downstream at datum 30.10 ft higher. July 13, 1939, to Sept. 30, 1963, water-stage recorder at datum 5.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Since Jan. 9, 1973, flow regulated by Lake Conroe (station 08067600), capacity 532,000 acre-ft, 14.5 mi upstream from station. There are no large diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--36 years (water years 1925-27, 1940-72) prior to regulation by Lake Conroe, 477 ft<sup>3</sup>/s (345,600 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-27, 1940-72).--Maximum discharge, 110,000 ft<sup>3</sup>/s Nov. 25, 1940 (gage height, 30.85 ft), present datum, from rating curve extended above 43,000 ft<sup>3</sup>/s on basis of velocity-area studies; no flow June 14, 1956, and Sept. 19 to Oct. 1, 1965, result of temporary dams. Maximum stage since at least December 1913, that of Nov. 25, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 30.2 ft, present site and datum, from information by Missouri Pacific Railroad Co., discharge 101,000 ft<sup>3</sup>/s, from rating curve as explained above.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	57	31	2100	1490	3180	243	206	1390	57	34	29
2	24	46	52	1190	784	2540	174	165	4360	56	91	28
3	23	32	47	1190	808	1620	137	139	5440	53	111	28
4	23	32	41	543	3810	2720	116	124	6810	52	140	30
5	22	29	36	536	5860	6820	138	208	4630	48	70	31
6	27	27	33	577	6830	7060	657	136	2360	46	49	32
7	24	30	31	559	9450	7750	547	121	2370	44	40	33
8	22	54	38	646	6810	5320	430	126	1910	43	35	31
9	22	49	147	1020	3990	3630	369	101	2550	42	33	42
10	22	38	155	631	3060	3220	331	85	2480	41	33	38
11	22	36	91	249	2790	1580	198	79	925	39	34	54
12	21	34	70	1280	2190	992	109	77	326	38	157	42
13	20	33	57	3580	2270	706	92	72	196	38	91	32
14	21	33	52	4080	2380	338	84	69	149	40	60	35
15	21	32	49	3680	1260	244	78	66	125	38	45	38
16	20	32	45	1750	933	213	77	68	105	37	38	31
17	21	82	40	455	778	191	222	89	92	36	35	27
18	21	90	54	2580	715	182	4260	90	83	43	33	27
19	21	60	76	4500	433	170	3610	102	76	55	31	26
20	21	61	78	4510	245	162	3910	138	70	55	31	26
21	21	48	665	4840	198	145	3890	192	77	85	31	27
22	22	44	4470	4620	1050	143	4050	279	236	74	29	29
23	22	55	5560	3550	2940	158	4900	239	90	71	29	26
24	22	56	6250	3110	3520	132	2980	127	78	96	30	25
25	22	40	5960	2810	6180	124	1600	107	68	57	29	24
26	21	34	4830	1190	6410	117	2450	153	62	48	29	24
27	21	33	4700	987	7030	113	3280	470	62	45	28	24
28	23	32	4670	2730	6110	233	2750	3990	60	44	28	24
29	24	31	4960	3510	4150	1450	677	2780	56	40	27	23
30	27	30	4900	3710	---	674	286	1470	54	37	26	22
31	35	---	3970	2870	---	367	---	721	---	35	27	---
TOTAL	701	1290	52158	69583	94474	52294	42645	12789	37290	1533	1504	908
MEAN	22.6	43.0	1683	2245	3258	1687	1421	413	1243	49.5	48.5	30.3
MAX	35	90	6250	4840	9450	7750	4900	3990	6810	96	157	54
MIN	20	27	31	249	198	113	77	66	54	35	26	22
ACFT	1390	2560	103500	138000	187400	103700	84590	25370	73960	3040	2980	1800

## SAN JACINTO RIVER MAIN STEM

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued  
(National stream-quality accounting network)

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1992#, BY WATER YEAR (WY)

MEAN	276	499	598	762	948	608	818	807	699	134	83.7	295
MAX	1446	2080	2064	2559	3258	1687	4185	4153	2609	392	368	1945
(WY)	1974	1975	1977	1991	1992	1992	1979	1983	1979	1989	1983	1979
MIN	18.8	25.7	31.4	44.5	44.2	41.7	38.8	37.6	32.1	19.6	18.9	21.0
(WY)	1991	1991	1981	1981	1981	1981	1978	1978	1990	1978	1981	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1973 - 1992#	
ANNUAL TOTAL	282337		367169		541	
ANNUAL MEAN	774		1003		1305	
HIGHEST ANNUAL MEAN					226	
LOWEST ANNUAL MEAN					29400	
HIGHEST DAILY MEAN	8570	Jan 21	9450	Feb 7	11	May 22 1983
LOWEST DAILY MEAN	20	Aug 29	20	Oct 13	11	Aug 20 1981
ANNUAL SEVEN-DAY MINIMUM	21	Oct 12	21	Oct 12	11	Aug 18 1981
INSTANTANEOUS PEAK FLOW			9830	Feb 7	38500	Apr 18 1979
INSTANTANEOUS PEAK STAGE			20.19	Feb 7	24.71	Apr 18 1979
INSTANTANEOUS LOW FLOW					.00	*
ANNUAL RUNOFF (AC-FT)	560000		728300		391600	
10 PERCENT EXCEEDS	2790		3980		1490	
50 PERCENT EXCEEDS	116		85		102	
90 PERCENT EXCEEDS	23		26		25	

# Period of regulated streamflow.

\* No flow June 14, 1956, and Sept. 19 to Oct. 1, 1965, result of temporary dams.



08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1959 to current year. Pesticide analyses: May 1975 to June 1982. Sediment records: February 1966 to September 1967, October 1974 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1961 to September 1990.

WATER TEMPERATURE: October 1961 to September 1990.

DISSOLVED OXYGEN: August 1979 to May 1981.

INSTRUMENTATION.--From August 1979 to May 1981, a three-parameter water-quality monitor recorded specific conductance, water temperature, and dissolved oxygen at this station. From June 1981 to September 1990 specific conductance and water temperature were recorded continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 970 microsiemens Aug. 17, 1990; minimum, 40 microsiemens Nov. 24, 1985.

WATER TEMPERATURE: Maximum, 37.0°C June 26, 1984; minimum daily, 0.0°C Dec. 22, 1963, Jan. 31, 1968.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
FEB 20...	0915	249	286	7.3	14.0	19	8.5	82	1.0	20	60	83
MAY 26...	1052	163	270	7.7	24.0	50	6.8	81	2.5	1500	3800	73
JUL 15...	0945	38	454	7.5	28.0	4.7	5.9	76	1.0	170	170	84
AUG 26...	0855	30	542	7.7	26.5	8.3	6.4	80	1.2	190	210	81

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB 20...	14	29	2.6	21	1	2.6	0	84	69	14	37	<0.10
MAY 26...	13	25	2.4	24	1	3.8	0	72	59	12	36	0.20
JUL 15...	4	28	3.4	57	3	4.8	0	98	80	27	68	0.20
AUG 26...	0	26	3.8	79	4	5.8	0	100	82	28	88	0.40

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
FEB 20...	14	181	164	0.370	--	0.020	<0.010	0.390	0.400	0.070	0.060
MAY 26...	12	173	156	0.820	0.820	0.040	0.010	0.860	0.830	0.070	0.050
JUL 15...	21	273	270	2.08	2.08	0.020	0.020	2.10	2.10	0.060	0.070
AUG 26...	22	308	322	3.57	3.58	0.030	0.020	3.60	3.60	0.050	0.060

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
FEB 20...	0.53	0.60	0.210	0.160	0.140	0.170	0.43	35	24	99	50
MAY 26...	0.53	0.60	0.540	0.450	0.450	0.550	1.4	72	32	98	40
JUL 15...	0.34	0.40	1.00	0.910	0.950	0.960	2.9	17	1.7	79	30
AUG 26...	0.35	0.40	1.20	1.10	1.10	1.10	3.4	25	2.0	86	20

## SAN JACINTO RIVER MAIN STEM

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
FEB 20...	98	<3	170	5	83	<10	2	<1	<1.0	110	<6
MAY 26...	79	<3	98	6	30	<10	1	<1	<1.0	120	<6
JUL 15...	77	<3	34	11	73	<10	2	<1	<1.0	220	<6
AUG 26...	73	<3	44	12	55	<10	1	<1	<1.0	270	<6

## SAN JACINTO RIVER MAIN STEM

39

08068090 WIS1 FORK SAN JACINTO RIVER ABOVE LAKE HOUSTON NEAR PORTER, TX

LOCATION.--Lat 30°05'09", Long 95°17'59", Montgomery County, Hydrologic Unit 12040101, on left bank, 4.4 mi southwest of Porter, 5.0 mi upstream from Spring Creek and 6.2 mi northwest of Humble.

DRAINAGE AREA.--962 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, at site 1.7 mi downstream, water years 1968-72, 1974-75. February to March 1984 (discharge measurements only), May 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 33 ft above National Geodetic Vertical Datum of 1929, from topographic map and levels.

REMARKS.--No estimated daily discharges. Records good. There is considerable regulation during high flow periods by Lake Conroe (capacity 532,000 acre-ft) 34.3 mi upstream. During periods of low base flow into Lake Houston, occasional releases are made from Lake Conroe in order to maintain water levels in Lake Houston, which has several large diversions. There are no large diversions upstream from station. There is only minor sewage effluent being discharged from the city of Conroe and by other smaller communities into the river upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	104	57	3070	2420	3760	377	302	1360	54	44	45
2	33	72	64	1570	1320	3090	238	224	4570	54	255	44
3	34	57	109	1630	1030	2370	176	182	6660	56	232	41
4	34	43	86	969	4320	2730	137	158	6710	48	259	46
5	34	40	70	773	7250	9450	154	228	6300	43	164	45
6	34	37	62	894	7240	7550	1010	247	3310	38	95	45
7	35	39	60	848	7900	7810	968	147	3040	35	69	46
8	33	50	57	936	7660	6660	662	147	2400	33	56	46
9	32	66	191	1580	5180	4540	513	133	2550	31	52	45
10	33	56	490	1250	3630	3660	420	106	3030	30	48	61
11	32	46	261	590	3270	2660	343	90	1900	28	53	82
12	31	41	175	1360	2800	1310	165	83	703	26	264	84
13	31	39	133	3550	2610	1070	116	97	377	25	289	67
14	30	39	110	4080	2850	612	97	86	257	25	169	56
15	28	37	89	4030	2060	321	86	72	199	27	109	56
16	29	38	77	2760	1350	237	78	92	163	26	86	55
17	28	474	69	1100	1110	205	121	169	134	23	72	47
18	27	671	82	3180	1000	187	5080	158	112	23	65	43
19	27	308	191	5980	814	171	5110	143	99	28	61	42
20	27	276	194	5110	397	154	4480	160	88	67	59	40
21	27	174	794	5050	304	142	4550	188	84	74	55	38
22	26	123	5330	5190	1120	130	4140	325	562	93	54	39
23	26	101	6150	4380	3750	120	4760	415	286	100	52	40
24	28	92	6170	3510	3960	130	4180	264	138	188	50	36
25	26	83	6190	3250	7240	100	2370	193	101	130	48	35
26	27	67	5560	2150	7500	91	2760	190	80	77	49	34
27	27	62	5900	1530	7050	84	3190	347	71	64	48	34
28	26	62	5240	3040	6860	124	3540	4320	65	60	49	34
29	28	60	4980	3630	5140	1760	1430	4950	58	58	47	32
30	39	58	4950	3980	---	1380	466	2770	54	52	49	31
31	38	---	4410	3530	---	670	---	1330	---	46	48	---
TOTAL	943	3415	58301	84500	109135	63278	51717	18316	45461	1662	3050	1389
MEAN	30.4	114	1881	2726	3763	2041	1724	591	1515	53.6	98.4	46.3
MAX	39	671	6190	5980	7900	9450	5110	4950	6710	188	289	84
MIN	26	37	57	590	304	84	78	72	54	23	44	31
AC-FT	1870	6770	115600	167600	216500	125500	102600	36330	90170	3300	6050	2760

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1992, BY WATER YEAR (WY)

	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	258	572	849	1066	1289	878	754	722
MAX	1453	2259	1881	2726	3763	2041	2229	1619
(WY)	1985	1986	1992	1992	1992	1992	1991	1989
MIN	22.2	29.8	42.7	167	351	117	73.0	59.4
(WY)	1991	1991	1990	1986	1988	1986	1988	1990

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1985 - 1992

ANNUAL TOTAL	335014	441167	632	
ANNUAL MEAN	918	1205	1205	1992
HIGHEST ANNUAL MEAN			309	1988
LOWEST ANNUAL MEAN			17100	Nov 26 1985
HIGHEST DAILY MEAN	7960	Jan 19	9450	Mar 5
LOWEST DAILY MEAN	26	Oct 22	23	Jul 17
ANNUAL SEVEN-DAY MINIMUM	27	Oct 22	25	Jul 12
INSTANTANEOUS PEAK FLOW			10300	Mar 5
INSTANTANEOUS PEAK STAGE			24.49	Mar 5
ANNUAL RUNOFF (AC-FT)	664500	875100	457700	
10 PERCENT EXCEEDS	3220	4540	2000	
50 PERCENT EXCEEDS	150	133	127	
90 PERCENT EXCEEDS	39	33	34	

\* Occurred on Oct. 1-3, 16, 31, and Nov. 1, 1990.



## SAN JACINTO RIVER MAIN STEM

08068090 WEST FORK SAN JACINTO RIVER ABOVE LAKE HOUSTON NEAR PORTER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1984 to current year. Pesticide analyses: February 1984 to September 1990.

INSTRUMENTATION.--Stage-activated water sampler since January 1985 provides water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, SATURATION	COLIFORM, FECA, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONATE (MG/L AS CaCO3)
FEB											
22...	1300	702	--	--	--	--	--	--	--	--	--
23...	1700	3860	--	--	--	--	--	--	--	--	--
25...	0900	7150	--	--	--	--	--	--	--	--	--
25...	2100	8370	--	--	--	--	--	--	--	--	--
MAY											
13...	1138	87	388	7.4	27.5	8.4	107	80	110	100	19
JUN											
25...	0730	107	277	7.4	28.0	6.4	82	240	230	72	22
AUG											
21...	0812	57	402	7.6	25.0	7.2	87	88	48	74	5

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT DIS-FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
FEB											
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
13...	34	3.6	36	2	3.0	81	14	50	0.10	14	207
JUN											
25...	24	3.0	26	1	2.8	50	12	46	0.20	15	163
AUG											
21...	24	3.5	41	2	3.4	69	24	57	0.20	44	245

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB										
22...	0.180	--	0.120	--	0.300	--	0.110	--	0.79	--
23...	0.110	--	0.030	--	0.140	--	0.070	--	0.83	--
25...	0.090	--	0.040	--	0.130	--	0.070	--	0.63	--
25...	0.070	--	0.040	--	0.110	--	0.060	--	0.74	--
MAY										
13...	0.630	0.630	0.030	0.020	0.660	0.650	0.030	0.020	0.37	0.18
JUN										
25...	0.450	0.450	0.060	0.050	0.510	0.500	0.070	0.050	0.43	0.35
AUG										
21...	1.13	1.17	0.070	0.030	1.20	1.20	0.070	0.060	0.33	--

DATE	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, PHOSPHATE TOTAL (MG/L AS P)	PHOSPHORUS, PHOSPHATE DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)
FEB										
22...	--	0.90	0.210	--	--	0.120	--	--	--	--
23...	--	0.90	0.140	--	--	0.040	--	--	--	--
25...	--	0.70	0.100	--	--	0.060	--	--	--	--
25...	--	0.80	0.090	--	--	0.050	--	--	--	--
MAY										
13...	0.20	0.40	0.260	0.170	0.180	0.230	0.55	6.4	24	65
JUN										
25...	0.40	0.50	0.190	0.140	0.170	0.180	0.52	9.0	1100	130
AUG										
21...	<0.20	0.40	0.380	0.320	0.310	0.370	0.95	6.3	37	38

## SAN JACINTO RIVER BASIN

41

08068520 SPRING CREEK AT SPRING, TX

LOCATION.--Lat 30°05'31", long 95°24'21", Harris-Montgomery County line, Hydrologic Unit 12040102, near right bank at upstream side of bridge on Riley-Fussell Road, 1.1 mi northeast of Spring, 2.7 mi downstream from Missouri Pacific Railroad bridge, 3.6 mi downstream from former station 08068500 at Interstate Highway 45, 6.9 mi upstream from Cypress Creek, and 9.9 mi upstream from mouth.

DRAINAGE AREA.--419 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year. Prior to 1975, published as "near Spring".

REVISED RECORDS.--WSP 1732; Drainage area.

GAUGE.--Water-stage recorder and crest-stage gage. Datum of gage is 62.17 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 5, 1946, nonrecording gage, and Jan. 6, 1946, to Oct. 1, 1965, water-stage recorder at site 3.6 mi upstream at different datum. Oct. 2, 1965, to Feb. 19, 1976, water-stage recorder at former site at datum 10.93 ft higher; unadjusted for land-surface subsidence.

REMARKS.--Records good except those for estimated discharges, which are poor. No known diversions above station. Harris County Flood Control District stage and rainfall telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 34.3 ft, former site and datum, May 30, 1929, from floodmarks identified by local residents, discharge, 48,300 ft<sup>3</sup>/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1600	3,000	12.98	Mar. 6	2400	8,230	21.43
Feb. 6	1800	7,700	20.82	Apr. 18	2200	5,000	17.47
Feb. 25	0800	5,560	18.22	June 4	1200	6,610	19.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	247	34	363	e381	410	336	87	e2220	66	37	61
2	25	95	53	271	310	305	214	78	3310	60	59	27
3	24	50	55	233	477	250	173	72	5370	59	188	25
4	24	39	42	216	e2240	1240	149	91	6370	60	123	29
5	23	31	34	285	4160	3570	285	197	4150	54	69	25
6	22	29	31	372	6990	6990	662	154	1930	52	51	37
7	21	63	29	425	5880	6330	766	97	1550	50	43	45
8	21	177	28	557	2840	2370	729	75	2370	47	36	34
9	21	e96	784	777	1070	827	333	65	1850	44	36	30
10	20	e56	179	686	487	464	209	60	894	44	33	32
11	20	e41	e80	436	425	352	163	60	526	42	33	40
12	19	33	e58	911	584	291	142	58	372	40	89	33
13	19	31	e48	1340	676	248	123	55	646	49	118	29
14	19	28	e40	1670	763	222	107	54	379	53	68	41
15	18	25	e35	2310	994	197	104	51	205	49	42	46
16	19	24	e33	1400	e909	184	108	362	156	61	50	38
17	18	1180	e30	437	e749	171	509	415	136	43	33	32
18	18	e511	109	1630	e602	162	3860	292	110	40	30	28
19	18	e160	82	3050	e501	159	4060	326	104	39	28	26
20	17	e79	e50	3400	e424	152	3110	291	92	106	28	24
21	18	e46	2800	e3610	e382	140	1990	345	88	133	26	23
22	e18	e40	4840	e2030	e1550	138	1290	424	89	103	25	22
23	e18	e38	2960	e1210	2670	138	1030	351	85	141	31	22
24	e18	e37	1720	e1370	3250	127	386	455	78	83	34	24
25	e18	36	1040	e1270	5290	121	353	425	73	65	27	23
26	e18	33	1950	e964	4060	117	215	141	69	51	24	19
27	e18	65	2450	e1840	4170	112	221	379	68	46	24	18
28	18	60	2140	e1800	2360	265	190	1340	64	43	24	17
29	18	34	2200	e1440	837	722	122	1800	61	44	23	18
30	57	31	1630	e1480	---	779	100	2330	65	39	22	16
31	160	---	662	866	---	780	---	e2360	---	38	24	---
TOTAL	791	3415	26226	38649	56031	28333	22039	13290	33480	1844	1478	884
MEAN	25.5	114	846	1247	1932	914	735	429	1116	59.5	47.7	29.5
MAX	160	1180	4840	3610	6990	6990	4060	2360	6370	141	188	61
MIN	17	24	28	216	310	112	100	51	61	38	22	16
AC-FT	1570	6770	52020	76660	111100	56200	43710	26360	66410	3660	2930	1750
CFSM	.06	.27	2.02	2.98	4.61	2.18	1.75	1.02	2.66	.14	.11	.07
IN.	.07	.30	2.33	3.43	4.97	2.52	1.96	1.18	2.97	.16	.13	.08

e Estimated

## SAN JACINTO RIVER BASIN

08068520 SPRING CREEK AT SPRING, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1992, BY WATER YEAR (WY)

MEAN	107	262	238	330	356	205	362	341	291	97.9	73.0	121
MAX	1205	2536	1949	1710	1932	936	2106	1518	1519	577	1208	1184
(WY)	1974	1941	1941	1979	1992	1941	1979	1968	1973	1946	1945	1979
MIN	3.06	3.55	8.88	4.52	13.1	11.6	13.2	9.10	6.57	5.58	2.84	3.86
(WY)	1957	1957	1957	1957	1957	1971	1971	1956	1971	1956	1956	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1940 - 1992	
ANNUAL TOTAL	174606		226460			
ANNUAL MEAN	478		619			
HIGHEST ANNUAL MEAN					231	1941
LOWEST ANNUAL MEAN					819	1956
HIGHEST DAILY MEAN	5610	Jan 17	6990	Feb 6	13.4	1956
LOWEST DAILY MEAN	17	Oct 20	16	Sep 30	31500	Nov 25 1940
ANNUAL SEVEN-DAY MINIMUM	18	Oct 17	18	Oct 17	1.1	Oct 23 1956
INSTANTANEOUS PEAK FLOW			8230	Mar 6	1.6	Oct 20 1956
INSTANTANEOUS PEAK STAGE			21.43	Mar 6	42700	Nov 25 1940
ANNUAL RUNOFF (AC-FT)	346300		449200		33.60	Nov 25 1940
ANNUAL RUNOFF (CFSM)	1.14		1.48		167300	
ANNUAL RUNOFF (INCHES)	15.50		20.11		.55	
10 PERCENT EXCEEDS	1380		2060		7.49	
50 PERCENT EXCEEDS	109		103		400	
90 PERCENT EXCEEDS	24		24		41	
					10	

## SAN JACINTO RIVER BASIN

43

08068520 SPRING CREEK AT SPRING, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: August 1983 to current year. Pesticide analyses: August 1983 to September 1990.

INSTRUMENTATION.--Stage-activated water sampler since October 1984 provides water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
FEB												
23...		1100	2790	--	--	--	--	--	--	--	--	
24...		1500	3320	--	--	--	--	--	--	--	--	
25...		1100	5560	--	--	--	--	--	--	--	--	
26...		1500	3810	--	--	--	--	--	--	--	--	
MAY												
11...		1225	60	375	7.1	21.5	8.3	94	120	130	63	0
JUN												
23...		1130	87	351	7.0	26.0	7.2	89	80	230	56	0
AUG												
19...		1105	28	463	7.5	25.0	7.8	94	120	92	71	0
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
FEB												
23...		--	--	--	--	--	--	--	--	--	--	--
24...		--	--	--	--	--	--	--	--	--	--	--
25...		--	--	--	--	--	--	--	--	--	--	--
26...		--	--	--	--	--	--	--	--	--	--	--
MAY												
11...		19	3.7	48	3	1.7	64	9.2	66	0.20	16	213
JUN												
23...		17	3.4	40	2	2.7	64	9.8	57	0.20	19	197
AUG												
19...		22	3.8	59	3	4.2	88	14	70	0.30	28	270
DATE		NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	
FEB												
23...		0.110	--	0.030	--	0.140	--	0.110	--	0.79	--	
24...		0.068	--	0.030	--	0.098	--	0.120	--	0.78	--	
25...		0.048	--	0.020	--	0.068	--	0.110	--	0.69	--	
26...		0.023	--	0.040	--	0.063	--	0.120	--	0.78	--	
MAY												
11...		1.96	1.95	0.040	0.050	2.00	2.00	0.050	0.050	0.45	0.45	
JUN												
23...		1.55	1.55	0.050	0.050	1.60	1.60	0.080	0.080	0.62	1.4	
AUG												
19...		2.65	2.75	0.050	0.050	2.70	2.80	0.090	0.100	0.71	0.50	
DATE		NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS Fe)	MANGANESE, DIS-SOLVED (UG/L AS Mn)	
FEB												
23...		--	0.90	0.150	--	--	0.090	--	--	--	--	
24...		--	0.90	0.160	--	--	0.120	--	--	--	--	
25...		--	0.80	0.100	--	--	0.080	--	--	--	--	
26...		--	0.90	0.120	--	--	0.080	--	--	--	--	
MAY												
11...		0.50	0.50	0.770	0.460	0.580	0.710	1.8	7.2	210	110	
JUN												
23...		1.5	0.70	0.660	0.640	0.600	0.660	1.8	8.9	850	99	
AUG												
19...		0.60	0.80	1.10	0.870	0.920	0.990	2.8	5.7	38	96	



## SAN JACINTO RIVER BASIN

08068720 CYPRESS CREEK AT KATY-HOCKLEY ROAD NEAR HOCKLEY, TX

LOCATION.--Lat 29°57'00", long 95°48'29", Harris County, Hydrologic Unit 12040102, on left bank at bridge on Katy-Hockley Road, 3.3 mi downstream from station 08068700, 5.6 mi southeast of Hockley, and 6.3 mi upstream from station 08068740.

DRAINAGE AREA.--110 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1975 to July 1983, February 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. A concrete weir located 0.9 mi downstream from the gage, washed out on Aug. 11, 1991. Datum of gage is 100.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diversions and return flow for irrigation occur upstream from station. Several observations of water temperature were made during the year. Gage-Height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood in June 1960 reached a stage of 62.0 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	.44	.34	134	e231	124	32	11	838	16	4.2	3.5
2	.38	.63	.38	100	e154	89	21	9.1	1080	4.3	10	4.3
3	.52	.55	.45	83	e286	73	14	6.8	1260	3.7	139	4.2
4	.87	.30	.40	63	893	265	12	12	1360	7.6	29	16
5	.68	.23	.42	84	1190	836	110	13	1320	4.0	17	39
6	.54	.21	.34	189	1340	1100	436	8.6	1170	2.6	11	10
7	.50	3.6	.31	115	1360	1080	354	4.5	992	e2.4	7.5	2.8
8	.44	8.4	.30	130	1190	861	128	3.2	775	e2.1	5.2	.71
9	.27	11	1.9	366	814	432	63	2.4	355	e2.0	4.9	1.1
10	.16	4.9	1.7	366	347	178	40	2.2	183	e1.8	6.7	.80
11	.12	1.7	.61	139	278	98	28	2.0	113	e1.7	6.9	2.2
12	.10	.41	.38	339	431	73	20	1.9	82	e1.5	5.9	4.0
13	.31	.26	.36	529	515	60	14	1.5	61	e2.5	5.2	2.3
14	.75	.21	.50	552	487	47	10	1.0	39	5.5	3.0	1.7
15	.42	.17	.49	313	296	37	7.9	1.2	28	2.2	2.1	1.1
16	.26	.16	.39	e133	166	27	6.4	5.0	21	2.7	1.2	.75
17	.23	47	.31	e155	117	25	78	9.2	19	4.2	.55	.48
18	.20	22	3.1	807	94	17	702	9.8	15	3.0	.36	.44
19	.17	12	12	1260	67	16	791	14	12	2.2	.27	.49
20	.16	11	17	1280	50	11	651	28	9.6	30	.23	.56
21	.23	5.0	311	1140	38	10	326	140	6.9	42	.20	.47
22	.40	3.0	890	e866	278	9.6	122	69	5.8	36	4.1	.92
23	.36	1.8	919	e774	704	8.4	65	81	4.5	15	3.6	1.6
24	.56	2.2	843	e471	798	7.2	37	102	5.1	11	2.0	1.7
25	.39	1.3	715	e298	808	6.0	44	37	2.9	13	1.6	1.4
26	.23	.79	649	e218	850	5.1	147	16	2.4	7.1	1.0	.93
27	.18	.51	805	e443	858	4.7	49	14	6.0	3.9	2.0	.67
28	.16	.60	811	e696	607	53	28	230	5.3	5.2	3.1	.77
29	.14	.53	695	e655	238	279	19	772	4.0	2.9	3.1	.75
30	.14	.41	469	e442	---	187	13	891	6.9	2.1	2.8	.62
31	.14	---	220	e329	---	58	---	911	---	3.1	1.9	---
TOTAL	10.77	141.31	7368.68	13469	15485	6077.0	4368.3	3409.4	9782.4	265.8	285.61	106.26
MEAN	.35	4.71	238	434	534	196	146	110	326	8.57	9.21	3.54
MAX	.87	47	919	1280	1360	1100	791	911	1360	42	139	39
MIN	.10	.16	.30	63	38	4.7	6.4	1.0	2.4	1.5	.20	.44
AC-F1	21	280	14620	26720	30710	12050	8660	6760	19400	527	567	211

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1992, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	26.9	62.1	84.6	112	100	38.2	67.6	84.5	96.3	20.6	3.90	36.3					
MAX	186	229	257	508	534	196	344	332	375	98.7	10.7	358					
(WY)	1981	1986	1977	1979	1992	1992	1991	1982	1987	1979	1979	1979					
MIN	.090	.091	.000	.85	.000	.55	.10	1.02	.22	.17	.019	.010					
(WY)	1989	1978	1989	1990	1976	1982	1987	1978	1988	1988	1988	1988					

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1976 - 1992

ANNUAL TOTAL	31/62.97	60769.53	61.1
ANNUAL MEAN	87.0	166	186
HIGHEST ANNUAL MEAN			5.01
LOWEST ANNUAL MEAN			2240
HIGHEST DAILY MEAN	1480	1360	2240
LOWEST DAILY MEAN	.00	.10	.00
ANNUAL SEVEN-DAY MINIMUM	.05	.20	.00
INSTANTANEOUS PEAK FLOW		1390	a/2370
INSTANTANEOUS PEAK STAGE		60.05	a/61.05
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	63000	120500	44260
10 PERCENT EXCEEDS	201	773	121
50 PERCENT EXCEEDS	3.9	9.7	2.8
90 PERCENT EXCEEDS	.21	.38	.00

a/ May have been exceeded during period of no record July 29 to Jan. 31, 1984.  
\* No flow for many days each year.

## SAN JACINTO RIVER BASIN

45

08068740 CYPRESS CREEK AT HOUSE AND HAHN ROAD NEAR CYPRESS, TX

LOCATION.--Lat 29°57'32", long 95°43'03", Harris County, Hydrologic Unit 12040102, on right bank at bridge on House and Hahn Road, 1.4 mi southwest of Cypress, and 6.3 mi downstream from station 08068720.

DRAINAGE AREA.--131 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 100.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--No estimated daily discharges. Records good. Stage discharge relationship affected by seasonal vegetal growth during most years. Considerable diversions and return flow from irrigation occurs upstream from station, especially during the period April through October.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1908, about 49 ft in 1937, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	16	e.60	213	125	165	30	13	914	20	10	6.8
2	1.0	3.2	e6.0	160	94	105	17	12	1270	9.7	7.9	4.3
3	.55	1.5	e4.0	121	232	80	13	11	1580	6.4	123	5.8
4	.53	.79	e2.0	87	958	341	10	12	1570	10	44	9.1
5	.57	.44	e1.0	114	1380	918	91	15	1550	8.7	28	39
6	.48	.38	e.70	210	1510	1050	507	10	1610	4.9	21	12
7	.43	e35	e.40	165	1540	1140	493	5.6	1570	4.4	11	4.8
8	.41	e50	e.25	172	1450	1050	193	4.7	1260	4.0	7.1	2.2
9	.40	e20	e400	396	1200	710	77	4.2	741	3.6	6.0	1.1
10	.71	e10	e150	457	630	267	42	3.5	351	2.2	5.1	2.1
11	1.1	e5.0	e50	213	355	118	26	4.0	218	1.6	7.4	1.5
12	5.3	e2.5	e25	412	532	81	17	3.6	149	1.8	13	4.6
13	3.2	e1.5	e12	642	623	66	13	2.9	98	1.8	6.4	3.5
14	3.3	e.90	e8.0	667	614	50	10	3.2	61	1.9	4.2	3.2
15	2.0	e.50	e5.0	421	423	37	9.0	6.6	38	2.3	2.5	2.5
16	1.5	e.30	e2.5	136	210	26	8.3	15	24	3.5	2.6	1.5
17	1.1	e450	e1.0	97	139	20	161	33	21	4.2	1.3	1.1
18	.71	e400	e20	587	116	16	897	20	19	6.4	.96	e1.0
19	.54	e100	e32	928	84	14	947	11	16	5.2	.71	e.90
20	.45	e60	30	939	63	9.3	837	32	13	45	.67	e.80
21	.40	e30	394	878	48	7.4	548	124	11	54	.54	e.70
22	.37	e15	1170	769	318	7.1	187	86	9.3	85	1.9	e3.0
23	.34	e9.0	1320	658	724	6.9	90	62	7.5	27	4.9	e2.2
24	.86	e5.0	1120	527	856	6.1	47	122	7.6	17	3.7	1.8
25	.56	e2.5	910	212	1140	5.8	78	41	6.2	12	2.5	e1.6
26	.46	e1.5	846	135	1190	5.5	164	16	4.9	9.3	1.9	e1.4
27	.39	e2.5	1000	366	1040	4.5	68	12	6.4	5.6	1.2	e1.3
28	.34	e1.5	966	635	829	48	31	199	10	5.8	3.7	e1.1
29	.30	e1.0	865	612	410	266	19	695	8.1	5.0	3.6	e1.0
30	.79	e.80	677	363	---	242	15	867	9.3	6.0	3.7	e.90
31	10	---	377	180	---	71	---	885	---	9.5	3.8	---
TOTAL	39.97	1226.81	10395.45	12472	18833	6933.6	5645.3	3331.3	13153.3	383.8	334.28	122.80
MEAN	1.29	40.9	335	402	649	224	188	107	438	12.4	10.8	4.09
MAX	10	450	1320	939	1540	1140	947	885	1610	85	123	39
MIN	.30	.30	.25	87	48	4.5	8.3	2.9	4.9	1.6	.54	.70
AC-FT	79	2430	20620	24740	37360	13750	11200	6610	26090	761	663	244

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1992, BY WATER YEAR (WY)

MEAN	36.1	74.6	110	135	127	46.2	90.3	109	127	31.7	18.5	57.5
MAX	226	254	336	685	649	224	463	467	458	120	214	537
(WY)	1981	1986	1977	1979	1992	1992	1991	1982	1987	1979	1983	1979
MIN	.95	.27	.26	1.93	.065	1.27	.16	1.95	.93	1.88	1.55	.86
(WY)	1989	1978	1989	1976	1976	1986	1987	1988	1988	1988	1988	1988

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1976 - 1992

ANNUAL TOTAL	45258.98	72871.61	79.8
ANNUAL MEAN	124	199	13.5
HIGHEST ANNUAL MEAN			255
LOWEST ANNUAL MEAN			13.5
HIGHEST DAILY MEAN	1650	1610	2550
LOWEST DAILY MEAN	.03	.25	.00
ANNUAL SEVEN-DAY MINIMUM	.38	.46	.00
INSTANTANEOUS PEAK FLOW		1750	2590
INSTANTANEOUS PEAK STAGE		45.85	46.33
ANNUAL RUNOFF (AC-FT)	89770	144500	57840
10 PERCENT EXCEEDS	400	849	169
50 PERCENT EXCEEDS	9.3	13	5.2
90 PERCENT EXCEEDS	.44	.87	.20

## SAN JACINTO RIVER BASIN

08068780 LITTLE CYPRESS CREEK NEAR CYPRESS, TX

LOCATION.--Lat 30°00'57", long 95°41'50", Harris County, Hydrologic Unit 12040102, on right bank at downstream side of bridge on Cypress-Rose Hill Road, 3.2 mi north of Cypress, and 6.9 mi upstream from mouth.

DRAINAGE AREA.--41.0 mi<sup>2</sup>.

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

GAGE.--Water-stage and rainfall recorders and crest-stage gage. Datum of gage is 80.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records good, except those of estimated daily discharges, which are poor. No known regulation or diversions. Several observations of water temperature were made during the year. Stage and rainfall radio-telemetry at station are operated by Harris County Flood Control District.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1200	2,170	79.20	Apr. 6	0600	2,090	79.10
Jan. 19	0500	1,030	77.23	Apr. 15	0300	2,180	79.22

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	1.4	.17	13	e20	11	7.5	1.5	143	7.7	.80	4.6
2	.18	3.2	.27	8.4	e15	7.9	4.0	1.7	817	3.4	2.2	.83
3	.95	1.1	.24	8.0	e200	6.0	2.4	1.2	1020	1.3	4.9	.34
4	.90	.32	.29	6.9	e1080	237	1.6	1.0	277	.67	15	1.6
5	.53	.18	.20	27	1170	1160	67	1.0	56	.48	12	1.1
6	.44	.12	.16	45	496	467	289	.70	253	.30	6.0	.38
7	.24	.56	.14	27	96	109	81	.57	1070	.22	2.0	.25
8	.14	4.3	.12	74	38	46	29	.47	376	.16	.83	.19
9	.10	6.3	.94	136	21	27	14	.39	76	.12	.43	.14
10	.09	1.4	2.8	49	12	19	7.4	.42	38	.12	.28	.15
11	.63	.56	.73	24	40	11	4.3	.46	22	.11	4.8	.12
12	.62	.49	.81	224	123	7.4	2.7	.49	13	.08	14	.11
13	.20	.48	.75	185	160	4.8	1.6	.47	8.2	.11	6.4	.15
14	.08	.32	.67	59	78	3.3	1.0	.44	4.9	.15	7.7	.17
15	.05	.18	.56	27	42	2.4	.77	.74	2.5	.13	5.4	.52
16	.05	.15	.29	14	23	2.0	.63	5.7	1.3	.13	1.7	.31
17	.04	.92	.18	11	14	1.6	97	23	1.2	.11	.73	.20
18	.04	31	.34	435	12	1.4	635	20	1.5	.07	.42	.14
19	.04	8.9	7.7	615	7.7	1.2	315	27	1.5	.07	.29	.10
20	.04	12	9.8	194	5.0	.95	84	54	1.3	1.5	.64	.10
21	.06	3.8	187	59	3.4	.71	39	31	.95	1.7	.45	.10
22	.06	1.3	653	146	214	.67	18	16	.59	7.6	.30	.26
23	.06	.58	421	101	453	.64	8.3	186	.43	2.0	.57	.13
24	.08	.29	123	e50	235	.60	5.2	52	.30	.64	.76	.08
25	.09	.30	38	e30	820	.57	78	17	.69	.45	.28	.12
26	.07	.26	234	e24	433	.46	23	5.7	1.1	2.1	.12	.13
27	.10	.23	461	e85	79	.44	7.3	5.3	.83	2.1	.19	.09
28	.06	.24	210	e200	34	40	3.5	228	.53	5.5	.11	.04
29	.06	.30	61	e160	19	164	2.3	431	.45	3.0	.09	.01
30	.09	.22	32	e80	---	43	1.9	212	.41	.96	.03	.01
31	.53	---	20	e50	---	16	---	63	---	.52	.07	---
TOTAL	6.82	172.48	2467.16	3167.3	5943.1	2393.04	1831.40	1388.25	4189.68	43.50	89.49	12.47
MEAN	.22	5.75	79.6	102	205	77.2	61.0	44.8	140	1.40	2.89	.42
MAX	.95	92	653	615	1170	1160	635	431	1070	7.7	15	4.6
MIN	.04	.12	.12	6.9	3.4	.44	.63	.39	.30	.07	.03	.01
AC-FT	14	342	4890	6280	11790	4750	3630	2750	8310	86	178	25
CFSM	.01	.14	1.94	2.49	5.00	1.88	1.49	1.09	3.41	.03	.07	.01
IN.	.01	.16	2.24	2.87	5.39	2.17	1.66	1.26	3.80	.04	.08	.01

e Estimated

## SAN JACINTO RIVER BASIN

47

08068/80 LITTLE CYPRESS CREEK NEAR CYPRESS, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

MEAN	5.97	39.7	27.6	36.1	45.1	21.8	28.4	21.2	40.1	8.58	8.48	7.09
MAX	20.0	147	79.6	176	205	77.2	202	102	140	37.3	71.3	38.2
(WY)	1985	1988	1992	1991	1992	1992	1991	1983	1992	1983	1983	1983
MIN	.031	.66	.29	.69	.96	.30	.14	.30	.046	.91	.16	.000
(WY)	1989	1989	1989	1986	1989	1986	1987	1985	1990	1990	1988	1988

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1983 - 1992	
ANNUAL TOTAL	16174.56		21704.69			
ANNUAL MEAN	44.3		59.3		24.0	
HIGHEST ANNUAL MEAN					59.3	
LOWEST ANNUAL MEAN					5.38	
HIGHEST DAILY MEAN	1740	Apr 15	1170	Feb 5	2140	Nov 25 1987
LOWEST DAILY MEAN	.02	Jul 21	.01	Sep 29	.00	Jun 9 1985
ANNUAL SEVEN-DAY MINIMUM	.03	Aug 24	.05	Oct 15	.00	Aug 18 1987
INSTANTANEOUS PEAK FLOW			1490	Mar 5	3400	Nov 25 1987
INSTANTANEOUS PEAK STAGE			78.24	Mar 5	80.49	Nov 25 1987
INSTANTANEOUS LOW FLOW					.00	*
ANNUAL RUNOFF (AC-FT)	32080		43050		17370	
ANNUAL RUNOFF (CFSM)	1.08		1.45		.58	
ANNUAL RUNOFF (INCHES)	14.68		19.69		7.95	
10 PERCENT EXCEEDS	53		185		32	
50 PERCENT EXCEEDS	1.1		1.6		.87	
90 PERCENT EXCEEDS	.06		.11		.04	

\* No flow at times most years.



## SAN JACINTO RIVER BASIN

08068800 CYPRESS CREEK AT GRANT ROAD NEAR CYPRESS, TX

LOCATION.--Lat 29°58'24", long 95°35'54", Harris County, Hydrologic Unit 12040102, on right bank at downstream side of bridge on Grant Road and 6.0 mi east of Cypress.

DRAINAGE AREA.--214 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1982 (discharge measurements only), October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 80.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--No estimated daily discharges. Records fair. Base flow sustained by effluent from urbanized farming areas in the basin. Several observations of water temperature were made during the year. Stage rainfall radio-telemetry is operated by the Harris County Flood Control District at this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 3,550 ft<sup>3</sup>/s May 14, 1982; maximum gage height 43.48 ft May 14, 1982, from discharge measurement made by USGS personnel.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	47	3.5	368	185	278	66	19	1160	25	13	12
2	4.5	12	8.7	243	132	150	39	17	2730	22	16	9.8
3	4.8	8.5	5.6	177	346	113	26	15	3120	17	79	6.0
4	6.0	6.0	3.1	139	1970	828	20	13	2450	16	103	6.6
5	5.4	4.5	2.2	176	3030	2180	183	19	1690	15	47	28
6	4.9	3.8	1.9	282	2690	2110	836	20	2140	12	38	30
7	4.7	48	1.6	274	1890	1510	790	13	3000	12	22	10
8	4.5	70	1.6	325	1700	1380	432	9.7	2630	10	14	5.8
9	4.3	23	557	558	1560	1120	143	8.4	1410	8.7	9.9	3.8
10	3.9	15	206	578	1140	513	73	7.3	645	7.9	8.2	9.0
11	3.7	8.5	57	428	637	195	45	6.9	327	7.4	7.0	7.8
12	7.8	5.2	29	657	800	117	32	6.8	209	7.2	19	3.0
13	11	3.5	18	1040	916	93	24	6.5	150	64	24	9.3
14	9.4	3.0	12	935	923	75	18	14	96	20	13	14
15	8.2	2.2	7.4	698	709	57	15	29	57	19	10	6.2
16	7.0	1.8	5.1	273	406	45	13	72	41	15	9.1	3.7
17	6.1	713	3.8	158	227	33	179	115	33	10	6.0	3.1
18	4.6	521	24	1200	164	30	1920	161	29	14	4.0	2.7
19	3.7	153	48	1930	118	26	1820	105	26	12	3.0	2.5
20	3.2	90	42	1600	79	21	1270	101	23	134	2.6	2.0
21	2.9	46	788	1220	61	17	882	126	20	105	2.2	1.8
22	2.7	23	2740	1230	1140	16	387	146	18	265	2.2	5.7
23	2.7	12	2480	1060	1490	16	134	175	16	116	2.6	4.8
24	3.3	6.8	1780	784	1550	14	72	224	14	36	8.1	4.8
25	3.4	5.0	1300	431	2400	13	144	86	13	24	5.7	4.2
26	3.3	4.2	1540	199	2220	13	174	35	12	21	4.0	4.0
27	2.8	5.5	2060	577	1480	11	119	23	12	16	3.0	3.6
28	2.6	4.1	1730	1000	1200	113	50	359	14	14	2.6	3.3
29	2.6	3.8	1280	889	714	475	31	1080	13	16	2.8	3.1
30	7.3	4.0	1020	639	---	414	24	1310	17	12	3.4	2.5
31	47	---	645	316	---	161	---	1080	---	12	4.5	---
TOTAL	192.7	1853.4	18400.5	20384	31877	12137	9961	5402.6	22115	1085.2	488.9	213.1
MEAN	6.22	61.8	594	658	1099	392	332	174	737	35.0	15.8	7.10
MAX	47	713	2740	1930	3030	2180	1920	1310	3120	265	103	30
MIN	2.6	1.8	1.6	139	61	11	13	6.5	12	7.2	2.2	1.8
AC-FT	382	3680	36500	40430	63230	24070	19760	10720	43870	2150	970	423

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	41.8	136	185	171	219	104	114	108	215	39.4
MAX	163	433	594	669	1099	392	697	476	737	137
(WY)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MIN	2.63	3.42	1.95	7.47	7.88	3.58	1.46	5.35	6.33	6.55
(WY)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1983 - 1992

ANNUAL TOTAL	73218.3	124110.4	116
ANNUAL MEAN	201	339	339
HIGHEST ANNUAL MEAN			23.7
LOWEST ANNUAL MEAN			3200
HIGHEST DAILY MEAN	3110	3120	3200
LOWEST DAILY MEAN	1.6	1.6	.05
ANNUAL SEVEN-DAY MINIMUM	3.0	3.0	.07
INSTANTANEOUS PEAK FLOW		3320	3550
INSTANTANEOUS PEAK STAGE		41.41	43.35
ANNUAL RUNOFF (AC-FT)	145200	246200	83910
10 PERCENT EXCEEDS	672	1270	271
50 PERCENT EXCEEDS	17	24	9.9
90 PERCENT EXCEEDS	3.8	3.5	1.5

## SAN JACINTO RIVER BASIN

49

08069000 CYPRESS CREEK NEAR WESTFIELD, TX

LOCATION.--Lat 30°02'08", Long 95°25'43", Harris County, Hydrologic Unit 12040102, on left bank at downstream side of downstream bridge on Interstate Highway 45 and U.S. Highway 75, 0.9 mi upstream from Senger Gully, 1.8 mi northwest of Westfield, 2.0 mi upstream from Missouri Pacific Railroad Co. bridge, and 11.0 mi upstream from mouth.

DRAINAGE AREA.--285 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum gage is 63.89 ft above National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 17, 1951, water-stage recorder at upstream side of bridge at datum 12.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. No large diversions upstream from station. Low flow is maintained by sewage effluent. Channel below gage was rectified in 1950-51, 1975, and 1981. Harris County Flood Control District stage and rainfall radio-telemetry located at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 34 ft May 1929 (discharge, 26,000 ft<sup>3</sup>/s), present datum, from information by local resident. Flood in November 1940 reached a stage of about 32 ft, present datum (discharge, 15,000 ft<sup>3</sup>/s), from information by State Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1200	5,740	20.89	Mar. 4	1800	5,320	20.08
Dec. 9	0900	3,560	16.32	Apr. 17	2300	7,540	23.73
Dec. 21	1700	5,680	20.79	May 16	1800	4,410	17.44
Dec. 26	1800	3,640	16.51	June 2	1000	6,710	22.19
Jan. 18	1300	3,560	16.32	June 7	0500	3,560	15.40
Feb. 5	0800	3,800	16.87	June 12	2300	5,370	19.51
Feb. 22	1400	2,670	14.10	July 20	1500	4,060	16.63
Feb. 24	2300	4,330	18.05				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	270	52	356	226	385	111	40	1600	93	55	69
2	27	58	99	244	170	198	73	33	4850	52	126	40
3	26	33	58	186	747	150	57	30	4120	197	456	36
4	27	28	37	151	2770	2190	43	55	3320	48	243	39
5	26	22	29	278	3600	2810	549	47	2370	26	159	42
6	22	19	27	237	3110	2490	804	34	2640	26	127	85
7	26	211	23	258	2300	1730	775	36	3480	22	75	47
8	23	329	26	544	1700	1300	467	24	3270	28	60	38
9	22	79	1980	545	1530	1140	203	21	2220	35	60	35
10	24	52	597	503	1250	674	119	26	1350	25	56	81
11	21	39	173	422	993	272	84	21	751	23	169	75
12	21	28	105	912	889	154	64	20	1210	23	386	33
13	31	23	87	905	818	125	55	19	1820	145	104	50
14	36	20	60	819	829	109	45	26	312	253	60	128
15	32	18	44	682	688	93	38	138	162	73	43	61
16	28	17	38	381	438	77	34	1400	106	136	33	32
17	26	3050	38	247	269	63	1660	670	78	29	27	28
18	26	1060	174	2640	197	60	4490	438	64	108	25	28
19	23	303	174	2300	168	54	2760	542	55	81	26	26
20	22	178	119	1910	137	47	2140	207	48	1530	26	25
21	23	118	2800	1260	114	40	1290	289	42	430	27	25
22	24	77	4700	1350	1560	38	674	242	42	384	26	36
23	22	53	3370	1100	1830	37	261	165	38	626	35	33
24	24	40	2180	788	2080	34	149	294	34	388	47	25
25	22	35	1350	518	3300	32	202	184	29	324	34	23
26	21	29	2520	254	2650	29	232	92	29	207	33	22
27	22	69	2870	998	1890	30	217	99	40	155	77	22
28	24	61	2090	952	1220	503	108	603	35	116	31	23
29	58	31	1360	883	877	505	67	1530	33	90	24	20
30	240	30	992	688	---	381	49	1470	94	71	28	18
31	430	---	676	385	---	231	---	1290	---	58	54	---
TOTAL	1425	6380	28848	23696	38350	15981	17820	10085	34242	5802	2732	1245
MEAN	46.0	213	931	764	1322	516	594	325	1141	187	88.1	41.5
MAX	430	3050	4700	2640	3600	2810	4490	1530	4850	1530	456	128
MIN	21	17	23	151	114	29	34	19	29	22	24	18
AC-FT	2830	12650	57220	47000	76070	31700	35350	20000	67920	11510	5420	2470

## SAN JACINTO RIVER BASIN

08069000 CYPRESS CREEK NEAR WESTFIELD, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1992, BY WATER YEAR (WY)

MEAN	136	168	186	232	236	96.3	206	265	242	90.3	57.3	131
MAX	1198	1788	931	1168	1322	516	1133	1260	1157	588	562	862
(WY)	1950	1947	1992	1979	1992	1992	1973	1953	1960	1960	1945	1961
MIN	.13	.023	.15	.60	1.39	.21	1.50	1.77	1.64	.26	.087	1.21
(WY)	1957	1956	1951	1951	1951	1956	1963	1956	1958	1958	1948	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1945 - 1992	
ANNUAL TOTAL	121629		186606		170	
ANNUAL MEAN	333		510		510	
HIGHEST ANNUAL MEAN					7.53	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	4700	Dec 22	4850	Jun 2	15600	Oct 8 1949
LOWEST DAILY MEAN	15	Apr 3	17	Nov 16	.00	Aug 3 1948
ANNUAL SEVEN-DAY MINIMUM	18	Mar 22	22	Sep 24	.00	Aug 3 1948
INSTANTANEOUS PEAK FLOW			7540	Apr 17	22100	Oct 8 1949
INSTANTANEOUS PEAK STAGE			23.73	Apr 17	33.44	Oct 8 1949
INSTANTANEOUS LOW FLOW			7.4	May 6	.00	at times
ANNUAL RUNOFF (AC-FT)	241300		370100		123000	
10 PERCENT EXCEEDS	1080		1760		384	
50 PERCENT EXCEEDS	58		93		24	
90 PERCENT EXCEEDS	23		24		1.3	

## SAN JACINTO RIVER BASIN

51

08069000 CYPRESS CREEK NEAR WESTFIELD, TX--Continued

## WALK-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1959 to April 1964, October 1977 to June 1978, August 1983 to current year. Chemical and biochemical analyses: August 1983 to current year. Pesticide analyses: August 1983 to September 1990. Sediment analyses: October 1976 to September 1979, October to April 1990.

INSTRUMENTATION.--Stage-activated water sampler since October 1984 provides water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLOR, FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
MAR												
04...	1400	2760	--	--	--	--	--	--	--	--	--	
04...	1800	5320	--	--	--	--	--	--	--	--	--	
05...	0200	3800	--	--	--	--	--	--	--	--	--	
05...	1000	2580	--	--	--	--	--	--	--	--	--	
MAY												
11...	1014	21	710	7.7	23.0	7.0	82	2200	920	110	0	
JUN												
23...	0928	35	548	7.5	27.0	6.3	79	160	2400	88	0	
AUG												
19...	0930	26	707	8.2	26.0	6.4	79	6000	700	100	0	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
MAR												
04...	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
11...	35	5.2	100	4	8.8	160	22	85	0.40	16	409	
JUN												
23...	28	4.3	69	3	6.4	130	21	69	0.40	17	321	
AUG												
19...	32	4.9	110	5	9.1	170	24	95	0.60	1.5	421	
DATE		NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	
MAR												
04...	0.280	--	0.070	--	0.350	--	0.280	--	0.72	--	--	
04...	0.300	--	0.050	--	0.350	--	0.210	--	0.99	--	--	
05...	0.270	--	0.050	--	0.320	--	0.220	--	0.88	--	--	
05...	0.150	--	0.060	--	0.210	--	0.160	--	0.84	--	--	
MAY												
11...	6.60	6.40	0.200	0.200	6.80	6.60	0.510	0.520	0.79	0.48		
JUN												
23...	4.89	4.80	0.110	0.100	5.00	4.90	0.150	0.140	0.95	0.86		
AUG												
19...	6.58	6.79	0.120	0.110	6.70	6.90	0.150	0.170	1.0	0.83		
DATE		NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)	
MAR												
04...	--	1.0	0.290	--	--	0.230	--	--	--	--	--	
04...	--	1.2	0.390	--	--	0.240	--	--	--	--	--	
05...	--	1.1	0.330	--	--	0.250	--	--	--	--	--	
05...	--	1.0	0.240	--	--	0.180	--	--	--	--	--	
MAY												
11...	1.0	1.3	3.60	3.40	3.40	3.60	10	7.1	20	34		
JUN												
23...	1.0	1.1	2.60	2.60	2.60	2.60	8.0	8.5	75	53		
AUG												
19...	1.0	1.2	9.30	3.50	3.60	3.90	11	6.8	28	22		



## SAN JACINTO RIVER BASIN

## 080/0000 EAST FORK SAN JACINTO RIVER NEAR CLEVELAND, TX

LOCATION.--Lat 30°20'11", long 95°06'14", Liberty County, Hydrologic Unit 12040103, near left bank at downstream side of bridge on State Highway 105, 1,880 ft downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.2 mi west of Cleveland, and 4.3 mi downstream from Winter Creek.

DRAINAGE AREA.--325 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: September 1961 to April 1964, January 1968 to September 1989. Biochemical analyses: August 1983 to September 1989. Pesticide analyses: January to August 1984.

GAGE.--Water-stage recorder. Datum of gage is 107.98 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 13, 1955, at site 1,800 ft upstream at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are no large diversions above station. Rain gage and gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1935, reached a stage of 23.6 ft (discharge, 53,500 ft<sup>3</sup>/s), present site and datum, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 24	1300	3,970	15.73	Feb. 27	1000	3,860	15.34
Jan. 20	2400	3,290	15.07	Mar. 6	1600	6,100	16.94
Feb. 6	2100	6,630	17.21	Apr. 22	1600	3,080	14.53

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	81	65	291	431	358	186	150	302	e56	25	15
2	24	62	72	239	333	262	132	113	996	e50	25	15
3	24	40	88	221	319	219	110	91	854	e42	79	18
4	23	35	78	212	1040	843	98	85	681	e48	76	29
5	22	34	69	218	2230	2880	123	90	743	e48	38	42
6	21	32	62	222	5140	5500	307	74	288	e45	29	49
7	21	33	58	215	5290	4420	293	97	220	e41	26	44
8	20	37	55	305	3250	2320	215	69	292	e35	24	38
9	20	43	146	468	1180	606	145	57	193	e32	23	35
10	20	37	872	341	401	367	115	51	136	e30	22	33
11	21	36	726	228	302	282	100	50	158	e28	23	30
12	20	35	259	687	274	229	88	49	96	e25	32	28
13	19	33	156	1320	263	198	79	47	79	e24	36	26
14	19	31	119	1720	455	178	71	45	72	e24	27	24
15	18	30	99	1800	707	163	66	43	74	e26	24	24
16	18	30	88	753	451	152	64	42	78	e30	22	26
17	17	170	81	302	299	143	65	52	65	e33	21	22
18	17	281	82	985	238	141	266	63	56	e38	20	22
19	17	125	119	1920	216	168	900	83	51	e40	19	22
20	17	117	146	2790	179	134	1470	104	48	e48	20	21
21	18	112	396	3090	151	119	2230	94	54	e70	20	20
22	18	108	1470	2110	511	117	2950	79	81	e55	19	20
23	19	96	2290	1160	1100	112	2600	78	e98	e62	18	20
24	19	71	3730	1150	1380	102	724	67	e130	e70	18	19
25	19	56	2980	787	2270	97	288	82	e100	e64	17	18
26	19	49	1300	388	2950	92	178	362	e75	e61	17	19
27	18	47	1090	611	3650	86	131	179	e52	e50	16	19
28	18	51	1330	1130	2800	174	107	893	e95	e42	15	20
29	21	54	1400	1380	945	650	101	790	e140	32	16	19
30	40	50	1090	1530	---	623	115	378	e80	29	15	18
31	62	---	436	878	---	344	---	198	---	27	15	---
TOTAL	674	2016	20952	29451	38755	22079	14317	4655	6387	1305	797	755
MEAN	21.7	67.2	676	950	1336	712	477	150	213	42.1	25.7	25.2
MAX	62	281	3730	3090	5290	5500	2950	893	996	70	79	49
MIN	17	30	55	212	151	86	64	42	48	24	15	15
AC-1.1	1340	4000	41560	58420	76870	43790	28400	9230	12670	2590	1580	1500
CFSM	.07	.21	2.08	2.92	4.11	2.19	1.47	.46	.66	.13	.08	.08
IN.	.08	.23	2.40	3.37	4.44	2.53	1.64	.53	.73	.15	.09	.09

e Estimated

SAN JACINTO RIVER BASIN

53

08070000 EAST FORK SAN JACINTO RIVER NEAR CLEVELAND, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1992, BY WATER YEAR (WY)

MEAN	108	279	254	345	388	255	351	321	266	94.6	52.8	88.5
MAX	1031	3101	1613	1712	1336	748	2302	1473	2023	676	939	894
(WY)	1950	1941	1941	1974	1992	1973	1945	1983	1973	1989	1983	1961
MIN	5.61	9.58	14.6	13.0	20.2	17.1	15.5	18.1	12.0	5.70	5.51	4.46
(WY)	1957	1957	1957	1957	1971	1971	1971	1963	1954	1971	1956	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1940 - 1992	
ANNUAL TOTAL	131559		142143		232	
ANNUAL MEAN	360		388		733	
HIGHEST ANNUAL MEAN					22.8	
LOWEST ANNUAL MEAN					43200	
HIGHEST DAILY MEAN	3730	Dec 24	5500	Mar 6	Nov 25	1940
LOWEST DAILY MEAN	17	Oct 17	15	Aug 28	Aug 23	1956
ANNUAL SEVEN-DAY MINIMUM	17	Oct 15	15	Aug 27	Aug 19	1956
INSTANTANEOUS PEAK FLOW			6630	Feb 6	Nov 24	1940
INSTANTANEOUS PEAK STAGE			17.21	Feb 6	Nov 24	1940
ANNUAL RUNOFF (AC-FT)	260900		281900		168300	
ANNUAL RUNOFF (CFSM)	1.11		1.19		.71	
ANNUAL RUNOFF (INCHES)	15.06		16.27		9.71	
10 PERCENT EXCEEDS	1140		1140		481	
50 PERCENT EXCEEDS	93		79		48	
90 PERCENT EXCEEDS	21		20		13	

## SAN JACINTO RIVER BASIN

08070200 EAST FORK SAN JACINTO RIVER NEAR NEW CANEY, TX

LOCATION.--Lat 30°08'43", long 95°06'14", Montgomery County, Hydrologic Unit 12040103, on right bank at downstream side of bridge on Farm Road 1485, 1.0 mi upstream from Church House Gully, 5.5 mi east of New Caney, and 5.9 mi upstream from Caney Creek.

DRAINAGE AREA.--388 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1952-58, 1969-76, 1983-84, May 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 43.98 ft above National Geodetic Vertical Datum of 1929 (from Texas Highway Department bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are no known diversions. Stage and rainfall radio-telemetry owned by Harris County Flood Control District located at station. The maximum discharge for period of record is from rating curve extended above 6,200 ft<sup>3</sup>/s on basis of a velocity-area study.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1973 reached a stage of 29.6 ft, from floodmark on left bank, identified by local resident. Flood in November 1940 may have been slightly higher.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft<sup>3</sup>/s :

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 25	2000	3,580	16.58	Feb. 28	1100	3,490	16.44
Jan. 22	0800	3,160	15.92	Mar. 3	2300	4,030	17.29
Feb. 7	2400	5,640	19.86	Mar. 7	1400	5,480	19.64

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	60	59	509	e825	1140	444	176	311	69	38	26
2	30	64	85	345	e520	565	296	207	722	64	36	26
3	30	59	81	288	e450	449	230	163	1220	55	35	26
4	30	45	79	258	e850	1680	194	141	967	51	62	27
5	28	41	75	258	e1840	3520	235	163	746	60	75	31
6	27	39	67	277	e3080	3480	596	134	812	58	49	43
7	27	39	62	262	5020	5190	538	112	530	50	41	48
8	27	39	60	384	4930	4100	446	132	332	45	37	39
9	25	40	109	618	3080	2200	340	105	345	42	35	35
10	24	44	226	572	1260	840	256	89	255	40	35	33
11	24	42	717	392	577	559	210	82	370	38	33	31
12	25	41	659	915	484	452	180	78	245	37	47	30
13	25	41	270	1210	454	389	159	77	147	36	43	29
14	26	39	171	1410	453	349	145	75	130	35	44	29
15	26	38	127	1650	716	320	134	72	104	35	39	29
16	24	36	99	1730	817	297	125	70	93	36	36	28
17	23	306	86	e902	589	279	122	71	91	41	34	28
18	22	457	88	e561	440	264	131	87	78	43	33	28
19	22	303	112	e1100	366	260	385	101	68	46	32	27
20	22	182	131	e1780	322	281	921	120	62	52	31	27
21	23	134	554	2680	265	233	1340	138	57	58	31	26
22	23	117	1810	3090	562	215	1930	129	62	96	31	25
23	23	103	1870	2350	1170	206	2480	111	110	67	31	24
24	23	94	2160	1430	1720	196	2340	109	96	83	30	24
25	23	75	3240	1300	2810	187	934	153	145	88	29	24
26	23	63	3050	880	2690	178	431	123	111	79	29	23
27	23	59	1960	834	2890	168	297	464	81	54	28	23
28	23	54	1390	1130	3340	195	229	768	72	52	28	23
29	23	52	1480	1380	2630	632	185	1520	207	48	27	23
30	25	56	1480	1560	---	851	166	1020	107	44	27	23
31	38	---	1160	e1700	---	724	---	489	---	40	27	---
TOTAL	788	2762	23517	33755	45150	30399	16419	7279	8676	1642	1133	858
MEAN	25.4	92.1	759	1089	1557	981	547	235	289	53.0	36.5	28.6
MAX	38	457	3240	3090	5020	5190	2480	1520	1220	96	75	48
MIN	22	36	59	258	265	168	122	70	57	35	27	23
AC-FT	1560	5480	46650	66950	89560	60300	32570	14440	17210	3260	2250	1700
CFSM	.07	.24	1.96	2.81	4.01	2.53	1.41	.61	.75	.14	.09	.07
IN.	.08	.26	2.25	3.24	4.33	2.91	1.57	.70	.83	.16	.11	.08

e Estimated

SAN JACINTO RIVER BASIN

55

08070200 EAST FORK SAN JACINTO RIVER NEAR NEW CANEY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1992, BY WATER YEAR (WY)

MEAN	86.6	216	375	453	610	464	333	410	442	190	34.9	47.5
MAX	369	626	828	1089	1557	981	958	1330	1596	849	49.0	105
(WY)	1985	1986	1987	1992	1992	1992	1991	1989	1986	1989	1989	1986
MIN	15.7	20.6	31.2	99.5	191	84.0	68.8	45.7	29.6	27.7	20.8	17.6
(WY)	1989	1991	1990	1986	1988	1986	1986	1988	1988	1988	1990	1988

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1985 - 1992	
ANNUAL TOTAL	139346		172378			
ANNUAL MEAN	382		471		303	
HIGHEST ANNUAL MEAN					471	
LOWEST ANNUAL MEAN					139	
HIGHEST DAILY MEAN	3240	Dec 25	5190	Mar 7	12800	May 19 1989
LOWEST DAILY MEAN	21	Aug 27	22	Oct 18	9.8	Nov 1 1990
ANNUAL SEVEN-DAY MINIMUM	22	Aug 24	23	Oct 17	10	Oct 29 1990
INSTANTANEOUS PEAK FLOW			5640	Feb 7	16100	May 19 1989
INSTANTANEOUS PEAK STAGE			19.86	Feb 7	24.67	May 19 1989
INSTANTANEOUS LOW FLOW					9.8	*
ANNUAL RUNOFF (AC-FT)	276400		341900		219800	
ANNUAL RUNOFF (CFSM)	.98		1.21		.78	
ANNUAL RUNOFF (INCHES)	13.36		16.53		10.63	
10 PERCENT EXCEEDS	1210		1480		863	
50 PERCENT EXCEEDS	105		109		85	
90 PERCENT EXCEEDS	29		27		24	

\* Minimum, 9.8 ft<sup>3</sup>/s October 31 to November 4, 1990.



08070200 EAST FORK SAN JACINTO RIVER NEAR NEW CANEY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: August 1983 to current year. Pesticide analyses: August 1985 to September 1990.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1984 to current year.

WATER TEMPERATURE: June 1984 to current year.

INSTRUMENTATION.--Beginning June 1984, specific conductance and water temperature are recorded continuously at this station. Since June 1984, a stage-activated water sampler provides water-quality samples over selected runoff events.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 870 microsiemens May 7, 1985; minimum, 19 microsiemens Nov. 17, 1992.

WATER TEMPERATURE: Maximum, 32.0°C Aug. 21, 1990; minimum, 1.0°C Dec. 24, 1989.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 330 microsiemens Jan. 8; minimum, 19 microsiemens Nov. 17.

WATER TEMPERATURE: Maximum, 29.5°C July 10; minimum, 7.5°C Jan. 22.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB											
24...	1800	2120	--	--	--	--	--	--	--	--	--
25...	1000	2920	--	--	--	--	--	--	--	--	--
27...	1400	2890	--	--	--	--	--	--	--	--	--
28...	1100	3490	--	--	--	--	--	--	--	--	--
MAY											
12...	0913	78	254	6.7	21.0	7.6	85	88	140	63	22
JUN											
24...	0819	73	182	7.1	25.5	6.7	82	220	470	44	12
AUG											
20...	0835	32	158	6.9	23.5	7.1	83	180	100	31	13

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
FEB											
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
MAY											
12...	21	2.6	24	1	2.1	41	5.9	54	0.20	17	153
JUN											
24...	14	2.1	18	1	1.3	32	3.9	31	<0.10	14	105
AUG											
20...	9.7	1.6	16	1	1.4	18	3.6	33	<0.10	13	91

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB										
24...	0.050	--	0.020	--	0.070	--	0.080	--	1.0	--
25...	0.032	--	0.030	--	0.062	--	0.130	--	0.77	--
27...	--	--	0.030	--	<0.050	--	0.060	--	0.84	--
28...	--	--	0.030	--	<0.050	--	0.050	--	0.75	--
MAY										
12...	0.320	--	0.020	<0.010	0.340	0.320	0.030	0.020	0.27	--
JUN										
24...	0.230	0.230	0.020	<0.010	0.250	0.240	0.030	0.030	0.27	0.17
AUG										
20...	0.180	--	0.020	<0.010	0.200	0.220	0.030	0.050	0.37	0.15

08070200 EAST FORK SAN JACINTO RIVER NEAR NEW CANEY, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE		NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB 24...		--	1.1	0.190	--	--	0.070	--	--	--	--
25...		--	0.90	0.090	--	--	0.040	--	--	--	--
27...		--	0.90	0.100	--	--	0.040	--	--	--	--
28...		--	0.80	0.080	--	--	0.040	--	--	--	--
MAY 12...		<0.20	0.30	0.090	0.060	0.040	0.060	0.12	4.8	230	63
JUN 24...		0.20	0.30	0.080	0.040	0.030	0.060	0.09	5.7	370	69
AUG 20...		0.20	0.40	0.080	0.050	0.040	0.050	0.12	2.8	340	54
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)	
OCT.	1991	788	180	108	230	30	64	11	23	44	
NOV.	1991	2762	125	79	586	19	141	10	78	33	
DEC.	1991	23517	90	58	3690	13	798	8.9	568	25	
JAN.	1992	33755	104	66	6060	15	1370	9.7	880	29	
FEB.	1992	45150	86	56	6860	11	1370	9.4	1150	25	
MAR.	1992	30399	65	44	3580	7.9	645	8.1	661	20	
APR.	1992	16419	78	52	2290	10	455	8.7	385	23	
MAY	1992	7279	105	68	1330	15	292	10	201	29	
JUNE	1992	8676	249	138	3230	50	1160	4.4	103	50	
JULY	1992	1642	144	90	399	22	98	12	51	38	
AUG.	1992	1133	151	94	288	23	72	12	36	39	
SEPT	1992	858	144	90	209	22	51	12	27	38	
TOTAL		172378	**	**	28800	**	6520	**	4160	**	
WTD.AVG.		471	97	62	**	14	**	8.9	**	27	

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	206	199	203	115	111	114	203	201	202	137	119	128
2	208	202	204	116	105	111	203	200	201	155	139	147
3	209	206	208	106	101	103	200	195	198	186	157	168
4	212	207	209	117	106	111	195	189	192	227	188	208
5	214	209	211	134	113	124	189	182	186	264	228	242
6	215	211	213	143	133	138	186	174	182	292	266	280
7	215	209	212	151	143	147	187	185	186	320	292	304
8	216	210	213	161	151	156	202	188	194	330	208	307
9	216	206	212	168	161	164	204	142	180	201	149	167
10	215	205	211	170	168	169	218	158	174	161	140	148
11	214	202	209	174	169	171	209	92	116	192	163	178
12	208	199	204	185	174	179	163	121	153	199	105	156
13	205	197	201	208	186	195	175	164	170	110	94	103
14	200	190	195	227	208	218	200	175	187	94	81	85
15	193	183	188	247	227	236	207	200	203	89	84	87
16	189	171	180	264	248	256	230	203	215	89	81	85
17	180	165	173	271	19	127	246	230	238	---	---	e125
18	176	161	169	69	45	56	246	226	238	---	---	e150
19	171	157	165	102	71	87	226	212	220	---	---	e110
20	168	157	163	123	103	113	242	79	223	---	---	e55
21	166	151	160	134	124	130	240	87	167	---	---	e65
22	162	149	155	141	134	137	82	41	58	67	61	64
23	155	150	153	145	141	143	52	42	45	75	67	71
24	155	151	154	149	145	147	50	41	46	89	75	81
25	155	149	152	153	149	151	54	50	52	105	89	97
26	151	146	149	159	153	156	86	50	60	123	106	115
27	147	142	144	170	159	163	109	85	95	138	124	132
28	143	137	140	183	170	177	111	103	108	136	126	129
29	138	132	136	193	183	188	124	106	114	130	112	122
30	142	128	131	201	193	197	122	112	114	113	83	104
31	128	115	121	---	---	---	132	113	120	84	81	83
MONTH	216	115	179	271	19	152	246	41	156	330	61	139

e - Estimated



## SAN JACINTO RIVER BASIN

59

08070200 EAST FORK SAN JACINTO RIVER NEAR NEW CANEY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	23.5	21.0	22.5	19.0	17.0	18.0	---	---	---	12.5	11.5	11.5
2	24.0	21.5	22.5	---	---	---	---	---	---	12.5	11.5	12.0
3	24.0	21.5	23.0	---	---	---	---	---	---	12.5	11.5	12.0
4	24.0	21.5	23.0	---	---	---	---	---	---	12.5	11.5	12.0
5	23.5	22.0	23.0	---	---	---	---	---	---	12.5	12.0	12.5
6	22.0	20.5	21.0	---	---	---	---	---	---	13.0	12.5	13.0
7	21.5	19.5	20.5	---	---	---	---	---	---	14.0	13.0	13.5
8	20.5	18.5	19.5	---	---	---	---	---	---	15.0	14.0	14.5
9	20.5	17.5	19.0	---	---	---	---	---	---	15.0	14.5	15.0
10	20.5	17.5	19.0	---	---	---	---	---	---	14.5	13.5	14.0
11	21.0	18.0	19.5	---	---	---	---	---	---	13.5	12.5	13.0
12	22.0	19.0	20.5	---	---	---	---	---	---	12.5	11.0	11.5
13	22.5	19.5	21.0	---	---	---	---	---	---	12.5	11.5	12.0
14	22.5	21.0	22.0	---	---	---	---	---	---	12.0	11.0	11.0
15	22.0	20.5	21.5	---	---	---	---	---	---	11.0	10.5	10.5
16	21.0	19.0	20.5	---	---	---	---	---	---	10.5	9.0	9.5
17	21.0	18.5	20.0	---	---	---	---	---	---	---	---	---
18	21.0	18.5	20.0	---	---	---	---	---	---	---	---	---
19	21.0	19.0	20.5	---	---	---	---	---	---	---	---	---
20	20.5	19.0	19.5	---	---	---	---	---	---	---	---	---
21	20.5	18.0	19.5	---	---	---	---	---	---	---	---	---
22	21.5	19.0	20.0	---	---	---	17.5	16.5	17.0	9.0	7.5	8.0
23	22.5	20.5	21.5	---	---	---	17.5	16.5	17.0	9.5	9.0	9.0
24	23.5	21.0	22.5	---	---	---	16.5	15.0	16.0	10.0	9.0	9.5
25	23.5	22.0	23.0	---	---	---	15.0	13.5	14.5	10.0	9.5	10.0
26	24.0	22.5	23.5	---	---	---	13.5	12.5	13.0	10.5	10.0	10.5
27	24.5	22.5	23.5	---	---	---	12.5	12.0	12.0	11.5	10.5	11.0
28	25.0	21.5	23.5	---	---	---	12.0	11.5	11.5	11.5	11.5	11.5
29	25.5	20.0	23.5	---	---	---	11.5	11.5	11.5	11.5	11.5	11.5
30	24.0	21.5	22.5	---	---	---	11.5	11.0	11.5	11.5	10.0	11.0
31	21.5	19.0	20.5	---	---	---	11.5	11.0	11.5	10.5	10.0	10.0
MONTH	25.5	17.5	21.5	19.0	17.0	18.0	17.5	11.0	13.5	15.0	7.5	11.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.5	10.0	10.0	15.0	14.0	14.5	18.0	16.5	17.5	21.5	19.5	20.5
2	11.0	10.0	10.5	16.0	14.5	15.5	17.0	15.5	16.5	22.0	20.0	20.5
3	11.5	11.0	11.0	16.5	15.5	16.0	17.0	15.0	16.0	22.5	20.5	21.5
4	---	---	---	16.5	15.5	16.0	16.5	14.5	15.0	22.0	21.0	21.5
5	---	---	---	16.5	15.5	16.0	15.0	14.5	15.0	23.0	20.5	21.5
6	---	---	---	---	---	---	15.5	14.5	15.0	22.5	20.5	21.5
7	---	---	---	18.0	17.5	18.0	17.0	15.0	16.0	22.0	19.5	20.5
8	---	---	---	18.5	18.0	18.5	17.5	16.0	17.0	21.5	18.5	20.0
9	---	---	---	18.5	18.5	18.5	18.5	17.0	17.5	21.0	18.5	20.0
10	---	---	---	18.5	16.0	17.5	19.5	17.5	18.5	21.0	19.0	20.0
11	---	---	---	16.0	14.5	15.0	20.5	18.5	19.5	21.5	19.5	20.5
12	---	---	---	14.5	14.0	14.0	21.5	19.0	20.0	23.0	20.5	22.0
13	14.5	13.0	14.0	15.0	13.5	14.0	22.0	20.0	21.0	24.5	21.5	23.0
14	16.0	14.5	15.5	15.5	13.5	14.5	22.5	20.5	21.5	25.0	22.5	23.5
15	17.0	16.0	16.5	17.0	14.5	15.5	22.5	20.5	21.5	24.5	23.0	24.0
16	17.5	16.5	17.0	17.5	15.5	16.5	23.0	20.5	22.0	23.5	23.0	23.0
17	17.5	16.5	17.0	17.5	17.0	17.0	22.5	21.0	21.5	23.0	22.5	22.5
18	17.0	16.0	16.5	19.0	17.5	18.0	22.0	20.5	21.5	23.0	22.0	22.5
19	16.5	15.0	16.0	19.0	17.5	18.0	21.5	20.0	21.0	23.5	21.5	22.5
20	15.5	14.5	15.0	18.5	17.0	17.5	20.5	19.5	20.0	24.0	21.5	23.0
21	15.0	13.5	14.5	17.0	16.5	17.0	19.5	19.0	19.5	24.5	22.0	23.0
22	15.5	14.5	15.0	18.5	16.5	17.5	19.5	19.0	19.0	24.0	22.0	23.0
23	15.5	15.5	15.5	17.5	15.5	16.5	20.0	19.5	19.5	25.0	22.0	23.5
24	16.0	15.5	15.5	16.5	15.0	16.0	20.5	20.0	20.5	25.0	22.5	23.5
25	15.5	14.5	15.5	18.0	15.5	16.5	21.5	20.5	21.0	24.5	23.0	23.5
26	14.5	13.5	14.0	18.5	16.0	17.0	21.5	20.0	20.5	25.0	22.5	23.5
27	13.5	13.0	13.0	19.0	16.5	17.5	21.0	19.5	20.0	---	---	---
28	13.5	13.0	13.0	18.0	17.0	17.5	21.5	19.0	20.0	23.0	21.5	22.0
29	14.5	13.5	13.5	17.5	16.5	17.0	21.0	20.0	20.5	22.0	20.5	21.0
30	---	---	---	17.5	17.0	17.0	20.5	20.0	20.0	20.5	20.0	20.5
31	---	---	---	17.5	16.5	17.0	---	---	---	20.5	20.0	20.5
MONTH	17.5	10.0	14.5	19.0	13.5	16.5	23.0	14.5	19.0	25.0	18.5	22.0





## SAN JACINTO RIVER BASIN

61

U8070500 CANEY CREEK NEAR SPLENDORA, TX

LOCATION.--Lat 30°15'34", long 95°18'08", Montgomery County, Hydrologic Unit 12040103, on left bank at downstream side of bridge on Farm Road 2090, 4 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 8 mi west of Splendora.

DRAINAGE AREA.--105 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1944 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 118.44 ft above National Geodetic Vertical Datum of 1929. Prior to June 17, 1965, at site 170 ft upstream at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. No diversion above station. Minimum discharge for period of record was caused by construction upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1885, 27.0 ft in November 1940, present site and datum, from information by local resident. Flood in May 1935 reached a stage of 24.3 ft, present site and datum, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 23	0700	2,120	13.92	Mar. 5	1900	3,650	17.21
Jan. 13	1100	1,590	12.36	Apr. 19	1000	2,000	13.59
Jan. 19	1800	2,280	14.33	Apr. 21	1000	1,600	12.38
Feb. 6	0800	2,210	14.16	Jun. 2	1800	1,560	12.24
Feb. 26	0900	1,720	12.77				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	35	21	71	91	89	58	65	140	37	28	23
2	14	29	25	66	80	78	51	61	1200	35	28	24
3	14	21	29	65	98	73	48	57	1030	33	46	24
4	15	19	26	61	797	492	46	55	218	32	46	24
5	14	19	22	64	1900	2580	55	54	105	34	33	26
6	14	20	21	73	1630	1300	173	52	103	33	31	27
7	13	21	20	68	267	223	109	48	303	30	30	25
8	13	24	20	88	149	145	66	46	131	29	28	24
9	13	27	80	110	112	117	54	45	82	28	27	23
10	13	24	318	76	96	100	49	44	70	28	27	24
11	13	22	74	63	89	83	47	43	68	27	28	25
12	13	21	53	396	92	76	45	43	57	27	126	27
13	13	21	45	1170	109	72	43	44	54	26	70	24
14	14	21	40	197	110	69	42	42	54	26	43	24
15	14	21	37	105	102	67	40	41	58	26	35	27
16	14	22	36	83	88	64	39	42	50	27	33	25
17	14	105	35	74	79	62	50	52	45	27	31	24
18	15	58	35	511	79	62	727	53	43	32	29	23
19	15	39	48	1750	71	68	1430	53	42	91	28	22
20	15	41	50	460	64	60	617	50	40	52	28	22
21	16	39	195	182	60	57	1120	63	43	39	28	22
22	16	37	1120	269	176	57	169	84	59	36	28	22
23	17	31	1440	470	877	56	97	93	46	53	27	22
24	17	23	186	161	259	53	78	46	43	143	27	22
25	16	20	99	109	956	52	428	40	40	71	26	21
26	15	18	167	92	1350	51	361	53	37	44	24	21
27	17	20	533	217	273	50	109	99	37	37	24	21
28	17	21	372	723	142	78	83	1030	38	33	23	22
29	17	21	140	218	107	268	72	374	37	31	23	21
30	19	21	97	133	---	124	68	103	35	30	23	20
31	26	---	80	106	---	71	---	73	---	29	23	---
TOTAL	470	861	5464	8231	10303	6797	6374	3048	4308	1226	1051	701
MEAN	15.2	28.7	176	266	355	219	212	98.3	144	39.5	33.9	23.4
MAX	26	105	1440	1750	1900	2580	1430	1030	1200	143	126	27
MIN	13	18	20	61	60	50	39	40	35	26	23	20
AC-FT	932	1710	10840	16330	20440	13480	12640	6050	8540	2430	2080	1390
CFSM	.14	.27	1.68	2.53	3.38	2.09	2.02	.94	1.37	.38	.32	.22
IN.	.17	.31	1.94	2.92	3.65	2.41	2.26	1.08	1.53	.43	.37	.25

## SAN JACINTO RIVER BASIN

08070500 CANEY CREEK NEAR SPLENDORA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1992, BY WATER YEAR (WY)

MEAN	49.2	76.0	81.2	111	119	81.7	112	103	93.2	40.2	27.6	38.7
MAX	381	817	277	441	368	245	606	542	843	190	262	296
(WY)	1950	1947	1977	1974	1961	1973	1945	1983	1973	1979	1983	1961
MIN	6.57	8.20	10.5	10.7	13.6	12.2	13.6	13.8	10.1	7.28	6.69	5.91
(WY)	1957	1957	1957	1957	1971	1971	1971	1956	1954	1971	1956	1956

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1945 - 1992

ANNUAL TOTAL	35102		48834			
ANNUAL MEAN	96.2		133			
HIGHEST ANNUAL MEAN					77.5	1973
LOWEST ANNUAL MEAN					190	1971
HIGHEST DAILY MEAN	1670	Jan 16	2580	Mar 5	15.9	1971
LOWEST DAILY MEAN	11	Aug 30	13	Oct 7	11100	Jun 14 1973
ANNUAL SEVEN-DAY MINIMUM	12	Aug 24	13	Oct 7	5.4	Sep 21 1956
INSTANTANEOUS PEAK FLOW			3650	Mar 5	5.5	Sep 21 1956
INSTANTANEOUS PEAK STAGE			17.21	Mar 5	35000	Jun 14 1973
INSTANTANEOUS LOW FLOW			13	Oct 6	26.30	Jun 14 1973
ANNUAL RUNOFF (AC-FT)	69620		96860		4.1	Oct 26 1956
ANNUAL RUNOFF (CFSM)	.92		1.27		56130	
ANNUAL RUNOFF (INCHES)	12.44		17.30		.74	
10 PERCENT EXCEEDS	197		261		10.03	
50 PERCENT EXCEEDS	39		46		110	
90 PERCENT EXCEEDS	14		20		26	
					11	

## SAN JACINTO RIVER BASIN

63

08070500 CANEY CREEK NEAR SPLENDORA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: October 1962 to April 1964. Chemical and biochemical analyses: August 1983 to current year. Pesticide analyses: August 1983 to September 1990. Sediment analyses: February 1966, April 1973 to March 1975.

INSTRUMENTATION.--Stage-activated water sampler since November 1984 provides water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
MAY 12...	1107	43	122	7.0	20.5	8.2	91	96	210	37	7	
JUN 24...	1023	44	97	7.2	24.0	7.3	87	190	210	30	5	
AUG 20...	1045	27	86	6.8	22.5	8.1	93	200	250	23	4	
DATE		CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAY 12...	12		1.7	9.6	0.7	1.2	30	3.5	20	<0.10	15	83
JUN 24...	9.3		1.7	8.2	0.6	1.0	25	2.9	14	<0.10	15	69
AUG 20...	6.9		1.3	7.5	0.7	1.0	19	2.3	14	<0.10	14	60
DATE		NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	
MAY 12...		0.360	--	0.010	<0.010	0.370	0.350	0.020	0.020	--	--	
JUN 24...		0.320	0.310	0.020	0.010	0.340	0.320	0.050	0.040	0.25	0.16	
AUG 20...		0.330	--	0.010	<0.010	0.340	0.340	0.020	0.040	--	--	
DATE		NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	
MAY 12...		<0.20	<0.20	0.040	0.030	<0.010	0.020	--	4.0	620	34	
JUN 24...		0.20	0.30	0.050	0.020	0.010	0.030	0.03	5.2	580	43	
AUG 20...		<0.20	<0.20	0.010	<0.010	<0.010	0.020	--	3.7	440	33	



## SAN JACINTO RIVER BASIN

08071280 LUCE BAYOU ABOVE LAKE HOUSTON NEAR HUFFMAN, TX

LOCATION.--Lat 30°06'34", long 95°03'35", Liberty County, Hydrologic Unit 12040103, on left bank, in Tricontinental Pipeline Co. right-of-way, 1.1 mi upstream from Key Gully, 3.1 mi east of Huffman-Cleveland Road, and 6.3 mi north-east of Huffman.

DRAINAGE AREA.--218 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, at site 2.2 mi downstream, water years, 1970, 1972, 1975; February to April 1984 (discharge measurements only), May 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 39.91 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are diversions above station for irrigation, but amounts are unknown. Harris County Flood Control District stage and rainfall radio-telemetry located at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 24	0200	3,440	23.85	Feb. 26	1600	3,220	23.99
Jan. 20	1900	2,870	23.25	Mar. 5	1100	5,430	26.02
Feb. 6	1900	2,350	22.62	May 29	1600	1,330	20.77

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.73	13	294	578	984	255	45	1070	93	.82	.03
2	1.1	.63	15	181	322	628	143	30	1130	31	.53	.03
3	1.4	3.5	45	152	271	243	112	21	1050	14	.57	.03
4	1.3	7.3	94	137	1030	871	78	14	998	12	.47	.02
5	.89	3.8	72	130	1680	5110	79	14	1030	8.0	.25	.02
6	.69	2.3	38	134	2210	5190	440	13	904	8.7	.13	.01
7	.67	1.9	22	135	2210	4400	461	55	620	11	.08	.00
8	.66	2.6	16	387	1690	3030	435	57	334	5.4	13	.00
9	.60	1.9	231	670	1230	1860	310	22	223	2.4	2.7	.00
10	.52	1.2	260	621	882	1150	162	12	169	1.2	.54	.00
11	.46	.89	227	519	530	709	128	7.9	228	.81	2.0	.00
12	.41	1.3	159	612	268	278	105	6.0	120	.68	1.3	.00
13	.40	2.3	135	752	217	165	70	4.5	98	.49	.68	.00
14	.38	1.9	126	814	203	128	41	3.8	85	.40	2.7	.00
15	.36	1.6	105	1040	215	111	28	3.2	49	.26	3.2	.00
16	.32	1.3	71	919	230	91	23	2.8	25	.23	1.7	.00
17	.32	284	41	612	207	63	19	6.2	16	.17	1.1	.00
18	.31	576	66	1290	171	48	19	11	9.9	1.4	.66	.02
19	.30	449	125	2450	150	39	17	72	7.0	3.3	.48	.04
20	.28	517	125	2690	131	33	19	104	5.4	4.9	.31	.07
21	.28	446	360	2550	114	28	19	113	4.3	4.0	.18	.08
22	.28	182	2590	1900	285	25	34	128	3.5	4.4	.06	.08
23	.27	125	3280	1330	616	22	25	98	3.3	7.0	.03	.09
24	.28	88	3260	932	868	20	33	19	3.7	1.8	.02	.09
25	.30	43	2370	634	2760	18	35	7.4	5.9	1.8	.02	.09
26	.30	25	1680	362	3110	17	26	19	5.9	44	.05	.09
27	.31	18	1610	415	2810	15	151	44	5.7	21	.06	.07
28	.30	14	1170	654	2030	43	208	406	5.8	3.6	.06	.06
29	.24	12	924	703	1400	225	128	1210	4.5	9.6	.05	.05
30	.30	9.9	766	793	---	330	78	1190	90	4.1	.05	.05
31	.44	---	528	782	---	380	---	1210	---	1.6	.04	---
TOTAL	16.07	2824.05	20524	25594	28418	26254	3681	4948.8	8303.9	302.24	33.84	1.02
MEAN	.52	94.1	662	826	980	847	123	160	277	9.75	1.09	.034
MAX	1.4	576	3280	2690	3110	5190	461	1210	1130	93	13	.09
MIN	.24	.63	13	130	114	15	17	2.8	3.3	.17	.02	.00
AC-FI	32	5600	40710	50770	56370	52070	7300	9820	16470	599	67	2.0
CFSM	.00	.43	3.04	3.79	4.50	3.88	.56	.73	1.27	.04	.01	.00
IN.	.00	.48	3.50	4.37	4.85	4.48	.63	.84	1.42	.05	.01	.00

SAN JACINTO RIVER BASIN

65

08071280 LUCE BAYOU ABOVE LAKE HOUSTON NEAR HUFFMAN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1992, BY WATER YEAR (WY)

MEAN	38.0	132	283	239	397	315	197	393	453	85.5	5.29	11.1
MAX	131	490	831	826	980	847	1047	2443	1667	334	11.1	58.0
(WY)	1985	1987	1987	1992	1992	1992	1991	1989	1987	1987	1987	1986
MIN	.46	.17	1.43	6.22	8.36	25.0	3.06	2.95	2.24	2.09	1.09	.034
(WY)	1989	1989	1989	1989	1989	1986	1987	1988	1990	1988	1992	1992

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1985 - 1992	
ANNUAL TOTAL	99140.87		120900.92		211	
ANNUAL MEAN	272		330		350	
HIGHEST ANNUAL MEAN					62.7	
LOWEST ANNUAL MEAN					19600	
HIGHEST DAILY MEAN	3890	Apr 8	5190	Mar 6	19600	May 19 1989
LOWEST DAILY MEAN	.24	Oct 29	.00	Sep 7	.00	Nov 14 1987
ANNUAL SEVEN-DAY MINIMUM	.28	Oct 19	.00	Sep 7	.00	Aug 26 1988
INSTANTANEOUS PEAK FLOW			5430	Mar 5	21400	May 19 1989
INSTANTANEOUS PEAK STAGE			26.02	Mar 5	33.45	May 19 1989
INSTANTANEOUS LOW FLOW			.00	Sep 6	.00	at times
ANNUAL RUNOFF (AC-FT)	196600		239800		153000	
ANNUAL RUNOFF (CFSM)	1.25		1.52		.97	
ANNUAL RUNOFF (INCHES)	16.92		20.63		13.16	
10 PERCENT EXCEEDS	869		1030		479	
50 PERCENT EXCEEDS	40		22		11	
90 PERCENT EXCEEDS	.83		.08		.34	

## SAN JACINTO RIVER BASIN

08071280 LUCE BAYOU ABOVE LAKE HOUSTON NEAR HUFFMAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical February 1984 to current year. Pesticide analyses: February 1984 to September 1990.

INSTRUMENTATION.--Stage-activated water sampler since May 1984 provides water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
MAY 13...	0925	4.5	129	6.6	22.5	4.6	53	140	120	35	2	
JUN 25...	0925	5.9	167	6.9	26.0	3.4	42	500	250	54	10	
AUG 21...	1000	0.20	168	6.9	22.5	3.9	45	150	120	52	0	
DATE		CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAY 13...	11	1.9	13		1	1.4	33	3.0	19	<0.10	5.3	76
JUN 25...	17	2.7	14		0.8	1.4	44	3.2	25	<0.10	9.6	101
AUG 21...	17	2.4	13		0.8	1.8	52	2.4	20	0.10	3.9	93
DATE		NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	
MAY 13...		0.200	0.190	0.020	0.020	0.220	0.210	0.070	0.070	0.63	0.63	
JUN 25...		0.200	0.210	0.020	0.010	0.220	0.220	0.050	0.040	0.75	0.66	
AUG 21...	--	--	--	<0.010	<0.010	<0.050	0.140	0.030	0.020	0.47	0.38	
DATE		NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	
MAY 13...		0.70	0.70	0.140	0.080	0.060	0.100	0.18	17	820	76	
JUN 25...		0.70	0.80	0.100	0.040	0.040	0.080	0.12	16	760	180	
AUG 21...		0.40	0.50	0.040	0.060	0.030	0.030	0.09	10	420	140	

## 08072000 LAKE HOUSTON NEAR SHELDON, TX

LOCATION.--Lat 29°54'58", long 95°08'28", Harris County, Hydrologic Unit 12040101, at intake structure on San Jacinto River near right bank 100 ft upstream from Lake Houston Dam, 4.0 mi north of Sheldon, 4.6 mi upstream from bridge on U.S. Highway 90, and 18 mi northeast of Houston.

DRAINAGE AREA.--2,828 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1954 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage at dam is 0.70 ft below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence.

REMARKS.--The lake is formed by two earthfill embankment sections and a 3,160-foot long concrete spillway midway between the embankment sections. The dam was completed and storage began Apr. 9, 1954. The spillway includes two tainter gates, 18.0 x 20.5 ft, that can be used for control of releases below gage heights of 44.5 ft and above 28.0 ft. In addition, there is a 36-inch-diameter sluice gate that is used for low-flow releases. Water is used for irrigation, municipal, and industrial supply in the Houston metropolitan area. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	63.0	-
Design flood.....	57.0	-
Crest of spillway.....	44.5	146,700
Crest of tainter gates (sill).....	28.0	22,800
Lowest gated outlet (invert).....	22.0	6,180

COOPERATION.--The capacity table, furnished by the city of Houston, is based on a sedimentation study made in 1965. Records of diversions were furnished by the San Jacinto River Authority and the city of Houston.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 219,400 acre-ft May 19, 1989 (gage height, 49.60 ft); minimum since first filling of lake in August 1954, 53,380 acre-ft Dec. 1, 1971 (gage height, 34.08 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 180,600 acre-ft Mar. 5 at 1000 from 1300 hours (gage height, 47.07 ft); minimum, 137,600 acre-ft Sept. 30 (gage height, 43.73 ft).

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

43.0	129,100	45.0	152,900	47.0	179,600
44.0	140,700	46.0	165,900	48.0	194,200

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149600	146400	154300	154300	155600	158100	158400	156000	162500	153200	152900	139900
2	149200	146800	153500	152200	149800	153400	156800	155000	169200	153200	154300	139800
3	148900	146300	153000	155900	147300	147800	155500	153500	172700	153400	155800	140000
4	148800	145600	152800	157100	164200	176700	155800	155000	171200	153300	155600	140000
5	148400	145300	153000	157800	171800	179600	158500	155100	169100	153000	155200	139900
6	147900	145500	153000	157800	173800	176900	161300	154300	164900	152800	154800	139900
7	147500	147400	153000	158400	174000	175800	161500	154300	163300	152400	154500	139900
8	147200	147900	153300	159000	171400	169900	160000	154100	162400	152200	153900	139900
9	146800	148000	160300	156500	165900	163200	159000	152800	161300	151800	153700	139800
10	146600	148100	159700	154500	160400	161100	157600	153400	163200	151400	153300	139900
11	146100	148300	158400	151200	157800	161600	156500	153300	161500	151100	153700	140100
12	145900	148300	157700	156900	156400	159500	156100	152900	159000	150900	154200	140100
13	145200	148100	157300	163800	154500	158200	155800	152700	160200	152800	154600	140100
14	145500	148100	155600	166000	153900	157300	155500	153800	158000	153000	154300	140900
15	145200	148300	155000	167100	153300	156900	155100	153300	156500	153200	153800	141100
16	144600	148300	154600	164700	150700	156400	155100	156500	155800	152900	153000	140900
17	144100	163700	154700	162000	150100	155600	156300	158500	155200	153200	152500	140700
18	144100	162100	155400	168800	154500	156100	167300	157300	154700	152900	151900	140600
19	143700	160300	155600	168100	156400	155500	171100	156500	154500	153000	151800	140500
20	143500	157700	156100	166200	156700	155100	167700	155900	153900	154500	151300	140100
21	142900	157100	165100	165400	156500	155400	167500	155900	155000	155800	150900	140100
22	142700	156300	170800	166200	163300	155000	165100	156300	154800	155200	150600	140200
23	142500	153500	169100	163600	168900	153500	164100	156300	154300	155800	150200	140100
24	142200	153200	165900	159800	170100	153800	164300	155900	152900	155200	150200	139500
25	142300	153300	164600	157700	174500	154200	160400	155600	154100	155200	147500	139200
26	142200	153200	165800	154800	171800	154500	159900	155200	153900	154600	140900	139100
27	141800	153200	165600	155500	170300	154600	159800	157800	153700	154200	140900	138800
28	141600	153400	164200	158700	167800	157300	160700	167300	153300	153700	140600	138700
29	142000	153800	162900	159800	163200	161300	157600	169600	153200	153700	140100	138300
30	143700	153700	161500	159900	---	161300	156100	165000	153300	153700	139900	137600
31	145300	---	158600	159000	---	160000	---	162900	---	153300	139800	---
MAX	149600	163700	170800	168800	174500	179600	171100	169600	172700	155800	155800	141100
MIN	141600	145300	152800	151200	147300	147800	155100	152700	152900	150900	139800	137600
(H)	44.38	45.06	45.44	45.47	45.79	45.55	45.25	45.77	45.03	45.03	43.92	43.73
(Φ)	-4200	+8400	+4900	+400	+4200	-3200	-3900	+6800	-9600	0.0	-13500	-2200
(H)	11650	10150	9990	7730	7190	9570	9190	10810	10810	11300	11290	10920

CAL YR 1991 MAX 173600 MIN 133200 (Φ) +25700 (H) 150480  
WTR YR 1992 MAX 179600 MIN 137600 (Φ) -11900 (H) 120600

(H) Gage height, in feet, at end of month.

(Φ) Change in contents, in acre-feet.

(H) Diversions in acre-feet, for municipal and industrial use by the city of Houston and by the San Jacinto River Authority.



## SAN JACINTO RIVER BASIN

08072000 LAKE HOUSTON NEAR SHELTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1961 to April 1964, December 1969 to current year. Biochemical analyses: August 1983 to current year. Pesticide analyses: May 1968 to August 1972, August 1983 to current year.

295516095080801 - LAKE HOUSTON SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB											
10...	1025	160000	1.00	80	7.2	11.5	0.21	9.4	85	780	580
10...	1027	--	10.0	80	7.1	11.5	--	9.2	83	--	--
10...	1029	--	20.0	80	7.1	11.5	--	9.1	83	--	--
10...	1031	--	30.0	80	7.2	11.5	--	9.1	83	--	--
10...	1033	--	46.0	80	7.1	11.5	--	8.9	81	--	--
MAY											
13...	0940	153000	1.00	135	7.6	23.5	0.30	6.6	78	48	K2
13...	0942	--	10.0	135	7.5	23.5	--	6.3	74	--	--
13...	0944	--	20.0	135	7.5	23.0	--	6.2	73	--	--
13...	0946	--	30.0	135	7.5	23.0	--	5.8	68	--	--
13...	0948	--	38.0	135	7.6	23.0	--	4.9	57	--	--
JUN											
24...	1000	153000	1.00	95	7.0	30.0	0.61	5.6	74	K4	24
24...	1002	--	10.0	95	6.7	29.5	--	4.9	65	--	--
24...	1004	--	20.0	95	6.5	26.0	--	1.4	17	--	--
24...	1006	--	30.0	95	6.5	25.0	--	1.4	17	--	--
24...	1008	--	40.0	95	6.5	25.0	--	1.4	17	--	--
24...	1010	--	44.0	95	6.6	25.0	--	1.5	18	--	--
AUG											
18...	1030	152000	1.00	145	7.5	28.5	0.30	5.8	75	K4	20
18...	1032	--	10.0	145	7.3	28.0	--	4.9	63	--	--
18...	1034	--	20.0	145	7.4	28.0	--	5.0	64	--	--
18...	1036	--	30.0	145	7.4	28.0	--	5.1	65	--	--
18...	1038	--	42.0	145	7.4	27.5	--	4.9	62	--	--

DATE	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB											
10...	29	5	9.4	1.4	5.4	0.4	1.8	24	3.5	9.1	0.10
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	28	4	9.0	1.3	5.4	0.4	2.1	24	3.5	9.2	0.10
MAY											
13...	42	5	14	1.7	9.5	0.6	2.4	37	5.5	14	<0.10
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	42	5	14	1.7	9.5	0.6	2.3	37	4.9	15	<0.10
JUN											
24...	34	3	11	1.5	6.2	0.5	1.9	31	3.2	8.8	<0.10
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	33	1	11	1.5	6.2	0.5	1.9	32	3.2	8.4	<0.10
AUG											
18...	43	2	14	1.9	13	0.9	2.4	41	5.8	17	0.10
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	43	1	14	1.9	13	0.9	2.9	42	4.6	16	0.10

## SAN JACINTO RIVER BASIN

69

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295516095080801 - LAKE HOUSTON SITE AC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
FEB											
10...	5.6	51	0.051	--	0.040	<0.010	0.091	0.087	0.090	0.060	0.71
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	5.7	52	0.031	--	0.050	<0.010	0.081	0.087	0.100	0.060	0.70
MAY											
13...	6.9	78	0.210	0.240	0.040	0.010	0.250	0.250	0.080	0.050	0.42
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	0.220	0.240	0.040	0.010	0.260	0.250	0.070	0.050	0.43
13...	--	--	--	--	--	--	--	--	--	--	--
13...	7.0	78	0.210	0.240	0.050	0.010	0.260	0.250	0.080	0.050	0.42
JUN											
24...	6.2	58	--	--	0.020	0.010	<0.050	<0.050	0.050	0.050	0.55
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	0.036	0.043	0.030	0.010	0.066	0.053	0.150	0.150	0.65
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	6.8	61	--	--	0.020	0.010	<0.050	<0.050	0.230	0.230	1.3
AUG											
18...	10	89	--	--	<0.010	<0.010	<0.050	<0.050	0.030	0.030	0.47
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	10	89	--	--	<0.010	<0.010	0.090	0.088	0.030	0.020	0.57
DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)
FEB											
10...	0.54	0.60	0.80	0.110	0.050	0.030	0.060	0.09	18	15	0.300
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	0.54	0.60	0.80	0.120	0.030	0.030	0.080	0.09	16	14	--
MAY											
13...	0.35	0.40	0.50	0.140	0.070	0.040	0.120	0.12	12	10	4.10
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.45	0.50	0.50	0.110	0.050	0.040	0.140	0.12	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.35	0.40	0.50	0.150	0.070	0.060	0.140	0.18	12	10	--
JUN											
24...	0.35	0.40	0.60	0.140	0.060	0.060	0.070	0.18	14	13	3.80
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.35	0.50	0.80	0.230	0.120	0.130	0.170	0.40	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.47	0.70	1.5	0.710	0.230	0.250	0.260	0.77	14	15	--
AUG											
18...	0.17	0.20	0.50	0.210	0.140	0.110	0.120	0.34	9.7	8.0	5.40
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	0.58	0.60	0.60	0.210	0.170	0.120	0.120	0.37	9.4	7.8	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible][illegible]

## SAN JACINTO RIVER BASIN

71

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295516095080801 - LAKE HOUSTON SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
FEB										
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	0.06	<0.01	<0.01
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
JUN										
24...	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	0.12	<0.01	<0.01
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
AUG										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--

295702095091401 - LAKE HOUSTON SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
10...	1118	1.00	90	7.0	11.5	0.21	9.6	87
10...	1120	10.0	100	7.0	11.5	--	9.6	87
10...	1122	20.0	100	7.0	11.5	--	9.6	87
10...	1124	30.0	100	7.0	11.5	--	9.6	87
10...	1126	36.0	105	7.0	11.5	--	9.6	87
MAY								
13...	1025	1.00	135	7.4	26.0	0.27	7.2	89
13...	1027	10.0	140	7.3	24.0	--	6.4	76
13...	1029	20.0	140	7.2	23.5	--	6.0	71
13...	1031	30.0	140	7.2	23.5	--	5.8	68
13...	1033	38.0	140	7.2	23.5	--	5.8	68
JUN								
24...	1050	1.00	100	6.8	30.5	0.52	5.5	74
24...	1052	10.0	100	6.6	29.5	--	4.1	54
24...	1054	20.0	100	6.5	26.5	--	1.2	15
24...	1056	30.0	95	6.6	25.0	--	1.3	16
24...	1058	38.0	95	6.7	25.0	--	1.4	17
AUG								
18...	1110	1.00	155	7.5	28.0	0.32	6.2	80
18...	1112	10.0	155	7.4	27.5	--	5.4	69
18...	1114	20.0	155	7.3	27.5	--	5.2	66
18...	1116	30.0	150	7.3	27.5	--	5.2	66
18...	1118	41.0	150	7.4	27.5	--	5.2	66



SAN JACINTO RIVER BASIN  
08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295902095074201 - LAKE HOUSTON SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
10...	1155	1.00	115	7.2	11.5	0.24	10.0	91	850	310
10...	1157	10.0	115	7.2	11.5	--	10.0	91	--	--
10...	1159	20.0	115	7.2	11.5	--	10.0	91	--	--
10...	1201	32.0	120	7.2	11.0	--	10.0	90	--	--
MAY										
13...	1100	1.00	140	7.7	26.0	0.25	8.1	100	20	K12
13...	1102	10.0	140	7.3	24.5	--	6.7	80	--	--
13...	1104	20.0	145	7.3	23.5	--	5.8	68	--	--
13...	1106	28.0	145	7.3	23.5	--	5.6	66	--	--
JUN										
24...	1115	1.00	110	6.8	30.5	0.40	5.0	67	K2	K1
24...	1117	10.0	105	6.6	30.0	--	4.2	56	--	--
24...	1119	20.0	105	6.5	27.0	--	1.1	14	--	--
24...	1121	30.0	105	6.5	25.5	--	1.2	15	--	--
AUG										
18...	1135	1.00	160	7.3	28.5	0.30	5.0	65	K16	K12
18...	1137	10.0	170	7.2	27.5	--	4.8	61	--	--
18...	1139	20.0	175	7.3	27.5	--	5.0	64	--	--
18...	1141	28.0	180	7.3	27.0	--	5.1	64	--	--

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
10...	36	3	12	1.5	6.7	0.5	2.4	33	4.2
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	39	2	13	1.7	8.0	0.6	2.9	37	4.3
MAY									
13...	42	3	14	1.7	9.9	0.7	2.6	39	4.9
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	45	5	15	1.8	11	0.7	2.4	40	5.0
JUN									
24...	34	1	11	1.6	7.4	0.6	2.1	33	3.5
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	34	1	11	1.6	6.2	0.5	2.0	33	3.1
AUG									
18...	45	0	15	1.9	14	0.9	2.5	47	6.1
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	46	0	15	2.0	18	1	2.6	48	6.9

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
FEB									
10...	12	0.10	6.5	65	0.070	0.060	0.130	0.060	0.84
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	13	0.10	5.9	71	0.100	0.050	0.150	0.080	0.72
MAY									
13...	15	<0.10	7.3	79	0.200	0.040	0.240	0.040	0.56
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	16	<0.10	8.5	84	0.190	0.050	0.240	0.090	0.51
JUN									
24...	11	<0.10	7.3	64	0.026	0.030	0.056	0.080	1.0
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	10	<0.10	7.0	62	--	0.030	<0.050	0.300	0.70
AUG									
18...	18	0.10	11	97	0.062	0.030	0.092	0.020	0.48
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	21	0.10	12	106	0.052	0.040	0.092	0.040	0.46

## SAN JACINTO RIVER BASIN

73

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295902095074201 - LAKE HOUSTON SITE CC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
10...	0.90	0.130	0.110	15	14	1.70	<0.200	130	17
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	0.80	0.130	0.110	15	12	--	--	160	15
MAY									
13...	0.60	0.150	0.130	13	10	14.0	0.500	110	16
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	0.60	0.150	0.150	12	9.9	--	--	92	23
JUN									
24...	1.1	0.190	0.120	14	14	5.80	0.600	210	300
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	1.0	0.350	0.300	16	14	--	--	780	710
AUG									
18...	0.50	0.230	0.190	9.7	8.4	2.30	0.200	29	15
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	0.50	0.250	0.210	7.7	7.3	--	--	66	13

300016095073401 - LAKE HOUSTON SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
10...	1235	1.00	70	6.8	11.0	0.24	9.7	87
10...	1237	10.0	75	6.8	11.0	--	9.7	87
10...	1239	20.0	75	6.8	11.0	--	9.7	87
10...	1241	26.0	75	6.9	11.0	--	9.8	88
MAY								
13...	1130	1.00	140	7.6	24.5	0.35	6.7	80
13...	1132	10.0	145	7.5	24.5	--	6.4	77
13...	1134	21.0	145	7.4	23.5	--	5.6	66
JUN								
24...	1145	1.00	110	7.0	30.5	0.49	4.6	62
24...	1147	10.0	110	6.9	30.0	--	4.1	55
24...	1149	22.0	105	6.7	27.5	--	1.3	17
AUG								
18...	1200	1.00	175	7.3	28.0	0.28	5.0	64
18...	1202	10.0	175	7.2	27.0	--	4.7	59
18...	1204	21.0	175	7.2	27.0	--	4.6	58

300158095074601 - LAKE HOUSTON SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
FEB											
10...	1400	1.00	65	6.6	11.0	0.21	10.0	90	200	220	20
10...	1402	10.0	65	6.7	11.0	--	10.0	90	--	--	--
10...	1404	22.0	65	6.7	11.0	--	10.0	90	--	--	21
MAY											
13...	1300	1.00	160	8.2	30.0	0.32	8.8	117	K1	K2	45
13...	1302	10.0	150	7.7	24.5	--	5.8	70	--	--	--
13...	1304	21.0	130	7.6	23.5	--	2.8	33	--	--	34
JUN											
24...	1300	1.00	110	7.2	31.0	0.30	3.9	53	K12	K8	34
24...	1302	10.0	115	7.1	29.5	--	1.4	19	--	--	--
24...	1304	21.0	115	7.0	26.5	--	1.1	14	--	--	34
AUG											
18...	1310	1.00	170	7.4	29.0	0.25	5.3	69	K4	K2	40
18...	1312	10.0	170	7.3	27.0	--	4.1	52	--	--	--
18...	1314	20.0	170	7.4	27.0	--	3.8	48	--	--	46

## SAN JACINTO RIVER BASIN

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

300158095074601 - LAKE HOUSTON SITE EC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
FEB											
10...	3	6.5	1.0	4.0	0.4	1.5	17	3.2	7.1	0.10	6.0
10...	--	--	--	--	--	--	--	--	--	--	--
10...	4	6.7	0.94	4.1	0.4	1.5	17	3.3	7.0	0.10	6.0
MAY											
13...	5	15	1.9	13	0.8	2.2	40	5.6	20	<0.10	9.0
13...	--	--	--	--	--	--	--	--	--	--	--
13...	1	11	1.7	11	0.8	1.5	34	4.3	17	<0.10	8.7
JUN											
24...	2	11	1.6	8.0	0.6	1.7	32	3.5	12	<0.10	8.3
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0	11	1.7	6.7	0.5	1.7	35	2.5	13	<0.10	8.2
AUG											
18...	0	13	1.9	15	1	2.4	41	6.0	24	0.20	14
18...	--	--	--	--	--	--	--	--	--	--	--
18...	3	15	2.1	16	1	2.6	43	6.1	22	0.10	31

DATE	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
FEB											
10...	40	--	--	0.040	<0.010	<0.050	<0.050	0.080	0.050	0.62	0.45
10...	--	--	--	--	--	--	--	--	--	--	--
10...	40	--	--	0.040	<0.010	<0.050	<0.050	0.070	0.060	0.53	0.44
MAY											
13...	92	0.160	0.170	0.040	0.010	0.200	0.180	0.030	0.030	0.67	0.37
13...	--	--	--	--	--	--	--	--	--	--	--
13...	77	0.060	0.061	0.030	0.010	0.090	0.071	0.140	0.130	0.56	0.37
JUN											
24...	66	--	--	0.020	0.010	<0.050	<0.050	0.120	0.100	0.68	0.40
24...	--	--	--	--	--	--	--	--	--	--	--
24...	70	--	--	0.020	0.010	<0.050	<0.050	0.170	0.170	0.63	0.63
AUG											
18...	103	0.260	0.290	0.040	0.030	0.300	0.320	0.050	0.050	0.85	0.25
18...	--	--	--	--	--	--	--	--	--	--	--
18...	122	--	0.170	<0.010	0.010	0.160	0.180	<0.010	0.020	--	0.28

DATE	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)
FEB											
10...	0.50	0.70	0.050	0.030	<0.010	0.030	--	19	15	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	0.50	0.60	0.050	0.030	0.010	0.030	0.03	16	18	--	--
MAY											
13...	0.40	0.70	0.170	0.080	0.050	0.120	0.15	11	9.2	9.80	0.600
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.50	0.70	0.110	0.080	0.030	0.070	0.09	12	9.8	--	--
JUN											
24...	0.50	0.80	0.140	0.060	0.050	0.090	0.15	14	13	2.50	0.200
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.80	0.80	0.120	0.120	0.120	0.120	0.37	14	13	--	--
AUG											
18...	0.30	0.90	0.500	0.320	0.290	0.340	0.89	11	6.7	25.0	1.50
18...	--	--	--	--	--	--	--	--	--	--	--
18...	0.30	0.50	0.240	0.250	0.230	0.130	0.71	9.3	7.2	--	--

300158095074601 - LAKE HOUSTON SITE EC--Continued

[illegible][illegible][illegible]



## SAN JACINTO RIVER BASIN

0972000 LAKE HOUSTON NEAR SHELDON, TX--Continued

300209095091201 - LAKE HOUSTON SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)
FEB											
10...	1317	1.00	145	7.2	12.0	0.21	10.5	96	210	280	50
10...	1319	10.0	145	7.2	12.0	--	10.5	96	--	--	--
10...	1321	13.0	145	7.1	12.0	--	10.5	96	--	--	50
MAY											
13...	1215	1.00	260	9.1	29.0	0.38	12.0	156	K2	K8	57
13...	1217	5.00	240	8.2	26.0	--	7.4	91	--	--	--
13...	1219	13.0	275	7.3	25.5	--	3.4	41	--	--	67
JUN											
24...	1220	1.00	260	7.9	31.5	1.10	7.1	97	K2	32	64
24...	1222	12.0	270	7.0	30.5	--	4.4	59	--	--	61
AUG											
18...	1235	1.00	320	8.6	28.5	0.25	8.3	107	K1	K1	61
18...	1237	5.00	315	8.2	27.0	--	5.7	72	--	--	--
18...	1239	12.0	310	7.4	26.5	--	3.2	40	--	--	61

DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
FEB											
10...	6	17	1.8	9.3	0.6	2.9	44	4.9	16	0.10	5.5
10...	--	--	--	--	--	--	--	--	--	--	--
10...	7	17	1.8	9.3	0.6	2.9	43	5.0	17	0.20	5.6
MAY											
13...	5	19	2.2	27	2	3.1	52	10	36	0.20	11
13...	--	--	--	--	--	--	--	--	--	--	--
13...	9	22	2.9	27	1	3.1	58	10	39	0.10	11
JUN											
24...	0	21	2.9	27	1	2.7	66	9.3	37	0.20	15
24...	0	20	2.7	24	1	2.7	64	9.1	33	0.20	13
AUG											
18...	0	20	2.7	39	2	4.0	72	15	50	<0.10	12
18...	--	--	--	--	--	--	--	--	--	--	--
18...	0	20	2.7	37	2	4.0	69	14	47	0.20	44

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB											
10...	85	0.170	--	0.040	<0.010	0.210	0.210	0.060	0.030	0.74	0.57
10...	--	--	--	--	--	--	--	--	--	--	--
10...	86	0.170	--	0.030	<0.010	0.200	0.210	0.050	0.040	0.75	0.46
MAY											
13...	141	0.110	0.140	0.030	0.030	0.140	0.170	0.020	0.020	1.1	0.28
13...	--	--	--	--	--	--	--	--	--	--	--
13...	152	0.230	0.220	0.030	0.020	0.260	0.240	0.320	0.340	0.68	0.36
JUN											
24...	157	0.270	0.260	0.030	0.020	0.300	0.280	0.030	0.030	0.67	0.37
24...	145	0.290	0.310	0.070	0.020	0.360	0.330	0.230	0.180	0.77	0.72
AUG											
18...	186	--	--	0.040	<0.010	<0.050	0.059	0.040	0.030	0.46	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	213	0.290	0.260	0.040	0.030	0.330	0.290	0.270	0.280	0.63	0.62

300209095091201 - LAKE HOUSTON SITE FC--Continued

DATE	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUORM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUORM (UG/L)
FEB											
10...	0.60	0.80	0.160	0.080	0.050	0.090	0.15	13	9.9	3.00	<0.200
10...	--	--	--	--	--	--	--	--	--	--	--
10...	0.50	0.80	0.150	0.080	0.040	0.080	0.12	13	11	--	--
MAY											
13...	0.30	1.1	0.410	0.150	0.160	0.220	0.49	13	8.1	22.0	1.80
13...	--	--	--	--	--	--	--	--	--	--	--
13...	0.70	1.0	0.330	0.120	0.120	0.140	0.37	14	8.2	--	--
JUN											
24...	0.40	0.70	0.380	0.210	0.210	0.260	0.64	12	9.4	18.0	3.60
24...	0.90	1.0	0.370	0.400	0.190	0.330	0.58	12	9.6	--	--
AUG											
18...	<0.20	0.50	0.170	0.090	0.080	0.140	0.25	9.6	6.7	5.10	0.500
18...	--	--	--	--	--	--	--	--	--	--	--
18...	0.90	0.90	0.400	0.360	0.230	0.260	0.71	12	5.9	--	--

[illegible][illegible][illegible]

## SAN JACINTO RIVER MAIN STEM

08072050 SAN JACINTO RIVER NEAR SHELDON, TX

LOCATION.--Lat 29°52'34", long 95°05'37", Harris County, Hydrologic Unit 12040104, on left bank at U.S. Highway 90 bridge, 0.3 mi downstream from Southern Pacific Railway Co. bridge, 1.5 mi east of Sheldon, 4.6 mi downstream from Lake Houston, and 21 mi northeast of Houston.

DRAINAGE AREA.--2,879 mi<sup>2</sup>.

PERIOD OF RECORDS.--February 1970 to current year (elevations prior to 1973; gage heights only, beginning 1973).

Discharge measurement, May 19, 1989.

Water-quality records.--Chemical and biochemical analyses: February 1970 to September 1972.

Pesticide analyses: May 1971 to September 1972.

GAUGE.--Water-stage recorder. Datum of gage is 0.69 ft below National Geodetic Vertical Datum of 1929, adjustment of 1973. Prior records unadjusted for land-surface subsidence.

REMARKS.--Records fair. Gage heights reflect tidal fluctuations. Stage and rainfall radio-telemetry at station is operated by Harris County Flood Control District.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 20.12 ft June 15, 1973; minimum recorded elevation, minus 2.52 ft Oct. 28, 1985. A discharge measurement of 111,000 ft<sup>3</sup>/s was made near the peak of May 19, 1989 (gage height, 20.08 ft). No other measurements have been made at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since at least 1875, 31.5 ft Nov. 26, 1940, at site 0.3 mi upstream at Southern Pacific Railway Co. bridge.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 12.03 ft Mar. 5 at 1400 hours; minimum recorded, minus 0.84 ft Nov. 23.

DAY	MAX		MIN		GAGE HEIGHT, FEET, WATER YEAR		OCTOBER 1991		TO SEPTEMBER 1992		MAX		MIN		MAX		MIN	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH							
1	3.17	1.38	1.85	.23	2.97	1.30	3.71	2.01	2.97	1.46	3.94	2.29						
2	3.38	1.48	2.82	-.16	2.23	.16	3.13	.41	3.10	1.64	2.92	1.64						
3	3.20	1.45	1.91	.33	1.87	-.29	2.69	.38	4.20	2.56	3.12	2.16						
4	3.23	1.46	2.74	.72	2.36	.00	2.46	.47	4.92	3.98	9.99	2.49						
5	2.72	1.23	3.07	1.23	2.95	1.11	2.47	.79	6.64	4.81	12.03	9.99						
6	3.29	.92	3.13	1.10	2.98	1.10	2.55	.80	7.91	6.64	11.74	10.56						
7	3.54	1.73	3.13	1.59	2.97	.73	3.35	1.43	8.09	7.91	10.56	9.68						
8	3.42	1.44	2.80	-.16	2.56	.71	3.49	2.86	8.18	7.31	9.74	7.73						
9	3.34	1.33	2.35	.57	2.76	.87	3.75	1.95	7.32	5.29	7.73	5.22						
10	3.01	.87	2.44	.86	2.47	1.00	2.87	1.93	5.29	3.80	5.22	.55						
11	2.59	.63	2.41	.70	2.59	1.30	3.80	2.09	3.86	2.64	2.77	.68						
12	2.47	.57	2.38	.58	2.77	1.18	3.97	3.03	3.54	2.30	2.69	.85						
13	2.28	.78	2.05	.89	2.68	1.31	3.30	1.24	3.32	1.70	2.51	.52						
14	2.55	.80	2.57	1.70	2.40	.25	2.38	.95	3.52	1.72	2.33	.46						
15	2.34	.76	3.11	1.74	1.94	.72	3.73	2.38	3.39	1.60	2.09	.08						
16	2.49	.98	2.83	1.93	2.50	.87	3.60	1.67	3.45	1.70	2.46	.60						
17	2.93	1.35	3.78	2.14	2.42	.74	3.15	1.12	3.44	1.00	3.45	1.58						
18	2.86	1.30	3.93	2.75	2.88	.50	7.48	3.15	2.69	.75	4.16	1.81						
19	2.62	1.47	4.00	2.36	4.44	1.55	7.53	6.60	2.50	.63	2.34	.48						
20	2.98	1.52	3.24	.53	4.65	2.49	6.77	6.03	3.15	1.35	2.09	-.51						
21	3.38	1.66	2.70	.20	5.35	2.12	6.12	4.60	3.10	1.57	3.67	.41						
22	3.32	1.58	2.97	1.11	8.05	5.35	5.53	4.82	3.68	1.95	3.67	1.62						
23	3.15	1.13	2.97	-.84	8.12	7.10	5.14	3.13	4.28	3.15	1.79	-.60						
24	3.38	1.62	1.30	-.76	7.10	5.35	3.13	2.55	6.74	3.91	3.02	.45						
25	3.44	1.55	2.00	.42	5.56	4.98	3.30	2.38	8.72	6.74	2.67	.89						
26	3.33	1.42	2.89	1.32	5.92	5.09	3.53	1.77	8.77	7.58	2.53	.46						
27	3.31	1.74	3.24	1.22	6.20	5.55	3.76	2.60	7.58	6.88	2.43	.48						
28	4.01	2.29	2.78	1.30	5.55	4.13	3.30	1.94	6.88	5.74	3.85	1.22						
29	4.01	1.97	3.27	2.15	4.13	3.52	3.60	2.44	5.75	3.94	3.51	1.87						
30	4.34	1.91	3.06	1.69	4.21	3.35	3.61	2.24	---	---	2.76	.87						
31	3.90	1.85	---	---	4.06	2.73	3.52	2.03	---	---	2.62	1.24						
MONTH	4.34	.57	4.00	-.84	8.12	-.29	7.53	.38	8.77	.63	12.03	-.60						

## SAN JACINTO RIVER MAIN STEM

79

08072050 SAN JACINTO RIVER NEAR SHELDON, TX--Continued

DAY	GAGE HEIGHT, FEET,		WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992									
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2.36	1.00	2.81	.59	4.04	2.35	3.22	.53	---	---	3.27	1.63
2	2.20	.64	2.80	1.00	5.50	2.85	3.13	1.07	---	---	3.47	1.94
3	2.41	.84	2.44	.40	6.84	5.50	2.77	.80	---	---	3.68	1.07
4	2.43	.49	2.14	.22	6.79	6.08	2.56	.51	---	---	3.27	1.23
5	4.20	.55	2.38	.10	6.08	5.34	2.20	.76	---	---	3.04	1.23
6	3.60	2.21	2.06	.10	5.34	4.20	2.17	.74	---	---	2.92	1.29
7	2.87	1.37	2.26	.28	4.20	3.25	2.25	.67	---	---	2.89	1.15
8	2.87	1.01	2.44	.34	3.60	2.80	2.15	.47	---	---	3.00	1.39
9	3.35	1.25	2.74	.70	3.31	2.40	2.12	.44	---	---	3.09	1.30
10	3.29	1.43	3.10	1.36	3.11	2.05	2.42	.48	---	---	2.85	1.67
11	3.17	.95	2.80	1.42	3.20	1.90	2.52	.43	---	---	2.71	1.40
12	2.69	.83	2.68	1.11	2.68	1.17	2.78	.85	---	---	2.93	1.47
13	2.27	.65	2.32	.71	2.58	.63	2.91	.49	---	---	2.98	1.76
14	2.75	1.31	2.08	.22	2.69	.78	2.87	1.15	---	---	3.48	2.08
15	3.11	1.55	2.62	.46	2.84	.90	2.53	.80	---	---	3.66	2.08
16	3.23	1.55	3.34	.88	2.87	.74	2.89	.90	---	---	3.59	1.94
17	3.77	1.43	3.58	1.54	2.96	.80	2.82	1.27	---	---	3.42	1.47
18	4.61	2.45	3.34	1.06	2.71	.87	2.52	.90	---	---	3.04	1.18
19	5.60	4.13	3.34	1.06	2.31	.38	---	1.31	---	---	2.88	1.02
20	5.63	3.85	3.70	1.48	2.27	.53	2.87	1.36	---	---	2.79	1.09
21	4.07	2.99	3.60	1.81	1.89	.51	2.57	1.36	---	---	3.31	1.24
22	3.92	2.93	3.18	1.44	2.15	.94	2.80	1.36	---	---	2.84	.76
23	3.77	2.63	2.64	1.14	2.69	1.20	2.74	1.35	---	---	2.46	.60
24	3.41	2.21	2.34	.96	2.43	.96	2.79	1.10	---	---	2.95	.88
25	2.80	1.49	2.46	1.14	2.50	.89	2.79	1.05	---	---	3.39	1.50
26	2.45	.89	2.16	1.20	2.55	.66	2.84	.86	---	---	3.27	1.62
27	2.15	.83	2.34	1.14	2.42	.40	2.72	.74	2.03	---	3.13	1.38
28	2.45	1.37	3.39	1.35	3.16	.38	2.35	.56	2.39	.11	3.21	1.16
29	2.93	1.50	4.54	3.39	3.13	.65	2.35	.19	3.10	.53	3.05	1.04
30	2.21	.71	4.15	3.40	2.80	.65	---	.61	3.10	1.24	3.05	1.04
31	---	---	3.66	2.56	---	---	---	---	3.10	1.47	---	---
MONTH	5.63	.49	4.54	.10	6.84	.38	---	---	---	---	3.68	.60



08072300 BUFFALO BAYOU NEAR KATY, TX

LOCATION.--Lat 29°44'35", Long 95°48'24", Fort Bend County, Hydrologic Unit 12040104, on left bank at bridge on county road, 2.5 mi downstream from confluence of Willow Fork and Cane Island Branch of Buffalo Bayou, and 3.1 mi southeast of Katy.

DRAINAGE AREA.--63.3 mi<sup>2</sup>.

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

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 75.02 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment. Gage located at temporary site 250 ft upstream Jan. 18 to Sept. 30, 1985; all records adjusted to original site and datum.

REMARKS.--No estimated daily discharges. Records good. Stage-discharge relationship affected by seasonal vegetal growth during most years. Several measurements of water temperature were obtained during the year. Gage-height telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,150 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1000	1,440	32.42	Feb. 24	2130	1,660	33.17
Dec. 9	0800	2,070	34.43	Mar. 4	1500	2,560	35.85
Dec. 22	0400	2,660	36.11	Apr. 17	2230	2,060	34.42
Dec. 26	2130	1,280	31.87	May 29	0100	1,560	32.85
Jan. 18	1200	1,280	31.85	June 2	1030	1,890	33.90
Feb. 4	0230	1,760	33.48	Aug. 13	0630	1,870	33.82

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	115	14	75	49	47	14	1.6	384	24	11	6.3
2	14	76	26	59	40	36	10	1.4	1310	14	22	3.7
3	14	51	18	47	518	27	9.7	1.2	907	8.5	194	41
4	8.8	18	11	38	1470	1190	6.2	1.5	498	12	33	71
5	8.2	15	8.1	157	1200	1120	318	1.7	292	9.2	21	32
6	18	13	6.7	149	617	518	661	1.3	213	8.0	20	22
7	11	73	5.3	87	328	206	215	1.0	208	5.7	18	13
8	7.5	122	5.0	210	180	100	74	.96	109	3.7	13	8.4
9	6.6	55	1010	269	102	58	40	.99	69	2.4	15	7.0
10	15	32	357	112	63	40	23	1.0	219	2.0	12	6.5
11	8.4	21	164	66	370	25	11	1.1	361	2.4	6.4	13
12	3.3	22	102	506	637	16	5.2	1.1	138	2.6	12	36
13	1.8	14	70	314	496	12	2.8	1.1	53	15	690	4.9
14	3.6	8.2	50	131	232	9.4	1.9	1.4	30	27	102	3.3
15	10	6.3	35	68	154	7.8	1.4	8.1	17	12	40	5.2
16	4.8	4.3	27	49	89	6.1	4.0	19	9.3	18	22	5.0
17	2.9	812	22	56	60	4.3	477	68	4.4	17	13	3.3
18	2.6	381	136	1020	46	5.9	1320	48	2.4	25	16	2.1
19	4.6	160	300	669	33	6.9	607	27	1.8	57	16	2.5
20	6.2	116	165	296	25	3.8	590	13	1.8	66	12	5.0
21	3.6	72	1460	163	20	3.5	226	22	3.4	66	7.7	4.2
22	2.8	47	2310	466	672	3.1	81	12	81	49	9.1	3.1
23	21	32	1320	247	522	2.7	41	5.0	87	40	5.8	2.1
24	47	21	735	122	596	2.3	25	2.1	46	34	4.6	1.7
25	31	14	406	70	1050	1.8	18	1.5	25	28	5.5	1.4
26	14	11	764	59	431	1.5	10	1.6	13	22	5.4	1.3
27	7.3	12	1010	451	181	1.4	5.1	2.4	28	17	5.6	1.4
28	5.2	11	538	329	93	162	2.5	232	20	12	4.2	1.6
29	8.3	9.5	291	160	63	283	1.7	1220	11	11	3.3	2.2
30	45	9.4	180	95	---	76	1.6	626	11	7.1	3.3	1.8
31	69	---	121	65	---	28	---	329	---	10	4.3	---
TOTAL	416.5	2353.7	11667.1	6605	10337	4004.5	4803.1	2654.05	5153.1	627.6	1347.2	312.0
MEAN	13.4	78.5	376	213	356	129	160	85.6	172	20.2	43.5	10.4
MAX	69	812	2310	1020	1470	1190	1320	1220	1310	66	690	71
MIN	1.8	4.3	5.0	38	20	1.4	1.4	.96	1.8	2.0	3.3	1.3
AC-FT	826	4670	23140	13100	20500	7940	9530	5260	10220	1240	2670	619

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1992, BY WATER YEAR (WY)

	32.5	56.6	71.6	74.9	76.9	30.0	45.5	56.5	65.1	31.9	27.6	56.9
MEAN	32.5	56.6	71.6	74.9	76.9	30.0	45.5	56.5	65.1	31.9	27.6	56.9
MAX	99.4	223	376	224	356	129	330	150	230	136	76.7	320
(WY)	1985	1983	1992	1979	1992	1992	1991	1982	1986	1981	1989	1979
MIN	2.07	4.95	2.17	4.64	2.64	1.57	2.91	2.45	2.73	7.16	8.05	1.90
(WY)	1988	1981	1990	1986	1988	1981	1987	1978	1990	1990	1980	1982

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1978 - 1992

ANNUAL TOTAL	38147.1	50280.85	51.9
ANNUAL MEAN	105	137	137
HIGHEST ANNUAL MEAN			12.4
LOWEST ANNUAL MEAN			2560
HIGHEST DAILY MEAN	2310	Dec 22	Sep 20 1979
LOWEST DAILY MEAN	1.8	Oct 13	Dec 26 1984
ANNUAL SEVEN-DAY MINIMUM	2.6	Mar 22	Dec 23 1984
INSTANTANEOUS PEAK FLOW			2920
INSTANTANEOUS PEAK STAGE			38.31
ANNUAL RUNOFF (AC-FT)	75660	99730	37630
10 PERCENT EXCEEDS	285	469	103
50 PERCENT EXCEEDS	19	21	6.9
90 PERCENT EXCEEDS	4.8	2.2	1.5

## 08072500 BARKER RESERVOIR NEAR ADDICKS, TX

LOCATION.--Lat 29°46'11", long 95°38'49", Harris County, Hydrologic Unit 12040104, at dam on Buffalo Bayou, 45 ft upstream from reservoir outlet works, 1,160 ft upstream from Addicks-Howell county road, 1.1 mi south of Addicks, and 1.2 mi upstream from South Mayde Creek.

DRAINAGE AREA.--128 mi<sup>2</sup>. Prior to August 1977, 134 mi<sup>2</sup>. Basin boundary change due to relocation of drainage ditches. During extreme floods, basin may receive and (or) lose runoff due to basin interchange.

PERIOD OF RECORD.--August 1945 to current year. On October 1973, the upper gage was converted to a flood-hydrograph partial-record station. Water-quality records.--Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorders. Datum of gage is National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (since 1973). Prior to Oct 1, 1980, 0.33 ft below National Geodetic Vertical Datum of 1929, unadjusted for land-surface subsidence.

REMARKS.--The reservoir is formed by a rolled earthfill dam 71,900 ft long. The dam was completed Feb. 3, 1946, but was used as early as the spring of 1945 for flood control. The reservoir is operated for flood protection for the city of Houston. The controlled outlet works consist of five concrete conduits, 9 x 7 ft wide, each controlled by a vertical slide gate. U.S. Army Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	114.7	-
Ground elevation at ends of dam.....	106.0	209,000
Design flood.....	105.4	199,000
Crest of spillway (invert).....	73.2	0

COOPERATION.--The capacity table, furnished by the U.S. Army Corps of Engineers, is based on extensive releveling survey made in 1974 using National Geodetic Vertical Datum, 1973 adjustment as base.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 66,780 acre-ft Mar. 6-7, 1992 (elevation, 95.89 ft); minimum, reservoir dry at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 66,780 acre-ft Mar. 6-7 from 2130 hours to 1045 hours (elevation, 95.89 ft); minimum, 0.11 acre-ft July 11 (elevation, 73.66 ft).

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

73.2	0	80.4	49	85.0	2,430	91.0	20,530
76.3	2	81.0	100	86.0	3,980	92.0	27,320
76.9	4	81.6	192	87.0	6,000	93.0	35,800
77.6	8	82.2	331	88.0	8,580	94.0	46,290
78.4	14	83.0	666	89.0	11,760	95.0	56,420
79.2	22	84.0	1,370	90.0	15,620	96.0	68,160
79.8	32						

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	31.6	.21	39230	36460	44580	32360	16840	14450	.28	.21	.15
2	.17	19.7	.35	38820	35990	43100	30990	14660	20710	.20	.30	.15
3	.22	.44	.28	37140	40250	42260	29110	13320	23530	.17	1520	.14
4	.17	.29	.23	35890	46760	57630	27170	12570	23870	.15	2130	3.67
5	.16	.22	.20	36460	50360	65070	30410	11480	22660	.15	1170	2.94
6	.16	.19	.18	35890	50960	66780	32360	9510	22470	.14	18.8	.38
7	.17	3.11	.17	35800	49960	65800	31670	7510	22800	.14	.32	.25
8	.16	31.4	.17	37530	48490	64700	29830	5740	22280	.13	.25	.22
9	.15	20.6	1940	37820	46760	64460	27850	4100	21200	.12	.22	.20
10	.14	.50	5010	37240	44580	61610	26200	3710	20890	.12	.21	.49
11	.15	.31	5910	36950	46760	59310	23870	3800	21760	.11	.18	.37
12	.15	.25	6270	39230	49660	57080	21890	3850	21760	.12	.35	2.65
13	.13	.22	6670	39230	50560	55120	20100	3910	20890	.15	53.4	.29
14	.13	.20	6620	37630	50460	53950	18740	3960	19310	.24	1680	1.02
15	.13	.18	6040	35610	49760	52290	17220	4080	17120	.22	2430	.34
16	.15	.17	5150	33770	48390	50460	16660	4550	14700	.21	2230	.22
17	.14	829	4280	34500	47620	49560	21260	5430	12430	.19	1020	.31
18	.14	4440	4100	40040	45710	49470	28950	6060	10460	.21	4.74	.18
19	.13	6340	4870	42050	43460	48200	33860	6090	8550	.45	.26	.16
20	.13	6800	5740	42050	41300	46480	36180	6180	6580	9.77	.22	.15
21	.14	5810	11090	42370	39530	44800	35610	5910	5410	94.4	.19	.17
22	.13	4650	21580	42590	44800	43350	33860	5110	5630	75.7	.19	.17
23	.17	3640	27620	41300	46060	41190	31930	4330	5860	39.2	.17	.16
24	.32	2540	30660	39530	49170	39020	30490	3500	5050	50.8	.16	.16
25	.30	1140	32360	37920	51670	36750	30080	2660	3830	190	.16	.16
26	.24	.50	36660	37920	51160	34500	28240	1810	2700	113	.15	.15
27	.20	.37	40150	40250	49660	32790	25980	1580	2060	18.5	.16	.15
28	.17	.29	40560	40460	48100	35240	23530	2620	1510	1.19	.16	.16
29	.19	.22	40250	40360	46570	36370	21640	8030	778	.24	.14	.15
30	.59	.20	39430	39020	---	35240	19310	10520	20.4	.21	.14	.14
31	5.94	---	39020	37530	---	33330	---	12180	---	.21	.14	---
MAX	5.94	6800	40560	42590	51670	66780	36180	16840	23870	190	2430	3.67
MIN	.13	.17	.17	33770	35990	32790	16660	1580	20.4	.11	.14	.14
CAL YR 1991	MAX	41940	MIN	.13								
WTR YR 1992	MAX	66780	MIN	.11								

## SAN JACINTO RIVER BASIN

08072730 BEAR CREEK NEAR BARKER, TX

LOCATION.--Lat 29°49'50", long 95°41'12", Harris County, Hydrologic Unit 12040104, on right bank at upstream side of bridge on Clay Road, 2.5 mi west of State Highway 6, and 4.1 mi upstream from mouth of Langham Creek.

DRAINAGE AREA.--21.5 mi<sup>2</sup>. Prior to Oct. 1, 1988, 19.8 mi<sup>2</sup>. Change due to road and ditch relocations.

PERIOD OF RECORD.--July 1977 to current year. Gage at temporary location 1,100 ft downstream Mar. 1, 1984, to Mar. 12, 1985.

Water-quality records.--Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 100.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment. Mar. 1, 1984, to Mar. 12, 1985, at site 1,100 ft downstream, same datum.

REMARKS.--No estimated daily discharges. Records fair. Channel was rectified in 1981 and 1987 water years. Considerable diversions and return of irrigation water from area above station. Several observations of water temperature were made during the year. Gage-height telemeter at station. Maximum gage height for period of record occurred prior to channel rectification.

PEAK DISCHARGE FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1000	606	9.82	Feb. 25	0230	421	8.30
Dec. 9	0900	577	9.60	Mar. 4	1500	679	10.34
Dec. 21	1430	713	10.57	Apr. 17	2200	670	10.28
Dec. 26	2130	433	8.41	May 28	2230	622	9.94
Jan. 18	1230	429	8.37	June 2	0900	651	10.15
Feb. 4	0300	469	8.72				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	38	14	51	26	20	5.6	.68	135	3.0	2.4	6.7
2	1.5	9.0	18	41	21	15	3.3	.59	423	3.1	7.7	2.8
3	2.0	2.0	20	33	114	11	2.3	.51	281	1.0	97	2.1
4	2.2	.66	17	27	401	290	1.7	.65	166	.94	74	23
5	1.8	.28	15	53	342	314	88	2.1	118	.87	50	15
6	1.1	.21	13	55	176	161	159	.90	112	.58	38	4.5
7	.76	28	11	43	125	80	66	.57	135	.38	32	2.9
8	.65	67	10	93	123	43	28	.49	123	.29	18	2.4
9	3.7	23	322	95	116	28	14	.45	90	.21	8.4	2.3
10	3.8	7.5	158	59	92	20	7.7	.42	63	.20	6.0	4.9
11	1.4	3.1	93	40	163	15	4.6	.42	41	.19	8.4	17
12	.68	1.2	70	109	186	11	2.9	.48	18	.19	17	5.4
13	.29	.55	55	104	113	8.6	2.1	.51	8.9	.30	2.8	2.2
14	.16	.30	42	65	77	6.8	1.6	16	5.0	.65	1.5	5.9
15	.09	.18	31	43	53	5.5	1.2	41	2.5	1.8	.94	3.2
16	.06	.13	24	31	36	6.2	2.6	19	1.3	3.9	.73	1.6
17	.05	367	20	33	26	5.7	125	59	.81	4.6	1.4	4.7
18	.03	240	52	324	19	3.3	364	30	.59	.98	1.8	16
19	.02	129	78	210	15	5.5	132	22	.48	.78	2.1	3.0
20	.01	96	64	118	12	2.7	85	36	.41	12	2.6	1.3
21	.01	72	391	80	9.5	2.0	43	39	.36	54	2.8	.85
22	.01	54	603	123	226	1.7	21	18	.34	189	2.7	.62
23	.02	43	429	97	177	1.5	11	10	.54	172	1.7	.48
24	.28	37	251	59	163	1.4	6.0	9.9	.61	83	1.1	.46
25	1.0	25	154	54	338	1.3	3.4	2.7	.73	44	.70	.45
26	.68	20	265	43	150	1.2	2.1	1.3	.98	26	.50	.42
27	.28	20	361	118	86	1.1	1.5	1.6	1.9	15	.44	.40
28	.15	19	194	103	52	47	1.2	145	3.1	9.9	1.2	.35
29	.24	17	124	66	33	75	.91	337	2.3	6.7	2.0	.33
30	9.1	15	90	46	---	32	.79	148	1.6	4.7	1.5	.27
31	25	---	67	35	---	12	---	76	---	3.1	1.7	---
TOTAL	58.97	1335.11	4056	2451	3470.5	1228.5	1187.50	1020.27	1737.45	643.36	389.11	131.53
MEAN	1.90	44.5	131	79.1	120	39.6	39.6	32.9	57.9	20.8	12.6	4.38
MAX	25	367	603	324	401	314	364	337	423	189	97	23
MIN	.01	.13	10	27	9.5	1.1	.79	.42	.34	.19	.44	.27
AC-FI	117	2650	8050	4860	6880	2440	2360	2020	3450	1280	772	261

SAN JACINTO RIVER BASIN

83

08072730 BEAR CREEK NEAR BARKER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1992, BY WATER YEAR (WY)

MEAN	14.6	24.5	24.7	26.5	26.2	10.3	15.7	25.5	29.1	13.3	11.7	22.2
MAX	73.1	98.2	131	91.0	120	48.6	119	89.5	106	45.3	53.1	128
(WY)	1985	1983	1992	1979	1992	1985	1991	1983	1986	1983	1983	1979
MIN	.010	.034	.098	.75	.61	.26	.029	1.28	1.19	1.27	.76	.10
(WY)	1989	1989	1990	1986	1988	1982	1987	1985	1980	1985	1990	1990

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1978 - 1992

ANNUAL TOTAL	13477.55	17709.30	
ANNUAL MEAN	36.9	48.4	20.3
HIGHEST ANNUAL MEAN			48.4
LOWEST ANNUAL MEAN			4.45
HIGHEST DAILY MEAN	603 Dec 22	603 Dec 22	1120 Aug 31 1981
LOWEST DAILY MEAN	.01 Oct 20	.01 Oct 20	.00 Nov 20 1977
ANNUAL SEVEN-DAY MINIMUM	.02 Oct 17	.02 Oct 17	.00 Mar 16 1978
INSTANTANEOUS PEAK FLOW		713 Dec 21	2060 Aug 31 1981
INSTANTANEOUS PEAK STAGE		10.57 Dec 21	16.72 Sep 20 1979
INSTANTANEOUS LOW FLOW			.00 *
ANNUAL RUNOFF (AC-FT)	26730	35130	14700
10 PERCENT EXCEEDS	101	146	47
50 PERCENT EXCEEDS	7.4	9.9	1.8
90 PERCENT EXCEEDS	.29	.42	.03

\* No flow for many days most years.



## SAN JACINTO RIVER BASIN

08072760 LANGHAM CREEK AT WEST LITTLE YORK ROAD NEAR ADDICKS, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 29°52'01", long 95°38'47", Harris County, Hydrologic Unit 12040104, at bridge on West Little York Road, 500 ft upstream from former site, 2.1 mi downstream from Dinners Creek, and 5.7 mi north of Addicks.

DRAINAGE AREA.--24.6 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1977 to September 1980. October 1980 to September 1982 (peaks above base discharge and annual maximum), October 1982 to September 1989 (annual maximum). October 1989 to current year (peaks above base).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 90.00 ft National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Satellite gage-height and rainfall telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (estimated), 1,180 ft<sup>3</sup>/s Sept. 19, 1979, at 2100 hours (gage height, 24.42 ft) and Apr. 14, 1991, at 1430 hours (gage height, 22.50 ft); no flow for a few days during period July to September 1977, and during the 1978 and 1980 water years.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	0700	724	20.59	Mar. 4	1400	615	20.02
Dec. 9	0630	621	20.05	Apr. 17	2030	859	21.24
Dec. 21	1330	728	20.61	May 28	2100	681	20.37
Feb. 22	0930	411	18.78	June 2	0800	760	20.77

## 08073000 ADDICKS RESERVOIR NEAR ADDICKS, TX

LOCATION.--Lat 29°47'28", Long 95°37'24", Harris County, Hydrologic Unit 12040104, at dam on South Mayde Creek, 65 ft upstream from reservoir outlet works, 2,700 ft upstream from U.S. Highway 90 and Interstate Highway 10, 1.2 mi east of Addicks, and 1.4 mi upstream from mouth.

DRAINAGE AREA.--136 mi<sup>2</sup>. Prior to Aug. 1, 1977, 133 mi<sup>2</sup>. Basin boundary change due to relocation of drainage ditches. During extreme floods, basin may receive and (or) lose runoff due to basin interchange.

PERIOD OF RECORD.--June 1948 to current year. In October 1973, the upper gages were converted to flood-hydrograph partial-record stations.

Water-quality records.--Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorders. Datum of gage is National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (since 1973). Prior to Oct. 1, 1980, datum of gage was National Geodetic Vertical Datum of 1929, unadjusted for land-surface subsidence that occurred prior to that date.

REMARKS.--The reservoir is formed by a rolled earthfill dam 61,166 ft long. The dam was completed in December 1948. The reservoir is operated for flood protection for the city of Houston. The outlet works consist of five concrete conduits 8 x 6 ft wide, each controlled by a vertical slide gate. Runoff in excess of maximum design capacity will be discharged around both ends of dam. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	122.7	-
Design flood.....	112.7	212,500
Ground elevation at ends of dam.....	112.0	200,800
Crest of spillway (invert).....	71.1	0

COOPERATION.--The capacity table, furnished by the U.S. Army Corps of Engineers, was based on extensive releveling survey in 1974, using National Geodetic Vertical Datum, 1973 adjustment.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 57,950 acre-ft Mar 9, 1992 (elevation, 100.58 ft); minimum, reservoir was dry at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1935 reached a stage of 89.9 ft, former datum, at bridge on U.S. Highway 90, 2,700 ft downstream from gage, from information by the U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 57,950 acre-ft Mar. 9 at 1515 to 1800 hours (elevation, 100.58 ft); minimum, 0.27 acre-ft Sept. 30 (elevation, 71.51 ft).

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

71.1	0	77.5	65	82.5	493	87.5	2,722	92.5	11,363	97.5	35,178
71.9	0.5	78.0	85	83.0	598	88.0	3,190	93.0	12,983	98.0	38,461
72.4	1	78.5	108	83.6	753	88.5	3,716	93.5	14,769	98.5	41,899
73.6	2	79.0	134	84.0	870	89.0	4,299	94.0	16,704	99.0	45,497
74.6	4	79.5	165	84.5	1,033	89.5	4,956	94.5	18,811	99.5	49,258
75.1	8	80.0	202	85.0	1,218	90.0	5,707	95.0	21,118	100.0	53,182
75.5	13	80.5	245	85.5	1,430	90.5	6,565	95.5	23,606	100.5	57,283
76.0	21	81.0	295	86.0	1,676	91.0	7,543	96.0	26,256	101.0	61,570
76.5	33	81.5	351	86.5	1,967	91.5	8,657	96.5	29,069		
77.0	47	82.0	414	87.0	2,315	92.0	9,926	97.0	32,045		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	330	.49	33330	33330	41120	30410	15750	11640	1.8	1.4	1.4
2	.46	329	1.2	33330	32780	39740	29010	14510	19170	1.0	16	.61
3	.44	155	.97	32410	35370	39330	27350	13290	21790	.67	784	.45
4	.42	1.2	.60	31310	40770	50880	25820	12480	22140	.60	1030	.91
5	.44	.71	.48	31250	44100	55370	27860	11390	21400	.54	634	1.3
6	.43	.61	.46	30590	44440	57530	29700	9790	21500	.49	67	.54
7	.42	161	.45	30170	43960	57780	29300	8080	22090	.47	4.1	.43
8	.41	733	.44	31610	43030	57870	28320	6120	21940	.46	2.3	2.0
9	.46	929	2780	32290	41900	57620	27080	4090	21120	.46	1.6	9.7
10	.49	696	5190	32040	40700	56190	25650	3180	20500	.46	1.2	1.0
11	.46	349	5350	31980	42740	54710	23960	3200	19850	.45	1.1	48
12	.44	84	5190	33580	44760	53340	22940	3200	19030	.45	66	1.3
13	.43	1.3	5310	33710	44760	51660	21690	3210	18240	.46	1.8	23
14	.42	1.0	5100	32840	44250	50020	19480	3250	17070	.77	1.1	13
15	.40	.77	4530	31740	43600	48180	17270	3930	15370	.68	1.0	1.9
16	.39	.66	3670	30590	42670	46300	15520	4830	13710	1.0	.88	.86
17	.41	1950	2820	31130	41620	45040	17440	5910	11990	.69	.92	.80
18	.43	5440	2810	36070	40010	44830	24170	6690	10370	.57	1.0	.80
19	.44	6580	3670	38190	38460	43530	26690	6710	8630	.62	.98	.48
20	.43	6640	4320	38530	36790	41620	27580	6490	6890	82	.98	.42
21	.43	5690	10280	39130	35560	40150	27020	6210	5790	75	.97	.40
22	.41	4580	20170	39540	38860	38860	25930	5380	5600	849	.99	.39
23	.41	3580	24430	38930	40500	37250	24740	4370	5000	2300	1.0	.37
24	1.2	2500	26420	37650	42810	35620	23810	3610	4100	2720	.63	e.37
25	.74	1190	27410	36400	46010	34020	23240	2620	3200	2100	.49	e.36
26	.49	129	30830	36270	46380	32350	22090	1500	2420	1290	.46	e.35
27	.43	.99	34280	38050	45720	30950	20780	1230	2010	480	.46	e.34
28	.41	.70	34850	38330	44390	32530	19480	2610	1700	1.4	.47	e.33
29	.46	.57	34730	37920	42810	33830	18240	7910	898	1.5	.46	e.32
30	3.1	.50	33900	36590	---	33080	16990	9250	161	1.6	.46	.27
31	153	---	33580	34730	---	31430	---	9870	---	1.6	.65	---
MAX	153	6640	34850	39540	46380	57870	30410	15750	22140	2720	1030	48
MIN	.39	.50	.44	30170	32780	30950	15520	1230	161	.45	.46	.27

CAL YR 1991 MAX 34850 MIN .38  
WTR YR 1992 MAX 57870 MIN .27

e Estimated

08073500 BUFFALO BAYOU NEAR ADDICKS, TX

LOCATION.--Lat 29°45'42", long 95°36'20", Harris County, Hydrologic Unit 12040104, near right bank at bridge on Dairy-Ashford Road over rectified channel, 1.8 mi downstream from South Mayde Creek, and 2.6 mi southeast of Addicks.

DRAINAGE AREA.--293 mi<sup>2</sup>, unadjusted for basin boundary changes.

PERIOD OF RECORD.--August 1945 to current year.

Water-quality records.--Chemical analyses: October 1962 to March 1963. Chemical, biochemical, and pesticide analyses: August 1970 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.40 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment; records unadjusted to land-surface subsidence. Prior to Feb. 2, 1948, water-stage recorder at bridge on natural channel 1,200 ft to right at same datum. Feb. 2 to May 21, 1948, nonrecording gage at present site and datum.

REMARKS.--Records fair, including those of estimated daily discharges. Floodflows are regulated by Barker and Addicks Reservoirs (stations 08072500 and 08073000), 3.2 and 3.0 mi upstream, respectively (total capacity, 315,900 acre-ft). Extreme low flow is sustained by drainage from irrigated lands, and from minor sewage effluent.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1896, 85.6 ft in December 1935, adjusted to former site from floodmark 0.5 mi downstream, on basis of slope of flood of Aug. 29, 1945, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	519	e100	117	1670	1980	1060	1790	364	374	93	106
2	64	499	e160	439	686	1850	1280	1720	1140	124	175	70
3	92	413	e170	1630	899	693	1600	1300	1300	121	588	46
4	59	226	e100	1480	1070	3190	1830	891	1690	82	489	150
5	51	85	e80	944	1010	2920	988	901	1830	64	852	269
6	48	57	e55	1300	1640	1180	937	1730	1300	52	932	156
7	48	297	e60	766	1890	1390	1510	1760	322	48	292	105
8	45	553	e55	376	2000	1210	1740	1820	647	46	134	95
9	44	530	e900	663	1960	333	1750	1790	1300	43	106	117
10	46	468	e950	871	1970	2060	1580	905	873	42	93	223
11	47	e340	e1150	655	1340	1980	1970	47	916	38	80	206
12	43	e280	e1000	400	841	1870	1600	46	944	38	230	235
13	39	e160	e550	795	1560	1860	1270	41	1010	45	285	140
14	36	e90	e500	1750	1450	1430	1780	43	1240	111	473	200
15	34	e70	e750	1810	1110	1890	1860	45	1880	98	411	216
16	31	e55	e850	1750	1870	1890	1870	373	2090	151	375	96
17	32	e900	e950	745	1200	1440	1450	189	2010	88	544	137
18	34	e790	e760	e1400	1850	568	1040	122	1820	87	552	104
19	35	e520	e340	e650	1950	1140	489	408	1820	125	116	70
20	33	e400	e150	e1100	1930	1870	948	464	1840	304	83	51
21	33	e1100	1250	e620	1750	1760	1510	523	1380	542	71	51
22	32	e1300	1600	e720	1060	1060	1750	877	259	930	64	49
23	34	e1200	769	e1750	1110	1810	1800	889	586	1020	66	43
24	146	e1150	875	e1800	817	1850	1400	868	890	807	63	39
25	128	e1200	510	e1900	1130	1890	563	852	1080	686	53	40
26	92	e1250	554	e1600	1990	1870	1170	816	854	643	45	39
27	61	e250	834	e800	1980	1770	1650	483	713	590	49	41
28	44	e100	1610	e970	1980	514	1700	554	511	471	53	39
29	126	e800	1510	e900	2010	189	1470	1000	654	117	46	35
30	368	e70	1430	1670	---	1020	1590	783	1020	100	41	34
31	471	---	856	1940	---	1990	---	514	---	91	52	---
TOTAL	2478	15672	21428	34311	43723	48467	43155	24781	34046	8078	7506	3202
MEAN	79.9	522	691	1107	1508	1563	1438	799	1135	261	242	107
MAX	471	1300	1610	1940	2010	3190	1970	1820	2090	1020	932	269
MIN	31	55	55	117	686	189	489	41	259	38	41	34
AC-FT	4920	31090	42500	68060	86720	96130	85600	49150	67530	16020	14890	6350

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1992, BY WATER YEAR (WY)

MEAN	205	236	243	261	317	159	194	291	296	178	125	215
MAX	1044	1790	884	1107	1508	1563	1438	1599	1135	878	664	1186
(WY)	1958	1947	1977	1992	1992	1992	1992	1968	1992	1960	1983	1981
MIN	2.05	.48	1.35	2.00	3.84	.91	2.63	4.54	4.42	1.78	1.61	12.1
(WY)	1957	1956	1949	1957	1951	1956	1955	1951	1954	1956	1948	1948

### SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

## WATER YEARS 1945 - 1992

ANNUAL TOTAL	160103.5		286847				
ANNUAL MEAN	439		784			226	
HIGHEST ANNUAL MEAN						784	1992
LOWEST ANNUAL MEAN						23.3	1951
HIGHEST DAILY MEAN	1610	Dec 28	3190	Mar 4	6790		Jun 28 1960
LOWEST DAILY MEAN	9.5	Apr 1	31	Oct 16		.00	Jun 22 1948
ANNUAL SEVEN-DAY MINIMUM	12	Mar 28	33	Oct 16		.00	Jun 22 1948
INSTANTANEOUS PEAK FLOW			6480	Mar 4	11200		Aug 29 1945
INSTANTANEOUS PEAK STAGE			75.00	Mar 4		81.23	Aug 29 1945
INSTANTANEOUS LOW FLOW						.00	at times
ANNUAL RUNOFF (AC-FT)	317600		569000			163800	
10 PERCENT EXCEEDS	1020		1830			720	
50 PERCENT EXCEEDS	310		648			43	
90 PERCENT EXCEEDS	42		46			4.7	

## SAN JACINTO RIVER BASIN

87

08073600 BUFFALO BAYOU AT WEST BELT DRIVE, HOUSTON, TX

LOCATION.--Lat 29°45'43", long 95°33'27", Harris County, Hydrologic Unit 12040104, at downstream side of bridge on West Belt Drive in west Houston, 100 ft downstream from Rummel Creek, 3.5 mi downstream from station 08073500, and 3.7 mi upstream from station 08073700.

DRAINAGE AREA.--307 mi<sup>2</sup>, unadjusted for basin boundary changes.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorders, Data collection platform (DCP), and crest-stage gage. Datum of gage is 0.67 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--No estimated daily discharges. Records fair. Stage discharge relationship is affected by seasonal vegetal growth during most years. High water flow is a combination of regulated flow from Barker and Addicks Reservoirs (stations 08072500 and 08073000, located 10.1 and 10.3 mi upstream, respectively), and runoff from highly urbanized areas below these reservoirs. Low flow is mostly sustained by sewage effluent. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	585	110	147	1760	2030	1380	1900	514	454	129	127
2	76	525	175	333	762	2000	1470	1870	1500	151	323	89
3	91	458	189	1540	1190	822	1650	1590	1180	180	1030	66
4	63	287	119	1540	1550	3510	1930	1260	1570	96	432	185
5	54	105	89	1050	1040	3580	1610	1040	1630	78	695	332
6	51	76	79	1230	1590	1570	1160	1820	1530	68	782	212
7	53	484	73	893	1840	1480	1610	1850	380	64	365	126
8	51	654	73	645	1990	1490	1800	1900	573	63	167	108
9	48	557	922	660	1960	408	1850	1890	1320	62	126	149
10	51	500	953	855	1950	1900	1680	1280	978	62	121	284
11	52	372	1180	766	1890	2020	1960	204	949	57	90	262
12	48	307	1040	798	1080	1930	1840	129	975	55	260	306
13	45	189	572	692	1520	1910	1370	62	1010	68	319	182
14	42	101	514	1690	1650	1640	1840	45	1180	116	488	317
15	41	79	766	1790	1020	1900	1870	36	1660	105	449	291
16	40	68	871	1760	2010	1940	1950	903	1860	173	422	123
17	40	1400	973	1040	1210	1740	1880	475	1840	97	540	184
18	41	914	819	1490	1860	695	1730	204	1720	91	636	139
19	54	571	387	754	2000	1250	757	466	1680	155	162	81
20	47	436	175	1180	1980	1880	1340	603	1710	342	93	61
21	44	1290	1540	735	1910	1910	1690	617	1480	564	81	61
22	43	1470	2190	769	1630	1280	1870	988	314	1030	75	57
23	51	1120	791	1710	1070	1830	1920	1030	583	1330	78	55
24	175	1060	892	1860	1210	1890	1710	1010	859	883	80	48
25	165	1120	567	1980	1200	1910	881	996	1120	730	70	49
26	115	1190	876	844	1980	1910	1330	964	881	667	63	49
27	84	356	897	917	2040	1890	1800	817	785	609	73	49
28	68	136	1560	1030	2010	1120	1840	696	531	511	73	48
29	209	97	1500	982	2050	403	1720	1420	654	153	64	44
30	620	84	1430	1520	---	906	1730	1120	840	109	58	44
31	687	---	937	1910	---	1980	---	715	---	100	67	---
TOTAL	3328	16591	23259	35110	46952	52724	49168	29900	33806	9223	8411	4128
MEAN	107	553	750	1133	1619	1701	1639	965	1127	298	271	138
MAX	687	1470	2190	1980	2050	3580	1960	1900	1860	1330	1030	332
MIN	40	68	73	147	762	403	757	36	314	55	58	44
AC-FT	6600	32910	46130	69640	93130	104600	97520	59310	67050	18290	16680	8190

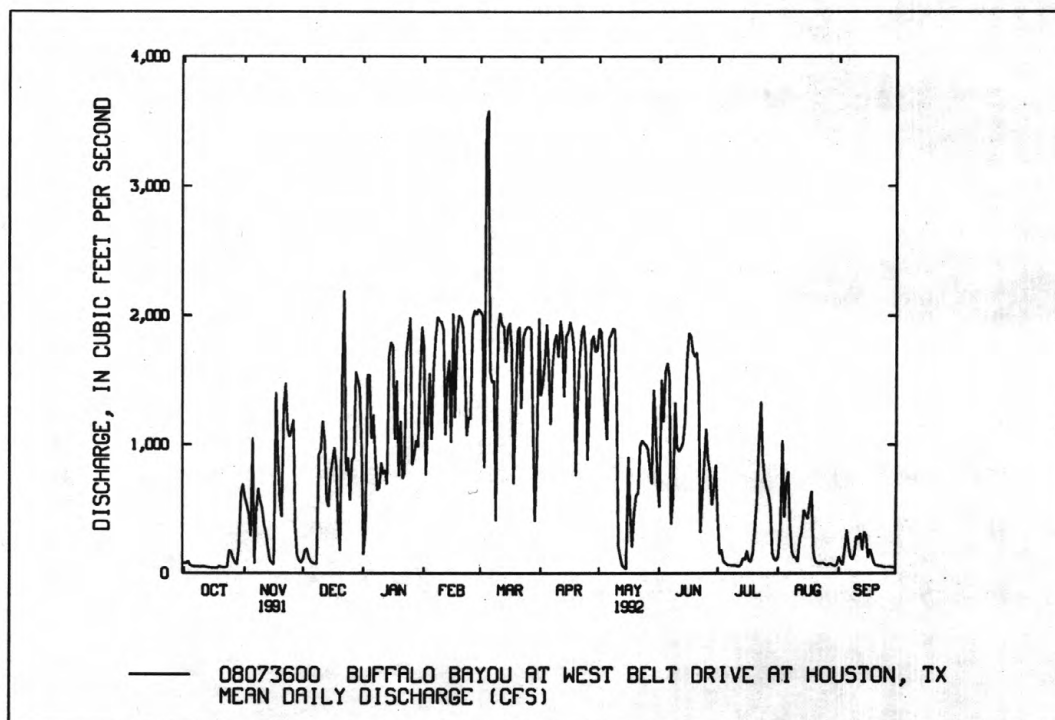
## SAN JACINTO RIVER BASIN

08073600 BUFFALO BAYOU AT WEST BELT DRIVE, HOUSTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1992, BY WATER YEAR (WY)

MEAN	264	326	352	396	433	258	284	374	443	265	200	342
MAX	757	1012	961	1133	1619	1701	1639	965	1129	707	784	1278
(WY)	1974	1975	1977	1992	1992	1992	1992	1992	1973	1981	1983	1981
MIN	58.5	38.4	62.4	84.8	36.2	39.6	46.0	58.7	65.7	77.9	67.4	60.0
(WY)	1979	1972	1990	1986	1976	1976	1978	1978	1982	1988	1980	1988

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1972 - 1992	
ANNUAL TOTAL	178579		312600			
ANNUAL MEAN	489		854			
HIGHEST ANNUAL MEAN					327	
LOWEST ANNUAL MEAN					854	
HIGHEST DAILY MEAN	2190		3580		142	
LOWEST DAILY MEAN	25		36		3820	
ANNUAL SEVEN-DAY MINIMUM	40		42		20	
INSTANTANEOUS PEAK FLOW			7290		27	
INSTANTANEOUS PEAK STAGE			68.30		7290	
ANNUAL RUNOFF (AC-FT)	354200		620000		68.30	
10 PERCENT EXCEEDS	1100		1890		236900	
50 PERCENT EXCEEDS	373		759		965	
90 PERCENT EXCEEDS	54		62		107	





## SAN JACINTO RIVER BASIN

89

08073600 BUFFALO BAYOU AT WEST BELT DRIVE, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1978 to current year. Chemical and biochemical analyses: June 1978 to August 1986. Pesticide analyses: June 1978 to March 1983. Sediment analyses: May 1979 to August 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1979 to September 1981.

WATER TEMPERATURES: June 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 922 microsiemens June 25, 1979; minimum daily, 78 microsiemens Aug. 31, 1981.

WATER TEMPERATURE: Maximum daily, 30.5°C July 1, 1978; minimum daily, 1.0°C Nov. 27, 1980.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JAN 13...	0915	255	208	7.4	13.0	130	61	9.3	89	1.9	1.7	64	
JUN 10...	0945	914	112	6.6	24.5	85	36	6.2	75	2.2	1.9	37	
JUL 23...	0926	1170	148	7.5	27.0	100	77	6.2	78	3.4	2.5	43	
AUG 27...	0805	48	752	8.0	27.5	1	20	4.6	59	2.9	1.9	140	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN 13...	0	19	4.1	17	0.9	3.1	68	7.6	16	0.20	9.2	117	
JUN 10...	0	12	1.8	8.8	0.6	2.7	38	3.6	9.6	0.20	4.2	66	
JUL 23...	2	14	1.9	11	0.7	2.9	41	8.8	14	0.20	6.6	84	
AUG 27...	0	44	7.6	95	3	7.5	170	33	100	0.40	17	404	
DATE		RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 13...	88	24	64	0.610	0.080	0.690	0.100	0.90	1.0	0.490	0.430	11	
JUN 10...	26	9	17	0.190	0.040	0.230	0.130	0.77	0.90	0.260	0.250	9.4	
JUL 23...	156	33	123	0.620	0.040	0.660	0.110	0.59	0.70	0.350	0.230	9.4	
AUG 27...	55	18	37	5.68	0.120	5.80	0.410	0.79	1.2	1.90	1.90	6.3	

## SAN JACINTO RIVER BASIN

08073700 BUFFALO BAYOU AT PINEY POINT, TX

LOCATION.--Lat 29°44'48", long 95°31'24", Harris County, Hydrologic Unit 12040104, on right bank at upstream side of bridge on Piney Point Road, village of Piney Point, 3.7 mi downstream from Rummel Creek, 7.2 mi downstream from gage near Addicks (station 08073500), and 12.5 mi upstream from gage at Houston (station 08074000).

DRAINAGE AREA.--317 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to September 1976 and October 1984 to current year. October 1976 to September 1984 (gage heights only).

Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1970 to September 1978.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 1.35 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. High-water flow is a combination of regulated flow from Barker and Addicks Reservoirs (stations 08072500 and 08073000), located 14.0 and 13.8 mi upstream from gage, respectively, and runoff from highly urbanized areas below these reservoirs. Low flow is mostly sustained by sewage effluent. Gage-height telemeter (DCP) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	680	99	172	1850	2010	1500	1980	518	563	154	123
2	74	487	146	248	806	2000	1410	1970	1950	159	392	101
3	87	411	159	1500	1270	849	1630	1640	1350	262	1760	74
4	64	248	107	1600	1910	3650	2070	1300	1820	113	501	154
5	57	96	81	1140	1060	4740	e1700	1010	1890	89	941	300
6	54	73	70	1190	1570	1850	1210	1850	1990	78	1080	206
7	54	576	65	960	1840	1440	1590	1930	485	73	523	130
8	53	631	64	752	2020	1620	1860	2000	515	71	191	111
9	51	509	902	584	1980	329	1950	2000	1480	69	147	154
10	54	452	947	822	1970	1610	1740	1570	1120	67	148	242
11	54	331	1190	834	2220	2190	2070	e220	1080	63	111	236
12	52	267	1080	979	1200	2060	2020	e150	1100	61	241	284
13	48	175	573	575	1460	2030	1260	69	1120	70	302	178
14	48	94	442	1690	1670	1720	1930	61	1300	112	518	315
15	46	74	746	1820	937	1960	1960	60	1840	132	462	276
16	45	65	836	1790	2050	2060	2100	1200	2160	174	414	133
17	45	1720	991	1170	e1350	1920	2210	670	2150	108	527	196
18	46	1010	855	1820	e1900	e800	e1900	248	1990	97	740	175
19	52	611	378	737	e2100	1190	995	408	1920	173	180	94
20	53	372	149	1170	2040	1940	1380	572	1960	357	107	72
21	48	1260	1660	783	e1950	2040	1640	548	1760	584	92	70
22	47	1510	2770	648	e1750	1240	1920	972	390	1110	86	68
23	47	1140	805	1690	e1150	1840	2020	1060	613	1730	90	66
24	147	1070	905	1860	e1300	1990	1840	1030	937	991	90	61
25	154	1120	558	2010	1200	2030	939	1010	1270	843	79	61
26	104	1230	984	941	1900	2030	1170	974	999	753	73	62
27	72	403	947	990	2030	2020	1820	968	928	688	83	61
28	61	125	1530	972	1980	e1150	1880	707	586	588	81	59
29	190	94	1520	967	2040	e450	1790	1830	695	183	72	56
30	755	79	1440	1490	---	1090	1730	1170	949	124	66	50
31	796	---	1010	1920	---	2080	---	809	---	103	71	---
TOTAL	3532	16913	24009	35824	48503	55928	51234	31986	38865	10588	10322	4168
MEAN	114	564	774	1156	1673	1804	1708	1032	1295	342	333	139
MAX	796	1720	2770	2010	2220	4740	2210	2000	2160	1730	1760	315
MIN	45	65	64	172	806	329	939	60	390	61	66	50
AC-FT	7010	33550	47620	71060	96210	110900	101600	63440	77090	21000	20470	8270

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	248	303	268	311	389	297	278	438	449	228	192	262																	
MAX	1101	1035	945	1156	1673	1804	1708	1584	1295	708	534	848																	
(WY)	1971	1975	1986	1992	1992	1992	1992	1968	1992	1968	1989	1974																	
MIN	30.4	11.2	31.5	28.3	29.9	13.8	22.6	37.9	30.9	58.5	61.8	70.5																	
(WY)	1964	1967	1971	1971	1967	1967	1965	1964	1965	1965	1967	1988																	

SUMMARY STATISTICS

	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1964 - 1992
ANNUAL TOTAL	188721	331872	
ANNUAL MEAN	517	907	301
HIGHEST ANNUAL MEAN			907
LOWEST ANNUAL MEAN			77.5
HIGHEST DAILY MEAN	2770	4740	4740
LOWEST DAILY MEAN	24	45	6.0
ANNUAL SEVEN-DAY MINIMUM	40	47	7.0
INSTANTANEOUS PEAK FLOW		7500	7500
INSTANTANEOUS PEAK STAGE		61.23	61.23
ANNUAL RUNOFF (AC-FT)	374300	658300	218100
10 PERCENT EXCEEDS	1220	1980	908
50 PERCENT EXCEEDS	382	807	100
90 PERCENT EXCEEDS	54	66	26

## SAN JACINTO RIVER BASIN

91

08074000 BUFFALO BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°45'36", Long 95°24'30", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of bridge on Shepherd Drive in Houston and 0.8 mi upstream from Waugh Drive.

DRAINAGE AREA.--358 mi<sup>2</sup>, unadjusted for basin boundary changes.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to September 1957, October 1957 to December 1961 (high-water records and discharge measurements), January 1962 to September 1975, October 1975 to current year (high-water records and discharge measurements).

REVISED RECORDS.--WSP 1732: Drainage area (former site).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.36 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment; records unadjusted for land-surface subsidence. Prior to June 19, 1936, nonrecording gage, and June 19, 1936, to Jan. 16, 1962, water-stage recorder at site 0.8 mi downstream at 4.08-foot lower datum. Jan. 17, 1962, to Sept. 30, 1973, auxiliary water-stage recorder 0.8 mi downstream. Water-stage recorder at Main Street (station 08074600) used as auxiliary gage after Sept. 30, 1973.

REMARKS.--Records fair. Although floodflows are regulated by Barker and Addicks Reservoirs (stations 08072500 and 08073000) located 26.3 and 26.8 mi upstream, respectively, flood peaks from the urbanized areas below these reservoirs are often independent of the regulation. Discharge is computed using a stage-fall-discharge relationship for all storms that produce peak discharges above 2,000 ft<sup>3</sup>/s. Discharges below 1,000 ft<sup>3</sup>/s are computed or estimated following designated storm periods only. Low flow is mostly sustained by sewage effluent from Houston suburbs. Gage heights are affected by tides, backwater from Whiteoak Bayou, and other streams. Gage-height telemeter at station.

AVERAGE DISCHARGE.--8 years (water years 1936-44) unregulated, 272 ft<sup>3</sup>/s (197,100 acre-ft/yr); 26 years (water years 1944-57, 1962-75) regulated, 274 ft<sup>3</sup>/s (198,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft<sup>3</sup>/s Mar. 4, 1992 (gage height, 34.63 ft); minimum daily, 1.3 ft<sup>3</sup>/s May 24, 1939, Nov. 5, 1950, occurred prior to urban development and accompanying sewage effluent releases.

EXTREMES OUTSIDE PERIOD OF RECORD.--All flood data at site 0.8 mi downstream at present datum. Maximum gage height since at least 1835, 49.0 ft Dec. 9, 1935 (discharge, 40,000 ft<sup>3</sup>/s); furnished by engineer for Harris County. Flood of May 31, 1929, reached a gage height of 43.5 ft (discharge, 19,000 ft<sup>3</sup>/s), at bridge on Capitol Avenue, affected by bridge; furnished by city of Houston.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,500 ft<sup>3</sup>/s Mar. 4 at 2040 hours (gage height, 34.63 ft); minimum discharges not determined (affected by tides).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1090	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	2890	---	538	---
3	---	---	---	---	1610	---	---	---	1680	---	2960	---
4	---	---	---	---	3530	3880	---	---	---	---	---	---
5	---	---	---	1720	1610	7600	2240	---	---	---	---	---
6	---	---	---	---	---	---	1720	---	2140	---	---	---
7	---	754	---	---	---	3070	---	---	1050	---	---	---
8	---	1170	---	1580	1980	---	---	---	---	---	---	---
9	---	---	---	---	2010	---	---	---	---	---	---	---
10	---	---	---	---	2010	---	---	---	---	---	---	---
11	---	---	---	---	2920	2040	---	---	---	---	---	---
12	---	---	---	1870	2190	1980	---	---	---	---	---	---
13	---	---	---	---	1750	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	1810	---	---	1970	2000	---	---	---
17	---	2950	---	1700	1540	---	2480	3450	2070	---	---	---
18	---	1960	---	3260	---	---	4150	1000	1980	---	---	---
19	---	---	---	1270	---	---	998	681	---	---	---	---
20	---	---	---	---	---	---	2010	---	---	---	---	---
21	---	---	1990	---	---	1920	---	---	---	---	---	---
22	---	---	4400	---	3570	1490	---	---	---	---	---	---
23	---	---	1510	---	1400	---	---	---	---	2140	---	---
24	---	---	---	---	1850	---	---	---	---	---	---	---
25	---	---	---	2000	1920	---	---	---	---	---	---	---
26	---	---	1580	1530	---	---	---	---	---	---	---	---
27	---	---	1770	1650	---	---	---	---	---	---	---	---
28	---	---	---	---	---	2180	---	896	---	---	---	---
29	---	---	---	---	---	1110	---	2690	---	---	---	---
30	1700	---	---	---	---	---	---	---	---	---	---	---
31	882	---	---	---	---	---	---	---	---	---	---	---
CAL YR 1991	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---
WTR YR 1992	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---

## SAN JACINTO RIVER BASIN

08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1968 to July 1981. Pesticide analyses: February 1, 1969 to July 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1986 to current year.

WATER TEMPERATURE: April 1986 to current year.

DISSOLVED OXYGEN: April to current year.

INSTRUMENTATION.--Since April 1986, a three-parameter water-quality monitor continuously records specific conductance, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrumentation.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,020 microsiemens Oct. 16, 1987, Mar. 14, 1988; minimum, 67 microsiemens Apr. 27, 1990.

WATER TEMPERATURE: Maximum, 31.5°C on several summer days during 1988-91; minimum, 5.0°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 12.0 mg/L Jan. 7, 1988; minimum, 1.1 mg/L Aug. 9, 1988.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 826 microsiemens Sept. 29; minimum, 91 microsiemens Nov. 17.

WATER TEMPERATURE: Maximum, 29.0°C Sept. 7, 20; minimum, 8.5°C Jan. 19-20.

DISSOLVED OXYGEN: Maximum, 10.0 mg/L Jan. 8, 9, 10, 20; Feb. 22, 24 minimum, 2.1 mg/L Oct. 29.

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	625	227	565	204	131	178	574	484	523	291	145	213
2	600	441	564	206	195	200	544	438	475	466	301	403
3	624	573	604	221	208	214	525	422	470	455	118	190
4	631	581	612	268	218	252	491	447	472	136	113	118
5	629	583	596	391	257	325	542	465	502	168	128	146
6	671	601	650	555	402	491	626	525	554	177	123	149
7	722	674	701	575	165	416	651	577	613	164	120	133
8	737	701	719	258	162	201	684	624	649	242	129	171
9	726	693	706	214	192	202	682	161	365	396	175	266
10	761	706	727	225	210	215	180	128	145	166	135	151
11	766	736	747	262	230	245	129	118	124	248	126	151
12	740	719	731	284	259	275	136	122	126	246	127	184
13	725	695	710	338	270	313	238	112	165	432	200	350
14	737	713	725	493	321	403	204	169	187	247	116	222
15	764	735	749	579	498	524	187	134	154	117	114	116
16	775	757	766	632	573	596	154	141	148	---	---	---
17	786	762	775	634	91	261	163	139	147	161	129	138
18	802	773	789	163	148	157	196	165	183	155	128	131
19	798	771	788	184	153	159	246	185	218	161	130	149
20	814	783	802	389	192	282	409	250	305	147	126	132
21	805	728	758	345	132	157	411	122	253	171	134	151
22	783	744	761	141	131	135	138	119	125	458	167	307
23	783	742	765	151	140	146	188	142	167	158	126	135
24	812	751	793	168	147	153	187	148	157	131	125	127
25	726	482	567	185	163	169	175	163	170	132	126	127
26	517	467	491	194	173	179	217	120	166	193	131	158
27	573	480	515	263	190	219	179	134	158	221	129	168
28	605	497	560	458	266	376	183	115	134	378	143	202
29	639	307	579	557	459	502	123	114	118	209	137	162
30	337	92	188	557	507	530	124	114	119	143	130	135
31	403	135	282	---	---	---	160	122	133	131	126	128
MONTH	814	92	654	634	91	282	684	112	265	466	113	177

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	138	126	127	139	134	136	150	126	128	131	127	127
2	172	138	154	142	134	138	184	126	145	---	---	---
3	231	132	186	377	140	203	137	126	131	132	126	128
4	150	130	134	248	132	206	---	---	---	183	130	143
5	170	149	159	198	194	197	164	128	137	235	173	201
6	152	128	138	---	---	---	219	127	164	204	126	136
7	155	126	134	---	---	---	158	126	132	131	126	127
8	---	---	---	---	---	---	135	126	128	136	129	131
9	127	126	126	---	---	---	144	134	137	137	130	132
10	129	125	127	---	---	---	170	144	156	172	137	148
11	149	126	131	---	---	---	161	139	145	489	177	340
12	221	129	162	---	---	---	145	137	140	491	411	474
13	177	129	150	---	---	---	191	147	174	---	---	---
14	149	138	142	---	---	---	152	138	143	---	---	---
15	427	147	240	---	---	---	146	141	144	---	---	---
16	159	135	143	---	---	---	144	136	139	492	184	356
17	222	148	188	152	149	150	161	131	143	247	231	245
18	156	134	142	158	141	152	138	127	129	459	207	377
19	139	132	136	163	130	147	187	133	161	474	394	446
20	146	131	134	162	126	143	169	126	145	458	236	326
21	141	129	133	165	137	148	173	137	148	421	384	392
22	148	128	135	186	135	165	143	138	141	429	241	344
23	219	147	183	171	126	145	143	135	138	377	220	236
24	191	136	149	173	131	153	148	135	139	234	216	225
25	233	140	185	---	---	---	220	151	181	230	218	223
26	162	130	138	---	---	---	224	142	174	241	222	230
27	139	134	136	---	---	---	142	126	129	250	182	216
28	140	134	137	152	126	134	131	126	127	249	146	220
29	139	133	135	169	130	160	134	127	128	158	128	140
30	---	---	---	---	---	---	135	126	131	182	160	168
31	---	---	---	140	128	129	---	---	---	186	149	164
MONTH	427	125	149	377	126	157	224	126	143	492	126	237
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	463	186	349	---	---	---	---	---	---	---	---	---
2	225	140	157	---	---	---	---	---	---	---	---	---
3	154	126	142	---	---	---	---	---	---	604	385	458
4	140	126	128	---	---	---	---	---	---	729	595	656
5	129	126	126	---	---	---	---	---	---	733	253	536
6	137	126	126	---	---	---	---	---	---	383	292	364
7	402	137	206	---	---	---	---	---	---	497	381	433
8	485	207	349	---	---	---	---	---	---	570	482	513
9	242	126	144	---	---	---	---	---	---	583	522	560
10	172	126	145	---	---	---	---	---	---	555	415	484
11	---	---	---	---	---	---	---	---	---	443	319	368
12	---	---	---	---	---	---	---	---	---	447	312	358
13	---	---	---	---	---	---	---	---	---	389	320	360
14	---	---	---	---	---	---	---	---	---	475	159	379
15	---	---	---	---	---	---	---	---	---	368	188	290
16	---	---	---	---	---	---	---	---	---	370	328	347
17	---	---	---	---	---	---	---	---	---	468	307	422
18	---	---	---	---	---	---	---	---	---	466	236	320
19	---	---	---	---	---	---	---	---	---	605	379	488
20	---	---	---	---	---	---	---	---	---	663	567	601
21	---	---	---	---	---	---	---	---	---	699	661	683
22	---	---	---	---	---	---	---	---	---	747	693	720
23	---	---	---	---	---	---	---	---	---	769	736	753
24	---	---	---	---	---	---	---	---	---	801	761	781
25	---	---	---	---	---	---	---	---	---	811	778	794
26	---	---	---	---	---	---	---	---	---	814	798	809
27	---	---	---	---	---	---	---	---	---	811	791	802
28	---	---	---	---	---	---	---	---	---	817	802	809
29	---	---	---	---	---	---	---	---	---	826	786	805
30	---	---	---	---	---	---	---	---	---	820	788	804
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	485	126	187	---	---	---	---	---	---	826	159	561
YEAR	826	91	297									



## SAN JACINTO RIVER BASIN

08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.0	23.0	23.5	15.5	14.0	15.0	20.5	18.0	19.0	---	---	---
2	25.0	23.5	24.0	14.0	13.0	13.5	18.0	15.5	16.5	---	---	---
3	25.5	23.5	24.5	13.0	12.0	13.0	15.0	13.5	14.0	---	---	---
4	26.0	24.0	24.5	12.0	11.0	12.0	13.0	12.0	12.5	---	---	---
5	25.5	23.5	24.5	12.0	10.5	11.5	13.5	12.0	12.5	---	---	---
6	23.0	21.5	22.5	14.5	12.5	13.5	15.5	13.5	14.5	---	---	---
7	22.0	20.5	21.0	18.0	14.5	16.0	18.0	15.5	16.5	---	---	---
8	21.0	19.5	20.5	18.0	15.0	16.5	19.5	18.0	18.5	---	---	---
9	21.5	19.5	20.5	15.0	12.5	13.5	21.0	19.5	20.5	---	---	---
10	22.5	20.0	21.0	12.5	12.0	12.5	20.5	19.5	20.0	---	---	---
11	23.0	20.5	21.5	14.0	12.5	13.0	19.5	19.0	19.0	---	---	---
12	24.0	21.5	22.5	15.5	13.5	14.5	19.5	19.0	19.5	---	---	---
13	24.5	22.0	23.0	16.5	15.0	15.5	20.5	19.5	20.0	---	---	---
14	25.0	23.5	24.0	17.5	15.5	16.5	19.5	18.0	19.0	12.5	11.0	11.5
15	24.0	22.5	23.5	19.5	17.5	18.5	17.5	16.5	17.0	11.5	11.0	11.0
16	22.5	21.0	21.5	20.5	19.0	20.0	16.5	16.0	16.0	12.0	11.0	11.5
17	22.0	18.0	20.5	20.5	17.5	19.0	16.0	15.5	16.0	11.0	10.5	11.0
18	22.5	20.5	21.5	18.5	17.5	18.0	16.0	15.5	16.0	10.5	9.0	9.5
19	22.0	20.0	21.0	19.5	18.5	19.0	16.0	15.5	15.5	9.5	8.5	9.0
20	22.0	19.5	21.5	19.0	18.5	18.5	17.0	15.5	16.0	10.0	8.5	9.5
21	21.0	19.0	20.0	18.5	17.5	17.5	17.0	16.5	17.0	11.0	10.0	10.5
22	23.5	19.0	20.5	17.5	16.5	17.0	17.0	16.5	17.0	12.5	10.5	11.5
23	24.0	23.0	23.5	17.0	16.0	16.5	---	---	---	11.5	10.5	11.0
24	25.0	22.5	24.0	16.0	14.0	15.0	---	---	---	11.0	10.5	10.5
25	24.5	24.0	24.0	14.0	13.5	14.0	---	---	---	11.0	10.5	10.5
26	25.0	23.5	24.5	14.0	13.5	13.5	---	---	---	12.0	11.0	11.0
27	24.5	22.5	23.5	15.5	14.0	14.5	---	---	---	12.5	12.0	12.5
28	23.0	22.5	23.0	18.0	15.5	16.5	---	---	---	12.5	11.5	12.0
29	24.0	22.0	23.0	19.5	18.0	18.5	---	---	---	12.0	11.5	11.5
30	21.5	18.0	19.5	20.5	19.5	20.0	---	---	---	11.5	11.0	11.5
31	21.0	16.0	19.0	---	---	---	---	---	---	11.5	10.0	11.0
MONTH	26.0	16.0	22.5	20.5	10.5	16.0	21.0	12.0	17.0	12.5	8.5	11.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	20.0	19.0	19.0	22.5	20.0	22.5
2	---	---	---	---	---	---	---	---	---	22.5	22.0	22.5
3	---	---	---	---	---	---	---	---	---	23.0	22.5	22.5
4	---	---	---	---	---	---	---	---	---	23.0	22.5	23.0
5	---	---	---	---	---	---	---	---	---	23.0	22.0	22.5
6	10.5	10.5	10.5	---	---	---	21.5	19.5	20.0	23.0	22.0	22.5
7	11.5	11.0	11.0	---	---	---	21.5	21.0	21.0	22.5	21.5	22.0
8	11.0	10.5	11.0	---	---	---	19.0	19.0	19.0	22.0	21.5	21.5
9	11.0	10.5	10.5	---	---	---	20.0	19.0	19.5	22.0	21.5	21.5
10	11.0	10.5	10.5	---	---	---	19.5	19.0	19.0	21.5	21.0	21.5
11	---	---	---	---	---	---	20.0	19.0	19.5	22.5	21.0	21.5
12	---	---	---	---	---	---	20.0	19.5	20.0	24.0	22.5	23.0
13	---	---	---	---	---	---	21.0	20.0	20.5	24.0	23.5	24.0
14	---	---	---	---	---	---	21.0	19.5	20.5	---	---	---
15	---	---	---	---	---	---	21.0	20.0	20.5	24.0	24.0	24.0
16	---	---	---	---	---	---	22.0	20.5	21.0	24.0	21.0	22.5
17	---	---	---	---	---	---	22.0	20.5	21.5	21.5	21.5	21.5
18	---	---	---	---	---	---	20.5	20.0	20.5	23.0	22.0	22.5
19	---	---	---	---	---	---	22.0	20.0	21.0	24.0	22.5	23.5
20	---	---	---	---	---	---	22.0	20.0	21.0	24.0	23.0	23.5
21	---	---	---	---	---	---	22.0	20.0	21.5	24.0	23.0	23.5
22	---	---	---	---	---	---	22.5	21.5	22.0	24.0	23.0	23.5
23	---	---	---	---	---	---	22.5	22.0	22.0	24.0	24.0	24.0
24	---	---	---	---	---	---	23.0	22.5	22.5	---	---	---
25	---	---	---	---	---	---	22.5	22.0	22.5	---	---	---
26	---	---	---	21.0	19.5	20.0	22.5	21.0	22.0	---	---	---
27	---	---	---	---	---	---	23.0	22.0	22.5	25.5	23.5	25.0
28	---	---	---	---	---	---	23.0	22.5	23.0	25.0	23.5	24.0
29	---	---	---	---	---	---	23.0	22.5	23.0	23.5	22.0	22.5
30	---	---	---	---	---	---	23.0	22.5	23.0	22.5	21.5	22.0
31	---	---	---	19.5	19.0	19.5	---	---	---	22.0	22.0	22.0
MONTH	11.5	10.5	11.0	21.0	19.0	19.5	23.0	19.0	21.0	25.5	20.0	22.5

## SAN JACINTO RIVER BASIN

95

08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.0	22.0	23.5	---	---	---	---	---	---	---	---	---
2	25.0	22.0	23.0	---	---	---	---	---	---	---	---	---
3	25.0	22.5	24.0	---	---	---	---	---	---	28.5	27.0	27.5
4	25.0	24.0	24.5	---	---	---	---	---	---	28.0	27.5	27.5
5	25.0	24.5	24.5	---	---	---	---	---	---	27.5	26.5	27.0
6	24.5	24.0	24.5	---	---	---	---	---	---	28.0	26.5	27.0
7	24.5	23.5	24.0	---	---	---	---	---	---	29.0	26.5	27.5
8	25.0	24.0	24.5	---	---	---	---	---	---	28.5	27.5	28.0
9	25.0	24.5	25.0	---	---	---	---	---	---	28.5	27.0	28.0
10	25.0	24.5	25.0	---	---	---	---	---	---	28.0	27.0	27.5
11	---	---	---	---	---	---	---	---	---	28.0	26.5	27.5
12	---	---	---	---	---	---	---	---	---	27.5	26.5	27.0
13	---	---	---	---	---	---	---	---	---	27.5	26.5	27.0
14	---	---	---	---	---	---	---	---	---	27.0	25.5	26.5
15	---	---	---	---	---	---	---	---	---	27.5	25.5	26.5
16	---	---	---	---	---	---	---	---	---	27.0	26.0	26.5
17	---	---	---	---	---	---	---	---	---	27.5	26.0	26.5
18	---	---	---	---	---	---	---	---	---	28.0	26.5	27.0
19	---	---	---	---	---	---	---	---	---	28.5	26.5	27.5
20	---	---	---	---	---	---	---	---	---	29.0	27.0	28.0
21	---	---	---	---	---	---	---	---	---	28.5	27.5	28.0
22	---	---	---	---	---	---	---	---	---	28.5	27.5	28.0
23	---	---	---	---	---	---	---	---	---	27.5	25.5	26.5
24	---	---	---	---	---	---	---	---	---	25.5	24.0	24.5
25	---	---	---	---	---	---	---	---	---	25.5	24.0	25.0
26	---	---	---	---	---	---	---	---	---	26.0	25.0	25.5
27	---	---	---	---	---	---	---	---	---	26.5	25.0	25.5
28	---	---	---	---	---	---	---	---	---	26.0	25.0	25.5
29	---	---	---	---	---	---	---	---	---	25.0	23.5	24.5
30	---	---	---	---	---	---	---	---	---	24.0	22.5	23.0
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	25.0	22.0	24.0	---	---	---	---	---	---	29.0	22.5	26.5
YEAR	29.0	8.5	20.0									

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.6	6.2	6.9	8.0	7.3	7.6	7.3	7.0	7.2	8.5	7.8	8.1
2	6.9	5.1	6.2	8.2	8.0	8.1	7.0	6.0	6.5	7.9	7.7	7.8
3	6.6	5.1	6.1	8.1	7.0	7.6	7.0	5.7	6.3	8.5	7.8	8.2
4	6.8	5.2	6.2	7.0	6.2	6.6	7.1	5.3	6.2	8.2	8.0	8.1
5	6.9	6.0	6.4	9.1	6.1	8.5	7.6	6.0	6.9	8.4	8.1	8.2
6	8.1	6.8	7.5	9.6	8.2	8.7	7.8	7.3	7.5	8.4	8.1	8.3
7	8.2	7.6	7.9	8.1	7.1	7.6	7.9	7.5	7.7	8.2	8.0	8.1
8	7.9	7.5	7.7	7.1	5.4	6.3	7.8	7.5	7.6	10.0	7.5	8.7
9	8.1	7.2	7.5	5.9	4.3	5.4	7.4	6.7	7.1	10.0	7.6	9.4
10	7.3	6.5	6.9	6.5	4.8	5.4	7.0	6.3	6.7	8.6	8.2	8.4
11	7.4	6.2	6.6	5.9	4.8	5.4	6.9	6.8	6.8	8.6	8.2	8.4
12	7.2	5.9	6.4	6.5	4.8	5.3	6.8	6.7	6.8	9.7	8.6	9.2
13	7.1	5.6	6.2	7.0	4.3	5.0	8.5	6.2	6.6	8.5	8.1	8.2
14	6.7	5.4	5.9	5.9	3.8	4.8	7.3	6.5	6.9	8.7	8.4	8.5
15	6.6	5.5	5.9	6.5	4.8	5.3	7.5	7.3	7.4	8.6	8.6	8.6
16	6.8	5.6	6.1	7.3	5.4	6.8	7.7	7.5	7.6	8.9	8.6	8.7
17	7.0	5.8	6.3	7.4	4.3	6.9	7.7	7.4	7.5	9.3	8.6	8.9
18	6.8	5.7	6.2	6.5	5.4	5.6	7.8	7.4	7.6	10.0	9.3	9.9
19	6.7	5.5	6.1	9.8	6.5	7.9	7.8	7.4	7.6	9.9	9.6	9.7
20	6.5	5.2	5.9	8.5	7.6	8.1	7.8	7.2	7.4	10.0	9.3	9.5
21	6.7	5.6	6.2	7.9	7.3	7.6	8.6	7.1	7.7	9.3	9.1	9.2
22	6.5	5.7	6.0	7.8	7.3	7.5	7.7	6.9	7.4	9.2	7.9	8.5
23	5.8	5.2	5.5	7.4	6.3	7.0	6.9	6.6	6.7	9.0	8.7	8.9
24	5.9	4.0	5.2	7.1	5.7	6.4	7.8	7.0	7.5	9.1	9.0	9.1
25	4.7	4.0	4.5	7.3	5.7	6.4	8.1	7.7	7.9	9.0	8.9	9.0
26	5.0	4.5	4.7	7.2	6.7	7.1	9.5	7.9	8.7	8.9	8.4	8.7
27	5.2	4.5	4.8	7.6	7.2	7.4	9.4	9.0	9.2	8.9	8.4	8.7
28	4.8	4.0	4.6	7.8	7.3	7.5	9.1	8.2	8.5	9.0	8.1	8.6
29	6.0	2.1	4.4	7.8	7.5	7.7	8.3	8.2	8.2	9.0	8.6	8.8
30	6.6	4.9	5.3	7.8	7.6	7.7	8.3	8.2	8.2	9.0	8.8	8.8
31	7.9	5.3	6.1	---	---	---	8.5	8.1	8.3	8.8	8.6	8.7
MONTH	8.6	2.1	6.1	9.8	3.8	6.8	9.5	5.3	7.4	10.0	7.5	8.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.7	8.5	8.6	7.6	7.6	7.6	7.0	6.7	6.9	5.6	5.4	5.5
2	8.7	8.3	8.5	7.6	7.5	7.5	6.9	6.6	6.8	5.6	5.4	5.5
3	8.6	8.3	8.4	---	---	---	6.9	6.7	6.7	5.6	5.6	5.6
4	8.4	8.0	8.2	8.1	7.5	7.8	6.9	6.7	6.7	5.6	5.4	5.6
5	8.8	8.2	8.5	7.6	7.5	7.5	7.0	6.6	6.8	5.8	5.2	5.4
6	8.8	8.6	8.7	---	---	---	7.2	6.7	6.9	5.9	5.8	5.9
7	8.7	8.6	8.7	---	---	---	7.3	7.2	7.3	6.0	5.8	5.9
8	8.7	8.6	8.6	---	---	---	7.3	7.0	7.1	6.0	5.7	5.9
9	8.7	8.6	8.6	---	---	---	7.2	6.9	7.0	6.0	5.8	5.9
10	8.6	8.5	8.6	---	---	---	7.2	6.7	6.9	6.0	5.5	5.9
11	8.5	8.0	8.4	---	---	---	7.0	6.7	6.9	5.5	4.7	5.0
12	8.1	7.5	7.8	---	---	---	7.3	6.9	7.2	5.0	4.6	4.8
13	8.1	7.5	7.8	---	---	---	7.5	7.0	7.3	5.2	4.8	5.1
14	8.2	7.9	8.0	---	---	---	8.0	7.5	7.8	5.5	5.0	5.1
15	7.9	7.6	7.7	---	---	---	8.3	8.0	8.2	5.6	4.8	5.1
16	7.9	7.8	7.9	---	---	---	8.8	8.3	8.5	6.4	4.2	5.2
17	8.1	7.6	7.7	8.4	7.9	8.1	9.3	8.2	8.6	6.3	6.2	6.2
18	8.0	7.9	7.9	9.3	7.8	8.5	9.0	8.2	8.5	6.0	5.3	5.8
19	7.9	7.8	7.9	9.0	8.0	8.5	8.5	7.6	7.9	6.1	5.2	5.5
20	7.9	7.8	7.9	8.3	7.6	7.9	8.1	6.3	7.3	6.1	5.3	5.8
21	7.8	7.7	7.8	8.6	7.6	8.1	6.3	5.4	6.0	6.1	5.7	5.9
22	10.0	7.6	8.5	8.4	7.7	8.1	5.4	4.4	4.9	6.3	5.9	6.0
23	9.9	9.1	9.3	8.6	7.7	8.0	4.4	3.7	4.0	6.2	5.8	6.0
24	10.0	7.6	9.7	8.5	7.6	7.8	6.5	3.2	3.6	6.1	5.7	5.9
25	9.9	7.6	9.6	9.4	6.1	7.2	6.5	6.1	6.2	5.9	5.6	5.8
26	7.9	7.7	7.8	6.9	6.4	6.6	6.1	5.9	6.0	5.8	5.5	5.6
27	7.9	7.8	7.9	7.2	6.6	6.8	5.9	5.8	5.9	5.9	5.2	5.5
28	7.8	7.7	7.7	7.8	6.4	7.0	5.7	5.7	5.7	6.3	4.9	5.3
29	7.7	7.6	7.7	7.8	6.7	7.3	5.7	5.6	5.7	6.3	5.7	5.9
30	---	---	---	7.2	6.7	6.8	5.6	5.6	5.6	6.3	5.9	6.1
31	---	---	---	7.2	7.0	7.1	---	---	---	6.4	5.9	6.3
MONTH	10.0	7.5	8.3	9.4	6.1	7.6	9.3	3.2	6.7	6.4	4.2	5.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	6.2	5.0	5.5	---	---	---	---	---	---	---	---	---
2	6.4	4.9	5.9	---	---	---	---	---	---	---	---	---
3	6.3	5.7	5.9	---	---	---	---	---	---	6.6	4.5	6.0
4	6.1	6.0	6.0	---	---	---	---	---	---	6.0	4.9	5.3
5	6.1	5.9	6.0	---	---	---	---	---	---	5.5	4.2	5.0
6	6.0	5.5	5.9	---	---	---	---	---	---	5.5	4.4	5.2
7	5.7	4.8	5.3	---								

## SAN JACINTO RIVER BASIN

97

08074500 WHITEOAK BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°46'30", long 95°23'49", Harris County, Hydrologic Unit 12040104, at downstream side of downstream bridge on Heights Boulevard in Houston, 560 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.4 mi upstream from Little Whiteoak Bayou, and 4.0 mi upstream from mouth.

DRAINAGE AREA.--86.3 mi<sup>2</sup>. Prior to Oct. 1, 1976, 84.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 7.35 ft below National Geodetic Vertical Datum of 1929, adjustment of 1973; unadjusted for land-surface subsidence. Prior to June 17, 1936, nonrecording gage, and June 17, 1936, to Apr. 28, 1965, water-stage recorder at site 480 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Low flow is sustained by sewage effluent and industrial waste water. No diversions above station. Stage and rainfall telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1919, 51.5 ft Dec. 9, 1935, prior to channel rectification, present site and datum (discharge, 14,750 ft<sup>3</sup>/s), furnished by the engineer for Harris County. The flood of May 31, 1929, reached a stage of 47.0 + 0.5 ft, prior to channel rectification, present site and datum (discharge, 9,360 ft<sup>3</sup>/s), computed on basis of current-meter measurement at stage 1.0 ft below crest, furnished by city of Houston.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1030	9,630	34.55	Mar. 4	1700	25,100	50.43
Dec. 21	1530	10,400	35.55	Apr. 17	2130	9,020	33.80
Jan. 12	0400	4,810	27.91	May 16	1700	9,190	34.02
Jan. 18	1030	5,220	28.55	May 28	2030	5,950	29.64
Feb. 4	0130	4,950	28.14	June 2	0930	7,440	31.75
Feb. 22	0830	4,670	27.69				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	346	74	60	72	89	67	60	809	118	45	245
2	25	50	115	67	62	90	57	59	2910	47	185	65
3	26	33	52	55	1460	86	58	60	623	205	523	82
4	25	31	32	48	2120	9620	56	137	217	158	103	53
5	25	29	29	437	959	1730	179	146	127	44	64	110
6	24	29	28	131	302	890	547	61	296	40	52	70
7	24	663	27	105	142	294	196	52	243	40	115	48
8	24	484	31	956	105	168	114	55	95	39	85	177
9	22	71	1470	357	85	133	81	56	71	40	82	156
10	23	38	257	121	77	109	112	58	87	40	131	94
11	24	33	118	95	1230	84	67	61	110	40	98	152
12	24	31	72	1310	713	73	65	61	60	38	184	56
13	23	30	203	241	353	70	68	61	60	40	100	59
14	24	29	77	111	188	65	68	62	56	209	59	431
15	24	28	41	81	157	64	64	442	54	567	52	153
16	22	29	37	68	147	66	61	2690	51	288	52	55
17	22	3180	43	326	193	60	2000	966	49	71	50	49
18	22	453	337	2650	116	82	1580	1410	49	48	45	52
19	23	133	226	519	93	128	508	613	49	128	46	47
20	23	72	86	145	82	64	578	307	48	750	50	47
21	24	43	3690	121	76	69	159	243	50	884	49	47
22	26	36	2560	344	1800	67	96	130	55	737	47	47
23	27	34	575	127	394	57	72	77	68	976	68	45
24	30	33	179	88	1070	59	64	112	86	345	100	48
25	28	30	96	75	1000	65	68	76	47	187	53	45
26	28	30	160	119	286	65	64	65	46	181	48	44
27	27	42	552	980	164	63	58	209	134	99	48	46
28	38	36	274	278	135	938	56	1390	74	65	47	46
29	251	32	123	133	112	474	56	991	47	128	43	45
30	644	30	87	104	---	134	61	247	124	83	44	45
31	661	---	71	84	---	77	---	186	---	47	461	---
TOTAL	2257	6138	11722	10336	13693	16033	7280	11143	6795	6682	3129	2659
MEAN	72.8	205	378	333	472	517	243	359	226	216	101	88.6
MAX	661	3180	3690	2650	2120	9620	2000	2690	2910	976	523	431
MIN	22	28	27	48	62	57	56	52	46	38	43	44
AC-FT	4480	12170	23250	20500	27160	31800	14440	22100	13480	13250	6210	5270

## SAN JACINTO RIVER BASIN

08074500 WHITEOAK BAYOU AT HOUSTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1992, BY WATER YEAR (WY)

MEAN	79.8	104	94.8	111	110	81.4	82.7	120	113	80.8	69.0	89.0
MAX	478	774	378	437	472	517	408	558	556	439	535	578
(WY)	1950	1947	1992	1944	1992	1992	1991	1989	1973	1942	1983	1941
MIN	.71	.93	2.22	1.70	5.12	1.10	1.35	.75	2.93	2.19	.61	1.07
(WY)	1949	1940	1949	1940	1951	1940	1939	1937	1954	1944	1940	1948

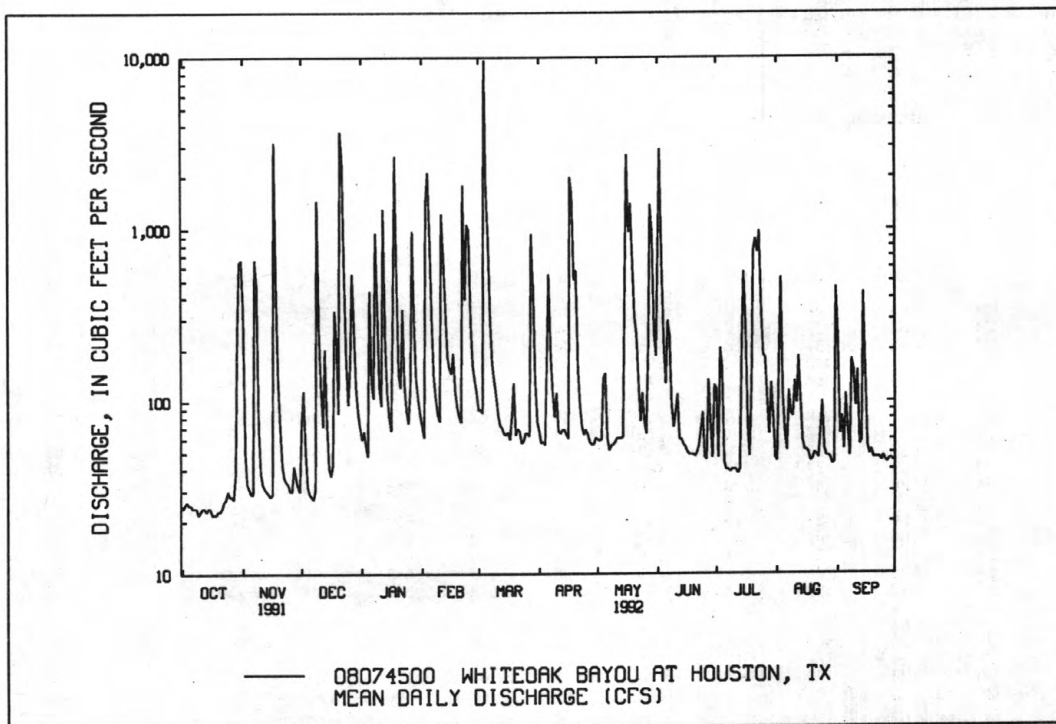
## SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1937 - 1992

ANNUAL TOTAL	73377			97867								
ANNUAL MEAN	201			267								
HIGHEST ANNUAL MEAN									94.5			1992
LOWEST ANNUAL MEAN									267			1951
HIGHEST DAILY MEAN	3690	Dec 21		9620	Mar 4				10700			May 18 1989
LOWEST DAILY MEAN	22	Oct 9		22	Oct 9				.20			Aug 7 1940
ANNUAL SEVEN-DAY MINIMUM	23	Oct 13		23	Oct 13				.26			Aug 12 1951
INSTANTANEOUS PEAK FLOW				25100	Mar 4				25100			Mar 4 1992
INSTANTANEOUS PEAK STAGE				50.43	Mar 4				50.43			Mar 4 1992
ANNUAL RUNOFF (AC-FT)	145500			194100					68450			
10 PERCENT EXCEEDS	461			629					194			
50 PERCENT EXCEEDS	52			72					23			
90 PERCENT EXCEEDS	28			30					2.1			





## SAN JACINTO RIVER BASIN

99

08074500 WHITEOAK BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1968 to current year. Pesticide analyses: February 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 26...	1330	280	413	8.0	16.0	200	34	10.8	109	3.1	2.8	2700	
MAY 11...	1205	56	880	8.2	25.0	20	2.4	16.2	196	2.8	2.7	820	
AUG 04...	0725	119	447	7.8	25.5	28	12	7.5	92	2.0	1.8	2600	
DATE		STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 26...	1700	140	0	43	6.8	34	1	3.5	140	17	34	0.30	
MAY 11...	140	210	0	64	12	110	3	6.0	250	33	110	0.60	
AUG 04...	720	120	0	39	6.1	49	2	4.1	140	19	44	0.40	
DATE		SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
FEB 26...	13	235	32	2	30	0.940	0.060	1.00	0.170	0.83	1.0		
MAY 11...	17	505	<1	<1	--	4.39	0.210	4.60	0.070	0.63	0.70		
AUG 04...	14	259	16	11	5	1.46	0.040	1.50	0.130	0.57	0.70		
DATE		PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
FEB 26...	0.490	0.390	12	5	150	<0.5	<1.0	<5	<3	<10	100		
MAY 11...	2.70	2.70	5.7	7	220	<0.5	<1.0	<5	<3	<10	12		
AUG 04...	1.10	0.990	6.7	10	170	0.7	<1.0	<5	<3	<10	30		
DATE		LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 26...	10	11	26	<0.1	<10	<10	<1	<1.0	220	<6	14		
MAY 11...	<10	22	21	<0.1	<10	10	2	<1.0	430	<6	17		
AUG 04...	<10	11	13	<0.1	<10	<10	1	<1.0	260	<6	22		
DATE		AME-TRYNE TOTAL	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	
FEB 26...	<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
MAY 11...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		
AUG 04...	<0.10	0.1	<0.20	<0.5	0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		

WATER QUALITY RECORDS

DRAINAGE AREA.-- Not determined.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1992 to current year.

WATER TEMPERATURE: May 1992 to current year.

DISSOLVED OXYGEN: May 1992 to current year.

REMARKS.--Interruptions in the record were due to malfunction of the instrumentation. Due to tidal effects, backwater, probe location, channel morphology, the water-quality data collected at this location may not be representative of the entire flow through the cross-section

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 1,360 microsiemens on August 19, 21, 1992; minimum, 100 microsiemens July 23, 1992.

WATER TEMPERATURE: Maximum, 31.0°C several days in June - Sept., 1992; minimum, 21.5°C May 30, 1992.

DISSOLVED OXYGEN: Maximum, 9.5 mg/L July 31, 1992; minimum, 0.8 mg/L, July 15, 1992.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum 1,360 microsiemens on Aug. 19, 21; minimum, 100 microsiemens July 23.

WATER TEMPERATURE: Maximum 31.0°C several days in June - Sept.; minimum, 21.5°C May 30, 1992.

DISSOLVED OXYGEN: Maximum, 9.5 mg/L July 31; minimum 0.8 mg/L July 15.

[illegible]

## 101

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	1040	716	877	---	---	---
2	---	---	---	---	---	---	878	372	576	---	---	---
3	---	---	---	---	---	---	336	185	241	---	---	---
4	---	---	---	---	---	---	566	336	440	---	---	---
5	---	---	---	---	---	---	869	485	593	---	---	---
6	---	---	---	---	---	---	1030	576	698	---	---	---
7	---	---	---	---	---	---	1210	219	685	---	---	---
8	---	---	---	---	---	---	1070	425	651	---	---	---
9	---	---	---	---	---	---	995	377	653	---	---	---
10	965	567	820	---	---	---	980	253	602	---	---	---
11	897	537	713	947	857	887	1060	358	576	---	---	---
12	1050	707	824	---	---	---	599	311	469	---	---	---
13	---	---	---	731	731	731	635	447	505	---	---	---
14	983	840	864	832	281	454	1050	632	712	---	---	---
15	1160	842	909	710	265	507	1050	722	794	---	---	---
16	1160	849	940	---	---	---	1220	782	850	---	---	---
17	---	---	---	---	---	---	1290	787	884	---	---	---
18	1080	870	906	---	---	---	1040	807	1010	---	---	---
19	1280	888	946	---	---	---	1360	848	962	---	---	---
20	1270	886	940	544	273	386	1290	868	921	---	---	---
21	836	836	836	242	111	176	1360	568	884	---	---	---
22	1140	771	888	266	125	188	1350	644	882	---	---	---
23	1160	771	811	204	100	162	---	---	---	796	716	752
24	---	---	---	344	183	236	1150	684	894	818	795	807
25	---	---	---	743	294	394	1220	736	932	827	815	820
26	---	---	---	---	---	---	1330	828	1040	836	814	826
27	---	---	---	---	---	---	---	---	---	855	835	845
28	---	---	---	---	---	---	---	---	---	871	845	857
29	---	---	---	930	598	743	---	---	---	874	864	869
30	---	---	---	669	285	492	---	---	---	872	863	867
31	---	---	---	856	648	734	891	871	877	---	---	---
MONTH	1280	537	866	947	100	468	1360	185	739	874	716	830
YEAR	1360	100	718									

## SAN JACINTO RIVER BASIN

08074598 WHITE OAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
-	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
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	---	---	---	---	---	---	---	---	---	---	---	---

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	---	---	---	---	---	---	---	---	---	30.0	26.5	27.5
15	---	---	---	---	---	---	---	---	---	29.5	27.0	27.0
16	---	---	---	---	---	---	---	---	---	22.0	22.0	22.0
17	---	---	---	---	---	---	---	---	---	23.5	22.0	22.5
18	---	---	---	---	---	---	---	---	---	25.5	23.5	24.0
19	---	---	---	---	---	---	---	---	---	27.0	23.5	25.0
20	---	---	---	---	---	---	---	---	---	27.0	23.5	25.0
21	---	---	---	---	---	---	---	---	---	28.5	24.5	26.5
22	---	---	---	---	---	---	---	---	---	28.5	24.5	26.0
23	---	---	---	---	---	---	---	---	---	29.5	25.0	26.5
24	---	---	---	---	---	---	---	---	---	30.5	25.5	28.0
25	---	---	---	---	---	---	---	---	---	30.5	26.0	27.5
26	---	---	---	---	---	---	---	---	---	29.5	26.0	27.5
27	---	---	---	---	---	---	---	---	---	29.0	25.0	26.5
28	---	---	---	---	---	---	---	---	---	26.5	23.0	24.5
29	---	---	---	---	---	---	---	---	---	23.5	22.0	23.0
30	---	---	---	---	---	---	---	---	---	26.0	21.5	23.0
31	---	---	---	---	---	---	---	---	---	24.0	22.5	23.0
MONTH	---	---	---	---	---	---	---	---	---	30.5	21.5	25.5

## 103

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]



## SAN JACINTO RIVER BASIN

08074598 WHITE OAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	---	---	---	---	---	---	---	---	---	7.8	2.6	4.2
15	---	---	---	---	---	---	---	---	---	7.8	2.4	2.7
16	---	---	---	---	---	---	---	---	---	3.3	1.7	1.8
17	---	---	---	---	---	---	---	---	---	6.1	2.4	4.1
18	---	---	---	---	---	---	---	---	---	8.2	4.1	6.3
19	---	---	---	---	---	---	---	---	---	6.7	4.6	5.7
20	---	---	---	---	---	---	---	---	---	7.7	5.6	6.3
21	---	---	---	---	---	---	---	---	---	6.1	5.1	5.7
22	---	---	---	---	---	---	---	---	---	7.2	5.6	5.9
23	---	---	---	---	---	---	---	---	---	6.1	4.6	5.2
24	---	---	---	---	---	---	---	---	---	6.1	4.1	5.1
25	---	---	---	---	---	---	---	---	---	6.1	3.1	4.3
26	---	---	---	---	---	---	---	---	---	5.1	2.6	3.9
27	---	---	---	---	---	---	---	---	---	8.1	2.0	5.0
28	---	---	---	---	---	---	---	---	---	7.8	5.3	6.5
29	---	---	---	---	---	---	---	---	---	6.2	4.6	5.5
30	---	---	---	---	---	---	---	---	---	4.7	2.3	2.7
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	8.2	1.7	4.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	7.3	2.6	4.3	8.6	4.5	6.7	7.0	4.4	5.3
2	8.8	1.7	6.7	8.6	1.1	3.5	8.3	3.2	5.4	7.5	3.0	4.8
3	3.4	1.7	2.4	7.6	1.0	3.6	8.5	6.6	7.3	8.0	2.3	4.7
4	8.9	3.1	5.7	5.6	2.6	4.3	6.5	3.1	4.8	6.4	1.3	4.1
5	6.2	3.6	4.0	5.6	1.0	2.4	4.1	2.5	3.4	6.4	2.6	4.1
6	5.5	2.1	3.2	3.9	2.7	3.8	5.5	3.1	3.8	3.4	2.7	3.1
7	3.0	2.2	2.6	3.8	3.8	3.8	4.0	1.7	3.3	2.7	1.0	1.4
8	6.3	2.2	2.9	6.4	1.0	3.3	3.2	1.8	2.4	---	---	---
9	5.4	2.1	2.6	8.0	1.5	4.6	2.1	1.3	1.8	---	---	---
10	6.3	1.6	4.1	7.2	1.2	3.7	---	---	---	---	---	---
11	5.7	3.4	4.7	5.8	1.7	3.8	---	---	---	---	---	---
12	8.1	2.7	5.4	6.6	1.0	3.8	---	---	---	---	---	---
13	8.1	2.4	5.1	6.7	1.1	3.2	---	---	---	---	---	---
14	8.8	2.7	5.5	5.3	2.0	4.0	---	---	---	---	---	---
15	8.6	2.1	5.0	6.2	.8	2.9	---	---	---	---	---	---
16	8.7	2.5	5.4	6.3	4.6	5.3	---	---	---	---	---	---
17	8.6	2.3	4.8	7.7	2.7	4.3	---	---	---	---	---	---
18	8.2	1.8	5.1	8.6	1.9	3.9	---	---	---	---	---	---
19	8.2	1.2	4.3	5.5	2.8	4.0	---	---	---	---	---	---
20	9.1	1.4	4.9	6.6	2.5	4.7	---	---	---	---	---	---
21	7.2	1.6	4.6	6.8	5.5	6.1	---	---	---	---	---	---
22	7.9	1.5	4.4	7.5	5.5	6.3	---	---	---	---	---	---
23	7.7	1.0	3.5	7.9	6.4	6.8	---	---	---	---	---	---
24	6.9	1.5	4.3	7.3	5.5	6.4	---	---	---	---	---	---
25	6.8	1.4	3.5	7.6	4.1	5.4	---	---	---	---	---	---
26	8.7	1.8	5.2	8.4	5.5	6.6	---	---	---	---	---	---
27	6.9	3.6	3.6	8.8	4.6	5.7	---	---	---	---	---	---
28	5.5	3.1	3.1	8.3	3.5	5.2	---	---	---	---	---	---
29	7.5	1.0	4.2	7.6	3.1	5.2	---	---	---	---	---	---
30	6.8	1.0	3.2	8.8	4.2	6.3	---	---	---	---	---	---
31	---	---	---	9.5	3.4	6.5	8.8	5.6	8.1	---	---	---
MONTH	9.1	1.0	4.3	9.5	.8	4.6	8.8	1.3	4.7	8.0	1.0	3.9
YEAR	9.5	.8	4.5									

## SAN JACINTO RIVER BASIN

105

08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX

LOCATION.--Lat 29°45'54", long 95°21'32", Harris County, Hydrologic Unit 12040104, on left bank at mouth of Whiteoak Bayou at upstream side of Main Street viaduct in Houston and 3.2 mi downstream from station 08074000.

DRAINAGE AREA.--469 mi<sup>2</sup>.

## WATER-STAGE RECORDS

PERIOD OF RECORD.--January 1962 to current year. (Gage removed for bridge repairs Apr. 5, 1982, to Dec. 2, 1983).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.47 ft below National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers), 1973 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Gage height records good except those for estimated gage-heights which are fair. Most days are influenced by tidal fluctuations. Gage heights during rises reflect releases from Barker and Addicks Reservoirs (stations 08072500 and 08073000, respectively) and runoff from urban areas. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 30.9 ft Mar. 4, 1992; minimum recorded, -3.5 ft Jan. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since at least 1835, 38.5 ft Dec. 9, 1935, present site and datum, unadjusted for land-surface subsidence.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 30.9 ft Mar. 4 at 1900 hours; minimum, 1.0 ft Jan. 14.

## GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	4.78	3.09	4.13	1.85	4.44	2.86	4.54	2.61	4.32	2.77	4.14	2.87
2	4.98	3.22	4.37	1.58	3.85	1.94	4.21	2.20	4.46	2.70	4.30	3.02
3	4.85	3.17	3.78	2.12	3.55	1.17	4.20	2.43	11.50	4.34	4.52	3.06
4	4.80	3.23	4.44	2.38	3.95	1.63	4.28	2.65	12.62	6.15	30.92	3.95
5	4.32	2.94	4.63	2.86	4.46	2.72	5.06	3.14	6.26	1.90	22.25	7.42
6	4.86	2.54	4.71	2.74	4.46	2.74	4.42	2.59	4.02	1.94	9.35	4.77
7	5.06	3.49	6.54	3.84	4.50	2.41	5.70	3.22	4.28	3.12	4.66	3.78
8	5.02	3.24	5.66	1.66	4.10	2.42	7.25	4.47	4.74	3.59	5.54	4.03
9	4.63	3.07	4.00	2.32	7.78	3.45	5.25	2.95	5.01	3.73	5.12	3.87
10	4.42	2.54	4.02	2.50	4.26	2.67	4.29	3.11	5.02	3.93	3.98	1.53
11	4.11	2.28	4.04	2.32	4.34	3.13	5.59	3.53	10.26	3.78	4.57	2.44
12	3.94	2.06	3.89	2.26	4.55	3.02	9.72	4.41	6.96	3.58	4.45	2.90
13	3.64	2.37	3.75	2.46	5.05	3.23	4.22	1.53	5.03	3.03	4.50	2.84
14	3.94	2.28	4.25	3.42	3.98	1.90	3.34	1.02	4.96	3.18	4.18	2.76
15	3.98	2.34	4.59	3.40	3.64	2.58	4.36	2.79	4.77	2.49	4.11	2.38
16	4.06	3.01	4.29	3.55	4.18	2.65	4.14	2.28	5.18	3.28	4.38	2.98
17	4.38	2.95	16.46	3.98	4.20	2.69	6.78	2.53	5.17	2.98	5.25	3.76
18	4.26	3.00	6.76	4.09	4.82	2.84	12.56	6.08	4.50	3.00	5.63	3.34
19	4.20	2.99	5.21	3.88	6.18	3.52	5.75	2.46	4.37	3.06	4.06	2.26
20	4.34	3.11	4.02	2.06	6.36	4.10	4.70	2.83	5.02	3.56	4.04	1.83
21	4.62	2.96	4.32	2.02	16.06	4.75	4.96	2.94	4.96	3.74	5.56	2.88
22	4.56	3.08	4.66	3.00	13.80	6.40	4.96	2.95	13.12	4.11	4.96	2.49
23	4.72	2.92	4.61	1.21	6.36	2.51	4.42	2.45	5.78	3.50	3.92	1.70
24	4.98	3.37	3.76	1.36	3.82	1.99	4.15	2.51	9.73	3.41	4.96	2.91
25	4.92	3.34	3.87	2.38	4.23	2.54	4.38	3.22	8.47	2.64	4.62	3.40
26	4.99	3.17	4.71	3.37	7.84	3.86	5.14	2.84	3.50	1.94	4.45	2.88
27	5.02	3.46	5.03	2.90	6.41	3.18	7.14	4.36	4.14	2.57	4.44	2.93
28	5.52	3.90	4.36	3.00	3.66	2.78	4.24	2.56	4.13	2.37	8.54	3.52
29	6.90	3.60	4.80	3.92	4.32	2.77	4.30	2.70	3.94	2.51	5.88	3.46
30	7.52	3.59	4.60	3.25	4.68	3.24	4.31	2.48	---	---	3.35	1.93
31	6.18	4.19	---	---	4.60	3.02	4.24	2.77	---	---	4.44	2.79
MONTH	7.52	2.06	16.46	1.21	16.06	1.17	12.56	1.02	13.12	1.90	30.92	.34

## SAN JACINTO RIVER BASIN

080/4600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	4.25	3.05	4.63	2.86	8.16	2.71	4.86	2.47	3.83	1.96	4.74	3.25
2	4.05	2.35	4.66	3.16	12.91	3.86	4.57	2.76	6.01	2.35	4.74	3.08
3	4.21	2.92	4.24	2.77	5.74	3.74	4.43	2.54	6.30	3.02	4.68	2.59
4	4.34	2.73	4.18	2.32	4.60	3.01	4.07	2.24	3.92	2.36	4.95	2.84
5	9.55	2.98	4.06	2.08	4.78	2.94	3.66	2.46	3.95	43	4.62	2.99
6	7.26	4.04	4.17	2.29	5.73	3.53	3.66	2.36	4.00	2.30	4.52	2.88
7	4.56	2.88	4.30	2.57	4.63	3.36	3.72	2.30	4.01	2.45	4.46	2.84
8	4.68	2.82	4.41	2.70	4.44	3.13	3.68	2	4.26	2.24	4.58	3.08
9	5.16	3.30	4.60	3.04	4.38	3.00	3.67	2.01	4.03	2.42	4.66	3.04
10	5.08	3.49	5.00	3.50	4.52	3.25	3.94	2.12	5.27	2.18	4.44	3.36
11	5.15	3.18	4.32	3.07	4.22	2.61	4.04	2.05	4.44	2.28	4.50	3.20
12	4.62	3.25	4.25	2.60	4.25	2.45	4.18	2.28	4.77	2.36	4.53	3.15
13	3.98	2.62	3.87	2.22	4.09	2.24	4.37	2.10	4.00	2.48	4.59	3.42
14	4.64	3.25	3.60	1.86	4.30	2.29	4.20	2.67	3.94	2.46	5.18	4.01
15	5.04	3.70	4.21	2.18	4.61	2.75	5.56	2.45	4.08	2.66	5.40	3.86
16	5.10	3.75	15.32	2.53	4.85	3.02	4.30	2.68	4.12	3.12	5.26	3.70
17	15.90	3.57	8.20	4.00	4.93	3.16	4.23	2.84	3.97	2.93	4.97	3.24
18	14.20	4.84	10.38	2.83	4.66	3.21	4.22	2.49	4.11	3.12	4.74	2.94
19	8.84	3.55	5.75	3.18	4.27	2.73	4.42	2.78	4.04	2.50	4.55	2.65
20	8.08	3.62	5.44	3.21	4.28	2.89	5.02	2.82	3.90	2.56	4.40	2.89
21	4.66	2.70	5.24	3.52	4.14	2.95	6.22	3.53	3.93	2.66	4.92	2.98
22	5.02	3.26	4.83	3.24	3.85	2.88	4.42	3.57	4.19	2.66	4.38	2.29
23	5.00	3.42	4.47	2.98	4.32	2.96	7.17	4.06	4.82	2.66	3.61	2.30
24	4.34	3.14	4.06	2.83	4.10	2.82	4.62	2.80	4.86	2.89	3.51	2.63
25	3.64	2.59	4.15	3.00	4.22	2.78	4.51	2.78	4.67	2.67	3.90	3.16
26	4.08	2.46	3.86	3.10	4.31	2.43	4.46	2.72	3.93	2.05	3.63	3.37
27	3.79	2.69	4.24	2.60	4.34	2.16	4.66	2.52	3.86	1.36	3.69	2.96
28	4.12	3.19	10.75	3.06	4.78	2.12	3.91	2.40	4.21	2.34	3.69	2.80
29	4.86	3.25	7.80	3.02	4.62	2.30	4.17	2.00	4.62	2.66	3.38	2.45
30	4.14	2.70	4.27	2.54	5.69	2.38	3.98	2.27	4.62	3.28	3.47	2.68
31	---	---	4.70	2.49	---	---	3.72	2.23	5.31	3.35	---	---
MONTH	15.90	2.35	15.32	1.86	12.91	2.12	7.17	2.00	6.30	1.36	5.40	2.29
LAI YR 1991	MAX	---	MIN	---								
WTR YR 1992	MAX	30.92	MIN	0.34								

## SAN JACINTO RIVER BASIN

107

08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1986 to May 1992.

WATER TEMPERATURE: April 1986 to May 1992.

DISSOLVED OXYGEN: April 1986 to May 1992.

INSTRUMENTATION.--Since April 1986, a three-parameter water-quality monitor continuously records specific conductance, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrumentation. Several days the specific conductance exceeded the upper recording limit of 2000 microsiemens. Data for maximum, minimum, and mean were not computed for days that exceeded this limit. Due to tidal effects, backwater from Whiteoak Bayou, probe location, channel morphology, the water-quality data collected at this location may not be representative of the entire flow through the cross-section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 3,000 microsiemens on several days in January, 1989; minimum, 55 microsiemens March 4, 1992.

WATER TEMPERATURE: Maximum, 32.5°C Aug 8, 1988; minimum, 5.0°C Dec. 23, 24, 1989.

DISSOLVED OXYGEN: Maximum, 13.1 mg/L June 24, 1989; minimum, 0.0 mg/L July 25, Sept. 7, 9, 1989.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 2,990 microsiemens on Oct. 21; minimum, 55 microsiemens Mar. 4.

WATER TEMPERATURE: Maximum, 26.0°C Oct. 5, 27-29; minimum, 9.5°C Jan. 20.

DISSOLVED OXYGEN: Maximum, 11.8 mg/L Jan. 28; minimum, 0.9 mg/L Oct. 2.

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	2740	1260	2010	199	130	169	495	444	472	407	135	185
2	2540	1530	1950	212	174	195	456	412	436	579	231	347
3	2150	1420	1820	235	195	216	443	381	408	464	111	220
4	2710	1090	1740	270	215	250	459	410	435	136	106	113
5	2710	1000	1550	412	257	309	500	416	440	162	122	138
6	2520	1000	1440	581	330	415	543	421	471	183	125	146
7	2870	1090	1750	520	153	399	589	478	515	182	113	125
8	2720	1060	1660	237	152	188	633	540	567	188	98	149
9	1520	765	1000	242	177	195	652	172	362	268	137	213
10	1440	767	934	217	195	207	182	119	145	235	133	161
11	1780	843	1000	278	207	239	138	108	118	160	118	129
12	2330	931	1230	366	240	281	140	112	120	163	81	124
13	2720	877	1370	319	261	294	238	109	154	325	172	259
14	2290	902	1230	433	316	340	193	168	182	242	109	136
15	1770	960	1120	585	391	463	182	130	153	136	110	118
16	1920	1080	1380	653	500	566	150	130	141	136	114	119
17	1720	1090	1400	642	92	279	160	131	143	174	118	134
18	1980	911	1360	147	119	140	190	153	176	149	93	113
19	1760	1030	1350	161	143	146	229	178	205	163	112	143
20	2310	1030	1410	303	164	218	374	217	263	166	118	136
21	2990	984	1590	349	128	176	393	116	247	174	134	152
22	2560	941	1440	134	128	131	126	111	116	319	162	224
23	2260	844	1250	166	134	142	179	129	156	296	119	149
24	1800	837	1090	151	142	147	185	143	155	129	116	121
25	1050	526	766	174	155	160	183	154	166	125	116	120
26	758	500	592	179	163	168	191	116	153	171	123	146
27	882	516	683	228	180	200	167	119	148	193	125	158
28	908	601	777	393	234	276	177	108	136	248	157	189
29	1120	465	712	466	389	418	131	107	115	194	130	160
30	404	108	190	536	425	484	133	107	116	177	124	143
31	396	134	277	---	---	---	137	116	126	198	119	133
MONTH	2990	108	1230	653	92	260	652	107	243	579	81	158

## SAN JACINTO RIVER BASIN

08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]



## SAN JACINTO RIVER BASIN

109

08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.0	23.5	24.0	16.5	14.5	15.5	20.5	19.0	20.0	16.0	14.0	14.5
2	25.0	24.5	25.0	14.5	13.5	13.5	19.0	16.0	17.5	17.5	14.5	15.0
3	25.0	24.5	24.5	13.5	12.5	13.0	16.0	14.0	15.0	15.0	14.0	14.5
4	26.0	24.5	25.0	12.5	11.5	12.0	14.0	12.5	13.0	14.0	14.0	14.0
5	25.5	25.0	25.5	12.0	11.0	11.5	13.0	12.5	13.0	14.5	14.5	14.5
6	25.0	23.0	24.0	14.0	11.5	12.5	15.0	13.0	14.0	15.0	14.5	14.5
7	23.0	22.0	22.5	18.0	13.5	15.5	17.5	15.0	16.0	16.5	14.0	14.5
8	22.0	21.0	21.5	18.0	16.0	17.0	19.5	17.5	18.0	18.5	15.5	17.0
9	21.5	20.5	21.0	15.5	13.0	14.5	21.5	19.5	20.5	18.5	16.5	17.5
10	22.0	20.5	21.5	13.0	12.0	12.5	21.0	20.0	20.5	16.5	14.5	15.0
11	23.0	21.0	22.0	14.0	12.5	13.0	20.0	19.5	19.5	14.5	14.0	14.0
12	24.0	22.0	23.0	15.5	13.5	14.5	20.0	19.5	20.0	13.5	11.0	12.5
13	24.5	23.5	24.0	16.5	15.0	15.5	21.0	20.0	20.5	15.5	13.0	14.0
14	25.0	24.0	24.5	17.0	16.5	16.5	20.0	18.5	19.5	14.0	13.0	13.5
15	25.0	24.0	24.5	19.0	17.0	18.0	18.5	17.0	17.5	13.0	12.5	13.0
16	25.0	23.0	24.0	20.0	19.0	19.5	17.5	16.5	16.5	13.0	12.0	12.5
17	24.0	22.5	23.0	20.5	18.0	19.5	16.5	16.0	16.0	12.0	11.5	12.0
18	23.0	22.5	22.5	18.5	18.0	18.5	16.5	16.0	16.0	11.5	10.0	10.5
19	23.5	22.5	23.0	19.5	18.5	19.0	16.5	16.0	16.0	10.5	10.0	10.0
20	23.5	22.5	23.0	19.5	18.5	19.0	17.5	15.5	16.0	11.0	9.5	10.5
21	23.0	22.0	22.5	18.5	17.5	18.0	18.0	17.0	17.5	11.5	11.0	11.5
22	23.0	22.5	22.5	17.5	17.5	17.5	20.5	17.5	19.0	14.5	11.5	13.0
23	24.0	23.0	23.5	17.5	16.5	17.0	21.0	20.0	20.5	14.5	12.0	12.5
24	25.0	24.0	24.5	16.0	14.5	15.5	20.5	17.5	18.5	12.0	11.5	12.0
25	25.0	25.0	25.0	14.5	14.0	14.0	17.5	16.5	17.0	12.0	11.5	11.5
26	25.5	25.0	25.0	14.0	13.5	14.0	16.5	12.5	14.5	12.5	12.0	12.0
27	26.0	25.0	25.5	15.5	14.0	14.5	13.0	12.5	12.5	14.5	12.5	14.0
28	26.0	25.5	25.5	17.5	15.5	16.0	14.5	12.5	14.0	14.5	13.0	14.0
29	26.0	24.5	26.0	19.0	18.0	18.5	15.0	14.5	14.5	13.0	12.5	13.0
30	24.5	21.0	22.0	20.5	19.0	20.0	14.5	14.5	14.5	13.0	12.5	12.5
31	21.5	16.5	20.5	---	---	---	14.5	14.0	14.5	14.0	12.5	13.0
MONTH	26.0	16.5	23.5	20.5	11.0	16.0	21.5	12.5	17.0	18.5	9.5	13.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13.5	12.0	13.0	17.5	12.0	16.5	18.5	18.5	18.5	22.5	21.5	22.0
2	13.5	13.0	13.0	17.5	17.0	17.0	19.0	17.0	17.5	22.5	22.0	22.5
3	15.5	13.0	14.0	18.0	17.0	17.5	18.0	17.0	17.5	23.0	22.5	22.5
4	15.5	14.0	15.5	18.5	17.5	18.0	17.5	17.0	17.5	23.0	22.5	23.0
5	14.5	13.0	13.5	18.5	18.0	18.0	17.5	16.5	17.0	23.5	22.0	23.0
6	12.5	11.5	12.5	21.5	18.5	20.0	17.5	16.5	17.0	23.5	22.5	23.0
7	12.5	12.0	12.5	21.5	20.0	21.0	18.0	14.0	16.5	23.0	22.0	22.5
8	13.0	12.0	12.5	20.0	19.0	19.5	16.0	14.0	15.0	22.5	22.0	22.0
9	13.0	12.5	12.5	20.5	19.0	19.5	---	---	---	22.5	22.0	22.0
10	13.5	12.5	13.0	20.5	18.0	19.0	18.5	18.0	18.0	22.0	21.5	22.0
11	15.0	13.0	14.0	18.0	17.0	17.5	18.5	18.0	18.5	22.5	21.5	22.0
12	18.0	15.0	16.0	17.0	16.5	17.0	19.0	18.5	19.0	24.5	22.5	23.5
13	18.0	16.0	17.0	17.5	15.5	17.0	20.5	19.0	20.0	25.5	24.0	24.5
14	16.0	15.5	15.5	17.5	16.0	17.0	20.5	19.5	20.0	---	---	---
15	19.0	15.5	16.5	18.5	14.5	17.5	20.5	19.5	20.0	---	---	---
16	19.0	16.0	16.5	18.5	17.5	18.0	21.0	20.0	20.5	---	---	---
17	17.5	16.0	16.5	18.0	17.5	18.0	21.0	19.5	20.5	---	---	---
18	17.0	16.0	16.5	20.0	18.0	19.0	19.5	18.5	19.0	---	---	---
19	17.5	16.0	16.5	21.0	18.5	19.5	21.0	19.0	19.5	---	---	---
20	16.5	16.0	16.0	19.0	18.0	18.5	21.0	18.5	20.0	---	---	---
21	16.5	15.5	16.0	19.0	18.5	18.5	21.0	19.5	20.5	---	---	---
22	18.0	16.5	17.5	19.5	18.5	19.0	21.5	20.0	21.0	---	---	---
23	19.0	18.0	18.5	19.0	15.0	18.0	21.5	21.0	21.5	---	---	---
24	19.0	17.5	18.0	18.5	17.5	18.0	22.0	21.5	21.5	---	---	---
25	18.5	17.0	18.0	17.5	17.0	17.5	22.0	21.5	22.0	---	---	---
26	17.0	14.5	15.5	18.0	15.5	17.5	21.5	20.0	21.0	---	---	---
27	16.5	14.5	15.5	18.0	17.5	18.0	22.0	20.5	21.5	---	---	---
28	16.5	15.5	16.0	18.0	17.0	17.5	22.5	21.5	22.0	---	---	---
29	17.0	16.0	16.5	19.0	17.0	18.0	22.0	21.5	22.0	---	---	---
30	---	---	---	---	---	---	22.0	21.5	21.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	19.0	11.5	15.5	21.5	12.0	18.0	22.5	14.0	19.5	25.5	21.5	22.5

## SAN JACINTO RIVER BASIN

08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	26.0	9.5	18.0									

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.4	4.8	5.5	8.4	7.5	8.0	5.5	4.9	5.2	9.0	8.3	8.7
2	5.4	.9	2.8	9.0	8.5	8.7	7.5	5.3	6.2	8.8	7.9	8.2
3	6.0	2.9	4.1	9.2	8.9	9.0	8.2	6.7	7.4	9.0	7.9	8.6
4	6.9	3.6	4.3	9.3	9.2	9.2	8.6	8.2	8.4	8.7	8.6	8.7
5	6.3	3.4	4.3	9.4	9.0	9.2	8.6	8.1	8.4	8.8	8.5	8.7
6	6.5	3.5	4.6	9.0	8.2	8.7	8.4	7.4	8.1	8.9	8.6	8.8
7	7.0	3.9	5.0	8.4	7.5	8.1	8.0	6.5	7.4	8.8	8.5	8.6
8	6.8	4.8	5.6	8.2	7.5	7.8	7.1	5.9	6.6	8.9	7.6	8.2
9	6.8	5.6	6.3	8.9	8.0	8.5	7.5	5.3	6.4	8.1	7.5	7.7
10	7.2	5.5	6.3	9.2	8.9	9.1	7.3	6.7	6.9	9.0	8.2	8.8
11	6.6	5.9	6.3	9.1	8.7	9.0	7.4	7.3	7.3	9.1	8.5	8.9
12	7.7	5.5	6.1	8.8	8.1	8.6	7.3	7.3	7.3	10.0	8.9	9.6
13	7.0	5.2	6.0	8.5	8.1	8.3	7.6	6.5	7.0	9.2	8.5	8.7
14	7.2	4.9	5.8	8.1	6.6	7.7	7.7	6.7	7.2	9.1	8.8	9.0
15	6.2	4.7	5.5	7.4	5.9	7.0	8.1	7.7	8.0	9.2	9.0	9.1
16	6.4	4.7	5.4	6.6	5.2	6.1	8.3	8.1	8.2	9.4	9.1	9.2
17	8.2	4.5	5.9	8.2	5.5	7.1	8.3	8.0	8.1	9.7	9.1	9.3
18	6.9	5.6	6.2	7.4	6.5	6.8	8.2	7.9	8.0	10.5	9.7	10.2
19	7.5	3.6	6.1	6.9	6.3	6.7	8.2	7.9	8.1	10.3	10.0	10.1
20	6.5	4.6	5.8	6.4	5.9	6.1	8.2	7.1	7.8	10.3	9.8	10.0
21	6.3	3.5	5.5	7.3	6.4	7.0	8.5	7.1	7.7	9.9	9.5	9.7
22	6.4	5.0	5.8	7.1	6.8	6.9	8.1	7.5	7.9	9.6	8.4	9.1
23	6.4	4.8	5.7	7.5	6.8	7.1	7.4	7.1	7.2	9.5	8.7	9.3
24	6.0	4.8	5.5	8.0	7.5	7.8	8.2	7.4	7.9	9.6	9.5	9.6
25	6.3	4.8	5.5	8.2	8.0	8.1	8.5	8.2	8.4	9.6	9.4	9.5
26	5.2	4.6	4.9	8.2	7.9	8.0	9.9	8.4	9.1	9.4	9.0	9.2
27	5.2	4.5	4.8	8.0	7.4	7.7	9.8	9.5	9.6	9.3	9.0	9.2
28	5.4	3.1	4.7	7.3	6.9	7.1	9.5	8.7	9.1	11.8	8.6	9.3
29	5.3	2.7	3.7	7.2	6.2	6.7	8.8	8.7	8.7	10.9	9.4	9.9
30	6.9	4.8	5.9	6.5	5.1	5.9	8.8	8.7	8.7	10.6	10.0	10.3
31	8.0	5.2	6.0	---	---	---	9.0	8.7	8.8	10.3	9.4	9.8
MONTH	8.2	.9	5.4	9.4	5.1	7.7	9.9	4.9	7.8	11.8	7.5	9.2

## 111

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	9.4	9.2	9.3	8.2	8.2	8.2	7.5	7.2	7.4	6.9	6.7	6.8
2	9.5	8.9	9.2	8.2	7.8	8.1	7.6	6.8	7.4	6.8	6.6	6.7
3	9.3	8.9	9.1	8.1	7.0	7.5	7.8	7.5	7.7	7.0	6.3	6.5
4	9.1	8.7	8.8	9.2	7.2	8.1	8.0	7.7	7.8	6.4	4.9	6.1
5	9.3	8.8	9.1	8.2	7.2	7.7	8.1	7.5	7.8	5.6	4.8	5.2
6	9.5	9.4	9.4	7.1	6.2	6.6	8.2	7.2	7.7	6.3	5.8	6.2
7	9.5	9.3	9.3	7.3	6.2	6.8	7.8	7.6	7.7	6.7	6.0	6.2
8	9.4	9.3	9.3	7.4	7.2	7.4	7.6	7.2	7.5	6.0	5.5	5.8
9	9.4	9.3	9.4	7.4	5.2	6.4	7.6	7.4	7.5	5.8	5.5	5.6
10	9.4	9.3	9.3	7.8	5.3	6.8	7.5	7.1	7.3	5.6	5.0	5.4
11	9.3	8.8	9.1	8.1	7.8	8.0	7.3	7.1	7.2	4.9	3.8	4.2
12	8.7	8.0	8.4	8.1	8.0	8.0	7.3	7.1	7.2	5.5	2.4	3.4
13	8.6	7.9	8.3	8.2	8.1	8.2	7.3	6.4	6.8	4.9	1.3	2.6
14	8.5	8.3	8.5	8.2	7.8	8.1	7.2	6.9	7.0	---	---	---
15	8.5	7.4	8.0	8.2	7.8	8.1	6.9	6.7	6.8	---	---	---
16	8.5	7.8	8.4	8.1	7.9	8.0	6.8	6.4	6.6	---	---	---
17	8.5	7.7	8.1	8.0	7.8	7.9	7.8	6.1	6.6	---	---	---
18	8.7	8.3	8.4	7.7	4.7	6.8	7.6	6.3	6.8	---	---	---
19	8.7	8.3	8.4	7.5	4.8	6.4	7.8	5.7	6.1	---	---	---
20	8.4	8.3	8.4	7.7	7.5	7.6	7.0	5.8	6.3	---	---	---
21	8.4	8.2	8.3	7.7	7.5	7.6	6.5	6.1	6.3	---	---	---
22	8.9	7.6	8.1	7.5	6.8	7.2	6.8	6.5	6.6	---	---	---
23	7.5	7.0	7.2	7.8	7.3	7.6	6.7	6.5	6.6	---	---	---
24	8.0	7.5	7.7	7.9	7.7	7.8	6.7	6.5	6.6	---	---	---
25	7.7	7.4	7.5	7.8	7.6	7.7	6.6	5.7	6.2	---	---	---
26	8.6	7.8	8.3	7.7	7.4	7.6	7.1	6.0	6.7	---	---	---
27	8.6	8.4	8.4	7.9	7.5	7.6	7.2	6.8	7.0	---	---	---
28	8.4	8.2	8.3	7.7	6.9	7.4	7.0	6.8	6.9	---	---	---
29	8.3	8.2	8.3	7.5	5.7	6.8	6.8	6.6	6.7	---	---	---
30	---	---	---	6.8	5.5	6.0	7.0	6.5	6.6	---	---	---
31	---	---	---	7.5	6.4	7.3	---	---	---	---	---	---
MONTH	9.5	7.0	8.6	9.2	4.7	7.5	8.2	5.7	7.0	7.0	1.3	5.4
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	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	11.8	.9	7.4									

## SAN JACINTO RIVER BASIN

080/4610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX

LOCATION.--lat 29°45'57", long 95°52'07", Harris County, Hydrologic Unit 12040104, on left bank at McKee street bridge over Buffalo Bayou 0.8 mi downstream from station 08074700, 5.5 mi upstream from station 08074710.

DRAINAGE AREA.--Not determined.

## WATER-ELEVATION RECORDS

PERIOD OF RECORD.--February 1992 to current year.

GAGE.--Data logger and Data Collection Platform. Datum of gage is National Geodetic Vertical Datum of 1929, 1978 adjustment, unadjusted for land-surface subsidence.

REMARKS.--Records good. Mostly tidal, affected by local runoff. Orifice destroyed March 4, gage remained out of operation until May 6. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation since May 6, 1992, 11.12 ft May 16 at 1800 hrs.; minimum, minus 0.05 Aug. 27 at 2400 hrs.

ELEVATION, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992												
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	2.45	.79	2.39	1.00
2	---	---	---	---	---	---	---	---	2.77	.99	2.55	1.17
3	---	---	---	---	---	---	---	---	7.66	2.60	2.80	1.42
4	---	---	---	---	---	---	---	---	8.80	3.76	21.09	2.22
5	---	---	---	---	---	---	---	---	3.68	-.21	---	---
6	---	---	---	---	---	---	---	---	2.11	-.10	---	---
7	---	---	---	---	---	---	---	---	2.42	1.20	---	---
8	---	---	---	---	---	---	---	---	2.93	1.65	---	---
9	---	---	---	---	---	---	---	---	3.20	1.85	---	---
10	---	---	---	---	---	---	---	---	3.31	2.06	---	---
11	---	---	---	---	---	---	---	---	7.00	1.93	---	---
12	---	---	---	---	---	---	---	---	4.75	1.63	---	---
13	---	---	---	---	---	---	---	---	3.06	1.14	---	---
14	---	---	---	---	---	---	---	---	3.32	1.25	---	---
15	---	---	---	---	---	---	---	---	3.43	.91	---	---
16	---	---	---	---	---	---	---	---	3.34	1.57	---	---
17	---	---	---	---	---	---	---	---	3.93	1.35	---	---
18	---	---	---	---	---	---	---	---	2.75	1.31	---	---
19	---	---	---	---	---	---	---	---	2.63	1.23	---	---
20	---	---	---	---	---	---	---	---	4.09	1.69	---	---
21	---	---	---	---	---	---	---	---	3.79	1.92	---	---
22	---	---	---	---	---	---	---	---	9.25	2.27	---	---
23	---	---	---	---	---	---	---	---	3.73	1.73	---	---
24	---	---	---	---	---	---	---	---	6.66	1.66	---	---
25	---	---	---	---	---	---	---	---	5.64	.77	---	---
26	---	---	---	---	---	---	---	---	1.63	-.08	---	---
27	---	---	---	---	---	---	---	---	2.37	.67	---	---
28	---	---	---	---	---	---	---	---	2.39	.51	---	---
29	---	---	---	---	---	---	---	---	2.19	.64	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	9.25	-.21	---	---

SAN JACINTO RIVER BASIN

113

080/4610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

ELEVATION, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	5.39	.91	3.07	.58	2.03	.24	3.12	1.59
2	---	---	---	---	9.01	1.68	2.91	.99	3.11	.53	3.07	1.50
3	---	---	---	---	3.37	1.60	2.73	.77	3.57	1.03	3.11	.89
4	---	---	---	---	2.73	1.05	2.35	.48	2.21	.96	3.28	1.23
5	---	---	---	---	2.93	.95	1.99	.72	2.62	.81	3.03	1.39
6	---	---	2.27	.31	3.82	1.59	1.95	.62	3.91	.69	2.89	1.15
7	---	---	2.46	.55	2.89	1.54	2.01	.53	3.28	.86	2.89	1.15
8	---	---	2.55	.67	2.72	1.35	1.92	.27	2.78	1.11	3.06	1.39
9	---	---	2.77	.98	2.60	1.09	1.95	.27	2.59	1.20	3.06	1.48
10	---	---	3.13	1.59	2.73	1.09	2.18	.41	3.41	.75	2.83	1.77
11	---	---	2.61	1.32	2.44	.68	2.31	.31	2.86	.67	2.86	1.49
12	---	---	2.59	.84	2.47	.60	2.44	.53	3.10	.76	2.92	1.53
13	---	---	2.16	.39	2.30	.39	2.63	.35	2.65	.84	2.96	1.77
14	---	---	1.88	.08	2.52	.42	2.49	.86	2.65	.88	3.43	2.37
15	---	---	2.43	.38	2.83	.87	3.39	.75	2.81	1.07	3.79	2.27
16	---	---	11.12	.73	3.01	1.03	2.61	.90	2.83	1.48	3.64	2.04
17	---	---	5.81	2.00	3.07	1.14	2.55	1.11	2.67	1.31	3.33	1.47
18	---	---	7.53	.97	2.79	1.22	2.45	.77	2.77	1.50	3.09	1.27
19	---	---	3.87	1.18	2.45	.74	2.70	1.03	2.77	.95	2.90	.97
20	---	---	3.68	1.37	2.37	.86	3.15	1.07	3.10	1.05	2.76	1.23
21	---	---	3.52	1.72	2.31	.95	3.28	1.71	2.68	1.08	3.23	1.31
22	---	---	3.08	1.42	2.11	.95	2.67	1.77	2.81	1.03	2.75	.68
23	---	---	2.71	1.17	2.57	1.19	4.18	1.80	3.59	1.11	2.51	.55
24	---	---	2.25	1.04	2.35	1.00	2.76	.95	3.65	1.27	2.97	.95
25	---	---	2.40	1.20	2.43	.92	2.71	.98	3.55	1.14	3.50	1.62
26	---	---	2.08	1.29	2.51	.57	2.73	.89	2.54	.50	3.19	1.76
27	---	---	2.38	.75	2.48	.36	2.99	.81	2.52	-.05	3.19	1.27
28	---	---	7.08	1.13	3.11	.29	2.33	.81	2.70	.79	3.21	1.28
29	---	---	4.62	.96	2.86	.52	2.46	.23	3.07	1.13	3.08	1.09
30	---	---	2.45	.56	3.57	.54	2.36	.53	2.93	1.73	3.07	1.21
31	---	---	2.87	.55	---	---	2.04	.51	2.89	1.62	---	---
MONTH	---	---	---	---	9.01	.29	4.18	.23	3.91	-.05	3.79	.55



## SAN JACINTO RIVER BASIN

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX

LOCATION.--Lat 29°45'57", long 95°52'07", Harris County, Hydrologic Unit 12040104, on left bank at McKee street bridge over Buffalo Bayou 0.8 mi downstream from station 08074700, 5.5 mi upstream from station 08074710.

DRAINAGE AREA.--Not determined.

## WATER-ELEVATION RECORDS

PERIOD OF RECORD.--February 1992 to current year.

GAGE.--Data logger and Data Collection Platform. Datum of gage is National Geodetic Vertical Datum of 1929, 1978 adjustment, unadjusted for land-surface subsidence.

REMARKS.--Records good. Mostly tidal, affected by local runoff. Orifice destroyed March 4, gage remained out of operation until May 6. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation since May 6, 1992, 11.12 ft May 16 at 1800 hrs.; minimum, minus 0.05 Aug. 27 at 2400 hrs.

## ELEVATION, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	2.45	.79	2.39	1.00
2	---	---	---	---	---	---	---	---	2.77	.99	2.55	1.17
3	---	---	---	---	---	---	---	---	7.66	2.60	2.80	1.42
4	---	---	---	---	---	---	---	---	8.80	3.76	21.09	2.22
5	---	---	---	---	---	---	---	---	3.68	-.21	---	---
6	---	---	---	---	---	---	---	---	2.11	-.10	---	---
7	---	---	---	---	---	---	---	---	2.42	1.20	---	---
8	---	---	---	---	---	---	---	---	2.93	1.65	---	---
9	---	---	---	---	---	---	---	---	3.20	1.85	---	---
10	---	---	---	---	---	---	---	---	3.31	2.06	---	---
11	---	---	---	---	---	---	---	---	7.00	1.93	---	---
12	---	---	---	---	---	---	---	---	4.75	1.63	---	---
13	---	---	---	---	---	---	---	---	3.06	1.14	---	---
14	---	---	---	---	---	---	---	---	3.32	1.25	---	---
15	---	---	---	---	---	---	---	---	3.43	.91	---	---
16	---	---	---	---	---	---	---	---	3.34	1.57	---	---
17	---	---	---	---	---	---	---	---	3.93	1.35	---	---
18	---	---	---	---	---	---	---	---	2.75	1.31	---	---
19	---	---	---	---	---	---	---	---	2.63	1.23	---	---
20	---	---	---	---	---	---	---	---	4.09	1.69	---	---
21	---	---	---	---	---	---	---	---	3.79	1.92	---	---
22	---	---	---	---	---	---	---	---	9.25	2.27	---	---
23	---	---	---	---	---	---	---	---	3.73	1.73	---	---
24	---	---	---	---	---	---	---	---	6.66	1.66	---	---
25	---	---	---	---	---	---	---	---	5.64	.77	---	---
26	---	---	---	---	---	---	---	---	1.63	-.08	---	---
27	---	---	---	---	---	---	---	---	2.37	.67	---	---
28	---	---	---	---	---	---	---	---	2.39	.51	---	---
29	---	---	---	---	---	---	---	---	2.19	.64	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	9.25	-.21	---	---

## 115

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	172	136	157	---	---	---	---	---	---
2	---	---	---	173	141	160	---	---	---	---	---	---
3	---	---	---	283	158	218	---	---	---	---	---	---
4	---	---	---	375	58	181	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	272	232	241
6	---	---	---	---	---	---	---	---	---	266	130	173
7	---	---	---	---	---	---	---	---	---	156	131	143
8	---	---	---	---	---	---	---	---	---	163	138	152
9	---	---	---	---	---	---	---	---	---	168	137	153
10	---	---	---	---	---	---	---	---	---	201	151	164
11	---	---	---	---	---	---	---	---	---	442	194	304
12	205	141	164	---	---	---	---	---	---	635	433	505
13	204	143	177	---	---	---	---	---	---	738	547	631
14	179	158	168	---	---	---	---	---	---	853	712	751
15	286	176	227	---	---	---	---	---	---	794	220	457
16	287	155	188	---	---	---	---	---	---	572	94	336
17	244	187	216	---	---	---	---	---	---	189	98	141
18	239	151	179	---	---	---	---	---	---	287	112	197
19	172	149	162	---	---	---	---	---	---	294	112	215
20	172	148	161	---	---	---	---	---	---	326	266	293
21	176	152	163	---	---	---	---	---	---	312	272	295
22	216	85	131	---	---	---	---	---	---	325	297	310
23	215	136	186	---	---	---	---	---	---	300	277	289
24	216	119	166	---	---	---	---	---	---	319	293	302
25	216	129	166	---	---	---	---	---	---	294	271	282
26	209	139	158	---	---	---	---	---	---	305	280	292
27	189	145	151	---	---	---	---	---	---	350	221	278
28	181	141	160	---	---	---	---	---	---	266	90	217
29	166	142	158	---	---	---	---	---	---	171	120	138
30	---	---	---	---	---	---	---	---	---	220	182	199
31	---	---	---	---	---	---	---	---	---	234	196	210
MONTH	287	85	171	375	58	179	---	---	---	853	90	284
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	430	137	244	338	274	306	---	---	---	470	247	341
2	205	91	132	642	345	407	---	---	---	737	357	524
3	176	128	157	706	381	467	993	816	868	813	360	597
4	174	146	156	603	288	367	944	847	896	643	238	393
5	164	141	153	648	408	458	993	944	972	983	427	600
6	250	136	164	853	502	592	999	993	998	746	300	441
7	293	161	213	749	635	649	---	---	---	836	426	518
8	470	235	331	723	694	713	---	---	---	895	403	575
9	437	160	230	---	---	---	---	---	---	993	369	515
10	283	---	190	---	---	---	---	---	---	832	420	555
11	293	176	211	---	---	---	---	---	---	917	370	525
12	258	157	191	---	---	---	---	---	---	784	354	470
13	277	171	191	---	---	---	---	---	---	769	359	470
14	207	145	177	---	---	---	---	---	---	941	198	431
15	179	133	158	---	---	---	---	---	---	976	199	370
16	168	126	148	---	---	---	---	---	---	787	289	474
17	160	130	149	---	---	---	---	---	---	839	338	493
18	173	138	156	---	---	---	---	---	---	968	341	661
19	172	143	161	---	---	---	---	---	---	---	---	---
20	175	140	160	---	---	---	---	---	---	---	---	---
21	196	148	166	---	---	---	998	985	996	---	---	---
22	367	175	232	504	153	278	984	957	971	---	---	---
23	442	305	361	485	145	204	999	969	985	---	---	---
24	370	205	261	992	279	650	---	---	---	---	---	---
25	219	188	203	966	558	730	---	---	---	---	---	---
26	266	200	234	715	540	629	---	---	---	---	---	---
27	265	230	248	919	695	787	---	---	---	---	---	---
28	338	249	289	915	695	793	---	---	---	---	---	---
29	359	270	320	998	915	979	---	---	---	---	---	---
30	340	186	273	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	397	214	325	---	---	---
MONTH	470	91	209	998	145	563	999	214	876	993	198	497
YEAR	999	58	353									

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
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	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	17.0	16.0	16.5	---	---	---	---	---	---
2	---	---	---	17.0	16.0	16.5	---	---	---	---	---	---
3	---	---	---	17.5	16.5	17.0	---	---	---	---	---	---
4	---	---	---	18.5	17.0	17.5	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	24.0	23.5	23.5
6	---	---	---	---	---	---	---	---	---	24.0	22.5	23.5
7	---	---	---	---	---	---	---	---	---	23.0	22.5	23.0
8	---	---	---	---	---	---	---	---	---	23.0	22.0	22.5
9	---	---	---	---	---	---	---	---	---	22.5	22.0	22.0
10	---	---	---	---	---	---	---	---	---	22.0	22.0	22.0
11	---	---	---	---	---	---	---	---	---	23.5	21.5	22.5
12	17.0	14.5	15.5	---	---	---	---	---	---	26.0	23.0	24.0
13	17.0	15.5	16.5	---	---	---	---	---	---	28.0	25.0	26.0
14	15.5	15.0	15.0	---	---	---	---	---	---	28.5	26.5	27.0
15	17.5	15.0	16.0	---	---	---	---	---	---	27.5	23.0	25.0
16	18.0	15.0	15.5	---	---	---	---	---	---	25.5	21.5	23.5
17	16.5	14.5	15.5	---	---	---	---	---	---	23.0	21.5	22.5
18	15.5	15.0	15.0	---	---	---	---	---	---	24.0	23.0	23.0
19	15.5	15.0	15.5	---	---	---	---	---	---	25.5	23.0	24.0
20	15.5	14.5	15.0	---	---	---	---	---	---	25.5	23.5	24.5
21	15.0	14.0	14.5	---	---	---	---	---	---	25.5	24.0	24.5
22	17.0	15.0	16.5	---	---	---	---	---	---	25.5	24.0	24.5
23	18.0	16.5	17.5	---	---	---	---	---	---	26.0	24.5	25.0
24	18.0	16.0	17.0	---	---	---	---	---	---	26.5	25.0	25.5
25	17.0	15.0	16.5	---	---	---	---	---	---	27.0	25.5	26.0
26	15.0	14.0	14.5	---	---	---	---	---	---	26.5	25.5	26.0
27	15.5	13.5	14.5	---	---	---	---	---	---	26.5	24.5	25.5
28	14.5	13.0	14.0	---	---	---	---	---	---	25.5	23.0	24.0
29	16.5	14.5	15.5	---	---	---	---	---	---	23.5	22.0	22.5
30	---	---	---	---	---	---	---	---	---	22.5	21.0	22.0
31	---	---	---	---	---	---	---	---	---	22.5	22.0	22.0
MONTH	18.0	13.0	15.5	18.5	16.0	17.0	---	---	---	28.5	21.0	24.0

## 11/

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.5	22.0	23.0	29.5	28.0	29.0	31.0	29.5	30.0	28.0	26.0	26.5
2	24.0	21.5	23.0	30.0	29.0	29.0	29.5	26.5	28.0	29.0	28.0	28.5
3	26.0	23.0	24.0	29.5	28.0	29.0	26.5	24.5	25.5	28.5	28.0	28.0
4	25.5	24.5	25.0	28.5	26.5	27.5	27.5	25.5	26.5	28.0	25.5	27.0
5	25.5	24.5	25.0	30.5	28.5	29.0	28.0	27.0	27.5	28.5	27.0	27.5
6	25.0	24.0	24.5	31.0	29.0	29.5	29.0	27.5	28.0	27.5	27.0	27.5
7	26.0	23.5	24.5	29.5	29.0	29.5	31.0	28.0	29.0	29.0	27.5	28.0
8	26.5	24.5	25.5	30.5	28.5	29.5	30.0	29.0	29.0	29.5	28.0	28.5
9	26.5	24.5	25.5	30.0	27.5	29.0	30.0	29.0	29.5	28.5	27.5	28.0
10	26.0	25.0	25.5	31.0	27.5	29.5	30.0	28.0	29.0	28.5	27.5	28.0
11	26.5	25.5	26.0	30.0	28.0	29.0	28.0	27.0	28.0	28.0	27.0	27.5
12	26.5	25.5	26.0	31.0	28.0	29.5	28.0	26.5	27.5	28.0	27.0	27.5
13	26.5	26.0	26.0	31.0	27.5	29.5	29.0	28.0	28.0	28.0	27.0	27.5
14	27.0	26.0	26.5	30.5	27.0	29.0	28.5	28.0	28.5	28.0	25.5	27.0
15	27.5	26.5	27.0	30.5	26.0	28.0	28.5	27.0	27.5	26.5	25.5	26.0
16	28.0	27.0	27.5	31.0	26.0	29.0	28.5	27.0	27.5	27.0	26.5	27.0
17	28.0	27.5	27.5	31.0	27.5	29.5	27.5	26.5	27.0	27.5	26.5	27.0
18	28.5	27.5	28.0	30.5	26.0	28.0	27.0	25.5	26.5	28.5	26.5	27.5
19	29.0	28.0	28.5	28.5	26.0	27.0	26.5	25.5	26.0	28.5	28.0	28.0
20	29.5	28.5	29.0	28.5	25.0	26.5	27.5	26.0	27.0	29.5	27.5	28.0
21	29.5	29.0	29.0	29.5	24.0	26.5	28.0	27.0	27.5	29.0	28.0	28.0
22	29.0	28.5	28.5	30.0	25.5	27.0	28.5	27.0	27.5	29.0	28.0	28.5
23	28.5	27.0	27.5	27.5	26.5	27.0	28.5	27.5	28.0	28.0	27.0	28.0
24	29.5	27.5	28.0	28.5	27.0	27.5	28.5	27.5	28.0	26.5	26.0	26.0
25	29.5	28.0	29.0	29.0	27.0	28.0	28.5	27.5	28.0	26.0	25.0	25.5
26	30.0	28.5	29.0	29.5	27.5	28.5	29.5	28.5	29.0	26.0	25.0	25.5
27	29.5	28.5	29.0	29.5	28.0	29.0	29.0	28.0	29.0	27.0	25.5	26.0
28	29.5	28.0	28.5	29.5	28.5	29.0	28.5	27.0	28.0	28.0	24.5	26.0
29	29.5	28.5	29.0	30.5	27.5	29.0	28.0	27.0	27.5	26.5	23.5	25.0
30	29.5	28.0	29.0	30.0	28.5	29.0	28.0	27.0	27.5	25.5	21.0	24.0
31	---	---	---	30.5	29.5	30.0	28.5	26.0	27.0	---	---	---
MONTH	30.0	21.5	27.0	31.0	24.0	28.5	31.0	24.5	28.0	29.5	21.0	27.0
YEAR	31.0	13.0	25.5									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## SAN JACINTO RIVER BASIN

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	8.6	8.4	8.5	---	---	---	---	---	---
2	---	---	---	8.5	8.2	8.3	---	---	---	---	---	---
3	---	---	---	8.4	7.4	7.8	---	---	---	---	---	---
4	---	---	---	---	7.3	8.3	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	7.4	5.8	7.0
6	---	---	---	---	---	---	---	---	---	6.8	4.8	5.9
7	---	---	---	---	---	---	---	---	---	8.6	4.0	5.7
8	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
9	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
10	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
11	---	---	---	---	---	---	---	---	---	7.9	7.0	7.6
12	8.9	8.4	8.7	---	---	---	---	---	---	8.1	6.8	7.6
13	8.7	8.0	8.3	---	---	---	---	---	---	8.4	5.3	6.9
14	8.6	8.4	8.5	---	---	---	---	---	---	9.0	7.7	8.3
15	8.5	7.8	8.1	---	---	---	---	---	---	7.9	5.9	7.0
16	8.6	7.7	8.4	---	---	---	---	---	---	8.8	5.7	7.1
17	8.5	7.9	8.1	---	---	---	---	---	---	7.7	7.0	7.3
18	8.9	8.4	8.6	---	---	---	---	---	---	7.3	7.0	7.1
19	8.9	8.5	8.7	---	---	---	---	---	---	7.3	6.4	6.8
20	8.9	8.6	8.8	---	---	---	---	---	---	6.6	6.4	6.4
21	9.1	8.6	8.8	---	---	---	---	---	---	6.4	6.2	6.2
22	9.3	8.1	8.7	---	---	---	---	---	---	6.2	5.9	5.9
23	8.1	7.6	7.7	---	---	---	---	---	---	5.9	5.7	5.7
24	8.7	7.7	8.2	---	---	---	---	---	---	5.7	5.3	5.5
25	8.4	8.1	8.2	---	---	---	---	---	---	5.5	5.3	5.4
26	8.9	8.3	8.8	---	---	---	---	---	---	5.3	5.1	5.3
27	8.9	8.7	8.8	---	---	---	---	---	---	5.6	4.8	5.3
28	8.8	8.6	8.7	---	---	---	---	---	---	5.8	5.4	5.5
29	8.7	8.4	8.6	---	---	---	---	---	---	5.6	5.4	5.5
30	---	---	---	---	---	---	---	---	---	5.7	5.2	5.3
31	---	---	---	---	---	---	---	---	---	5.4	5.3	5.3
MONTH	9.3	7.6	8.5	8.6	7.3	8.2	---	---	---	9.0	4.0	6.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	5.5	5.3	5.4	3.8	3.6	3.7	5.5	2.4	4.0	3.7	1.4	2.3
2	5.6	5.3	5.4	3.8	3.4	3.6	7.0	2.6	3.9	3.7	1.3	2.2
3	5.4	5.2	5.3	4.6	3.2	3.9	6.8	5.4	6.4	3.9	1.5	3.1
4	5.3	5.1	5.2	4.5	3.8	4.3	5.3	3.7	4.5	3.9	.8	1.9
5	5.2	4.9	5.0	4.8	3.5	4.2	6.4	4.5	5.1	6.0	2.2	3.2
6	7.9	---	7.6	5.7	3.4	4.6	6.1	5.1	5.4	3.7	1.9	2.9
7	7.9	---	7.5	4.7	3.9	4.6	6.9	3.2	5.1	4.9	2.5	3.5
8	7.8	7.4	7.6	8.0	4.0	5.3	5.5	1.0	2.8	6.9	2.6	4.1
9	8.1	7.4	7.8	6.5	3.3	5.0	6.0	1.2	2.8	5.6	2.0	3.0
10	8.1	---	7.8	6.4	3.1	4.7	5.7	1.1	3.3	3.5	1.7	2.9
11	8.1	7.8	7.9	6.2	4.8	5.5	6.1	1.8	3.0	4.4	3.0	3.9
12	7.9	7.8	7.8	5.6	5.0	5.3	6.7	2.5	3.8	4.0	2.9	3.6
13	7.9	7.8	7.8	6.0	5.0	5.3	5.2	2.6	3.5	4.9	2.3	3.7
14	7.9	7.8	7.9	7.7	4.8	6.1	4.3	2.4	3.4	5.8	1.0	3.8
15	7.9	7.8	7.8	8.7	4.8	6.0	5.3	3.4	4.4	3.8	2.9	3.4
16	7.9	7.8	7.8	6.2	5.0	5.5	5.5	4.0	4.7	4.0	2.3	3.4
17	7.8	7.8	7.8	6.0	5.2	5.6	5.9	4.4	5.2	4.5	1.9	3.1
18	7.8	7.8	7.8	6.4	5.4	5.8	6.2	5.4	5.8	4.5	1.8	2.9
19	7.8	7.6	7.7	5.8	5.0	5.4	6.2	4.1	5.2	2.8	1.0	1.8
20	7.8	7.6	7.7	5.8	5.2	5.4	6.9	3.0	4.7	3.2	1.0	2.0
21	7.8	7.4	7.6	5.6	5.0	5.3	5.5	3.1	4.0	3.2	1.1	2.2
22	7.6	7.3	7.4	6.3	5.0	5.4	6.3	3.0	4.3	4.2	1.6	2.9
23	7.8	3.9	5.8	6.8	4.9	5.6	6.2	2.9	4.6	3.6	1.1	2.3
24	4.2	3.8	4.0	5.8	5.3	5.6	6.8	2.3	4.1	4.4	1.6	2.7
25	3.9	3.8	3.8	6.1	4.8	5.4	3.9	2.1	3.0	6.1	2.6	4.2
26	3.8	3.7	3.8	5.8	5.0	5.4	5.9	3.0	4.6	5.7	2.9	4.3
27	3.8	3.7	3.8	5.7	4.4	5.3	6.3	1.9	4.2	6.1	2.8	4.4
28	3.9	3.6	3.7	5.3	4.7	5.0	5.4	2.3	3.8	8.7	3.6	5.0
29	4.0	3.8	3.9	6.8	2.5	4.6	7.0	2.3	5.0	9.1	4.1	5.7
30	4.1	3.6	3.8	4.6	2.2	3.2	7.7	3.9	5.8	9.5	4.3	6.3
31	---	---	---	4.6	2.2	3.6	8.9	4.1	6.5	---	---	---
MONTH	8.1	3.6	6.3	8.7	2.2	5.0	8.9	1.0	4.4	9.5	.8	3.4
YEAR	9.5	.8	5.5									



## 080/4710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX

LOCATION.--Lat 29°44'57", long 95°17'27", Harris County, Hydrologic Unit 12040104, on left bank at Wharf No. 5 at end of private road, 1.0 mi downstream from station 08074700, 1.8 mi upstream from Brays Bayou and 4.9 mi east of downtown Houston.

DRAINAGE AREA.--Not determined.

## WATER-ELEVATION RECORDS

PERIOD OF RECORD.--January 1987 to current year.

GAGt.--Data logger, float operated encoder and pressure transducer. Datum of gage is National Geodetic Vertical Datum of 1929, 1978 adjustment, unadjusted for land-surface subsidence.

REMARKS.--Records good. Only very large storms or hurricane surge produces elevations above normal tidal fluctuations. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 9.1 ft June 26, 1989; minimum, minus 3.1 ft Mar. 6, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 4.4 ft Mar. 4 at 1715 hours; minimum, minus 2.0 ft Jan. 14.

DAY	ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	2.7	1.0	2.0	.8	-.4	.2	2.3	.8	1.5	2.3	.5	1.5
2	2.9	1.1	2.3	2.2	-.6	1.0	1.6	-.2	.7	2.1	.1	1.2
3	2.7	1.1	2.1	1.5	.0	.8	1.4	-.9	.3	2.1	-.1	1.1
4	2.7	1.1	2.1	2.3	.2	1.1	1.9	-.5	.5	1.8	.0	1.0
5	2.2	.9	1.4	2.4	.7	1.8	2.3	.6	1.5	2.0	.2	1.3
6	2.8	.5	1.8	2.5	.6	1.7	2.4	.6	1.7	2.1	.2	1.2
7	3.0	1.4	2.2	2.6	1.2	2.1	2.4	.3	1.4	2.7	.8	1.8
8	2.9	1.1	2.2	2.3	-.6	.6	2.0	.3	1.3	3.0	1.2	2.1
9	2.6	1.0	1.8	1.8	.2	1.1	2.4	.2	1.4	2.6	.7	1.5
10	2.4	.5	1.5	1.9	.3	1.3	1.9	.3	1.1	2.1	.9	1.3
11	2.0	.3	1.2	1.8	.2	1.1	2.1	.7	1.5	3.3	1.2	2.0
12	1.8	.0	1.0	1.8	.1	1.1	2.2	.7	1.5	3.3	2.1	2.5
13	1.6	.3	1.0	1.5	.4	1.0	2.1	.7	1.5	2.1	-.9	.6
14	1.8	.2	1.1	2.1	1.3	1.8	1.8	-.2	.6	.7	-2.0	-.9
15	1.7	.2	1.0	2.4	1.3	1.8	1.4	.4	1.0	1.8	.0	.9
16	1.8	.7	1.4	2.2	1.4	1.8	2.0	.4	1.3	1.6	-.6	.5
17	2.2	.9	1.7	3.1	1.8	2.5	1.9	.4	1.3	2.6	-.1	1.2
18	2.1	.9	1.6	3.1	1.5	2.4	2.4	.2	1.3	3.2	1.3	2.3
19	1.9	.9	1.4	3.1	1.6	2.3	4.0	1.3	2.5	2.1	.0	1.2
20	2.1	1.0	1.6	1.9	-.1	.9	4.2	2.0	3.1	2.3	.3	1.5
21	2.5	.9	1.7	2.0	-.4	.8	3.5	1.7	2.6	2.6	.6	1.6
22	2.4	.9	1.7	2.3	.5	1.6	3.2	1.1	2.2	2.6	.8	1.9
23	2.6	.8	1.7	2.2	-1.3	.2	2.7	.2	1.4	2.2	-.3	.5
24	2.8	1.3	2.1	1.0	-1.1	-.1	1.6	-.4	.5	1.6	-.3	.6
25	2.8	1.1	2.1	1.7	.1	.9	2.1	.3	1.2	1.8	.4	1.2
26	2.9	1.0	2.2	2.4	1.0	1.8	2.1	1.2	1.7	2.8	.2	1.4
27	2.9	1.4	2.3	2.8	.8	1.9	2.0	.7	1.2	2.8	1.3	2.1
28	3.4	1.8	2.8	2.2	.9	1.6	1.1	.2	.8	1.9	.2	1.2
29	3.4	1.6	2.7	2.7	1.7	2.2	2.0	.2	1.0	2.1	.4	1.4
30	4.1	1.4	2.6	2.5	1.2	1.9	2.3	.7	1.6	2.0	-.1	1.1
31	3.3	.8	2.4	---	---	---	2.3	.6	1.6	1.6	-.1	.9
MONTH	4.1	.0	1.8	3.1	-1.3	1.4	4.2	-.9	1.4	3.3	-2.0	1.3

## SAN JACINTO RIVER BASIN

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

DAY	ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1.8	-.1	.9	1.5	-.1	.7	1.6	.4	1.0	2.2	.2	1.4
2	2.3	.4	1.4	1.6	.1	.9	1.7	.0	1.2	2.2	.5	1.5
3	3.8	1.5	2.4	2.1	.8	1.6	1.9	.4	1.2	1.8	.1	1.1
4	4.1	1.7	2.7	4.4	1.3	3.0	1.9	.0	1.1	1.7	-.2	.9
5	2.1	-1.1	.1	3.7	1.8	2.4	3.7	.2	1.8	1.9	-.3	1.1
6	1.4	-.9	.2	3.0	2.0	2.4	3.0	1.3	2.2	1.7	-.3	.8
7	1.7	.4	.8	2.3	1.3	1.9	2.2	.4	1.4	1.9	-.1	1.2
8	2.0	.8	1.6	3.0	1.5	2.3	2.2	.1	1.3	2.0	.0	1.1
9	2.4	1.0	1.8	3.0	1.5	2.3	2.7	.6	1.8	2.1	.3	1.3
10	2.5	1.2	2.0	2.1	-1.0	.0	2.7	.8	1.8	2.6	1.0	1.7
11	2.8	1.0	1.9	2.0	-.7	.7	2.6	.5	1.6	2.2	1.0	1.6
12	2.6	.8	1.7	2.0	.0	1.2	2.1	.5	1.4	2.1	.6	1.5
13	2.3	.4	1.4	2.0	-.1	1.0	1.3	.3	1.0	1.7	.2	1.1
14	2.5	.4	1.6	1.7	-.1	.9	2.2	.9	1.4	1.5	-.2	.9
15	2.4	.3	1.5	1.5	-.4	.6	2.5	1.1	2.0	2.1	.1	1.4
16	2.5	.5	1.6	1.8	.1	.9	2.6	1.1	2.0	3.2	.5	2.0
17	2.5	.7	1.8	2.8	1.1	1.8	3.4	1.0	2.2	3.0	1.0	2.0
18	2.0	.3	1.3	3.5	1.2	2.2	3.6	1.8	2.6	3.2	.6	1.8
19	1.8	.2	1.1	1.8	-.1	.7	3.3	1.1	2.4	2.7	.6	1.8
20	2.5	.9	1.6	1.5	-.8	.4	2.7	1.1	1.6	3.1	1.0	2.2
21	2.4	1.1	1.8	3.1	.1	1.7	2.3	.2	1.3	3.0	1.4	2.2
22	3.1	1.5	2.1	2.6	.1	1.6	2.7	.7	1.7	2.6	1.0	1.8
23	2.2	1.0	1.7	1.4	-.9	.4	2.5	.8	1.8	2.2	.7	1.5
24	3.1	.9	2.0	2.5	.2	1.5	1.9	.4	1.2	1.8	.6	1.2
25	2.5	-.1	1.2	2.1	.4	1.4	1.1	.2	.8	1.9	.8	1.1
26	.6	-1.3	-.4	1.9	.1	1.0	1.9	.2	1.0	1.6	.9	1.2
27	1.4	-.6	.5	2.0	.1	1.1	1.3	.1	.7	1.9	.5	1.4
28	1.5	-.7	.5	3.3	.8	1.8	1.6	.5	1.1	2.3	.7	1.7
29	1.2	-.5	.5	2.4	1.2	1.8	2.4	.7	1.6	1.8	.4	1.1
30	---	---	---	1.4	-.2	.6	1.7	.1	1.1	2.0	.1	1.2
31	---	---	---	1.9	.4	1.1	---	---	---	2.3	.1	1.6
MONTH	4.1	-1.3	1.4	4.4	-1.0	1.4	3.7	.0	1.5	3.2	-.3	1.4

DAY	ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	3.2	.6	2.0	2.5	.2	1.7	1.5	-.1	.8	2.5	1.1	2.0
2	3.4	.8	2.2	2.5	.7	1.7	2.1	.1	1.0	2.6	1.0	2.0
3	2.3	.6	1.6	2.1	.5	1.4	1.8	.2	1.1	2.5	.5	1.9
4	2.1	.4	1.3	1.9	.2	1.2	1.7	.3	1.2	2.7	.8	1.8
5	2.3	.2	1.4	1.5	.5	1.0	1.7	.2	1.2	2.5	.8	1.8
6	2.8	.9	1.7	1.5	.4	1.1	1.7	.0	1.1	2.4	.8	1.8
7	2.4	1.0	1.6	1.6	.2	1.1	1.8	.0	1.2	2.4	.7	1.9
8	2.3	.9	1.6	1.5	.1	1.1	1.5	.1	1.1	2.5	1.0	1.9
9	2.1	.5	1.5	1.5	.0	1.0	1.9	.3	1.3	2.5	.9	2.0
10	2.1	.5	1.5	1.8	.1	1.1	2.1	.1	1.2	2.3	1.3	1.8
11	1.9	.1	1.3	1.9	.0	1.2	2.4	.1	1.2	2.2	1.0	1.6
12	2.2	.1	1.2	2.0	.4	1.3	2.2	.2	1.3	2.4	1.1	1.7
13	1.9	-.1	1.1	2.1	.1	1.4	1.9	.3	1.3	2.4	1.3	1.7
14	2.1	.0	1.3	2.1	.5	1.4	1.8	.4	1.3	2.9	1.6	2.1
15	2.2	.4	1.5	2.1	.4	1.4	1.9	.5	1.3	3.2	1.7	2.7
16	2.4	.3	1.5	2.1	.5	1.6	2.0	1.0	1.5	3.2	1.6	2.5
17	2.4	.4	1.5	2.1	.7	1.5	1.9	.8	1.4	2.9	1.1	2.1
18	2.2	.5	1.4	2.0	.4	1.2	1.9	.9	1.4	2.6	.8	1.9
19	1.9	.0	1.0	2.1	.7	1.4	1.9	.4	1.2	2.4	.6	1.7
20	1.8	.2	.9	2.3	.7	1.3	1.8	.5	1.3	2.3	.8	1.8
21	1.4	.2	.9	2.0	.8	1.5	1.8	.6	1.3	2.8	.9	2.1
22	1.7	.3	1.1	2.0	.9	1.6	2.1	.5	1.6	2.3	.2	1.5
23	2.2	.8	1.4	2.1	.7	1.6	2.7	.5	1.9	2.0	.3	1.4
24	1.5	.6	1.4	2.2	.5	1.7	2.7	.7	1.9	2.4	.6	1.7
25	1.9	.6	1.5	2.3	.4	1.5	2.5	.6	1.9	3.0	1.2	2.1
26	2.0	.4	1.4	2.2	.3	1.6	1.8	.0	.9	2.7	1.4	2.1
27	1.1	.1	.9	2.3	.3	1.4	1.7	-.7	.7	2.7	1.0	1.9
28	2.6	.1	1.5	1.7	.2	1.1	2.0	.2	1.1	2.8	.9	2.0
29	2.4	.2	1.6	1.8	-.2	1.1	2.5	.6	1.6	2.6	.7	1.8
30	2.4	.1	1.4	1.9	.1	1.2	2.5	1.2	1.8	2.6	.7	1.8
31	---	---	---	1.6	.2	1.0	2.4	1.1	1.8	---	---	---
MONTH	3.4	-.1	1.4	2.5	-.2	1.3	2.7	-.7	1.3	3.2	.2	1.9

CAI YR 1991 MAX --- MIN --- MEAN ---  
WTR YR 1992 MAX 4.4 MIN -2.0 MEAN 1.5

## 08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1986 to current year.

WATER TEMPERATURE: April 1986 to current year.

DISSOLVED OXYGEN: April 1986 to current year.

INSTRUMENTATION.--Beginning April 1986, a three-parameter water-quality monitor continuously records specific conductance, water temperature, and dissolved oxygen at this station.

REMARKS.--Water-quality monitor data was collected using a submersible pump from a fixed-point intake located approximately 6.5 ft. below National Geodetic Vertical Datum of 1929. The fixed-point intake was raised to 5.5 ft. below same datum on Jan. 22, 1987. On February 3, 1988, a raft was anchored in same general vicinity and probe package was placed insitu at a constant elevation of 1.0 ft. below the water-surface. Dissolved oxygen data are not correct for salinity. When specific conductance exceeded upper recording limit of 20,000 microsiemens, no data was published. Due to tidal effects, location of probe units, and channel morphology, the water-quality data collected at this location may not be representative of the entire flow through the cross-section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 20,000 microsiemens Oct. 12-14, Dec. 13, 1988, Jan. 23, 1989; minimum, 60 microsiemens June 26, 1989.

WATER TEMPERATURE: Maximum, 36.5°C Aug. 21, 1990; minimum, 9.0°C Jan. 7-10, 1988, Jan. 29, 1989, Jan. 18, 19, 1992.

DISSOLVED OXYGEN: Maximum, 12.9 mg/L Jan. 24, 1989; minimum, 0.0 mg/L on several days during 1987-88 water year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 16,700 microsiemens Oct. 16; minimum, 88 microsiemens Mar. 5.

WATER TEMPERATURE: Maximum, 32.5°C July 8-12; minimum, 9.0°C Jan. 18, 19.

DISSOLVED OXYGEN: Maximum, 10.9 mg/L Dec. 27-28, Jan. 13, Feb. 9, Apr. 5; minimum, 0.9 mg/L Oct. 15-16, July 16.

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13900	5870	8060	2160	581	1180	3030	908	1600	415	303	356
2	10700	4100	6300	3590	611	1610	6590	2170	4380	1460	381	641
3	8060	3170	5400	11200	1750	3570	6190	3300	4500	947	503	759
4	6440	4700	5440	6940	1630	3630	9710	2560	5060	669	259	368
5	8130	4450	5820	4770	2340	3400	5910	2450	3560	400	298	348
6	11100	4150	6170	5830	3800	4980	3590	2110	3000	606	278	328
7	12000	6170	8360	8030	806	5000	3420	1920	2740	376	269	349
8	11700	6230	8830	2140	596	964	2650	1900	2250	400	259	330
9	12200	6410	8410	2680	777	1530	3790	469	1720	371	249	292
10	14400	6680	9950	2330	860	1670	987	400	603	503	342	427
11	13400	5000	8750	3700	1290	2510	879	337	595	464	361	415
12	14900	7610	10900	4920	1890	3060	518	313	385	591	176	313
13	13700	7030	10300	3750	1720	2520	899	376	545	303	181	225
14	15700	9630	12000	3580	1710	2610	1210	620	836	357	230	297
15	16300	9380	13400	3630	1790	2580	1810	635	1210	278	215	247
16	16700	9870	13600	6570	2560	3870	1480	410	937	249	205	222
17	16200	8470	12200	8180	459	2560	1520	488	902	283	215	236
18	14100	9430	11500	400	254	302	918	396	593	635	156	329
19	15600	8400	11800	1220	288	407	547	342	429	274	147	177
20	15500	7810	11300	3730	630	1250	679	317	470	283	210	237
21	14900	8600	11900	3160	718	1530	1560	210	694	523	234	267
22	16400	8510	11200	1370	357	764	200	137	158	371	239	313
23	12700	6250	9580	1580	664	959	230	156	191	513	259	351
24	13600	5950	8650	1620	542	1010	288	234	257	449	220	268
25	9970	4480	7280	1440	371	859	313	254	274	259	215	236
26	12100	3960	7820	1240	337	496	298	205	267	288	220	242
27	11100	3850	5670	601	317	419	210	176	192	298	210	261
28	13500	5030	7550	1010	464	561	264	195	233	298	215	243
29	12300	4790	6490	2890	518	759	234	190	218	415	264	285
30	7060	640	2070	952	698	805	303	230	250	523	274	346
31	4270	1230	2550	---	---	---	366	254	291	591	278	375
MONTH	16700	640	8690	11200	254	1910	9710	137	1270	1460	147	325

## SAN JACINTO RIVER BASIN

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	332	234	279	327	200	222	1080	200	307	493	210	255
2	894	244	306	391	205	224	239	210	226	327	195	228
3	396	254	360	908	210	270	264	234	249	259	195	211
4	244	151	174	469	93	247	1650	225	332	327	205	227
5	244	181	207	137	88	108	493	230	349	386	234	280
6	259	215	235	200	122	156	459	181	288	488	225	316
7	259	210	235	317	200	235	293	210	251	542	205	249
8	415	205	235	313	161	252	777	215	254	376	195	226
9	225	205	218	474	239	291	288	215	247	835	225	340
10	249	210	222	488	308	383	303	225	250	1060	244	341
11	234	200	220	420	239	306	591	181	267	454	220	297
12	239	171	199	259	200	234	298	220	247	2320	342	610
13	264	200	230	259	215	237	274	205	227	4530	694	1130
14	254	230	243	254	210	229	357	225	261	2260	923	1440
15	376	210	243	327	215	247	2010	225	346	4030	904	1540
16	596	283	326	371	176	268	293	186	231	1210	195	869
17	317	225	256	357	210	263	269	166	219	250	160	183
18	962	244	309	469	195	289	757	122	170	288	137	223
19	278	210	241	498	361	430	493	151	198	996	166	256
20	239	200	220	547	234	369	493	186	220	596	220	297
21	230	205	214	620	186	272	274	220	241	752	303	374
22	430	156	196	244	205	224	391	210	243	7240	342	685
23	225	161	186	620	215	269	913	210	270	1820	366	454
24	264	205	240	259	210	228	571	205	242	391	300	363
25	215	186	200	264	181	217	303	205	237	396	300	349
26	259	210	243	381	220	265	454	249	291	381	317	343
27	254	205	228	508	220	289	327	264	294	708	308	439
28	254	200	217	449	239	348	630	205	271	1410	283	579
29	234	166	215	337	205	266	396	195	231	615	176	261
30	---	---	---	366	230	268	332	205	223	464	181	217
31	---	---	---	630	249	355	---	---	---	332	220	263
MONTH	962	151	238	908	88	266	2010	122	256	7240	137	447
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	352	220	272	2230	654	1120	6610	1410	3180	6070	1680	2400
2	244	132	188	8860	1040	2100	4670	1150	3200	8720	1640	3830
3	777	132	234	3080	1070	1750	1800	220	968	7320	2570	5040
4	244	176	220	4560	1510	1930	669	239	385	6200	3590	4940
5	762	142	233	9310	1220	3150	1750	659	1100	5680	2350	3410
6	234	205	218	5180	2380	3800	1590	615	1020	2720	1870	2200
7	967	161	258	7320	3010	4400	2510	630	1670	5960	1420	2290
8	376	234	265	5580	3170	4370	9400	1190	2270	5430	2530	3340
9	1050	313	386	7010	3110	4770	2810	1420	1930	5430	3300	4290
10	508	259	327	5020	2750	4090	6210	1970	3500	8770	4010	5010
11	308	254	287	8510	2270	3600	4570	1100	2510	8200	3390	4880
12	337	210	283	8030	2270	3210	4870	1040	2320	6580	3020	4200
13	322	269	291	7560	3810	5140	5240	1900	3080	4050	1630	2730
14	957	274	336	7570	4500	5300	3660	1280	2470	4240	1110	2850
15	459	249	279	6510	977	4430	3050	1450	2040	5530	1000	1850
16	596	215	279	5490	835	1680	6680	1720	2980	4010	1570	2470
17	752	200	304	4190	957	2120	3870	1820	2590	6060	1490	3250
18	742	220	298	3540	1240	1850	4540	2840	3550	4640	1590	3020
19	391	181	296	3090	1360	2090	3650	2140	2770	5470	1770	3480
20	420	244	307	3470	899	2130	9390	1900	4520	4710	1970	2880
21	1070	230	361	1670	508	1260	8520	4080	5730	9730	3750	5370
22	664	254	421	1370	479	863	9240	4290	6150	5360	3080	4120
23	1380	464	721	2430	391	773	11800	3900	6010	7930	4820	6380
24	4740	864	1610	1140	327	670	11900	3790	6050	9820	5860	7330
25	4700	855	1650	1640	440	853	8860	4740	6320	9940	5360	6990
26	2600	674	1470	3080	410	1020	9680	3780	7090	14600	4710	6870
27	2610	1280	2040	2390	757	1440	11500	5230	8280	11900	4280	6950
28	2590	991	1710	4010	1000	2160	12000	6290	8750	12100	5670	8390
29	7860	1170	2630	6730	918	2190	10900	5720	8190	15800	4440	8350
30	9480	786	2780	3210	1490	2300	9680	5140	6420	14100	5820	9500
31	---	---	---	5480	1690	2940	9010	3280	6290	---	---	---
MONTH	9480	132	698	9310	327	2560	12000	220	3980	15800	1000	4620
YEAR	16700	88	2120									

## SAN JACINTO RIVER BASIN

123

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	28.0	26.5	27.0	20.0	16.5	17.5	21.0	19.0	20.0	15.5	14.0	14.5
2	28.0	26.0	27.0	18.0	15.5	17.0	19.0	17.5	18.5	16.0	14.5	15.0
3	28.5	26.5	27.0	21.0	15.5	17.0	19.0	16.5	18.0	16.5	15.0	15.5
4	28.5	26.5	27.5	18.5	14.5	16.0	18.0	16.0	17.0	15.0	13.5	14.0
5	28.0	26.5	27.0	18.0	15.0	16.0	19.0	16.0	17.0	15.0	14.0	14.5
6	26.0	24.0	25.0	19.0	17.5	18.0	19.5	16.0	18.0	15.5	15.0	15.0
7	26.5	25.0	25.5	20.0	17.0	18.5	20.0	17.5	19.0	15.5	15.0	15.0
8	26.0	23.5	25.5	18.5	17.0	18.0	20.5	18.0	20.0	17.5	15.5	16.5
9	26.0	25.0	25.5	17.5	16.5	17.0	21.5	19.0	20.5	17.5	17.0	17.5
10	26.0	25.0	25.5	16.5	15.5	16.0	21.5	20.5	21.0	17.5	16.5	17.0
11	26.0	25.0	25.5	17.5	15.5	16.0	21.0	20.0	20.5	16.5	14.5	16.0
12	26.5	25.0	25.5	17.5	15.5	16.5	21.0	20.5	20.5	15.0	12.0	13.0
13	27.5	26.0	26.5	18.0	16.5	17.5	21.5	20.5	21.0	14.0	12.0	13.0
14	27.0	26.0	26.5	20.5	17.5	19.0	21.5	19.5	20.5	14.0	13.0	13.5
15	27.5	25.5	26.0	21.0	19.5	20.0	19.5	18.5	19.0	13.5	13.0	13.0
16	26.5	25.5	26.0	21.5	20.0	20.5	18.5	17.5	18.0	13.0	12.0	12.5
17	26.5	25.0	26.0	22.5	18.5	20.0	18.0	17.0	17.0	12.0	11.5	12.0
18	26.5	25.5	26.0	19.5	18.5	19.0	18.0	16.5	17.0	12.0	9.0	10.5
19	26.5	25.5	26.0	20.5	19.5	20.0	17.5	16.5	17.0	10.5	9.0	9.5
20	26.0	25.5	25.5	20.0	19.0	19.5	18.5	16.5	18.0	11.0	10.0	10.5
21	25.5	25.0	25.5	20.5	18.5	19.5	19.0	17.5	18.0	11.5	10.5	11.0
22	26.5	25.0	26.0	19.0	18.0	18.5	18.5	17.5	18.0	13.0	11.0	12.5
23	27.0	25.5	26.0	18.5	17.0	17.5	19.0	18.5	18.5	14.0	12.5	13.0
24	27.5	25.5	26.5	17.5	16.0	16.5	19.0	18.0	18.5	12.5	12.0	12.5
25	27.0	26.0	26.5	17.0	15.0	16.0	18.5	17.5	18.0	12.5	12.0	12.0
26	27.5	26.0	26.5	17.0	14.5	15.5	17.5	12.5	15.5	13.0	12.0	12.0
27	27.5	26.5	27.0	16.5	15.5	16.0	12.5	12.0	12.0	14.0	13.0	13.5
28	28.0	26.0	27.0	19.0	16.0	17.5	13.5	12.0	12.5	14.5	14.0	14.0
29	28.0	25.5	27.0	20.0	17.5	18.0	14.5	13.5	14.0	14.5	13.5	14.0
30	25.5	22.0	23.0	21.0	19.5	20.5	14.5	14.0	14.0	13.5	13.0	13.5
31	23.0	21.0	22.5	---	---	---	15.0	14.0	14.0	13.5	13.0	13.0
MONTH	28.5	21.0	26.0	22.5	14.5	18.0	21.5	12.0	18.0	17.5	9.0	13.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13.5	12.5	13.0	17.5	16.5	17.0	20.5	19.5	20.0	24.5	22.5	23.0
2	14.0	13.0	13.5	17.5	16.5	17.0	19.5	19.0	19.5	24.5	23.0	23.5
3	15.5	14.0	15.0	18.0	17.5	17.5	20.0	18.5	19.0	27.0	23.5	24.0
4	15.0	14.5	14.5	18.5	17.0	18.0	20.0	18.5	19.0	24.5	23.5	24.0
5	14.5	13.0	13.5	18.0	17.0	17.5	18.5	18.0	18.5	27.5	23.5	25.0
6	13.0	12.5	13.0	20.5	18.0	19.0	18.5	17.5	18.0	25.0	24.0	24.5
7	13.0	12.5	13.0	22.5	20.5	21.0	22.0	18.0	19.5	24.5	23.5	24.0
8	13.5	13.0	13.0	21.0	20.5	21.0	22.5	19.0	20.0	26.0	23.5	24.0
9	13.0	13.0	13.0	21.0	20.0	20.5	22.0	19.5	20.5	24.0	23.0	23.5
10	13.5	12.5	13.0	20.5	19.0	19.5	22.0	20.0	20.5	23.5	22.5	23.0
11	15.0	13.0	13.5	19.0	17.0	18.0	24.0	20.0	21.0	24.5	22.5	23.5
12	17.5	15.0	15.5	17.0	16.5	17.0	23.5	20.5	21.5	27.0	24.0	25.0
13	18.0	17.0	17.5	18.0	16.5	17.0	22.5	20.5	21.5	29.5	25.0	26.5
14	18.0	17.0	17.5	18.0	17.0	17.5	23.0	21.5	22.0	29.0	25.0	26.5
15	18.0	16.5	17.0	19.5	17.0	18.0	22.5	21.5	22.0	27.0	26.0	26.5
16	18.5	17.0	17.5	20.5	18.0	18.5	23.0	21.5	22.0	26.0	22.5	25.0
17	17.5	16.5	17.0	18.5	18.0	18.5	22.5	21.0	22.0	23.0	22.5	22.5
18	17.5	16.5	17.0	19.5	18.0	18.5	20.5	20.0	20.0	24.5	23.0	23.5
19	16.5	16.5	16.5	20.5	18.5	19.5	22.5	20.5	21.0	26.5	23.5	24.5
20	17.0	16.0	16.5	20.0	18.5	19.0	21.5	20.5	21.0	26.0	24.5	25.0
21	17.0	15.5	16.0	18.5	18.0	18.5	24.5	21.0	22.0	26.5	25.0	25.5
22	17.5	16.0	17.0	19.5	18.5	18.5	24.5	21.5	22.5	27.0	25.5	26.0
23	19.0	17.0	18.0	20.0	18.0	19.0	24.5	22.0	23.0	28.5	26.0	27.0
24	18.5	17.5	18.0	19.0	18.5	18.5	23.5	22.5	23.0	28.5	26.0	27.0
25	18.0	17.0	17.5	20.5	18.5	19.0	23.5	22.5	23.0	29.5	26.5	27.5
26	17.0	15.5	16.0	21.5	18.5	19.5	25.0	22.5	23.0	28.5	27.0	27.5
27	16.0	15.5	15.5	21.5	19.0	20.0	24.5	22.5	23.0	27.5	26.5	27.0
28	16.5	15.5	16.0	19.5	18.5	19.0	24.0	22.5	23.0	28.0	25.0	26.5
29	17.0	16.0	16.5	20.0	18.5	19.0	23.0	22.5	23.0	25.0	23.0	23.5
30	---	---	---	21.0	19.0	20.0	23.0	22.5	22.5	24.5	22.5	23.0
31	---	---	---	22.0	20.0	20.5	---	---	---	23.5	23.0	23.0
MONTH	19.0	12.5	15.5	22.5	16.5	18.5	25.0	17.5	21.0	29.5	22.5	25.0



## SAN JACINTO RIVER BASIN

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.5	23.0	24.0	30.5	28.5	29.5	32.0	29.5	30.5	30.0	28.0	28.5
2	25.0	22.5	24.0	31.5	29.0	30.0	31.0	28.0	30.0	30.5	28.0	29.0
3	25.5	23.0	24.0	30.5	29.5	30.0	28.0	26.0	27.0	30.0	28.5	29.0
4	28.0	25.0	26.0	31.5	29.0	30.0	31.0	26.0	27.5	29.5	29.0	29.0
5	28.0	25.5	26.0	31.0	29.5	30.0	28.5	27.0	28.0	30.0	28.0	29.0
6	26.0	25.5	26.0	32.0	29.5	30.5	30.5	28.0	28.5	29.5	28.0	28.5
7	29.5	25.0	26.5	32.0	29.5	30.5	31.0	29.0	29.5	31.0	28.0	29.5
8	29.0	26.0	27.0	32.5	29.5	31.0	31.5	29.0	30.0	31.5	29.0	30.0
9	27.5	26.5	27.0	32.5	30.0	31.0	32.0	29.5	30.5	31.0	28.5	29.5
10	28.0	26.5	27.0	32.5	30.0	31.0	32.0	29.5	30.5	31.0	28.5	29.5
11	28.5	26.5	27.0	32.5	30.5	31.5	30.5	29.0	29.5	30.5	28.5	29.5
12	28.5	27.0	27.5	32.5	30.5	31.5	30.5	28.5	29.5	31.0	28.0	29.5
13	29.0	27.0	27.5	32.0	30.5	31.0	30.0	28.0	29.0	29.5	28.5	29.0
14	29.5	27.0	28.0	32.0	30.0	31.0	31.0	28.5	29.5	29.5	28.0	28.5
15	29.5	27.5	28.5	31.5	29.5	30.5	30.0	28.5	29.0	28.5	27.0	27.5
16	29.5	28.0	28.5	30.0	28.0	29.5	30.0	27.5	28.5	29.0	27.5	28.0
17	30.0	28.0	29.0	31.0	28.5	29.5	30.0	27.5	28.5	30.0	27.5	28.5
18	30.5	28.5	29.0	31.5	29.0	30.0	30.0	27.5	28.0	30.0	28.0	29.0
19	31.0	28.5	29.5	30.0	29.5	30.0	29.5	27.0	28.0	30.5	28.5	29.5
20	31.5	29.0	30.0	29.5	28.0	29.0	30.5	27.5	28.5	31.0	28.5	29.5
21	31.0	29.5	30.0	31.0	27.0	28.0	31.0	28.0	29.0	30.5	29.0	29.5
22	30.5	29.5	30.0	29.5	27.0	28.0	31.0	28.5	29.5	30.5	29.0	29.5
23	31.5	29.0	30.0	28.5	27.0	28.0	31.0	28.5	29.5	29.5	28.0	29.0
24	31.0	29.0	29.5	28.0	27.0	27.5	30.5	28.0	29.5	29.5	27.0	28.5
25	32.0	28.5	29.5	29.5	28.0	28.5	31.5	28.5	30.0	29.5	27.0	28.5
26	31.0	29.5	30.0	31.5	28.5	29.5	31.0	29.0	30.0	29.0	28.0	28.5
27	31.0	29.5	30.0	30.5	28.5	29.5	30.5	29.5	30.0	29.5	27.5	28.5
28	32.0	29.0	30.5	31.0	29.0	30.0	31.0	28.0	29.5	28.5	26.5	28.0
29	31.0	29.0	30.0	32.0	29.0	30.0	31.5	28.0	29.5	28.5	26.0	27.0
30	30.5	29.0	29.5	32.0	29.5	30.5	31.5	28.5	30.0	28.0	25.5	27.0
31	---	---	---	31.5	29.5	30.0	31.5	28.0	30.0	---	---	---
MONTH	32.0	22.5	28.0	32.5	27.0	30.0	32.0	26.0	29.5	31.5	25.5	29.0
YEAR	32.5	9.0	22.5									

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	3.5	1.7	2.6	7.1	4.0	6.2	6.8	4.9	5.5	10.3	7.8	9.0
2	---	---	---	6.8	5.0	6.2	5.1	3.8	4.3	10.2	7.7	8.7
3	6.6	4.5	5.5	7.0	2.1	5.7	6.5	3.7	4.5	9.4	7.1	8.4
4	6.2	3.9	5.0	7.1	4.0	6.0	5.2	3.2	4.5	10.3	7.5	8.3
5	6.4	3.0	5.2	6.9	5.7	6.2	5.7	4.7	5.4	10.0	7.8	8.5
6	7.1	2.9	5.7	6.2	5.2	5.8	8.4	5.4	6.2	10.1	7.8	9.6
7	6.6	2.4	5.1	6.6	4.3	5.6	8.8	5.7	8.4	8.6	7.6	8.0
8	5.7	3.0	4.7	6.8	6.1	6.6	6.9	6.0	6.4	8.6	7.4	8.0
9	5.4	2.0	3.7	7.0	5.7	6.3	6.7	4.6	5.9	7.4	7.2	7.3
10	7.4	1.8	4.6	7.2	6.2	6.6	6.8	5.3	5.9	8.9	6.4	7.0
11	8.9	1.5	5.4	7.1	6.2	6.7	6.5	5.3	5.7	8.0	6.5	7.1
12	4.8	1.6	3.2	7.1	6.0	6.6	6.7	5.8	6.1	9.7	7.1	8.7
13	4.2	1.3	2.8	7.3	6.3	6.7	6.1	5.5	5.8	10.9	8.9	9.8
14	5.0	1.0	2.8	7.6	5.9	6.7	9.7	5.3	7.1	9.7	7.9	8.5
15	6.0	.9	2.8	6.9	5.9	6.5	9.2	5.0	6.3	8.8	8.1	8.4
16	5.0	.9	2.6	8.4	4.8	6.1	7.0	5.9	6.5	8.5	8.2	8.4
17	5.3	2.6	4.5	6.4	3.2	5.3	7.4	6.1	6.8	8.7	8.2	8.4
18	8.2	2.9	5.1	6.7	6.0	6.4	7.2	6.8	7.1	9.8	8.5	9.2
19	8.4	1.4	4.7	6.6	4.7	5.2	7.5	7.0	7.2	9.8	9.4	9.7
20	8.0	2.9	5.0	5.3	4.1	4.8	7.5	7.1	7.4	9.6	9.3	9.5
21	5.9	2.6	4.0	5.7	4.1	4.7	9.9	7.8	9.3	9.3	8.9	9.2
22	7.1	2.8	4.7	9.1	5.6	6.5	10.1	9.7	10.0	8.9	8.5	8.8
23	7.4	3.3	5.3	7.9	5.5	6.2	9.5	6.9	8.1	9.0	8.1	8.3
24	7.6	2.6	5.2	6.7	5.2	6.0	7.1	6.5	6.8	8.6	8.1	8.4
25	7.1	4.2	5.9	7.2	5.7	6.5	7.6	6.6	6.9	8.6	8.1	8.4
26	7.3	2.9	5.0	8.2	6.9	7.2	10.7	7.4	8.8	8.5	8.1	8.3
27	7.0	3.3	5.9	9.9	6.9	7.3	10.9	10.4	10.7	10.0	8.0	9.1
28	6.4	4.1	5.3	7.8	6.3	7.0	10.9	9.1	10.0	10.0	8.9	9.3
29	6.2	2.9	5.3	6.5	5.6	6.1	9.5	8.5	9.0	8.8	8.6	8.7
30	5.0	1.9	3.7	7.0	5.6	6.0	8.6	8.1	8.2	9.4	8.8	9.0
31	4.3	2.5	3.4	---	---	---	10.1	8.2	9.3	9.6	8.8	9.1
MONTH	8.9	.9	4.5	9.9	2.1	6.2	10.9	3.2	7.1	10.9	6.4	8.6

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.5	9.0	9.2	9.5	7.7	8.2	7.5	5.2	6.0	6.2	4.9	5.5
2	9.6	9.2	9.3	9.0	7.6	8.1	6.6	5.9	6.2	5.9	4.7	5.3
3	9.4	9.0	9.2	8.9	7.2	7.8	8.2	5.8	6.7	6.7	4.9	5.7
4	9.3	9.1	9.2	8.5	7.0	7.5	9.9	6.3	7.1	6.2	4.8	5.4
5	9.8	9.2	9.4	7.6	7.3	7.5	10.9	8.2	9.3	5.1	3.4	4.7
6	10.0	9.3	9.5	7.6	6.8	7.5	8.7	7.2	7.3	9.6	2.8	3.9
7	9.8	9.4	9.6	7.4	6.2	6.6	7.7	5.8	6.6	6.7	4.2	5.6
8	10.7	9.4	9.6	7.1	6.3	6.5	9.6	6.0	6.9	6.5	4.3	5.4
9	10.9	9.2	10.0	7.8	6.6	7.0	8.6	6.2	7.2	6.9	5.5	6.2
10	9.8	8.8	9.4	8.6	6.5	7.4	8.8	5.9	6.5	7.2	5.0	5.7
11	8.9	7.6	8.3	7.5	6.5	7.0	8.6	5.5	6.2	6.5	5.3	5.8
12	9.9	7.0	8.0	7.5	7.1	7.3	9.7	5.7	6.6	6.8	4.9	5.8
13	10.7	7.7	9.0	7.6	7.2	7.4	9.0	5.8	6.8	5.7	4.1	5.0
14	---	---	---	7.6	7.2	7.4	7.6	5.7	6.3	6.0	3.1	4.5
15	8.1	6.3	6.6	7.5	7.0	7.3	6.9	5.7	6.0	5.1	3.6	4.4
16	9.6	6.2	6.9	7.5	7.1	7.3	6.2	5.5	5.9	5.8	3.0	4.4
17	8.8	6.3	6.7	7.4	7.1	7.3	8.3	5.4	6.5	6.5	5.8	6.2
18	9.4	5.9	6.8	7.3	6.6	7.1	7.0	5.9	6.5	6.5	5.8	6.1
19	10.8	6.0	7.3	6.9	3.0	5.2	6.7	5.2	6.0	7.1	5.4	6.0
20	10.7	6.4	8.1	6.8	3.4	5.3	6.3	5.1	5.5	6.0	4.8	5.3
21	10.1	7.9	8.5	7.2	6.0	6.7	5.9	5.0	5.4	5.2	4.4	4.8
22	9.2	7.9	8.2	7.0	6.2	6.7	6.1	4.6	5.5	9.1	3.9	5.3
23	9.8	7.9	8.7	7.7	6.1	6.6	7.1	5.0	6.0	7.2	3.2	4.8
24	8.2	7.9	7.9	7.1	6.1	6.6	7.4	5.2	5.8	6.6	3.5	4.7
25	8.4	7.5	7.9	7.3	6.4	6.7	6.1	5.0	5.5	7.4	3.7	5.2
26	8.9	7.4	7.6	7.3	6.3	6.8	6.0	4.5	5.2	6.1	4.2	5.1
27	9.1	7.4	8.0	8.6	6.4	7.0	6.8	4.1	5.0	5.7	3.3	4.6
28	10.2	7.9	8.6	9.9	6.1	7.5	6.4	5.4	5.9	4.6	3.1	3.8
29	8.5	7.7	7.9	9.8	6.1	6.7	6.1	5.4	5.7	5.5	3.7	5.0
30	---	---	---	7.0	5.8	6.3	5.8	4.7	5.3	5.5	4.6	5.2
31	---	---	---	6.4	4.6	5.4	---	---	---	6.3	4.3	5.2
MONTH	10.9	5.9	8.4	9.9	3.0	7.0	10.9	4.1	6.2	9.6	2.8	5.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	7.1	4.0	5.1	4.3	2.9	3.5	4.2	1.6	2.8	---	1.9	3.1
2	6.6	4.9	5.9	4.9	2.4	3.7	4.1	1.5	2.5	---	2.1	3.4
3	7.3	5.8	6.2	4.5	2.1	3.2	5.6	2.9	4.2	4.5	1.9	2.9
4	6.4	5.1	5.5	4.0	1.1	2.1	5.7	4.4	5.3	4.2	2.4	3.2
5	5.9	4.6	5.6	3.8	1.3	2.9	4.5	3.2	4.0	3.5	2.4	3.1
6	5.2	4.4	4.7	4.0	2.3	3.2	5.0	3.9	4.2	4.6	2.4	3.4
7	5.1	3.9	4.6	4.6	3.0	3.5	4.7	3.7	4.2	4.3	3.1	3.8
8	5.1	3.6	4.0	6.6	3.0	4.4	5.7	3.7	4.1	6.2	2.9	3.6
9	4.4	3.0	3.6	8.2	3.5	5.6	4.5	3.0	3.5	4.5	2.4	3.1
10	5.7	2.9	3.9	8.1	6.0	6.7	3.6	1.4	2.6	3.2	1.8	2.5
11	4.9	3.3	4.1	9.9	6.6	8.0	3.0	1.6	2.6	5.4	1.3	2.1
12	5.2	3.3	4.1	9.9	6.3	7.8	3.5	1.6	2.5	2.3	1.5	1.7
13	5.2	2.8	4.0	9.3	4.4	6.9	4.3	1.7	2.7	1.7	1.3	1.4
14	6.1	3.3	4.4	7.3	4.7	5.5	3.6	2.4	3.1	1.3	1.0	1.2
15	5.8	4.2	4.7	5.2	1.8	3.6	4.2	2.6	3.5	---	---	---
16	5.0	3.9	4.4	4.5	.9	2.6	4.2	2.7	3.9	---	---	---
17	4.9	4.0	4.5	4.0	1.9	2.8	4.3	3.6	4.0	---	---	---
18	5.1	4.2	4.6	4.0	2.3	2.8	4.7	3.4	4.1	---	---	---
19	9.4	4.0	5.3	3.6	1.8	2.8	5.0	4.2	4.6	---	---	---
20	5.2	3.6	4.3	2.5	1.3	1.9	5.2	3.7	4.4	---	---	---
21	4.7	3.4	4.1	4.8	1.7	3.0	4.6	3.3	4.0	---	---	---
22	5.3	3.4	4.2	4.4	2.8	3.6	5.3	2.9	4.1	---	---	---
23	4.3	2.9	3.7	5.3	3.3	4.1	7.1	3.3	5.2	---	---	---
24	3.2	2.0	2.8	4.8	3.7	4.3	7.1	4.8	5.6	---	---	---
25	4.7	3.1	3.9	4.7	2.9	3.9	7.1	4.0	5.4	---	---	---
26	7.7	3.1	4.5	4.4	3.6	3.9	7.4	4.1	5.9	---	---	---
27	5.0	3.3	3.9	4.4	3.4	3.8	8.1	2.0	4.6	---	---	---
28	5.0	3.1	3.7	5.3	2.6	3.4	5.1	2.1	3.6	6.8	4.1	5.1
29	4.2	2.7	3.7	4.5	3.2	3.6	5.2	3.0	4.4	8.2	2.7	5.2
30	4.4	3.2	3.7	4.7	3.0	3.7	8.8	3.6	6.7	9.7	---	5.2
31	---	---	---	4.4	2.2	3.3	10.2	4.4	7.7	---	---	---
MONTH	9.4	2.0	4.4	9.9	.9	4.0	10.2	1.4	4.2	9.7	1.0	3.2
YEAR	10.9	.9	5.8									

## SAN JACINTO RIVER BASIN

08075000 BRAYS BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°41'49", long 95°24'43", Harris County, Hydrologic Unit 12040104, near right bank at downstream side of Main Street Bridge in southwest Houston, 1.6 mi upstream from Harris Gully, and 11.6 mi upstream from Buffalo Bayou.

DRAINAGE AREA.--94.9 mi<sup>2</sup>. Prior to October 1976, 88.4 mi<sup>2</sup>. Changes due to drainage ditch relocations.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7.16 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence. Prior to June 20, 1936, nonrecording gage, and June 20, 1936, to Nov. 25, 1959, water-stage recorder at site 0.8 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. There are no known diversions above station. Low flow is sustained mostly from sewage effluent from Houston suburbs. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1911, 56.0 ft in June 1919 before channel rectification, former site, from information by engineer for city of Houston.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,300 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1030	14,700	43.27	Mar. 4	1630	23,000	48.74
Dec. 21	1500	12,600	41.67	Apr. 17	2000	17,400	45.19
Jan. 8	1030	7,970	37.67	May 16	1500	11,900	41.16
Jan. 18	1030	8,220	37.91	May 28	2330	8,740	38.41
Feb. 4	0100	10,200	39.71	June 2	0830	8,900	38.56
Feb. 22	0730	18,100	45.63				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	446	422	187	136	138	132	111	111	1100	189	130	134
2	669	126	276	136	131	132	119	110	3310	106	256	111
3	247	111	131	128	3330	126	113	110	542	329	1510	128
4	115	109	108	123	3480	8890	109	505	229	181	189	172
5	108	106	106	943	1160	2290	2150	174	160	99	140	141
6	103	106	105	268	333	504	841	112	1160	103	126	107
7	105	959	106	276	209	256	235	109	524	99	118	105
8	105	443	114	2310	169	183	153	106	202	99	217	113
9	106	131	789	490	147	162	129	105	153	100	158	132
10	104	117	170	227	138	135	179	106	238	98	359	225
11	102	109	119	197	2170	127	126	108	318	100	198	150
12	100	105	112	2050	2000	120	115	107	141	98	483	139
13	103	109	823	371	849	121	127	108	122	119	350	135
14	105	111	258	200	316	121	112	106	114	114	125	335
15	103	107	131	155	225	116	109	109	114	228	110	199
16	101	102	116	137	196	116	108	3900	114	126	106	116
17	102	4640	131	678	289	117	4140	1330	109	130	108	902
18	105	523	631	4440	164	239	2630	912	106	169	108	332
19	102	229	371	587	137	243	633	433	106	287	107	153
20	100	156	188	274	130	120	1430	230	101	436	108	114
21	103	121	4160	197	124	129	273	161	141	193	107	114
22	103	113	4230	360	5930	142	171	124	172	494	104	123
23	105	110	563	188	575	112	136	114	122	935	158	115
24	113	115	253	149	1640	106	127	109	214	611	136	107
25	106	112	168	139	1130	106	131	109	108	538	117	105
26	104	120	2630	261	298	106	121	122	101	199	110	105
27	101	160	1510	1800	194	105	117	1130	224	187	152	106
28	122	117	370	381	155	1980	111	1480	140	126	132	108
29	334	111	214	228	137	567	123	2480	106	111	105	103
30	1410	108	171	179	---	170	115	315	233	115	105	104
31	891	---	153	154	---	122	---	420	---	123	267	---
TOTAL	6623	10008	19394	18162	25894	17895	15094	15455	10524	6842	6499	5033
MEAN	214	334	626	586	893	577	503	499	351	221	210	168
MAX	1410	4640	4230	4440	5930	8890	4140	3900	3310	935	1510	902
MIN	100	102	105	123	124	105	108	105	101	98	104	103
AC-FT	13140	19850	38470	36020	51360	35490	29940	30650	20870	13570	12890	9980

SAN JACINTO RIVER BASIN

17

08075000 BRAYS BAYOU AT HOUSTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1992, BY WATER YEAR (WY)

MEAN	128	150	141	170	167	115	132	170	187	125	123	158
MAX	709	719	626	760	893	577	713	586	941	519	880	857
(WY)	1971	1944	1992	1991	1992	1992	1991	1970	1973	1942	1983	1979
MIN	.58	.68	5.98	1.90	9.72	1.36	1.40	.95	3.78	1.72	.74	1.12
(WY)	1939	1939	1951	1940	1947	1940	1939	1937	1937	1937	1940	1939

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1937 - 1992	
ANNUAL TOTAL	133530		157423		147	
ANNUAL MEAN	366		430		430	
HIGHEST ANNUAL MEAN					15.1	
LOWEST ANNUAL MEAN					13100	
HIGHEST DAILY MEAN	5510	Apr 5	8890	Mar 4	13100	Aug 31 1981
LOWEST DAILY MEAN	98	Jun 2	98	Jul 10	.10	Oct 11 1937
ANNUAL SEVEN-DAY MINIMUM	102	Oct 11	100	Jul 6	.19	Oct 6 1937
INSTANTANEOUS PEAK FLOW			23000	Mar 4	29000	*Jun 15 1976
INSTANTANEOUS PEAK STAGE			48.74	Mar 4	52.13	Jun 15 1976
ANNUAL RUNOFF (AC-FT)	264900		312200		106400	
10 PERCENT EXCEEDS	756		937		259	
50 PERCENT EXCEEDS	131		135		48	
90 PERCENT EXCEEDS	105		105		5.0	

\* And Sept. 19, 1983.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 26...	1115	297	488	7.6	14.0	90	24	10.4	100	1.4	1.6	60	
MAY 12...	1018	100	822	8.3	25.0	13	6.3	11.4	139	3.3	2.9	130	
AUG 04...	1205	169	546	8.3	29.0	25	10	11.6	151	2.0	1.1	190	
DATE	TIME	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 26...	430	150	0	44	9.2	46	2	4.6	160	22	42	0.40	
MAY 12...	40	170	0	51	11	100	3	7.7	200	40	94	0.50	
AUG 04...	88	130	0	39	6.9	66	3	5.7	140	32	61	0.40	
DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
FEB 26...	17	280	23	4	19	2.56	0.040	2.60	0.240	0.66	0.90		
MAY 12...	21	446	13	<1	--	7.86	0.140	8.00	0.720	0.78	1.5		
AUG 04...	16	312	9	9	0	3.75	0.050	3.80	0.180	0.82	1.0		
DATE	TIME	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
FEB 26...	0.770	0.700	8.7	4	79	<0.5	<1.0	<5	<3	<10	89		
MAY 12...	2.90	1.00	5.7	4	98	<0.5	<1.0	<5	<3	<10	10		
AUG 04...	1.20	0.990	7.1	5	74	<0.5	<1.0	<5	<3	<10	21		
DATE	TIME	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 26...	<10	12	15	<0.1	<10	<10	<1	<1.0	290	<6	8		
MAY 12...	<10	20	16	<0.1	<10	<10	<1	<1.0	460	<6	20		
AUG 04...	<10	13	11	<0.1	<10	<10	1	<1.0	310	7	12		
DATE	TIME	AME-TRYNE TOTAL	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	
FEB 26...	<0.10	0.3	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
MAY 12...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		
AUG 04...	<0.10	0.2	<0.20	<0.5	0.20	<0.10	<0.10	<0.5	<0.5	0.20	<0.10		



## 08075500 SIMS BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°40'27", long 95°17'21", Harris County, Hydrologic Unit 12040104, on left bank between bridges on State Highway 35 in southeast Houston and 7.0 mi upstream from mouth.

DRAINAGE AREA.--63.0 mi<sup>2</sup>. Prior to Oct. 1, 1976, 64.0 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1922: 1960. 1975(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.09 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence.

REMARKS.--No estimated daily discharges. Records good. Low flow is largely sustained by sewage effluent from Houston suburbs and from industrial wastes. Stage-discharge relationship is affected by seasonal vegetal growth during most years. Gage-height telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0530	3,860	23.98	Feb. 22	1130	4,410	25.01
Jan. 18	1130	4,230	24.68	May 29	0430	3,460	23.16
Feb. 04	0200	4,490	25.16	June 02	1300	3,830	23.91

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	107	113	58	73	66	56	58	382	141	52	63
2	46	40	110	54	65	60	51	55	2440	58	42	34
3	39	33	73	52	1010	50	51	55	766	97	62	31
4	34	35	49	49	2700	861	46	67	164	68	48	33
5	37	34	44	416	996	731	591	62	95	47	46	47
6	34	33	42	214	289	290	864	52	340	45	46	31
7	34	174	40	121	147	132	183	51	501	48	49	29
8	33	232	41	1450	104	83	92	49	132	49	42	54
9	34	48	237	683	80	66	65	48	117	47	76	44
10	32	40	109	188	71	56	62	47	176	47	86	37
11	33	38	57	102	786	50	52	46	92	44	87	34
12	32	39	48	930	962	50	47	49	70	37	67	28
13	32	36	135	308	311	57	57	50	61	55	166	30
14	34	38	97	133	211	44	66	48	55	51	46	218
15	36	38	49	85	139	54	48	50	55	66	31	112
16	38	35	42	68	103	49	48	882	55	69	29	34
17	36	1020	42	159	137	47	255	1390	57	67	30	62
18	37	404	176	2730	87	87	1450	601	54	99	31	61
19	35	108	166	720	75	211	303	634	56	60	31	106
20	35	78	86	203	66	65	1040	193	51	77	29	35
21	36	53	1230	120	66	54	240	126	54	67	32	32
22	37	46	2640	269	2200	55	107	78	54	56	28	37
23	34	45	749	136	647	49	78	60	53	61	43	49
24	43	41	176	86	564	50	69	54	51	77	36	32
25	34	42	87	68	1130	54	64	51	52	51	33	29
26	35	47	622	89	262	53	56	105	50	67	31	28
27	31	58	1070	1250	135	50	57	890	58	54	31	29
28	30	55	275	427	96	450	57	743	59	50	33	28
29	79	39	120	174	79	713	62	2110	45	49	28	29
30	345	42	89	116	---	145	60	282	133	47	28	29
31	103	---	67	90	---	77	---	133	---	99	69	---
TOTAL	1511	3078	8881	11548	13591	4859	6277	9119	6328	1950	1488	1445
MEAN	48.7	103	286	373	469	157	209	294	211	62.9	48.0	48.2
MAX	345	1020	2640	2730	2700	861	1450	2110	2440	141	166	218
MIN	30	33	40	49	65	44	46	46	45	37	28	28
AC-FT	3000	6110	17620	22910	26960	9640	12450	18090	12550	3870	2950	2870

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1992, BY WATER YEAR (WY)

	MEAN	71.6	82.1	87.3	111	127	72.6	84.2	106	142	71.3	73.4	92.5
MAX	303	296	331	428	470	284	373	428	629	354	535	452	
(WY)	1971	1986	1987	1991	1959	1957	1991	1970	1976	1979	1983	1979	
MIN	4.87	3.43	5.03	5.77	9.12	4.56	8.98	9.86	5.41	4.53	6.38	6.53	
(WY)	1957	1956	1955	1957	1962	1955	1955	1960	1955	1956	1956	1954	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1953 - 1992

ANNUAL TOTAL	66286	70075	93.1	
ANNUAL MEAN	182	191	200	1973
HIGHEST ANNUAL MEAN			9.26	1956
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	3460	2730	8290	Jun 16 1976
LOWEST DAILY MEAN	30	28	.90	Aug 7 1955
ANNUAL SEVEN-DAY MINIMUM	33	29	1.7	Jun 21 1953
INSTANTANEOUS PEAK FLOW		4490	11400	Aug 18 1983
INSTANTANEOUS PEAK STAGE		25.16	33.23	Aug 18 1983
ANNUAL RUNOFF (AC-FT)	131500	139000	67440	
10 PERCENT EXCEEDS	335	572	140	
50 PERCENT EXCEEDS	50	57	36	
90 PERCENT EXCEEDS	36	33	8.0	

## SAN JACINTO RIVER BASIN

08075500 SIMS BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, 0.7 UM-MF (COLS./100 ML)	
FEB 26...	0830	278	492	7.8	14.0	110	53	7.6	73	8.3	8.1	8700	
MAY 12...	0755	44	1540	8.3	25.5	10	26	4.6	57	4.8	2.7	4400	
AUG 04...	0950	46	1070	7.9	27.0	8	26	4.8	60	2.9	1.6	3200	
DATE	TIME	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 26...	8900	120	0	36	7.3	57	2	4.9	120	70	37	0.30	
MAY 12...	270	190	0	56	13	260	8	7.6	210	340	140	0.70	
AUG 04...	450	140	4	44	8.3	170	6	7.2	140	190	110	0.60	
DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
FEB 26...	13	299	71	9	62	0.400	0.080	0.480	2.00	1.8	3.8		
MAY 12...	14	958	50	<1	--	5.86	0.240	6.10	0.660	0.64	1.3		
AUG 04...	14	629	45	7	38	4.56	0.140	4.70	0.350	0.75	1.1		
DATE	TIME	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
FEB 26...	0.800	0.570	16	3	67	<0.5	1.0	<5	<3	<10	190		
MAY 12...	1.80	1.50	6.4	4	140	<0.5	<1.0	<5	<3	<10	12		
AUG 04...	1.20	1.00	6.9	3	100	<0.5	<1.0	<5	<3	<10	10		
DATE	TIME	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 26...	30	6	92	<0.1	<10	<10	<1	<1.0	210	<6	48		
MAY 12...	<10	19	100	<0.1	<10	<10	<1	<1.0	420	<6	15		
AUG 04...	<10	13	92	<0.1	<10	<10	<1	<1.0	350	7	10		
DATE	TIME	AME-TRYNE TOTAL	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	
FEB 26...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
MAY 12...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
AUG 04...	<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		

## SAN JACINTO RIVER BASIN

131

## 08075650 BERRY BAYOU AT FOREST OAKS STREET, HOUSTON, TX

LOCATION.--Lat 29°40'35", long 95°14'37", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of bridge at Forest Oaks Street in southeast Houston, 0.8 mi upstream from mouth of Berry Creek, and 1.7 mi upstream from Sims Bayou.

DRAINAGE AREA.--10.7 mi<sup>2</sup>. Prior to Oct. 1, 1973, 11.1 mi<sup>2</sup>. Oct. 1, 1973, to Sept. 30, 1976, 10.6 mi<sup>2</sup>. Oct. 1, 1976, to Dec. 31, 1977, 10.1 mi<sup>2</sup>. Drainage ditch relocations resulted in drainage area changes.

PERIOD OF RECORD.--October 1967 to current year (stage only beginning October 1982). October 1966 to September 1982 operated as partial discharge or flood-hydrograph partial-record station. April 1964 to September 1966 operated as a daily discharge station.

Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1968 to September 1981.

Water Temperature: April 1964 to September 1981.

REVISED RECORDS.--WDR TX-80-2: 1979(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.72 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment prior to Oct. 1, 1982, auxiliary water-stage recorder 0.8 mi downstream at same datum. June 25, 1964 to Jan. 11, 1965, auxiliary nonrecording gage 0.8 mi downstream at same datum.

REMARKS.--No estimated daily gage heights. Records good. Low stages are affected by tidal surge. Rises are sometimes affected by backwater from Sims Bayou. The reports "Hydrologic Data for Urban Studies in the Houston, Texas Metropolitan area", for water years 1965-82, contain additional storm runoff data for this station. Stage and rainfall radio-telemetry at station is operated by Harris County Flood Control District.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,080 ft<sup>3</sup>/s June 9, 1975; maximum gage height, 23.85 ft Sept. 20, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 14.34 ft June 2 at 0830 hours; minimum, 3.59 ft May 7.

## GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	5.99	4.22	4.44	3.91	5.81	4.30	---	---	5.19	3.94	5.05	3.89
2	6.21	4.34	5.73	3.87	5.03	4.16	---	---	5.65	3.98	4.96	3.91
3	6.02	4.28	4.93	3.82	4.86	3.90	---	---	10.40	5.55	5.55	4.14
4	5.99	4.33	5.69	3.90	5.35	3.87	---	---	11.10	5.73	7.77	4.87
5	5.61	4.16	5.92	4.11	5.77	4.00	---	---	6.64	4.46	7.00	5.19
6	6.09	3.82	5.98	3.98	5.75	3.95	---	---	4.87	4.20	6.49	5.38
7	6.34	4.73	6.30	4.73	---	---	---	---	5.07	4.10	5.63	4.59
8	6.22	4.46	5.76	3.99	---	---	---	---	5.62	4.17	6.42	4.74
9	5.89	4.28	5.26	3.93	---	---	---	---	5.84	4.35	6.42	4.76
10	5.65	3.84	5.29	3.90	5.23	3.91	---	---	5.86	4.55	5.32	3.88
11	5.30	3.79	5.27	3.88	5.44	4.05	---	---	9.36	4.28	5.43	3.85
12	5.20	3.77	5.17	3.86	5.57	4.00	---	---	6.22	4.80	5.35	3.74
13	4.95	3.80	5.08	3.86	5.56	4.17	---	---	5.69	4.23	5.38	3.76
14	5.19	3.80	5.51	4.56	5.18	3.88	---	---	5.96	4.14	5.10	3.76
15	5.18	3.78	5.85	4.59	4.86	3.84	---	---	5.79	4.06	4.89	3.75
16	5.21	4.20	5.56	4.70	5.39	3.86	---	---	5.92	4.01	5.20	3.83
17	5.62	4.18	8.72	5.11	5.35	3.85	---	---	5.88	4.16	6.14	4.33
18	5.58	4.34	6.48	4.92	5.89	4.10	---	---	5.55	4.01	6.78	4.53
19	5.34	4.24	6.63	4.80	---	---	---	---	5.32	3.93	5.36	3.90
20	5.57	4.35	5.43	4.05	---	---	---	---	5.91	4.18	4.89	3.81
21	5.95	4.25	5.39	3.90	---	---	---	---	5.87	4.39	6.47	3.80
22	5.74	4.20	5.67	3.90	---	---	---	---	7.95	4.89	5.91	3.93
23	6.09	4.22	5.69	3.78	---	---	5.55	4.05	5.70	4.38	4.78	3.84
24	6.35	4.67	4.35	3.77	---	---	4.99	3.96	9.04	4.21	5.92	3.82
25	6.26	4.46	5.03	3.84	---	---	5.25	3.92	7.35	4.37	5.45	3.89
26	6.37	4.25	5.80	4.30	---	---	6.25	3.92	4.37	4.12	5.24	3.79
27	6.28	4.60	6.17	---	---	---	9.74	5.48	4.93	4.02	5.31	3.78
28	6.80	5.11	---	---	---	---	5.45	4.36	4.84	3.93	8.52	4.08
29	7.85	4.91	---	---	---	---	5.47	4.14	4.66	3.89	5.90	4.62
30	7.85	4.76	5.69	---	---	---	5.31	4.03	---	---	4.68	4.04
31	6.79	4.50	---	---	---	---	5.12	4.00	---	---	5.29	4.00
MONTH	7.85	3.77	---	---	---	---	---	---	11.10	3.89	8.52	3.74

## SAN JACINTO RIVER BASIN

08075650 BERRY BAYOU AT FOREST OAKS STREET, HOUSTON, TX--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	5.09	3.97	5.39	3.66	10.25	3.95	5.85	4.05	4.72	3.74	5.84	4.27
2	5.14	3.87	5.42	3.73	14.34	5.25	5.69	3.90	7.99	3.74	5.79	4.17
3	5.32	3.90	5.08	3.61	5.75	4.56	5.57	3.73	6.21	4.16	5.83	3.78
4	5.32	3.85	4.95	3.60	5.37	4.01	5.16	3.89	5.05	3.87	6.08	4.20
5	11.04	3.85	5.11	3.74	5.55	3.83	4.81	3.74	5.03	3.86	5.75	4.19
6	7.07	4.94	4.85	3.62	8.45	4.08	4.81	3.77	5.03	3.73	5.59	4.01
7	5.69	4.23	5.09	3.59	5.78	4.49	4.89	3.75	4.99	3.73	5.66	3.99
8	5.67	4.05	5.12	3.60	5.56	4.16	4.78	3.74	5.09	3.72	7.93	4.18
9	6.16	4.10	5.35	3.60	5.33	3.88	4.83	3.74	5.19	3.70	6.61	4.58
10	6.16	4.16	5.78	4.03	5.46	3.89	4.99	3.71	5.39	3.68	5.65	4.59
11	6.06	4.00	5.36	4.10	5.21	3.80	5.21	3.70	5.79	3.71	5.70	4.34
12	5.57	4.02	5.37	3.72	5.58	3.78	5.27	3.72	5.49	3.83	5.75	4.36
13	5.04	3.95	4.99	3.65	5.19	3.73	5.43	3.70	5.16	3.71	5.79	4.54
14	5.56	4.16	4.69	3.62	5.38	3.75	5.35	3.80	5.09	3.70	8.95	5.17
15	6.03	4.43	5.29	3.62	5.49	3.76	5.49	3.72	5.17	3.76	6.70	5.02
16	6.10	4.46	6.91	3.67	5.67	3.72	5.48	3.79	5.24	4.18	6.62	4.86
17	6.96	4.27	6.96	4.34	5.65	3.70	6.20	3.92	5.11	3.98	6.20	4.35
18	6.99	5.27	7.43	4.18	5.52	3.74	6.41	3.89	5.18	4.09	5.95	4.14
19	11.03	4.37	6.13	4.13	5.13	3.76	5.62	4.08	5.13	3.71	5.76	3.92
20	9.01	3.99	6.53	4.01	5.11	3.66	5.63	3.99	5.10	3.74	5.67	4.11
21	5.58	3.95	6.36	4.58	5.37	3.71	5.40	4.00	5.10	3.80	6.16	4.22
22	5.78	3.86	5.98	4.27	4.99	4.11	6.47	4.32	5.44	3.80	5.66	3.84
23	5.73	3.99	5.52	3.97	6.94	4.07	5.46	4.05	5.96	3.74	5.34	3.81
24	5.02	3.67	5.27	3.84	5.19	4.11	5.52	3.90	5.99	4.04	5.85	3.93
25	4.27	3.63	5.26	3.97	5.14	3.94	5.64	3.81	5.84	3.84	6.33	4.48
26	5.03	3.63	5.99	4.10	5.33	3.80	5.43	3.77	5.01	3.71	6.09	4.61
27	4.52	3.64	11.31	4.77	5.37	3.77	5.69	3.74	4.99	3.65	6.06	4.24
28	4.91	3.72	9.69	4.60	5.82	3.82	4.97	3.75	5.34	3.68	6.18	4.25
29	5.58	3.93	7.99	4.21	5.71	3.76	5.04	3.70	5.79	3.81	6.03	4.10
30	4.94	3.68	5.35	3.98	5.63	3.73	5.16	3.70	5.68	4.35	6.06	4.09
31	---	---	5.70	3.94	---	---	5.15	3.67	5.62	4.21	---	---
MONTH	11.04	3.63	11.31	3.59	14.34	3.66	6.47	3.67	7.99	3.65	8.95	3.78
1991	MAX	---	MIN	---								
1992	MAX	---	MIN	---								

## 08075730 VINCE BAYOU AT PASADENA, TX

LOCATION.--Lat 29°41'40", long 95°12'58", Harris County, Hydrologic Unit 12040104, on right bank of concrete lined channel at end of West Ellaine Avenue in Pasadena and 2.4 mi upstream from mouth.

DRAINAGE AREA.--8.26 mi<sup>2</sup>. Prior to Jan. 1, 1978, 8.21 mi<sup>2</sup>. Jan. 1 to Sept. 30, 1978, 7.61 mi<sup>2</sup>. Oct. 1, 1978, to Sept. 30, 1987, 7.32 mi<sup>2</sup>. Drainage area revisions due to drainage ditch changes.

PERIOD OF RECORDS.--October 1971 to current year.

Water-quality records.--Chemical, biochemical, and pesticide analyses: May 1971 to September 1973 and October 1976 to July 1979.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.54 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (levels by the U.S. Army Corps of Engineers).

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 21	2045	1,430	13.80	June 2	0830	1,830	14.50
May 27	0715	1,420	13.79				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.1	5.9	9.1	2.0	2.7	1.4	4.6	2.8	138	11	e10	e1.1
2	e1.0	1.9	8.8	2.3	2.5	.91	5.4	12	350	4.0	e88	e1.3
3	e1.0	1.7	1.9	2.0	240	.92	4.6	7.1	25	95	e16	e1.4
4	e1.1	1.7	3.0	2.1	217	67	1.8	45	8.8	10	e4.0	e21
5	e1.1	1.7	3.6	54	64	23	257	13	6.0	2.2	e3.3	e3.0
6	e1.2	1.7	2.9	6.3	6.9	11	41	3.6	94	1.0	e2.2	e2.0
7	e1.3	58	3.5	3.8	4.0	5.1	10	5.4	26	1.9	e1.9	e1.5
8	e1.4	9.8	4.2	126	3.1	4.7	4.6	7.0	7.6	1.2	e1.6	e.70
9	e1.0	1.5	32	12	2.6	4.4	2.3	3.4	4.5	2.9	e1.6	e3.3
10	e.66	1.7	2.5	3.6	2.5	4.3	4.6	3.6	3.9	1.5	e1.2	23
11	1.6	.79	1.8	4.2	182	4.1	6.0	3.8	12	2.4	e9.0	3.9
12	1.7	1.3	1.7	122	36	4.0	2.6	19	18	1.8	e3.6	1.3
13	1.1	.66	5.7	7.6	7.3	4.0	2.9	19	27	1.2	e2.5	1.1
14	.80	1.3	3.0	3.2	6.3	3.5	5.8	11	16	3.8	e2.1	78
15	.66	1.4	1.7	2.5	4.6	3.7	5.9	11	3.1	8.0	e1.8	6.5
16	1.3	1.0	1.6	2.0	6.2	5.0	19	54	3.3	3.5	e1.7	2.2
17	1.6	152	1.7	67	8.7	3.6	43	66	11	62	e1.5	4.7
18	1.6	11	19	356	3.6	33	20	54	12	38	e1.8	2.0
19	1.7	28	6.2	18	2.7	12	118	13	11	25	e1.6	1.3
20	1.2	7.8	2.5	4.4	2.7	2.5	99	2.3	11	3.5	e1.3	.88
21	.61	1.5	303	3.2	2.7	4.1	9.6	9.5	24	3.5	e1.2	.86
22	.41	.78	228	34	105	3.4	2.4	6.0	11	25	e1.8	1.1
23	.73	.90	23	4.7	7.9	2.4	1.2	1.4	47	13	e1.3	2.0
24	1.4	.66	4.0	3.3	174	3.9	2.6	1.0	13	5.7	e.90	1.9
25	1.4	.45	2.6	2.5	58	7.0	2.0	.95	5.0	e4.0	e1.1	1.8
26	1.1	1.4	133	9.6	6.3	4.3	4.7	18	4.4	e3.2	e1.2	1.8
27	1.1	3.5	37	201	3.6	6.8	2.3	230	7.3	e3.7	e1.5	2.0
28	.99	1.1	5.6	15	2.8	144	6.5	226	3.1	e3.0	e1.3	1.7
29	22	2.0	3.2	4.7	2.7	31	3.7	66	1.7	e2.2	e1.3	1.6
30	52	5.2	2.4	4.1	---	4.9	2.3	7.6	17	e2.0	e1.0	1.9
31	14	---	2.2	3.4	---	3.7	---	4.6	---	e5.5	e.90	---
TOTAL	119.86	308.34	860.4	1086.5	1168.4	413.63	695.4	927.05	921.7	350.7	170.20	176.84
MEAN	3.87	10.3	27.8	35.0	40.3	13.3	23.2	29.9	30.7	11.3	5.49	5.89
MAX	52	152	303	356	240	144	257	230	350	95	88	78
MIN	.41	.45	1.6	2.0	2.5	.91	1.2	.95	1.7	1.0	.90	.70
AC-FT	238	612	1710	2160	2320	820	1380	1840	1830	696	338	351

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1992, BY WATER YEAR (WY)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	11.7	15.7	12.7	19.0	13.9	10.7	12.1	18.3	29.7	16.3	14.5	19.2									
MAX	57.4	41.1	35.0	57.7	40.3	36.8	57.6	49.8	87.0	87.4	78.1	113									
(WY)	1974	1987	1972	1980	1992	1979	1991	1981	1989	1979	1983	1979									
MIN	.64	1.71	1.49	3.17	1.67	1.47	.38	.90	1.81	1.66	1.31	1.04									
(WY)	1979	1981	1989	1986	1988	1981	1983	1988	1990	1982	1980	1982									

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1972 - 1992

ANNUAL TOTAL	7477.66	7199.02	16.1
ANNUAL MEAN	20.5	19.7	32.1
HIGHEST ANNUAL MEAN			4.97
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	549	356	1610
LOWEST DAILY MEAN	.22	.41	.00
ANNUAL SEVEN-DAY MINIMUM	.54	.96	.04
INSTANTANEOUS PEAK FLOW		1830	4720
INSTANTANEOUS PEAK STAGE		14.50	18.30
INSTANTANEOUS LOW FLOW		.41	.00
ANNUAL RUNOFF (AC-FT)	14830	14280	11690
10 PERCENT EXCEEDS	37	53	27
50 PERCENT EXCEEDS	1.7	3.6	2.1
90 PERCENT EXCEEDS	.58	1.1	.44

\* No flow Aug. 5, 6, 18, 1972, and July 28, 1986.



## SAN JACINTO RIVER BASIN

08075770 HUNTING BAYOU AT INTERSTATE HIGHWAY 610, HOUSTON, TX

LOCATION.--Lat 29°47'35", long 95°16'04", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of downstream service road bridge of Interstate Highway 610 in northeast Houston and 8.8 mi upstream from mouth.

DRAINAGE AREA.--16.1 mi<sup>2</sup>. Prior to Oct. 1, 1973, 16.8 mi<sup>2</sup>. Oct 1, 1973, to Sept. 30, 1978, 14.7 mi<sup>2</sup>. Oct. 1, 1978, to Sept. 30, 1987, 15.8 mi<sup>2</sup>. Changes due to storm sewer relocations and addition or relocation of ditches.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1964 to current year. Prior to October 1973, published as "U.S. Highway 90-A, Houston".

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1959 adjustment; unadjusted for land-surface subsidence. Prior to Oct. 1, 1972, water-stage recorder at site 1,800 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Low flow is largely maintained by sewage and industrial effluent. The stage-discharge relationship is affected by seasonal vegetal growth during most years. Recording rain gage at station. Stage and rainfall radio-telemeter at station, is operated by the Harris County Flood Control District.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)
Dec. 21	1730	1,060	31.03	Mar. 4	1730	2,800	37.89
Jan. 18	1130	1,146	31.44	June 2	1030	1,120	31.31
Feb. 22	1000	1,890	34.68				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	e54	36	11	15	13	11	11	224	24	5.6	13
2	4.6	e10	23	11	14	12	9.6	11	592	7.9	64	4.4
3	4.4	e7.4	9.9	9.8	248	12	9.2	10	78	7.0	261	4.9
4	4.1	e6.2	7.0	9.0	457	1120	8.2	24	22	6.9	18	26
5	4.3	e5.8	6.1	75	204	529	139	22	15	6.5	17	25
6	3.9	e5.1	5.8	27	42	130	74	12	23	5.7	11	21
7	3.5	e62	5.4	42	25	31	19	11	18	5.5	7.7	19
8	3.5	e74	5.7	400	19	21	14	10	12	5.3	16	32
9	3.3	e13	89	79	16	18	12	9.8	11	5.1	17	26
10	e3.3	e8.5	14	25	15	15	14	9.5	52	5.2	18	6.8
11	e5.0	e7.8	9.8	18	225	12	12	9.2	48	5.3	15	4.0
12	e5.8	e6.8	8.4	187	195	11	14	8.8	36	5.2	14	3.4
13	e6.1	e5.8	100	40	88	10	13	8.9	33	5.5	6.4	5.3
14	e6.1	e5.5	23	21	36	9.9	13	8.8	17	7.8	6.1	12
15	e6.2	e5.7	10	16	24	9.5	12	8.8	11	41	5.3	9.8
16	e5.8	e5.5	8.3	14	21	9.1	11	327	9.9	24	4.8	9.2
17	e5.8	e330	7.5	49	26	8.8	59	202	8.9	7.8	4.6	18
18	e5.8	e67	32	653	17	10	108	249	8.2	9.4	4.9	9.5
19	e5.6	e24	19	105	14	12	45	232	7.4	10	4.7	7.3
20	e5.7	e13	12	34	13	8.2	228	24	7.8	9.2	4.1	4.1
21	e6.0	e8.5	405	21	13	8.9	28	16	9.4	25	3.7	3.5
22	e5.8	6.2	536	28	800	11	18	13	14	26	3.9	3.2
23	e6.8	5.6	69	18	108	8.0	15	10	12	83	63	2.9
24	e8.4	5.1	20	15	161	7.8	15	8.8	9.7	43	16	2.9
25	e6.8	4.9	16	16	218	7.6	14	8.2	8.0	17	7.3	2.7
26	e6.2	5.0	269	20	37	7.6	13	7.6	7.1	11	5.3	2.8
27	e6.8	7.7	208	226	22	7.6	12	15	9.5	7.0	5.9	2.9
28	e8.0	5.8	38	46	18	160	11	154	7.6	6.0	5.4	2.9
29	e8.0	5.8	20	25	15	75	11	207	6.4	5.5	4.7	2.8
30	e80	7.2	15	21	---	20	11	21	39	5.6	4.1	2.7
31	e56	---	13	18	---	13	---	19	---	5.6	14	---
TOTAL	295.7	778.9	2040.9	2279.8	3106	2328.0	973.0	1688.4	1356.9	439.0	638.5	290.0
MEAN	9.54	26.0	65.8	73.5	107	75.1	32.4	54.5	45.2	14.2	20.6	9.67
MAX	80	330	536	653	800	1120	228	327	592	83	261	32
MIN	3.3	4.9	5.4	9.0	13	7.6	8.2	7.6	6.4	5.1	3.7	2.7
AC-FT	587	1540	4050	4520	6160	4620	1930	3350	2690	871	1270	575

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1992, BY WATER YEAR (WY)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	21.1	18.8	20.6	27.9	26.0	22.0	21.3	30.4	37.3	19.1	19.2	28.7																
MAX	111	51.1	68.0	99.4	107	75.1	83.0	91.1	136	83.4	121	194																
(WY)	1971	1987	1987	1991	1992	1992	1979	1982	1973	1987	1983	1979																
MIN	3.75	2.92	4.55	5.18	4.89	3.16	2.88	7.13	2.55	2.20	3.35	5.92																
(WY)	1979	1968	1989	1965	1976	1965	1965	1985	1967	1965	1967	1982																

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1965 - 1992

ANNUAL TOTAL	13040.5	16215.1	24.3
ANNUAL MEAN	35.7	44.3	45.2
HIGHEST ANNUAL MEAN			6.97
LOWEST ANNUAL MEAN			1930
HIGHEST DAILY MEAN	731	1120	1930
LOWEST DAILY MEAN	3.3	2.7	.88
ANNUAL SEVEN-DAY MINIMUM	3.7	2.8	1.0
INSTANTANEOUS PEAK FLOW		2800	3470
INSTANTANEOUS PEAK STAGE		37.89	39.91
ANNUAL RUNOFF (AC-FT)	25870	32160	17630
10 PERCENT EXCEEDS	67	92	40
50 PERCENT EXCEEDS	9.8	12	6.9
90 PERCENT EXCEEDS	5.1	5.0	3.2

08075770 HUNTING BAYOU AT INTERSTATE HIGHWAY 610, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1968 to current year.

INSTRUMENTATION.--Stage-activated water sampler from July 1983 to September 1988 provided water-quality samples over selected runoff events.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, FFAL, U.7 UM-MF (COLS./100 ML)	
FEB 25...	1137	195	277	7.4	15.5	80	42	7.4	74	4.1	3.5	6000	
MAY 11...	0955	9.3	700	7.5	22.5	10	16	7.5	86	1.0	0.6	980	
AUG 03...	1150	252	218	8.1	24.5	35	44	5.9	71	5.4	4.7	5800	
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 25...	8700		110	7	37	5.3	16	0.7	3.1	110	17	13	0.30
MAY 11...	190		180	0	54	10	72	2	4.7	200	57	63	0.90
AUG 03...	8900		80	22	27	3.0	12	0.6	3.3	58	27	15	0.30
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
FEB 25...	9.9		166	55	5	50	0.410	0.040	0.450	0.170	0.93	1.1	
MAY 11...	9.8		394	31	1	30	2.83	0.070	2.90	0.290	0.41	0.70	
AUG 03...	6.3		129	72	14	58	1.12	0.080	1.20	0.190	0.51	0.70	
DATE		PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
FEB 25...	0.330		0.260	13	6	77	<0.5	<1.0	<5	<3	<10	120	
MAY 11...	0.510		0.520	6.6	3	120	<0.5	<1.0	<5	<3	<10	9	
AUG 03...	0.380		0.330	10	9	59	<0.5	<1.0	<5	<3	<10	31	
DATE		LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 25...	<10		7	30	<0.1	<10	<10	<1	<1.0	170	<6	60	
MAY 11...	10		16	73	<0.1	<10	<10	<1	<1.0	370	<6	83	
AUG 03...	<10		5	19	<0.1	10	<10	<1	<1.0	150	<6	30	
DATE		AME-TRYNE TOTAL	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	
FEB 25...	<0.10		0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
MAY 11...	<0.10		0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
AUG 03...	<0.10		0.3	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	

## SAN JACINTO RIVER BASIN

08075900 GREENS BAYOU NEAR U.S. HIGHWAY 75 NEAR HOUSTON, TX

LOCATION.--Lat 29°57'22", long 95°24'57", Harris County, Hydrologic Unit 12040104, on right bank at upstream side of bridge on Knobcrest Street, 600 ft downstream from U.S. Highway 75 access road bridge, 8.9 mi upstream from station 08076000, and 20.9 mi upstream from Halls Bayou.

DRAINAGE AREA.--36.6 mi<sup>2</sup>. At former site: August 1965 to September 1973, 34.8 mi<sup>2</sup>; October 1973 to July 19, 1989, 36.1 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1965 to current year (discharge measurements and supplemental peak discharges only, Oct. 1, 1980, to Mar. 26, 1981). formerly published as "at U.S. Highway 75".

REVISED RECORDS.--WDR TX-76-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is at National Geodetic Vertical Datum of 1929, 1959 adjustment; unadjusted for land-surface subsidence. Prior to July 19, 1989, water-stage recorder at site 600 ft upstream at present datum.

REMARKS.--Records poor. Stage discharge relationship is affected by seasonal vegetal growth during most years. Channel was rectified (widened and bed lowered about 2 ft) in 1980-81. Records furnished by Houston Lighting and Power Co. show that about 2,915 acre-ft of ground water was used for cooling purposes, then released to Greens Bayou about 8 mi upstream from this station during the current year. No known diversion above station. Several observations of water temperature were obtained during the year. Stage and rainfall radio-telemetry were operated by Harris County Flood Control District at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)
Jan. 18	1000	2,120	78.49	May 16	1900	5,980	84.02
Feb. 24	2200	1,800	77.85	May 28	1830	2,460	79.10
Mar. 4	1800	8,180	86.39	June 2	0900	2,840	79.74
Apr. 17	2030	5,550	83.49	July 20	1330	4,240	81.78

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	170	24	29	e25	26	24	14	118	43	18	52
2	14	25	26	27	e22	24	22	13	1060	22	76	18
3	14	19	25	27	e400	24	21	14	256	131	208	16
4	14	18	23	25	e800	3160	21	60	75	46	25	15
5	13	16	23	110	e400	934	e250	50	41	19	19	24
6	14	15	22	61	105	140	e175	14	57	18	18	32
7	15	180	21	44	58	62	e50	13	46	18	18	18
8	15	215	20	320	38	38	e30	12	29	17	17	19
9	15	31	e500	e150	29	31	e25	13	25	17	26	81
10	14	19	e80	e50	25	24	e35	13	243	18	19	31
11	14	18	e45	e35	299	22	e24	14	157	17	50	33
12	15	16	e25	e500	195	20	e22	15	314	17	104	18
13	15	15	e50	e125	80	19	e20	14	201	29	e22	25
14	15	14	e30	e50	49	20	e19	15	70	69	e21	75
15	15	12	e20	e35	37	20	e18	86	35	83	e20	34
16	13	13	e19	e30	32	21	e17	1760	26	72	e20	19
17	13	e800	e25	e80	47	17	e1400	1260	23	23	e20	17
18	14	e150	e100	1160	26	19	924	325	22	162	e19	16
19	15	23	e70	254	22	23	137	279	22	66	e19	16
20	16	25	e35	99	20	18	105	70	22	1150	e18	16
21	16	25	e1000	63	19	18	39	99	31	228	e18	16
22	16	23	e900	133	474	17	24	52	28	108	e18	16
23	16	24	e250	63	138	15	19	32	21	57	e25	16
24	15	24	e75	43	499	16	17	26	19	38	e30	17
25	14	24	e35	34	441	20	19	22	20	39	e20	16
26	14	24	e500	35	120	21	16	23	20	25	e17	15
27	14	22	e400	330	60	22	15	58	24	19	e25	15
28	16	21	e100	e100	38	289	14	727	21	19	e20	16
29	31	21	e50	e60	29	156	14	437	20	18	e15	15
30	250	21	e40	e40	---	36	14	89	43	20	e17	15
31	190	---	34	e30	---	26	---	46	---	18	89	---
TOTAL	879	2023	4567	4142	4527	5298	3530	5665	3089	2626	1051	732
MEAN	28.4	67.4	147	134	156	171	118	183	103	84.7	33.9	24.4
MAX	250	800	1000	1160	800	3160	1400	1760	1060	1150	208	81
MIN	13	12	19	25	19	15	14	12	19	17	15	15
AC-FT	1740	4010	9060	8220	8980	10510	7000	11240	6130	5210	2080	1450

e Estimated

## SAN JACINTO RIVER BASIN

137

08075900 GREENS BAYOU NEAR U.S. HIGHWAY 75 NEAR HOUSTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1992, BY WATER YEAR (WY)

MEAN	38.3	38.1	34.4	40.5	46.7	36.1	43.6	66.4	58.3	25.7	30.5	38.9
MAX	195	157	147	149	156	171	193	284	248	84.7	263	137
(WY)	1985	1975	1992	1974	1992	1992	1991	1989	1989	1992	1983	1979
MIN	3.60	2.15	4.27	4.12	4.99	2.53	1.97	4.92	3.92	3.58	3.66	5.68
(WY)	1966	1972	1971	1971	1967	1971	1971	1967	1967	1971	1969	1966

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1966 - 1992	
ANNUAL TOTAL	26905		38129		40.5	
ANNUAL MEAN	73.7		104		104	
HIGHEST ANNUAL MEAN					8.87	
LOWEST ANNUAL MEAN					6320	
HIGHEST DAILY MEAN	1540	Apr 14	3160	Mar 4	.16	May 18 1989
LOWEST DAILY MEAN	12	Nov 15	12	Nov 15	.24	Oct 21 1969
ANNUAL SEVEN-DAY MINIMUM	13	Jan 28	13	May 6	13000	Nov 10 1971
INSTANTANEOUS PEAK FLOW			8180	Mar 4	91.09	Jun 26 1989
INSTANTANEOUS PEAK STAGE			86.39	Mar 4	91.09	Feb 21 1969
INSTANTANEOUS LOW FLOW					.00	*
ANNUAL RUNOFF (AC-FT)	53370		75630		29370	
10 PERCENT EXCEEDS	176		245		67	
50 PERCENT EXCEEDS	22		24		13	
90 PERCENT EXCEEDS	15		15		4.0	

\* No flow at times during early years of station operation.

## SAN JACINTO RIVER BASIN

08076000 GREENS BAYOU NEAR HOUSTON, TX

LOCATION.--Lat 29°55'05", long 95°18'24", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of bridge on U.S. Highway 59 access road, 10.5 mi northeast of Houston, 12.0 mi upstream from Halls Bayou, and 23.4 mi upstream from mouth.

DRAINAGE AREA.--68.7 mi<sup>2</sup>. October 1952 to Sept. 30, 1973, 72.7 mi<sup>2</sup>; Oct. 1, 1973 to Sept. 30, 1988, 69.6 mi<sup>2</sup>. Basin boundary changes due to relocation of drainage ditches.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.66 ft below National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Channel was rectified during water years 1974-75. No known diversion above station. Low flow is sustained by Houston Lighting and Power Co. effluent, (which is obtained from ground-water sources) and sewage effluent from Houston suburbs. Gage-height telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1230	4,700	60.02	Mar. 4	2030	9,560	64.15
Dec. 9	1030	2,590	55.89	May 28	2130	3,470	58.74
Dec. 21	1700	5,120	60.56	June 2	1130	2,430	55.83
Jan. 18	1130	2,870	57.25				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e300	65	44	56	69	45	e26	268	72	32	e200
2	23	e40	88	46	51	64	40	e25	1250	36	64	36
3	24	e30	53	42	665	63	40	e25	440	94	330	35
4	23	e28	34	35	1490	3610	36	e125	150	92	57	120
5	21	e26	32	234	914	1810	476	e100	86	34	36	38
6	22	e25	32	104	306	328	419	e30	97	30	34	49
7	24	301	31	79	168	165	111	e28	98	29	44	29
8	23	480	34	601	112	110	62	e26	64	29	42	31
9	24	52	1110	282	86	92	52	e25	56	30	45	74
10	23	31	180	97	72	77	69	e25	179	30	45	68
11	23	28	98	66	467	65	48	e26	311	30	75	49
12	23	26	58	986	472	61	41	e28	517	30	221	32
13	23	24	88	237	223	56	37	e27	553	50	45	28
14	23	24	65	99	146	53	e34	e26	132	81	35	122
15	23	24	40	68	117	53	e32	e150	63	143	31	71
16	22	24	36	57	92	52	e30	e2200	46	128	30	33
17	21	1920	48	166	151	50	e1800	e1500	40	36	28	29
18	21	432	202	1890	89	50	e1100	e500	37	e300	28	29
19	21	114	167	523	71	66	e250	e475	36	e125	28	27
20	23	67	76	186	63	46	e200	161	36	e1500	27	26
21	23	43	1970	113	63	45	e75	151	39	e400	28	26
22	23	36	1760	242	853	46	e50	119	79	143	30	31
23	24	33	510	116	345	39	e40	72	30	83	61	27
24	26	33	136	71	562	38	e35	64	26	64	66	26
25	23	34	71	53	1080	38	e40	56	33	50	34	27
26	22	33	885	58	271	37	e35	54	34	51	30	26
27	21	45	782	653	142	37	e32	79	42	36	61	25
28	26	38	212	231	98	429	e30	895	38	33	40	25
29	30	33	99	117	78	347	e28	995	33	52	29	24
30	545	32	66	86	---	76	e27	201	55	53	29	23
31	343	---	52	67	---	51	---	102	---	34	170	---
TOTAL	1559	4356	9080	7649	9303	8123	5314	8316	4868	3898	1855	1386
MEAN	50.3	145	293	247	321	262	177	268	162	126	59.8	46.2
MAX	545	1920	1970	1890	1490	3610	1800	2200	1250	1500	330	200
MIN	21	24	31	35	51	37	27	25	26	29	27	23
AC-FT	3090	8640	18010	15170	18450	16110	10540	16490	9660	7730	3680	2750

e Estimated



## SAN JACINTO RIVER BASIN

139

08076000 GREENS BAYOU NEAR HOUSTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1992, BY WATER YEAR (WY)

MEAN	62.3	65.7	66.7	75.0	91.0	57.2	70.8	106	94.7	54.0	42.2	70.3
MAX	353	338	293	284	353	262	328	480	549	291	330	443
(WY)	1985	1975	1992	1991	1961	1992	1973	1989	1973	1961	1983	1961
MIN	.000	.000	.000	.058	.35	.045	.13	.25	.12	.45	.81	1.97
(WY)	1953	1956	1955	1957	1957	1955	1956	1956	1954	1957	1957	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1953 - 1992	
ANNUAL TOTAL	52141		65707		71.1	
ANNUAL MEAN	143		180		180	
HIGHEST ANNUAL MEAN					6.82	
LOWEST ANNUAL MEAN					10700	
HIGHEST DAILY MEAN	2030	Apr 5	3610	Mar 4	May 18 1989	
LOWEST DAILY MEAN	21	Oct 5	21	Oct 5	Oct 1 1952	
ANNUAL SEVEN-DAY MINIMUM	22	Oct 13	22	Oct 13	Oct 1 1952	
INSTANTANEOUS PEAK FLOW			9560	Mar 4	Jun 27 1989	
INSTANTANEOUS PEAK STAGE			64.15	Mar 4	Jun 27 1989	
INSTANTANEOUS LOW FLOW					.00	
ANNUAL RUNOFF (AC-FT)	103400		130300		51520	
10 PERCENT EXCEEDS	323		468		122	
50 PERCENT EXCEEDS	37		52		19	
90 PERCENT EXCEEDS	24		25		1.3	

\* No flow at times during early years of station operation.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 25...	0900	1140	146	7.8	14.5	200	70	8.2	82	3.9	3.2	5800	
MAY 11...	0750	57	815	8.1	22.5	15	24	7.2	83	3.1	2.4	720	
AUG 03...	0940	432	180	8.2	24.0	55	57	5.8	69	4.0	3.1	6000	
DATE	TIME	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 25...	6600	64	0	21	2.7	8.1	0.4	2.3	67	4.7	7.0	<0.10	
MAY 11...	200	190	0	60	8.9	96	3	6.4	220	27	100	0.30	
AUG 03...	9200	53	1	18	1.9	15	0.9	3.3	52	13	15	<0.10	
DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
FEB 25...	8.1	94	74	6	68	0.240	0.040	0.280	0.140	0.66	0.80		
MAY 11...	19	448	50	<1	--	5.09	0.210	5.30	0.270	0.53	0.80		
AUG 03...	6.4	104	238	38	200	0.730	0.080	0.810	0.100	0.40	0.50		
DATE	TIME	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
FEB 25...	0.290	0.220	14	2	70	0.7	<1.0	9	<3	<10	93		
MAY 11...	2.80	2.30	5.0	7	270	<0.5	<1.0	<5	<3	<10	9		
AUG 03...	0.620	0.560	8.1	3	76	<0.5	<1.0	<5	<3	<10	64		
DATE	TIME	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
FEB 25...	30	<4	9	<0.1	<10	<10	<1	<1.0	80	<6	30		
MAY 11...	<10	19	37	<0.1	<10	<10	<1	<1.0	370	<6	17		
AUG 03...	<10	<4	3	<0.1	<10	<10	<1	<1.0	83	<6	14		
DATE	TIME	AME-TRYNE TOTAL	ATRA-ZINE WATER UNFLTRD REC (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	
FEB 25...	<0.10	0.5	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
MAY 11...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		
AUG 03...	<0.10	0.4	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10		

08076180 GARNERS BAYOU NR HUMBLE, TX

LOCATION.--LAT 29°51'03", long 95°20'05", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of upstream bridge on Beltway 8, 0.2 mi downstream from Williams Gully, 1.2 mi upstream from Greens Bayou, and 4.5 mi southeast of Humble.

DRAINAGE AREA.--31.0 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest stage gage. Datum of gage is National Geodetic Vertical Datum, 1978 adjustment, furnished by Harris County Flood Control District.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known diversion above station. Low flow is sustained by sewage effluent from Humble suburbs. Minor channel rectification made in 1988. Stage and rainfall radio-telemetry operated by Harris County Flood Control District is located at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s (revised):

Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)
Nov. 17	1300	2,240	53.31	Feb. 22	1300	1,240	47.85
Dec. 9	1100	1,290	48.16	Mar. 4	1800	9,980	57.27
Dec. 21	1900	2,090	52.71	May 28	2400	2,030	52.38
Jan. 18	1500	1,980	52.17	June 2	1300	1,420	49.00
Feb. 4	0500	1,430	49.02				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	99	79	23	16	e20	e19	11	119	15	13	56
2	24	16	67	21	11	e17	e16	10	834	10	16	9.2
3	34	10	29	16	312	e14	e13	9.9	307	9.9	229	8.5
4	19	9.9	12	12	1040	3720	e11	11	89	10	33	116
5	13	9.6	9.4	96	587	2220	245	22	40	9.8	12	19
6	10	9.5	8.9	49	187	306	258	10	27	9.1	10	10
7	8.9	76	8.6	26	82	133	e70	9.4	26	7.8	17	10
8	10	128	9.9	175	38	81	e45	9.2	16	8.2	11	10
9	9.7	22	650	253	20	58	e35	9.1	13	9.5	9.2	9.0
10	9.8	15	141	88	14	42	e43	9.5	96	9.2	8.8	9.3
11	9.6	13	53	36	126	29	e30	10	273	8.8	44	14
12	7.8	9.0	24	649	184	25	e20	10	203	7.8	64	19
13	7.4	7.7	66	215	98	23	e17	10	208	11	17	11
14	12	7.3	40	91	65	21	e15	10	231	13	12	54
15	15	7.8	16	41	43	19	e13	10	71	17	9.0	33
16	13	8.2	12	22	23	19	e12	386	29	24	8.5	11
17	12	1190	15	42	47	18	149	317	19	10	8.4	12
18	12	315	105	1340	e28	19	403	107	14	12	8.1	e11
19	8.2	80	76	565	e21	26	77	77	13	58	8.0	e10
20	6.2	53	36	167	e15	e20	120	20	12	83	8.1	e9.7
21	6.5	16	983	74	e12	e17	33	17	15	29	7.8	e8.4
22	7.8	11	1360	99	625	e19	18	14	18	11	8.0	e10
23	11	9.2	416	46	229	e16	14	11	14	19	8.1	e8.0
24	27	7.6	153	22	332	e14	41	9.8	13	19	8.3	e7.0
25	18	8.1	69	14	631	e13	127	9.4	13	19	7.9	7.5
26	11	8.0	538	13	134	e13	24	9.9	11	10	7.9	7.6
27	7.8	10	498	374	e55	e13	15	16	14	8.6	9.3	7.9
28	7.9	9.3	169	169	e35	218	12	465	14	10	10	8.0
29	12	8.7	84	79	e25	159	12	962	11	123	8.2	7.5
30	159	9.5	48	45	---	e40	13	141	12	146	8.1	7.2
31	94	---	32	26	---	e25	---	49	---	17	26	---
TOTAL	621.6	2183.4	5807.8	4888	5035	7377	1920	2772.2	2775	754.7	655.7	520.8
MEAN	20.1	72.8	187	158	174	238	64.0	89.4	92.5	24.3	21.2	17.4
MAX	159	1190	1360	1340	1040	3720	403	962	834	146	229	116
MIN	6.2	7.3	8.6	12	11	13	11	9.1	11	7.8	7.8	7.0
AC-FT	1230	4330	11520	9700	9990	14630	3810	5500	5500	1500	1300	1030

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992
MEAN	16.6	36.4	62.2	65.8	62.4	73.1
MAX	45.5	89.7	187	158	174	238
(WY)	1987	1988	1989	1990	1991	1992
MIN	5.00	5.37	7.28	24.4	8.44	14.5
(WY)	1988	1989	1989	1989	1989	1987

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1987 - 1992

ANNUAL TOTAL	25934.2	35311.2	
ANNUAL MEAN	71.1	96.5	
HIGHEST ANNUAL MEAN			52.4
LOWEST ANNUAL MEAN			96.5
HIGHEST DAILY MEAN	1370	3720	20.7
LOWEST DAILY MEAN	6.2	6.2	5510
ANNUAL SEVEN-DAY MINIMUM	8.2	7.5	3.0
INSTANTANEOUS PEAK FLOW		9980	3.1
INSTANTANEOUS PEAK STAGE		57.27	9980
ANNUAL RUNOFF (AC-FT)	51440	70040	57.27
10 PERCENT EXCEEDS	137	216	84
50 PERCENT EXCEEDS	14	17	9.8
90 PERCENT EXCEEDS	8.7	8.3	5.6

08076180 GARNERS BAYOU NR HUMBLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

MEAN	16.6	36.4	62.2	65.8	62.4	73.1	44.2	76.9	125	36.0	17.2	14.9
MAX	45.5	89.7	187	158	174	238	117	265	319	113	26.9	23.4
(WY)	1987	1987	1992	1992	1992	1992	1991	1989	1989	1987	1988	1991
MIN	5.00	5.37	7.28	24.4	8.44	14.5	7.94	10.5	8.82	16.2	5.13	6.74
(WY)	1988	1989	1989	1989	1989	1987	1987	1988	1990	1991	1990	1988

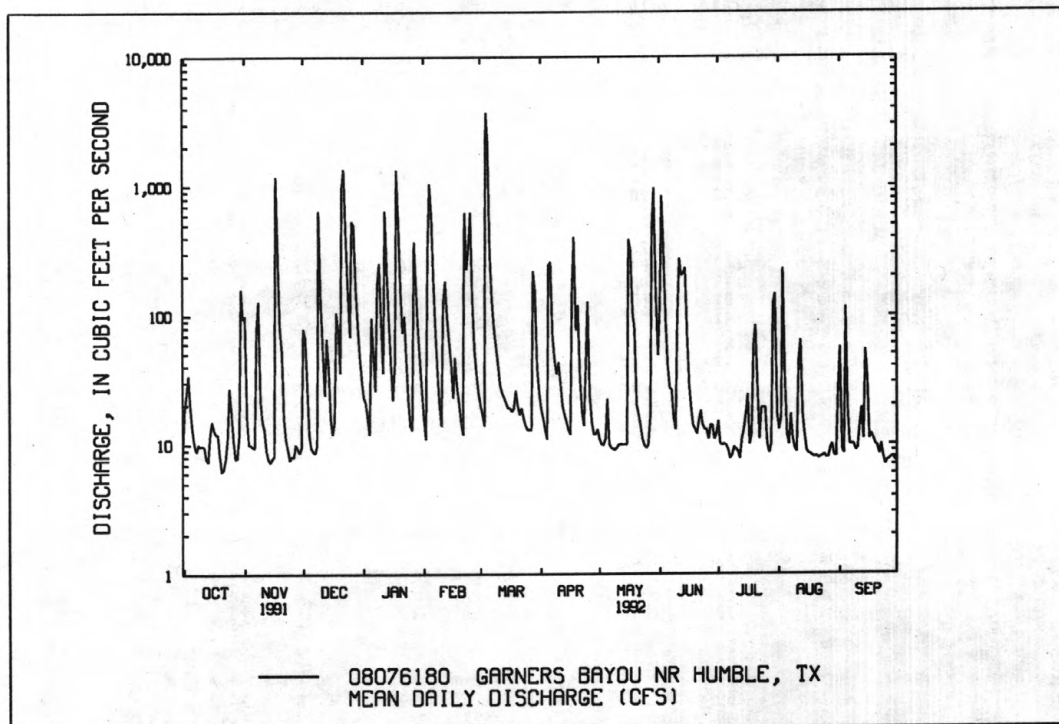
## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1987 - 1992

ANNUAL TOTAL	25934.2		35311.2									
ANNUAL MEAN	71.1		96.5									
HIGHEST ANNUAL MEAN										52.4		
LOWEST ANNUAL MEAN										96.5		1992
HIGHEST DAILY MEAN	1370	Jun 15	3720	Mar 4						20.7		1990
LOWEST DAILY MEAN	6.2	Oct 20	6.2	Oct 20						5510	May 18	1989
ANNUAL SEVEN-DAY MINIMUM	8.2	Sep 17	7.5	Sep 24						3.0	Sep 28	1990
INSTANTANEOUS PEAK FLOW			9980	Mar 4						3.1	Sep 25	1990
INSTANTANEOUS PEAK STAGE			57.27	Mar 4						9980	Mar 4	1992
ANNUAL RUNOFF (AC-FT)	51440		70040							57.27	Mar 4	1992
10 PERCENT EXCEEDS	137		216							37990		
50 PERCENT EXCEEDS	14		17							84		
90 PERCENT EXCEEDS	8.7		8.3							9.8		
										5.6		



## SAN JACINTO RIVER BASIN

143

08076500 HALLS BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°51'42", long 95°20'05", Harris County, Hydrologic Unit 12040104, on right bank, at downstream side of bridge on Jensen Drive in northeast section of Houston, and 11.0 mi upstream from mouth.

DRAINAGE AREA.--28.7 mi<sup>2</sup>. Oct. 1, 1973, to Sept. 30, 1977, 28.3 mi<sup>2</sup>. Oct. 1, 1977 to Sept. 30, 1988, 27.6 mi<sup>2</sup>. Prior to Oct. 1, 1973, 24.7 mi<sup>2</sup>. Changes were the result of drainage ditch extensions or relocations.

PERIOD OF RECORD.--October 1952 to current year.

Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1968 to September 1984.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.66 ft below National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--No estimated daily discharges. Records good. Stage discharge relationship is affected by seasonal vegetal growth during most years. No known diversions above station. Low flow is sustained by sewage effluent from Houston suburbs. Stage and rainfall radio-telemetry at station operated by Harris County Flood Control District.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 17	1200	2,260	58.82	Mar. 4	1900	4,840	62.72
Dec. 21	1700	2,150	50.57	Apr. 17	2100	2,580	59.51
Jan. 18	1100	1,420	56.60	May 16	1730	2,260	58.83

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	97	20	21	23	18	18	14	203	16	14	56
2	8.7	16	26	21	20	17	17	14	600	14	72	14
3	8.0	9.8	12	19	329	15	16	14	146	11	122	17
4	8.2	8.8	7.4	16	602	2100	16	61	56	13	23	93
5	7.7	8.3	6.8	104	313	1320	188	45	32	14	14	18
6	6.9	7.8	7.1	50	88	181	135	16	44	13	14	11
7	7.3	125	6.6	43	47	63	38	14	31	11	21	8.0
8	6.9	154	7.9	269	32	39	24	15	23	9.6	25	14
9	7.0	21	345	109	24	35	20	15	20	9.0	22	24
10	7.0	13	63	47	21	29	29	15	19	9.5	22	16
11	8.1	11	32	32	223	24	19	16	25	8.9	32	11
12	9.5	9.5	23	461	177	22	16	16	104	8.9	56	9.1
13	10	8.9	56	105	96	21	20	16	92	13	19	9.9
14	9.9	8.6	27	46	58	19	24	29	33	12	13	44
15	10	9.1	13	29	39	19	16	31	23	64	10	27
16	9.3	8.7	9.8	22	30	18	16	769	19	61	11	11
17	9.2	789	13	72	49	18	609	407	17	11	11	9.6
18	9.3	137	70	818	27	18	551	345	17	82	11	15
19	8.9	39	53	185	19	20	135	290	18	57	12	8.8
20	9.1	21	29	68	16	17	189	82	15	108	11	7.6
21	9.6	11	791	44	15	17	47	54	19	82	11	8.6
22	9.3	8.4	743	78	465	18	28	33	25	42	11	8.8
23	11	6.9	208	43	118	17	22	23	16	53	17	8.7
24	14	6.1	67	27	213	17	20	19	16	23	24	8.1
25	11	6.0	38	22	353	16	19	17	16	25	14	7.9
26	9.8	5.7	362	26	81	16	16	17	14	17	11	7.9
27	11	11	304	289	41	16	15	19	15	14	17	8.8
28	13	7.3	91	89	28	212	15	158	13	16	11	8.8
29	13	6.6	50	49	21	109	14	210	12	39	7.9	7.9
30	164	6.7	35	36	---	27	14	43	15	31	9.1	7.7
31	111	---	27	29	---	19	---	32	---	14	39	---
TOTAL	545.5	1578.2	3543.6	3269	3568	4497	2306	2849	1698	901.9	707.0	507.2
MEAN	17.6	52.6	114	105	123	145	76.9	91.9	56.6	29.1	22.8	16.9
MAX	164	789	791	818	602	2100	609	769	600	108	122	93
MIN	6.9	5.7	6.6	16	15	15	14	14	12	8.9	7.9	7.6
AC-FT	1080	3130	7030	6480	7080	8920	4570	5650	3370	1790	1400	1010



## SAN JACINTO RIVER BASIN

08076500 HALLS BAYOU AT HOUSTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1992, BY WATER YEAR (WY)

MEAN	23.9	27.5	29.3	35.2	40.7	27.5	29.7	42.3	40.5	24.1	20.9	30.9
MAX	138	98.4	114	123	127	145	127	174	245	149	174	185
(WY)	1985	1975	1992	1974	1961	1992	1973	1970	1973	1961	1983	1979
MIN	.000	.38	.67	.30	1.05	.38	.67	.99	.077	.42	.78	.25
(WY)	1953	1956	1955	1957	1957	1955	1955	1956	1954	1956	1963	1956

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1953 - 1992

ANNUAL TOTAL	19005.6		25970.4			
ANNUAL MEAN	52.1		71.0		31.0	
HIGHEST ANNUAL MEAN					71.0	1992
LOWEST ANNUAL MEAN					2.99	1956
HIGHEST DAILY MEAN	791	Dec 21	2100	Mar 4	2800	May 18 1989
LOWEST DAILY MEAN	5.4	Aug 9	5.7	Nov 26	.00	Oct 1 1952
ANNUAL SEVEN-DAY MINIMUM	5.9	Aug 24	7.1	Nov 24	.00	Oct 1 1952
INSTANTANEOUS PEAK FLOW			4840	Mar 4	5000	Jun 27 1989
INSTANTANEOUS PEAK STAGE			62.72	Mar 4	62.86	Jun 27 1989
INSTANTANEOUS LOW FLOW					.00	*
ANNUAL RUNOFF (AC-FT)	37700		51510		22430	
10 PERCENT EXCEEDS	125		160		50	
50 PERCENT EXCEEDS	13		19		8.8	
90 PERCENT EXCEEDS	7.2		8.7		1.0	

\* No flow at times prior to 1956.

08076700 GREENS BAYOU AT LEY ROAD, HOUSTON, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 29°50'13", long 95°13'59", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of Ley Road Bridge in northeast Houston and 300 ft downstream from mouth of Halls Bayou.

DRAINAGE AREA.--182 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1962 to December 1964, May to September 1971 (discharge measurements only), October 1971 to Sept. 12, 1991, and August 12, 1992 to September 1992.

Water-quality records: Chemical, biochemical, and pesticide analyses: October 1970 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 2.13 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records fair. No discharges published this year. Stage and rainfall radio-telemetry at station is operated by Harris County Flood Control District. Gage was discontinued on Sept. 12, 1991 for bridge construction and temporarily relocated about 1 mile downstream at US highway 90 to obtain stage data for the Harris County Flood Control District. Gage was moved back to Ley Road on Aug. 12, 1992 at current datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft<sup>3</sup>/s June 27, 1989 (gage height, 39.40 ft, from peak mark); minimum not determined (affected by tides).

EXTREMES FOR CURRENT YEAR.--No peak or maximum discharges were determined during the current water year. The maximum stage, at temporary site 1.0 mile downstream, occurred on March 4 at a stage of 33.90 ft (Harris County Flood Control District datum).

## 08077000 CLEAR CREEK NEAR PEARLAND, TX

LOCATION.--Lat 29°35'50", long 95°17'11", Harris-Brazoria County line, Hydrologic Unit 12040204, on left bank at downstream side of bridge on State Highway 35, 0.7 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.2 mi upstream from Hickory Slough, 2.3 mi north of Pearland, and about 30 mi upstream from head of Clear Lake.

DRAINAGE AREA.--38.8 mi<sup>2</sup>.

PERIOD OF RECORD.--July to October 1944, March to October 1946, April 1947 to December 1959, March 1963 to current year. Discharge for some high-water periods in 1944 and 1946 are published in WSP 1392.

REVISED RECORDS.--WSP 1392: 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 26.58 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment; prior records unadjusted for land-surface subsidence. Prior to June 9, 1948, nonrecording gage, and June 9, 1948, to Apr. 22, 1952, water-stage recorder at same site and datum 5.80 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. During most years, the stage-discharge relationship is affected by seasonal vegetal growth. A small amount of the drainage area is currently irrigated with water from the Brazos River. Low flow from April to October is largely drainage from these irrigated areas. Many small diversions are made for irrigation above station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 26, 1960, stage and discharge unknown, may have exceeded that of Mar. 18, 1957. Channel was rectified in 1933, 1952, 1968, and 1978.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0800	938	14.93	Feb. 4	0900	1,030	15.73
Jan. 18	1700	931	14.87				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	14	17	18	29	17	11	e4.9	191	e12	e2.0	e6.4
2	2.1	4.4	13	13	21	13	e7.3	e4.3	e540	e6.0	e1.7	e2.3
3	2.1	2.7	11	11	214	13	e5.1	e3.5	e510	e26	e1.6	e2.1
4	2.0	2.0	6.4	8.0	1000	109	e3.4	e2.9	e360	25	e1.3	e5.6
5	1.9	1.8	3.4	97	894	205	e165	e2.9	92	e12	e1.3	12
6	1.8	1.5	e2.8	118	458	122	392	e3.1	131	e9.2	e1.1	10
7	1.7	7.3	e2.4	61	158	58	136	e2.8	297	e7.1	e.85	9.3
8	1.6	16	e2.1	314	57	30	45	e2.7	149	e5.8	e.85	8.1
9	2.0	4.6	9.3	482	31	21	24	e2.9	76	e4.7	e4.2	11
10	3.2	3.1	6.4	268	22	16	15	e3.0	112	e3.6	e3.9	23
11	2.3	2.2	4.6	96	143	11	11	e2.6	54	e2.6	e2.3	7
12	1.7	1.8	3.7	260	439	11	11	e2.5	32	e2.3	e1.5	16
13	1.3	1.6	5.5	223	242	10	e8.5	e2.5	21	e2.2	e8.2	12
14	1.2	1.4	11	91	131	10	e7.0	e2.3	20	e2.0	e8.7	31
15	1.2	2.5	6.1	38	76	e8.0	e5.5	e1.9	e13	e1.9	e6.1	40
16	1.0	2.1	3.5	22	40	e7.1	e4.5	e101	e8.5	e2.0	e4.5	18
17	.81	104	3.1	33	40	e6.0	e7.7	398	e12	e1.7	e3.7	22
18	.72	80	13	698	32	e5.6	140	268	15	e1.6	e2.2	22
19	.64	37	25	693	21	11	124	138	e13	e1.7	e1.7	40
20	.56	26	20	315	15	e7.0	408	71	e7.6	e1.4	e1.1	17
21	.49	10	175	105	12	e5.5	236	39	e5.8	e1.3	e.85	e15
22	1.5	5.0	884	161	149	e4.8	74	20	e5.2	e10	e.69	e11
23	1.5	3.4	683	109	192	e3.9	32	12	e4.7	6.8	e.62	e7.0
24	1.2	2.6	353	49	157	e2.8	20	11	e4.0	8.5	e.56	e3.3
25	1.3	1.9	119	30	436	e2.5	16	e8.7	e2.9	7.1	e.56	e2.5
26	1.1	1.8	160	26	239	e1.8	12	e7.1	e2.7	e6.5	e.50	e2.0
27	.77	2.9	362	335	89	e1.6	e10	416	e2.1	e4.7	e.44	e1.8
28	1.0	4.0	237	317	40	e37	e7.8	295	e2.2	e3.6	e.44	e1.5
29	4.4	4.2	97	153	24	132	e6.3	481	e2.6	e3.1	e.56	e1.3
30	46	3.4	43	74	---	37	e5.5	304	e3.1	e2.6	e.62	e1.1
31	9.5	---	26	44	---	18	---	104	---	e2.2	e.69	---
TOTAL	100.89	355.2	3308.3	5262.0	5401	937.6	1950.6	2718.6	2689.4	187.2	65.33	390.3
MEAN	3.25	11.8	107	170	186	30.2	65.0	87.7	89.6	6.04	2.11	13.0
MAX	46	104	884	698	1000	205	408	481	540	26	8.7	40
MIN	.49	1.4	2.1	8.0	12	1.6	3.4	1.9	2.1	1.3	.44	1.1
AC-FT	200	705	6560	10440	10710	1860	3870	5390	5330	371	130	774

e Estimated

CLEAR CREEK BASIN

147

08077000 CLEAR CREEK NEAR PEARLAND, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1992, BY WATER YEAR (WY)

MEAN	32.2	26.3	33.2	41.2	57.9	26.0	33.7	47.6	51.9	33.0	27.9	35.1
MAX	485	175	196	170	300	169	156	230	264	285	216	232
(WY)	1950	1986	1987	1992	1959	1957	1973	1966	1976	1979	1983	1979
MIN	.094	.000	.013	.000	.46	.28	2.55	2.56	.84	1.04	1.31	1.20
(WY)	1983	1956	1956	1957	1957	1955	1989	1963	1955	1951	1951	1982

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1948 - 1992

ANNUAL TOTAL	23576.64	23366.42	37.2
ANNUAL MEAN	64.6	63.8	87.7
HIGHEST ANNUAL MEAN			4.44
LOWEST ANNUAL MEAN			2030
HIGHEST DAILY MEAN	1050 Apr 6	1000 Feb 4	Mar 18 1957
LOWEST DAILY MEAN	.49 Oct 21	.44 Aug 27	Jul 27 1948
ANNUAL SEVEN-DAY MINIMUM	.77 Oct 15	.53 Aug 23	Nov 10 1950
INSTANTANEOUS PEAK FLOW		1030 Feb 4	Mar 18 1957
INSTANTANEOUS PEAK STAGE		15.73 Feb 4	Jul 26 1979
INSTANTANEOUS LOW FLOW			18.57
ANNUAL RUNOFF (AC-FT)	46760	46350	.00 at times
10 PERCENT EXCEEDS	172	208	26960
50 PERCENT EXCEEDS	8.8	8.5	67
90 PERCENT EXCEEDS	2.2	1.5	6.1
			.70

## 08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX

LOCATION.--Lat 29°26'50", long 94°55'12", Galveston County, Hydrologic Unit 12040204, on right side of gate abutment of Texas City Flood Control Dike, one orifice located upstream and one downstream, at mouth of Moses Lake, and 4.5 mi north of Texas City.

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

GAGE.--Duplex water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by county engineer, Galveston County), 1978 adjustment. Prior to May 19, 1983, datum of gage was 0.49 ft below National Geodetic Vertical Datum of 1929, 1973 adjustment. Prior records unadjusted for land-surface subsidence.

REMARKS.--Records good. Moses Lake is connected to Galveston Bay by gated opening through levee. These gates are open during periods of normal tide and are closed during periods of high tide and hurricane surge. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (Moses Lake), 4.4 ft Sept. 20, 1979; minimum, -4.2 ft Feb. 28, 1983. Maximum elevation (Galveston Bay), about 10.0 ft (Hurricane Alicia) Aug. 18, 1983; minimum, about -4.2 ft Feb. 28, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum elevation (Moses Lake), 2.7 ft Feb. 4 at 0600 hours; minimum, -1.9 ft Jan. 14. Maximum elevation (Galveston Bay), 2.7 ft Feb. 4 at 0415 hours; minimum, -2.2 ft Feb. 14 at 0715 hours.

## ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY
	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN
1	1.7	1.8	.6	1.1	.8	-.7	1.2	1.4	.5	1.5	1.5	.0
2	2.0	2.2	.7	1.1	1.2	-.7	.8	.8	-.3	1.1	1.2	-.3
3	1.6	1.8	.7	1.1	1.1	.0	.6	.8	-.6	1.1	1.2	-.7
4	1.4	1.6	.7	.9	1.2	-.1	.2	.8	-.8	.8	.9	-.6
5	1.2	1.4	.5	1.3	1.5	.4	.9	1.4	.1	1.0	1.0	-.3
6	1.8	1.9	.3	1.4	1.6	.2	1.4	1.5	.1	1.0	1.0	-.4
7	1.8	2.0	1.1	1.6	1.8	.3	1.2	1.4	-.3	1.2	1.4	.3
8	1.8	2.0	.8	1.6	1.8	-.8	1.0	1.1	-.3	1.6	1.6	.7
9	1.7	1.8	.4	.6	.8	-.3	1.0	1.1	-.1	1.6	1.7	.2
10	1.4	1.6	.0	.9	1.1	-.2	.6	.8	-.2	.9	1.0	.4
11	1.0	1.2	-.3	.8	1.0	-.4	1.1	1.2	.1	1.7	2.0	.6
12	.8	1.0	-.4	.8	1.0	-.4	.9	1.1	.1	2.4	2.3	1.3
13	.6	.8	-.5	.6	.8	-.3	1.2	1.1	.1	1.5	1.2	-1.1
14	.8	1.0	-.4	1.1	1.3	.4	.6	.8	-.4	-.7	-.2	-2.1
15	.6	.8	-.1	1.3	1.5	.6	.6	.7	-.1	.7	.8	-.7
16	.9	.9	.2	1.1	1.2	.6	.8	1.0	.0	.8	.8	-1.2
17	1.3	1.4	.3	1.7	1.9	1.1	.9	1.0	.0	.8	1.4	-.7
18	1.1	1.2	.4	1.7	1.9	1.1	.9	1.4	-.4	1.7	1.7	.6
19	.9	1.0	.5	1.7	2.2	.7	1.7	2.5	.5	1.5	1.3	-.6
20	1.1	1.1	.6	1.6	1.7	-.4	1.7	2.7	1.2	1.2	1.1	.1
21	1.3	1.3	.6	.6	.9	-.7	1.7	2.6	.5	1.2	1.2	-.1
22	1.3	1.4	.5	1.0	1.2	-.3	1.5	1.8	-.1	1.6	1.6	.0
23	1.3	1.5	.4	1.2	1.4	-1.3	1.5	1.7	-.3	1.0	1.1	-.7
24	1.7	1.8	.6	-.5	-.1	-1.4	.5	.6	-.7	.4	.5	-.7
25	1.8	1.9	.6	.3	.6	-.6	.7	.9	-.2	.7	.7	-.1
26	2.0	2.0	.4	1.2	1.3	.4	1.0	1.2	.4	1.3	1.6	-.3
27	2.0	2.1	.7	1.5	1.7	.2	1.1	1.3	.3	1.5	1.6	.7
28	2.3	2.5	1.0	1.0	1.1	.4	.5	.4	-.3	1.3	1.1	-.3
29	2.4	2.6	1.0	1.3	1.5	.9	.9	1.1	-.3	1.1	1.1	-.1
30	1.8	2.7	1.2	1.3	1.5	.8	1.3	1.3	.1	1.2	1.2	-.5
31	2.0	2.2	.8	---	---	---	1.3	1.4	.0	.9	1.0	-.6
MONTH	2.4	2.7	-.5	1.7	2.2	-1.4	1.7	2.7	-.8	2.4	2.3	-2.1



08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX -Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY
	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN
1	.6	.7	-.6	.2	.3	-.7	.7	.7	-.1	.9	.9	-.2
2	.8	1.2	-.1	.4	.6	-.5	.9	.9	-.2	.9	1.0	-.2
3	2.1	1.9	.6	.9	.9	.0	.8	.8	.0	.8	.8	-.4
4	2.7	2.8	1.1	1.5	1.6	.6	.7	.8	-.3	.7	.8	-.6
5	1.5	1.4	-1.2	1.5	1.4	.7	2.4	2.2	-.4	.9	1.0	-.7
6	.2	.3	-1.4	1.8	1.7	1.0	2.3	1.8	.7	.8	1.6	-.6
7	.3	.6	-.2	1.2	1.2	.8	1.1	1.2	-.1	1.1	1.1	-.4
8	1.0	1.0	.3	1.6	1.7	.6	1.2	1.3	-.4	.8	.9	-.4
9	1.5	1.5	.4	1.8	2.0	.9	1.5	1.6	.0	.8	.8	-.3
10	1.5	1.5	.6	1.6	1.2	-.8	1.6	1.5	.2	1.0	1.1	-.3
11	1.5	1.5	.4	1.0	1.1	-1.0	1.5	1.3	.1	.9	.9	.4
12	1.3	1.4	.2	1.0	1.0	-.4	1.3	1.3	.0	.9	1.1	.0
13	1.2	1.3	-.1	.9	.8	-.6	.7	.7	-.2	.7	.8	-.5
14	1.3	1.5	-.1	.7	.7	-.6	.7	.8	.3	.5	.6	-.6
15	1.4	1.5	-.2	.4	.4	-1.0	1.2	1.3	.5	1.0	1.0	-.4
16	1.4	1.6	-.2	.4	.6	-.5	1.3	1.4	.4	1.4	1.4	-.1
17	1.5	1.6	.3	1.0	1.1	.3	1.4	1.4	.2	1.7	1.7	.1
18	1.2	1.3	.0	1.5	1.7	.4	2.1	2.3	.4	1.4	1.3	.0
19	.9	.9	-.2	.8	.7	-.9	2.0	2.2	.5	1.6	1.5	.0
20	1.1	1.2	.5	.3	.3	-1.1	1.8	1.5	.4	1.8	1.9	.4
21	1.2	1.2	.8	1.4	1.4	-.5	1.0	1.1	-.4	1.7	1.7	.7
22	1.2	1.4	.6	1.5	1.5	.0	1.4	1.4	.1	1.4	1.5	.5
23	1.2	1.2	.5	.5	.5	-1.0	1.3	1.4	.4	1.2	1.2	.4
24	1.8	1.9	.3	1.3	1.4	-.4	1.2	.8	-.1	.9	.9	.2
25	1.7	1.6	-.5	1.2	1.1	.0	.7	.6	-.3	.6	.7	.3
26	-.2	-.2	-1.7	.7	.8	-.4	.6	.7	-.3	.7	.7	.1
27	.3	.4	-1.1	.8	.9	-.5	.5	.4	-.5	.8	.9	.2
28	.4	.4	-1.2	1.3	1.4	-.1	.2	.2	-.1	1.2	1.3	-.3
29	.3	.3	-1.2	1.2	1.2	.6	.8	1.1	.1	.9	1.0	-.3
30	---	---	---	.8	.7	-.4	.8	.8	-.1	.9	1.0	-.3
31	---	---	---	.6	.6	-.1	---	---	---	1.3	1.5	-.4
MONTH	2.7	2.8	-1.7	1.8	2.0	-1.1	2.4	2.3	-.5	1.8	1.9	-.7

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY	MOSES LAKE	GALV. BAY	GALV. BAY
	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN	MAX	MAX	MIN
1	1.6	1.8	.2	1.4	1.5	-.5	.3	.9	-.4	1.5	1.6	.3
2	2.0	1.9	.1	1.3	1.3	-.2	.5	.9	.1	1.5	1.6	.2
3	1.3	1.4	.0	1.1	1.4	-.1	.8	.4	-.3	1.5	1.6	-.4
4	1.1	1.0	-.2	.8	.9	-.1	.9	.9	-.2	1.5	1.7	.1
5	1.0	1.1	-.3	.4	.5	.1	1.0	1.0	-.4	1.4	1.5	.2
6	1.4	1.5	.2	.3	.6	-.2	1.0	1.0	-.5	1.3	1.5	.3
7	1.2	1.3	.5	.6	.8	-.3	1.0	1.0	-.2	1.3	1.5	.3
8	1.1	1.2	.4	.9	.8	-.6	1.1	1.1	-.2	1.4	1.5	.4
9	1.1	1.2	.2	.7	.7	-.6	1.2	1.2	-.2	1.4	1.5	.4
10	1.1	1.0	-.2	.8	.8	-.6	1.1	1.2	-.2	1.2	1.3	.6
11	1.0	1.0	-.2	.9	.9	-.6	1.0	1.5	-.2	1.1	1.2	.7
12	1.0	1.1	-.5	1.0	1.1	-.4	1.2	1.2	-.1	1.2	1.2	.6
13	.8	1.0	-.7	1.1	1.1	-.5	1.2	1.2	.1	1.2	1.3	.7
14	1.0	1.0	-.6	1.1	1.1	-.2	1.1	1.1	.1	1.6	1.9	.9
15	1.1	1.2	-.3	1.0	1.2	-.2	1.1	1.1	.3	2.1	2.3	1.3
16	1.0	1.2	-.4	1.2	1.2	-.3	1.0	1.1	.6	2.4	2.4	1.0
17	1.1	1.2	-.3	1.0	1.1	.1	.9	1.0	.5	1.9	2.0	.6
18	1.0	1.0	-.1	.8	1.0	.0	1.0	1.1	.6	1.7	1.8	.2
19	.7	.6	-.5	1.0	1.0	.2	1.7	1.0	.0	1.5	1.7	-.1
20	.5	.6	-.3	.9	1.0	.4	1.6	1.0	-.1	1.3	1.4	.1
21	.4	.5	-.2	1.0	1.1	.4	1.1	1.3	.1	1.3	1.6	.3
22	.8	.8	-.1	1.3	1.4	.3	1.3	1.5	.2	1.3	1.3	-.2
23	.9	1.0	.4	1.3	1.4	.2	1.6	1.8	.5	1.0	1.1	.0
24	1.0	1.1	.0	1.4	1.5	.1	1.7	1.9	.3	1.1	1.3	.2
25	1.2	1.2	.0	1.3	1.5	-.1	.6	1.8	.3	1.4	1.7	.7
26	1.3	1.0	-.4	1.3	1.5	-.1	.6	.9	-.9	1.4	1.6	.9
27	1.1	1.0	-.6	1.2	1.4	-.2	.7	.8	-1.1	1.4	1.8	.6
28	1.5	1.2	-.4	.8	1.0	-.5	.8	.9	.0	1.8	1.8	.6
29	1.4	1.5	-.2	.7	.9	-.7	1.2	1.3	.2	1.6	1.8	.5
30	1.0	1.2	-.7	.8	.9	-.5	1.2	1.3	.7	2.0	1.8	.5
31	---	---	---	.6	.7	-.2	1.3	1.3	.4	---	---	---
MONTH	2.0	1.9	-.7	1.4	1.5	-.7	1.7	1.9	-1.1	2.4	2.4	-.4

## 08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX

LOCATION.--Lat 29°20'44", long 94°57'47", Galveston County, Hydrologic Unit 12040204, in the LaMarque Levee pumping station on the LaMarque hurricane protection levee, one orifice located landward and one seaward, 0.5 mi southwest of Interstate Highway 45, 0.9 mi south of LaMarque, 4.8 mi northwest of Virginia Point.  
 Supplementary gage (station 08077752).--Lat 29°20'26", long 94°51'00", 4,000 southeast along LaMarque Levee from LaMarque Levee Pumping Station.

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

GAGE.--Data loggers and pressure transducers. Datum of gages are National Geodetic Vertical Datum, 1978 adjustment (levels by Galveston County Engineer).

REMARKS.--Records fair. Landward orifice records elevation of flood runoff behind levee. This runoff is pumped into Jones Bay. Only maximum landward elevations equal or exceeding, -3.0 ft are shown. Seaward records are tidal but influenced by runoff in Highlands Bayou. Telemeter and rain gage located at station. Supplementary gage: Records fair except for May 2 - June 17, which are poor. Landward orifice records elevation of flood runoff behind levee. Seaward records are equivalent to seaward records at primary station. A channel connects site to pumping station. Water will be pumped, or drained by gravity, into Jones Bay depending on elevation of seaward water-surface. Only elevations equal or exceeding -2.0 ft are shown. Telemeter and barometer at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation (landward) 3.5 ft July 26, 1989; maximum elevation (seaward) 3.6 ft Oct. 15, 1989; minimum (seaward), -2.0 ft Apr. 11, 1988. Supplementary gage: Maximum elevation (landward) 11.0 ft June 7, 1992; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum elevation (landward), 1.4 ft Apr. 5 at 1845 hours; maximum elevation (seaward), 2.8 Dec. 20 at 0245 hours; minimum (seaward), -1.5 ft Jan. 14 at 1300 hours. Supplemental gage: Maximum elevation (landward), 11.2 ft June 7 at 0100 hours; minimum not determined.

## ELEVATION (FEET, NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	OCTOBER				NOVEMBER				DECEMBER			
	LAND- WARD MAX	SEA- WARD MAX	SEA- WARD MIN	SUPPLE- MENTARY MAX	LAND- WARD MAX	SEA- WARD MAX	SEA- WARD MIN	SUPPLE- MENTARY MAX	LAND- WARD MAX	SEA- WARD MAX	SEA- WARD MIN	SUPPLE- MENTARY MAX
1	---	1.8	.8	---	-1.9	.9	-.6	-1.5	---	1.5	.6	---
2	---	2.1	1.0	---	---	1.2	-.6	---	---	.8	-.1	---
3	---	1.7	.8	---	---	1.1	.1	-1.6	---	.8	-.6	---
4	---	1.7	.9	---	---	1.3	.2	-1.2	---	.7	-.6	---
5	---	1.3	.5	---	---	1.5	.7	---	---	1.4	.2	---
6	---	2.0	.5	---	---	1.7	.5	---	---	1.5	.5	---
7	---	2.0	1.2	---	-2.7	1.8	.8	-1.2	---	1.4	.1	---
8	---	1.9	1.1	---	-2.7	1.3	-.3	-1.1	---	1.1	.0	---
9	---	1.7	.7	---	---	.9	.0	---	-1.9	1.2	.1	-1.8
10	---	1.5	.3	---	---	1.1	.0	---	-2.5	.8	.0	---
11	---	1.2	.0	---	---	1.0	-.1	---	---	1.1	.3	---
12	---	1.0	-.2	---	---	.9	-.1	---	---	1.1	.2	---
13	---	.8	-.1	---	---	.7	.0	---	1.0	1.8	.8	.9
14	---	1.0	-.1	---	---	1.3	.6	---	---	.8	-.2	---
15	---	.7	.0	---	---	1.4	.6	---	---	.8	.2	---
16	---	.9	.3	---	---	1.3	.9	-1.8	---	.9	.2	---
17	---	1.3	.5	---	-1.2	1.8	1.1	.3	---	1.0	.1	---
18	---	1.1	.5	---	-2.7	1.8	1.1	-.7	---	1.4	-.1	---
19	---	.9	.5	---	---	1.9	1.1	-1.6	---	2.7	.9	---
20	---	1.1	.6	---	---	1.5	.0	-1.6	---	2.8	1.6	---
21	---	1.4	.6	---	---	1.0	-.4	-1.6	---	2.6	1.0	---
22	---	1.4	.6	---	---	1.2	.2	-1.7	---	1.6	.5	---
23	---	1.6	.6	---	---	1.3	-.8	-1.7	---	1.6	.0	---
24	---	1.8	.8	---	---	.0	-1.1	-1.6	---	.6	-.4	---
25	---	1.8	.8	---	---	.6	-.3	-1.5	---	.8	.1	---
26	---	2.0	.7	---	---	1.3	.5	-1.8	-2.9	1.2	.7	---
27	---	2.1	.9	---	---	1.6	.5	-1.8	---	1.3	.4	---
28	---	2.4	1.3	---	---	1.1	.5	-1.9	---	.6	-.1	---
29	---	2.6	1.2	---	---	1.5	1.0	-1.9	---	1.0	-.3	---
30	-2.4	2.4	1.1	---	---	1.5	.9	-1.9	---	1.3	.2	---
31	-2.0	2.3	.9	-1.6	---	---	---	---	---	1.5	.2	---
MONTH	---	2.6	-.2	---	---	1.9	-1.1	---	---	2.8	-.6	---

HIGHLAND BAYOU BASIN

08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX--Continued

ELEVATION (FEET, NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	JANUARY				FEBRUARY				MARCH			
	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY
	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX
1	---	1.5	.2	---	---	.7	-.3	---	---	.2	-.6	---
2	---	1.1	-.1	---	---	1.2	.1	---	---	.6	-.2	---
3	---	1.1	-.2	---	-2.9	2.2	1.0	-1.4	---	1.0	.3	---
4	---	.8	-.3	---	---	2.6	1.5	-1.1	---	1.6	.7	---
5	-2.9	.9	.0	---	---	1.6	-.6	---	-2.8	1.3	.9	---
6	---	1.0	.1	---	---	.3	-.7	---	---	1.7	1.0	---
7	---	1.3	.5	---	---	.5	-.2	---	---	1.2	.7	---
8	-2.2	1.8	1.2	-1.1	---	1.1	.3	---	---	1.6	.6	---
9	---	1.5	.5	---	---	1.5	.5	---	---	2.0	1.0	---
10	---	1.1	.4	---	---	1.4	.8	---	---	1.3	-.4	---
11	---	1.9	.6	---	---	1.5	.7	---	---	1.2	-.8	---
12	-.2	2.2	1.4	-.2	---	1.4	.5	---	---	1.0	.0	---
13	---	1.3	-.7	---	---	1.3	.1	---	---	.9	-.3	---
14	---	-.2	-1.5	---	---	1.5	.2	---	---	.8	-.2	---
15	---	.7	-.4	---	---	1.5	.2	---	---	.3	-.6	---
16	---	.8	-.6	---	---	1.4	.2	---	---	.6	-.3	---
17	---	1.3	-.2	---	---	1.7	.6	---	---	1.5	.6	---
18	-1.3	1.7	1.1	-.9	---	1.2	.2	---	---	2.0	.4	---
19	---	1.5	.1	---	---	1.0	.1	---	---	.7	-.5	---
20	---	1.3	.2	---	---	1.2	.4	---	---	.4	-.8	---
21	---	1.3	.2	---	---	1.3	.7	---	---	1.5	-.2	---
22	---	1.7	.6	---	---	1.5	.8	---	---	1.5	.2	---
23	---	1.0	-.7	---	---	1.2	.5	---	---	.6	-.5	---
24	---	.5	-.7	---	-2.5	1.9	.5	---	---	1.4	-.2	---
25	---	.8	-.1	---	-2.0	1.6	-.3	---	---	1.1	.3	---
26	---	1.5	-.1	---	---	-.1	-1.2	---	---	.7	-.1	---
27	-.8	1.5	1.2	-.6	---	.3	-.8	---	---	.9	-.1	---
28	---	1.2	.2	---	---	.3	-.8	---	---	1.4	.3	---
29	---	1.2	.2	---	---	.2	-.8	---	---	1.4	.8	---
30	---	1.1	-.1	---	---	---	---	---	---	.7	-.1	---
31	---	1.0	-.3	---	---	---	---	---	---	.7	.1	---
MONTH	---	2.2	-1.5	---	---	2.6	-1.2	---	---	2.0	-.8	---

ELEVATION (FEET, NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	APRIL				MAY				JUNE			
	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY
	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX
1	---	.8	.0	---	---	1.0	.1	---	---	1.8	.5	---
2	---	1.0	.0	---	---	1.0	.2	---	-2.9	2.0	.5	---
3	---	1.0	.3	---	---	.9	-.1	---	---	1.4	.4	---
4	---	.8	.1	---	---	.9	-.3	---	---	1.1	.1	---
5	1.4	2.7	-.1	1.0	---	1.1	-.2	---	---	1.0	-.1	---
6	-.4	2.3	1.0	0.5	---	.7	-.1	---	-2.7	1.4	.4	---
7	---	1.3	.4	---	---	1.2	.0	---	---	1.3	.7	---
8	---	1.3	.0	---	---	.9	.0	---	---	1.2	.5	---
9	---	1.6	.4	---	---	.8	.0	---	---	1.2	.3	---
10	---	1.6	.5	---	---	1.3	.4	---	---	1.1	.1	---
11	---	1.4	.4	---	---	1.1	.5	---	---	1.0	.1	---
12	---	1.3	.3	---	---	1.1	.2	---	---	1.0	.0	---
13	-2.9	.8	.1	---	---	.7	-.1	---	---	1.0	-.2	---
14	-2.9	.8	.4	---	---	.7	-.2	---	---	1.0	-.2	---
15	---	1.4	.6	---	---	1.1	-.1	---	---	1.2	.0	---
16	---	1.4	.6	---	---	1.5	.2	---	---	1.1	.1	---
17	---	1.7	.5	---	---	1.6	.5	---	---	1.2	.1	---
18	---	2.2	1.0	---	---	1.5	.4	---	---	1.1	.2	---
19	---	2.1	.9	---	---	1.6	.3	---	---	.8	-.1	---
20	-2.4	1.5	.6	---	---	1.9	.6	---	---	.6	-.1	---
21	---	1.2	.0	---	---	1.8	.9	---	---	.4	-.1	---
22	---	1.4	.3	---	---	1.5	.7	---	---	.7	.0	---
23	---	1.5	.6	---	---	1.3	.5	---	---	1.0	.5	---
24	---	.9	.1	---	---	.8	.3	---	---	1.0	.3	---
25	---	.6	-.2	---	---	.7	.3	---	---	1.1	.2	---
26	---	1.0	.1	---	---	.7	.2	---	---	1.1	.1	---
27	---	.5	-.2	---	-1.3	1.0	.2	---	---	1.0	.0	---
28	---	.5	.0	---	---	1.2	.4	---	---	1.4	.0	---
29	---	1.1	.2	---	---	.9	.0	---	---	1.5	.2	---
30	---	.9	.1	---	---	1.0	-.1	---	---	1.2	.1	---
31	---	---	---	---	---	1.5	.0	---	---	---	---	---
MONTH	---	2.7	-.2	---	---	1.9	-.3	---	---	2.0	-.2	---

## HIGHLAND BAYOU BASIN

08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX--Continued

ELEVATION (FEET, NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	JULY				AUGUST				SEPTEMBER			
	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY	LAND- WARD	SEA- WARD	SEA- WARD	SUPPLE- MENTARY
	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX
1	---	1.4	.0	---	---	.4	-.3	---	---	1.6	.6	---
2	---	1.3	.3	---	---	.4	-.1	---	---	1.7	.6	---
3	---	1.1	.2	---	---	.5	-.1	---	---	1.5	.4	---
4	---	.9	.0	---	---	.7	-.1	---	---	1.8	.3	---
5	---	.6	.1	---	---	.8	-.2	---	---	1.5	.5	---
6	---	.6	-.1	---	---	.8	-.3	---	---	1.5	.5	---
7	---	.7	-.1	---	---	.8	-.2	---	---	1.5	.6	---
8	---	.7	-.3	---	---	.9	-.1	---	---	1.5	.6	---
9	---	.7	-.2	---	---	1.0	.0	---	---	1.5	.6	---
10	---	.8	-.2	---	---	.9	-.1	---	---	1.3	.8	---
11	---	.9	-.3	---	---	1.0	.0	---	---	1.3	.7	---
12	---	1.0	.0	---	---	1.0	.0	---	---	1.3	.7	---
13	---	1.1	-.1	---	---	1.0	.2	---	---	1.3	.8	---
14	---	1.0	.2	---	---	1.0	.2	---	---	1.9	1.0	---
15	---	1.0	.1	---	---	1.0	.2	---	---	2.3	1.5	---
16	---	1.0	.1	---	---	1.0	.6	---	---	2.3	1.3	---
17	---	1.0	.2	---	---	.9	.4	---	---	2.0	.8	---
18	---	.7	.0	---	---	1.0	.5	---	---	1.8	.6	---
19	---	.8	.2	---	---	1.0	.2	---	---	1.6	.4	---
20	-2.7	.8	.2	---	---	1.0	.3	---	---	1.4	.5	---
21	---	1.0	.4	---	---	1.2	.2	---	---	1.6	.6	---
22	---	1.2	.4	---	---	1.3	.4	---	---	1.2	.1	---
23	---	1.2	.3	---	---	1.7	.5	---	---	1.3	.1	---
24	---	1.3	.3	---	---	1.7	.5	---	---	1.5	.5	---
25	---	1.2	.1	---	---	1.8	.5	---	---	1.8	.8	---
26	---	1.3	.1	---	---	1.1	-.2	---	---	1.8	1.2	---
27	---	1.2	.2	---	---	.8	-.5	---	---	1.9	.9	---
28	---	.8	-.1	---	---	1.0	.1	---	---	2.0	.9	---
29	---	.8	-.3	---	---	1.4	.4	---	---	1.9	.9	---
30	---	.8	-.1	---	---	1.4	.8	---	---	2.0	.9	---
31	---	.5	-.1	---	---	1.4	.7	---	---	---	---	---
MONTH	---	1.4	-.3	---	---	1.8	-.5	---	---	2.3	.1	---

## 08078000 CHOCOLATE BAYOU NEAR ALVIN, TX

LOCATION.--Lat 29°22'09", long 95°19'14", Brazoria County, Hydrologic Unit 12040204, on right bank 800 ft downstream from bridge on Farm Road 1462, 5.9 mi southwest of Alvin, and 6.9 mi upstream from State Highway 35.

DRAINAGE AREA.--87.7 mi<sup>2</sup>. During extreme flooding, overflow from about 11 mi<sup>2</sup> of the Mustang Bayou drainage basin enters the Chocolate Bayou basin upstream from gage.

PERIOD OF RECORD.--August to October 1944, and March to December 1946 (low-water records during irrigation season); January 1947 to February 1958, and March 1958 to February 1959 (discharge measurements only); October 1960 to current year.

Water-quality records.--Chemical and biochemical analyses: May 1971 to September 1985.

Pesticide analyses: May 1971 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 0.31 ft above National Geodetic Vertical Datum of 1929. Prior to May 3, 1959, nonrecording gage or water-stage recorders located at various sites from 900 to 1,400 ft upstream and at datum 3.00 ft higher. May 3, 1959, to Sept. 30, 1987, present site, at datum 10.00 ft higher.

REMARKS.--Records fair, except those of estimated daily discharges which are poor. Stage-discharge relationship is affected by seasonal vegetal growth during most years. Large area of riceland above station is irrigated with water diverted from the Brazos River. Low flow from April to October is largely drainage from these irrigated lands. Diversions for irrigation occur above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1939, reached a stage of 32.5 ft, present site and datum, adjusted from floodmark 1,700 ft to right and 550 ft upstream from present gage, on basis of slope of flood of Oct. 8, 1949, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 23	0100	2,370	27.30	Feb. 25	1000	1,360	22.45
Jan. 9	0200	1,640	24.08	Apr. 6	1200	2,410	27.43
Jan. 12	1600	1,330	22.30	May 18	0100	1,510	23.35
Jan. 19	0600	2,210	26.74	May 29	0300	3,670	29.66
Feb. 5	0300	3,010	28.82	June 2	2300	2,570	27.91
Feb. 12	1100	1,430	22.91	June 7	0800	1,430	22.91

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e18.0	e90	4.8	49	e120	49	23	22	556	72	58	13
2	e17.0	e35	6.6	38	e80	38	20	18	2300	65	63	16
3	e15.5	e19	9.7	30	e904	34	19	17	2310	73	98	6.9
4	e14.5	e12.1	8.3	24	2440	66	12	25	841	232	166	10
5	e14.0	e8.9	6.3	358	2810	354	676	66	199	156	105	15
6	e12.5	e7.9	5.6	484	1370	461	2290	41	359	99	88	67
7	e11.0	e14.0	5.1	236	341	264	1090	19	1340	78	83	33
8	e9.8	e40.0	4.7	848	163	117	262	22	710	72	80	27
9	e9.0	e150	12	1420	101	70	114	16	223	56	80	14
10	e8.2	e110	23	519	72	47	61	9.4	111	49	128	30
11	e7.8	e60.0	17	204	300	31	37	20	68	53	154	129
12	e7.0	33	14	1090	1330	25	24	28	43	50	124	148
13	e6.6	6.2	48	766	689	21	17	33	37	57	124	94
14	e6.0	5.1	92	257	306	17	14	26	43	52	106	50
15	e5.5	4.3	32	114	187	14	12	34	42	62	100	18
16	e5.1	3.9	17	67	123	13	10	164	37	76	74	15
17	e4.9	93	12	78	190	12	11	1060	39	67	66	14
18	e4.3	250	49	1440	119	12	34	1220	44	80	67	53
19	e4.0	100	105	2060	72	11	47	1170	45	245	64	493
20	e3.7	55	73	872	47	9.3	330	544	51	299	63	136
21	e3.4	32	197	262	36	8.5	296	167	47	301	65	50
22	e4.0	18	2060	492	158	8.3	97	72	54	233	71	28
23	e8.1	11	1980	393	286	6.7	41	34	63	162	56	16
24	e19.0	6.9	595	163	257	5.4	24	25	74	162	66	14
25	e13.0	5.2	164	92	1220	5.3	17	38	80	272	77	13
26	e8.0	4.4	334	70	596	4.9	12	48	71	150	54	11
27	e6.4	4.8	1060	e115	225	4.7	8.8	1460	60	108	34	9.1
28	e6.4	5.1	541	e900	114	14	7.0	3190	80	100	28	12
29	e19.0	4.7	212	e490	71	105	11	3570	84	92	25	12
30	e60.0	4.6	109	e285	---	58	22	2530	70	70	60	9.2
31	e160	---	69	e180	---	31	---	694	---	58	25	---
TOTAL	491.7	1194.1	7866.1	14396	14727	1917.1	5638.8	16382.4	10081	3701	2452	1536.2
MEAN	15.9	39.8	254	464	508	61.8	188	528	336	119	79.1	51.2
MAX	160	250	2060	2060	2810	461	2290	3570	2310	301	166	493
MIN	3.4	3.9	4.7	24	36	4.7	7.0	9.4	37	49	25	6.9
AC-FT	975	2370	15600	28550	29210	3800	11180	32490	20000	7340	4860	3050

e Estimated



## CHOCOLATE BAYOU MAIN STEM

08078000 CHOCOLATE BAYOU NEAR ALVIN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

MEAN	56.6	80.3	94.7	124	115	59.5	87.4	144	218	168	99.1	143
MAX	375	378	378	464	508	359	431	528	876	1659	642	843
(WY)	1985	1975	1977	1992	1992	1985	1973	1992	1968	1979	1989	1979
MIN	.52	1.08	.77	3.49	2.38	3.38	8.57	21.4	18.2	46.2	15.2	7.74
(WY)	1978	1981	1990	1971	1976	1981	1987	1985	1990	1990	1972	1989

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1960 - 1992

ANNUAL TOTAL	56529.0		80383.4			
ANNUAL MEAN	155		220			
HIGHEST ANNUAL MEAN					116	
LOWEST ANNUAL MEAN					340	1979
HIGHEST DAILY MEAN					39.6	1988
LOWEST DAILY MEAN	3070	Apr 6	3570	May 29	15700	Jul 26 1979
ANNUAL SEVEN-DAY MINIMUM	3.4	Oct 21	3.4	Oct 21	.03	Dec 17 1975
INSTANTANEOUS PEAK FLOW	4.2	Oct 16	4.2	Oct 16	.08	Oct 15 1977
INSTANTANEOUS PEAK STAGE			3670	May 29	21500	Jul 26 1979
INSTANTANEOUS LOW FLOW			29.66	May 29	33.88	Jul 26 1979
ANNUAL RUNOFF (AC-FT)	112100		159400		.00	at times
10 PERCENT EXCEEDS	442		568		83760	
50 PERCENT EXCEEDS	35		56		199	
90 PERCENT EXCEEDS	6.6		7.0		32	
					3.6	

## 08079575 NORTH FORK DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR POST, TX

LOCATION.--Lat 33°14'55", long 101°20'17", Garza County, Hydrologic Unit 12050003, at left downstream end of bridge on Farm Road 651, and 4.4 mi northeast of Post.

DRAINAGE AREA.--438 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 2,440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Mar. 10, 1988, to Feb. 12, 1990, nonrecording gage at same site and datum. Prior to Mar. 10, 1988, water-stage recorder at same site and datum.

REMARKS.--Records good except those for estimated daily discharges and those above 100 ft<sup>3</sup>/s, which are fair. No known diversion above station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 17	0100	3,440	8.29	May 28	0100	3,290	8.16
May 23	0300	3,420	8.27				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	15	16	30	29	40	36	7.0	463	36	4.8	63
2	28	14	16	26	31	35	33	7.0	398	16	4.3	28
3	28	15	14	22	42	34	35	6.8	444	11	4.4	76
4	26	14	15	21	124	34	31	6.6	229	8.6	3.9	39
5	24	15	15	22	41	31	30	5.3	135	10	4.4	23
6	19	13	13	22	51	30	31	4.0	92	5.6	3.4	18
7	18	12	12	21	40	33	31	3.4	123	5.0	2.6	21
8	17	16	13	22	31	27	28	3.4	147	5.0	2.2	11
9	22	16	13	25	35	25	22	3.4	233	4.4	1.9	8.0
10	24	14	13	24	36	25	19	23	151	3.9	1.9	7.1
11	15	14	186	21	34	25	18	15	142	4.4	2.2	6.2
12	18	14	30	24	34	22	20	6.8	465	30	4.4	5.0
13	17	15	18	41	32	23	19	9.3	317	92	4.1	4.4
14	17	16	15	32	30	23	20	12	108	31	e3.9	3.0
15	24	17	14	29	32	22	22	11	106	33	e4.4	3.0
16	18	92	12	29	30	24	61	9.4	115	17	3.9	2.6
17	16	22	12	30	26	25	795	7.1	40	23	3.0	2.9
18	15	28	15	33	28	22	30	7.5	34	69	3.4	4.3
19	15	30	35	30	28	23	22	7.0	30	32	3.4	4.4
20	15	25	36	32	24	23	22	8.0	28	28	3.9	3.9
21	15	25	34	35	22	21	25	20	28	19	5.6	3.4
22	15	25	76	28	20	21	26	81	83	16	8.0	3.4
23	15	24	54	26	24	22	26	1950	23	15	8.9	2.2
24	16	24	42	26	125	21	23	795	26	14	7.3	1.9
25	16	19	29	23	54	19	16	1130	27	10	8.4	1.6
26	17	18	29	24	41	21	13	383	30	7.1	5.8	2.2
27	54	15	27	37	40	21	12	275	52	8.1	4.5	3.0
28	59	15	28	35	40	22	10	1060	13	12	4.4	2.2
29	21	15	26	36	39	71	9.3	438	16	8.0	14	1.9
30	18	15	26	33	---	83	7.3	275	34	7.1	18	1.6
31	16	---	31	31	---	40	---	126	---	94	24	---
TOTAL	672	612	915	870	1163	908	1492.6	6696.0	4132	675.2	179.3	357.2
MEAN	21.7	20.4	29.5	28.1	40.1	29.3	49.8	216	138	21.8	5.78	11.9
MAX	59	92	186	41	125	83	795	1950	465	94	24	76
MIN	15	12	12	21	20	19	7.3	3.4	13	3.9	1.9	1.6
AC-FT	1330	1210	1810	1730	2310	1800	2960	13280	8200	1340	356	709

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	64.3	18.0	15.7	14.3	24.4	17.2	24.5	47.3	55.0
MAX	213	44.9	29.5	28.1	40.1	29.3	58.5	216	138
(WY)	1984	1987	1992	1992	1992	1992	1984	1992	1992
MIN	1.98	3.44	7.52	3.74	9.57	5.85	1.65	2.11	11.3
(WY)	1990	1990	1989	1984	1991	1991	1991	1984	1988

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1984 - 1992

ANNUAL TOTAL	9367.27	18672.3	
ANNUAL MEAN	25.7	51.0	32.5
HIGHEST ANNUAL MEAN			51.0
LOWEST ANNUAL MEAN			14.1
HIGHEST DAILY MEAN	1200	Sep 18	1950
LOWEST DAILY MEAN	.00	Apr 27	1.6
ANNUAL SEVEN-DAY MINIMUM	.03	Apr 26	2.1
INSTANTANEOUS PEAK FLOW			3440
INSTANTANEOUS PEAK STAGE			8.29
INSTANTANEOUS LOW FLOW			1.6
ANNUAL RUNOFF (AC-FT)	18580	37040	23540
10 PERCENT EXCEEDS	42	76	51
50 PERCENT EXCEEDS	12	22	12
90 PERCENT EXCEEDS	1.0	4.4	.28

08079575 NORTH FORK DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR POST, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1983 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1983 to current year.

WATER TEMPERATURES: October 1983 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 9,870 microsiemens May 10, 1987; minimum daily, 385 microsiemens Aug. 15, 1986.

WATER TEMPERATURES: Maximum daily, 36.0°C Aug. 13, 1987; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,590 microsiemens May 7; minimum daily, 740 microsiemens May 23.

WATER TEMPERATURES: Maximum daily, 34.0°C July 29; minimum daily, 0.0°C Jan. 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
DEC 10...	1010	13	2430	7.0	550	240	69	92	320
JAN 28...	1040	32	2550	8.0	590	230	82	93	320
FEB 26...	1350	42	2500	15.0	550	200	70	90	330
APR 07...	1025	30	2360	15.5	530	230	69	88	300
MAY 25...	2015	596	1690	21.0	400	190	61	60	190
JUL 15...	0930	48	1490	20.5	270	100	51	34	190

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
DEC 10...	6	15	310	360	390	3.4	16	1450
JAN 28...	6	17	360	360	420	3.5	24	1530
FEB 26...	6	20	350	350	410	3.1	22	1500
APR 07...	6	20	310	340	390	3.2	23	1420
MAY 25...	4	15	210	220	280	2.4	22	976
JUL 15...	5	8.4	170	200	240	2.4	13	838

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1991	672	2840	1760	3190	490	896	440	802	610
NOV. 1991	612	2100	1270	2100	350	580	310	504	460
DEC. 1991	915	1840	1110	2730	300	750	260	646	410
JAN. 1992	870	2460	1500	3520	420	979	370	861	540
FEB. 1992	1163	2390	1460	4570	400	1270	360	1120	520
MAR. 1992	908	2680	1650	4050	460	1130	410	1010	580
APR. 1992	1492.6	1820	1100	4420	300	1210	260	1040	410
MAY 1992	6696.0	1260	743	13400	200	3630	170	3030	290
JUNE 1992	4132	1420	835	9310	230	2520	190	2110	320
JULY 1992	675.2	1690	1010	1830	270	500	230	425	380
AUG. 1992	179.3	2250	1370	661	380	183	330	160	500
SEPT 1992	357.2	1800	1070	1040	290	283	250	243	400
TOTAL	18672.3	**	**	50900	**	13900	**	11900	**
WTD.AVG.	51	1680	1010	**	280	**	240	**	380

08079575 NORTH FORK DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR POST, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	2630	2600	2280	2500	2450	2270	3120	1160	1690	2090	1300
2	2600	2620	2630	2380	2480	2460	2300	3130	1330	1890	2310	1750
3	2750	2640	2640	2580	2410	2470	2310	3170	1310	2280	2380	1550
4	2840	2670	2650	2660	1960	2610	2340	3210	1470	2390	2490	1630
5	2850	2680	2660	2680	2010	2720	2320	3420	1650	2660	2560	1710
6	2890	2730	2670	2690	2160	2740	2310	3560	2090	2890	2710	1770
7	3050	2760	2570	2700	2270	2760	2340	3590	1910	3000	2870	1760
8	3030	2550	2480	2610	2460	2800	2410	2640	1870	3090	2890	1890
9	3020	2510	2470	2570	2470	2840	2620	3560	1120	3180	2910	2090
10	2990	2650	2460	2600	2480	2820	2700	3150	1540	3230	2950	2250
11	3000	2620	1020	2610	2490	2840	2730	2810	2040	3280	2900	2350
12	2930	2590	2280	2600	2510	3010	2680	3010	890	2110	2780	2400
13	2890	2540	2290	2310	2620	3030	2660	2670	960	1460	2790	2550
14	2920	2470	2300	2300	2770	3050	2620	2490	1210	1550	e2820	2660
15	2910	2120	2320	2290	2780	2980	2600	2630	1490	1600	e2630	2720
16	2970	1020	2330	2300	2790	2870	2150	2660	1580	1650	2590	2750
17	3000	1650	2420	2230	2800	2890	1260	2700	2050	1630	2610	2740
18	2990	1800	2370	2130	2810	2950	2260	2800	2140	1260	2630	2710
19	2970	1840	1010	2270	2820	2920	2610	2900	2170	1360	2650	2580
20	2980	1890	1720	2400	3080	2910	2650	2850	2210	1690	2590	2630
21	3020	1920	1950	2510	3140	2900	2500	1820	2240	1710	2310	2660
22	3030	1950	1250	2540	3170	3000	2460	1610	1810	1740	2130	2640
23	3020	1960	1760	2570	3080	3030	2480	740	2210	1810	2110	2660
24	2940	2050	1810	2590	1620	3060	2530	1050	2260	1920	2200	2770
25	2900	2290	2010	2600	2410	3080	2620	1630	2280	2200	1980	2880
26	2890	2460	2190	2630	2440	3000	2800	1880	2300	2330	2380	2860
27	2870	2520	2220	2510	2470	2960	2920	2020	2110	2280	2440	2880
28	2650	2560	2250	2520	2480	2970	2970	1010	2200	2110	2700	2980
29	2750	2570	2290	2390	2460	2250	3010	1410	2260	2130	1990	3010
30	2600	2590	2300	2360	---	2070	3070	1720	1770	2160	1850	3050
31	2620	---	2290	2410	---	2160	---	2070	---	1260	1660	---
MEAN	2880	2330	2200	2480	2550	2790	2520	2480	1790	2110	2480	2410

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.0	4.0	12.0	11.0	14.0	15.0	30.0	23.0	32.0	25.0	27.5
2	24.5	4.0	7.0	7.0	10.5	18.5	14.0	23.0	24.0	31.5	28.0	30.0
3	24.0	6.0	9.0	7.0	12.0	14.0	20.0	20.0	26.0	27.5	33.0	27.5
4	20.0	11.0	9.0	8.0	7.5	17.0	16.0	24.5	25.0	25.0	31.5	28.0
5	15.0	13.0	12.0	10.0	11.0	16.0	15.0	28.0	21.0	27.5	31.0	24.5
6	15.0	13.0	15.0	8.0	11.5	17.0	20.0	23.0	27.0	30.5	30.0	27.5
7	25.0	7.0	9.0	10.0	10.5	13.5	23.0	26.0	22.0	30.0	30.0	26.5
8	21.0	14.0	10.0	10.0	6.0	17.0	23.0	24.0	27.5	30.0	33.0	27.0
9	24.0	15.0	14.0	9.5	6.5	18.5	22.0	19.5	27.0	30.0	33.0	29.0
10	26.0	12.0	14.5	9.0	12.0	12.0	20.0	20.0	29.0	31.0	33.0	23.0
11	27.0	8.0	14.0	6.5	15.0	17.0	20.0	27.0	30.5	26.0	26.0	27.0
12	22.0	14.0	13.0	8.0	16.5	16.5	18.0	29.0	23.5	24.5	27.0	23.5
13	20.0	14.0	13.0	7.0	15.0	18.5	24.0	29.0	23.0	29.5	19.0	28.0
14	20.0	15.0	12.0	8.0	13.0	12.0	19.0	25.0	30.0	31.0	---	25.0
15	22.0	14.0	5.0	4.0	10.0	14.0	27.0	25.0	28.5	33.0	---	26.0
16	21.0	12.0	12.0	7.0	11.0	18.0	24.0	21.0	30.0	31.0	28.0	24.0
17	21.5	10.5	10.0	4.5	10.0	17.0	21.0	20.5	32.0	29.0	27.0	28.0
18	24.0	13.0	7.0	7.0	12.0	15.0	17.0	27.0	30.0	23.0	28.5	26.0
19	21.0	10.0	9.0	2.0	14.0	17.0	15.0	29.0	30.0	26.0	25.0	20.5
20	14.0	12.0	9.0	.0	19.0	19.0	20.0	23.5	30.0	29.0	29.0	23.0
21	21.0	12.0	8.0	10.5	17.0	14.0	25.0	25.0	24.0	31.0	28.0	24.0
22	23.0	10.0	7.0	10.0	14.0	12.0	24.0	25.0	30.0	23.0	21.5	17.0
23	21.0	7.0	10.0	8.5	14.0	16.0	26.5	18.0	33.0	30.0	24.0	26.0
24	23.0	5.0	9.0	9.0	8.0	18.5	18.0	18.0	31.0	31.0	28.0	26.0
25	20.0	8.0	7.0	7.0	12.0	20.0	16.5	22.0	30.0	29.0	25.0	23.0
26	21.0	10.0	8.0	7.0	15.0	18.0	19.0	20.0	28.0	32.0	28.0	23.0
27	18.0	15.5	9.0	10.0	15.0	18.0	24.0	24.0	25.0	32.0	24.0	18.0
28	18.0	18.0	9.5	10.0	17.0	16.0	25.0	15.0	31.0	33.0	24.0	24.0
29	15.0	10.0	8.0	12.0	14.0	17.5	28.0	19.0	31.0	34.0	25.0	23.0
30	5.0	8.0	12.0	14.0	---	18.0	26.0	18.0	30.5	31.0	22.0	25.0
31	9.0	---	12.0	12.0	---	14.0	---	17.0	---	29.0	21.0	---
MEAN	20.0	11.1	9.9	8.2	12.4	16.2	20.8	23.1	27.7	29.4	27.2	25.0

## BRAZOS RIVER MAIN STEM

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX

LOCATION.--Lat 33°02'18", long 101°11'50", Garza County, Hydrologic Unit 12050004, on right bank at downstream side of bridge on U.S. Highway 84 at Justiceburg, 250 ft downstream from Panhandle and Santa Fe Railroad, and at mile 143.4 measured from confluence with Salt Fork Brazos River at mile 923.2 on the Brazos River.

DRAINAGE AREA.--1,466 mi<sup>2</sup>, of which 1,222 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1961 to current year. Prior to October 1963, published as Sand Creek or South Fork Double Mountain Fork Brazos River at Justiceburg.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,222.47 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1895, 25.8 ft in 1914 and 22.2 ft in September 1955, from information by local resident. Flood in July 1961 reached a stage of 18.2 ft, from floodmark.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 28	0400	6,530	9.88	May 25	0800	7,140	a10.08
Dec. 11	2200	4,150	8.98	May 28	0800	3,160	a8.53
Apr. 14	2000	2,900	8.40	July 31	0930	3,940	a8.89
May 23	1800	6,410	a9.84				

a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.53	2.7	e.30	1.3	8.2	12	1.8	.00	625	4.8	16	314
2	.44	.98	e.23	1.1	14	10	2.2	.00	285	4.1	2.4	33
3	.36	e.44	e.18	1.3	43	37	2.7	.00	44	3.8	.86	3.9
4	.13	.30	e.13	1.4	810	73	2.0	.00	14	3.5	.53	2.0
5	.07	.23	e.10	1.8	122	15	1.7	.00	7.9	e2.9	.36	.98
6	e.07	.23	e.07	1.4	7.8	8.2	7.6	.00	7.1	2.0	.36	.73
7	e.10	.23	e.07	1.4	4.8	6.4	4.3	.00	599	.62	.23	e.53
8	.18	.23	e.10	.98	4.1	5.2	1.8	.00	744	.07	.05	.23
9	e.18	.23	e.23	.62	3.8	3.8	1.1	.00	579	.00	e.01	.18
10	e.13	e.13	.44	.53	2.7	3.5	.98	42	322	.00	.00	e.05
11	e.13	.01	357	.53	1.6	3.2	.86	4.4	29	.00	.00	e.02
12	e.10	.05	594	.62	1.4	3.2	e.98	.28	19	.00	.00	.00
13	e.10	.13	37	94	1.4	2.9	1.1	.13	12	.00	.00	.00
14	e.10	.30	14	18	1.3	2.7	265	e.10	9.3	.05	.00	.00
15	e.07	.98	8.7	6.8	.86	2.4	139	e.10	7.3	93	.00	.00
16	e.07	312	7.3	8.3	.30	2.2	12	e.07	5.9	11	.00	.00
17	e.05	43	6.8	4.6	.10	2.0	4.8	e.07	4.8	5.5	.00	.00
18	e.05	6.4	5.1	e4.1	.02	e1.6	2.9	e.07	4.8	140	.00	.00
19	e.03	3.8	262	53	.01	1.3	1.8	e.05	4.4	e15	.00	.00
20	e.03	2.4	720	293	.02	1.4	.86	.50	4.4	6.4	.00	.00
21	e.02	e2.2	199	37	.01	1.4	.18	13	5.5	3.8	.00	.00
22	e.02	1.8	424	32	.01	1.4	.23	12	83	3.5	.00	.00
23	.00	1.4	38	14	.27	1.4	.10	3650	28	2.7	.00	.00
24	.00	e1.3	7.8	8.1	318	1.3	.05	362	8.6	2.2	.00	.00
25	.00	.98	3.8	8.8	201	1.1	.02	2020	4.4	2.0	e9.6	.00
26	.00	.86	18	225	33	1.1	.02	203	13	e2.0	16	.00
27	.00	e.73	5.4	64	19	1.5	.01	18	159	1.8	3.5	.00
28	1210	e.62	3.2	39	14	5.6	.01	1110	19	1.8	.66	.00
29	25	.53	2.4	17	14	2.7	.01	49	8.7	1.6	.23	.00
30	5.5	.44	1.8	11	---	.98	.01	9.7	6.8	e1.6	e.09	.00
31	3.8	---	1.6	8.7	---	1.3	---	1.2	---	599	19	---
TOTAL	1247.26	385.63	2718.75	959.38	1626.70	216.78	456.12	7495.67	3663.9	914.74	69.88	355.62
MEAN	40.2	12.9	87.7	30.9	56.1	6.99	15.2	242	122	29.5	2.25	11.9
MAX	1210	312	720	293	810	73	265	3650	744	599	19	314
MIN	.00	.01	.07	.53	.01	.98	.01	.00	4.4	.00	.00	.00
AC-FT	2470	765	5390	1900	3230	430	905	14870	7270	1810	139	705
CFSM	.16	.05	.36	.13	.23	.03	.06	.99	.50	.12	.01	.05
IN.	.19	.06	.41	.15	.25	.03	.07	1.14	.56	.14	.01	.05

e Estimated



## 08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)

MEAN	35.7	6.33	5.23	2.59	4.91	7.89	11.4	58.0	77.5	32.4	38.7	57.8
MAX	276	38.7	87.7	30.9	56.1	81.6	120	357	510	249	408	321
(WY)	1986	1969	1992	1992	1992	1970	1966	1969	1967	1979	1972	1962
MIN	.000	.000	.000	.000	.000	.000	.000	.014	.42	.000	.000	.000
(WY)	1965	1978	1974	1974	1965	1971	1964	1989	1974	1964	1987	1968

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1962 - 1992	
ANNUAL TOTAL	11191.82		20110.43		27.7	
ANNUAL MEAN	30.7		54.9		69.8	
HIGHEST ANNUAL MEAN					1.65	
LOWEST ANNUAL MEAN					1967	
HIGHEST DAILY MEAN	2400	Jun 3	3650	May 23	9920	Aug 13 1972
LOWEST DAILY MEAN	.00	Feb 14	.00	Oct 23	.00	Feb 17 1962
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 14	.00	May 1	.00	Mar 3 1962
INSTANTANEOUS PEAK FLOW			7140	May 25	49600	May 6 1969
INSTANTANEOUS PEAK STAGE			a/10.08	May 25	19.80	May 6 1969
INSTANTANEOUS LOW FLOW			*		.00	*
ANNUAL RUNOFF (AC-FT)	22200		39890		20090	
ANNUAL RUNOFF (CFSM)	.13		.23		.11	
ANNUAL RUNOFF (INCHES)	1.71		3.07		1.54	
10 PERCENT EXCEEDS	17		56		12	
50 PERCENT EXCEEDS	.07		1.4		.05	
90 PERCENT EXCEEDS	.00		.00		.00	

a/ From floodmark.

\* No flow for many days each year.

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: December 1964 to September 1965, and October 1975 to current year. Sediment analyses: June 1977 to June 1982.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 26,800 microsiemens Mar. 5, 1982; minimum daily, 370 microsiemens Oct. 20, 1983.

WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 18, 1991; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 16,200 microsiemens July 29; minimum daily, 467 microsiemens May 28.

WATER TEMPERATURE: Maximum daily, 27.0°C June 28; minimum daily, 0.5°C Jan. 15, 16.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
DEC 10...	1245	0.46	12600	14.0	870	660	210	85	2400
JAN 28...	1310	32	2720	8.5	350	160	75	40	420
FEB 26...	1550	23	2910	18.0	390	210	84	44	440
APR 07...	1210	3.8	6390	22.0	610	410	130	70	1100
MAY 20...	1115	0.05	16000	23.0	1000	820	230	110	3300
JUL 15...	1145	61	2160	24.0	200	69	45	22	360
DATE		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
DEC 10...		35	9.4	210	520	3600	2.1	11	6970
JAN 28...		10	6.9	190	280	570	1.5	12	1520
FEB 26...		10	7.0	180	270	640	1.3	12	1610
APR 07...		19	15	200	510	1700	1.8	13	3660
MAY 20...		45	12	210	740	5200	1.8	11	9730
JUL 15...		11	9.6	130	310	410	2.2	11	1250
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1991	1247.26	780	467	1570	240	810	41	138	62
NOV. 1991	385.63	1400	841	876	440	453	72	75	110
DEC. 1991	2718.75	1240	741	5440	380	2810	64	471	97
JAN. 1992	959.38	2790	1670	4340	870	2250	140	369	220
FEB. 1992	1626.70	1430	855	3760	440	1940	74	326	110
MAR. 1992	216.78	5130	3090	1810	1600	945	250	146	390
APR. 1992	456.12	4830	2910	3580	1500	1870	240	292	370
MAY 1992	7495.67	1670	1000	20300	520	10500	87	1750	130
JUNE 1992	3663.9	1370	818	8090	420	4190	71	698	110
JULY 1992	914.74	1890	1130	2800	590	1460	95	234	150
AUG. 1992	69.88	4170	2520	475	1300	249	200	37	310
SEPT 1992	355.62	1060	633	608	330	314	55	53	83
TOTAL	20110.43	**	**	53700	**	27800	**	4590	**
WTD.AVG.	55	1650	988	**	510	**	85	**	130

## BRAZOS RIVER MAIN STEM

161

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10100	4080	e10800	4750	5050	5170	10600	e11800	1300	7500	1390	900
2	10200	4650	e11000	4810	5000	5420	11100	e11900	1020	8700	2730	1400
3	10300	e5190	e11200	4980	3010	5340	7670	---	1790	8830	4780	3200
4	10500	5730	e11400	4990	905	1980	8400	---	2580	9300	6740	5000
5	10700	6380	e11600	4290	1620	3740	9500	---	3380	e10100	8080	6800
6	e10800	7100	e11800	4830	2240	5320	4190	---	4420	10600	8340	8300
7	e10900	7640	e12000	5170	3430	6230	6170	---	912	e13200	10800	e10000
8	e10600	7830	e12200	5210	4130	7100	8800	---	810	e11900	13600	14200
9	e10500	8460	e12400	5260	4410	8040	10100	---	1330	---	e14000	14700
10	e10600	e9120	12600	5440	4690	8250	10600	1020	742	---	---	e15000
11	e10700	9780	e3620	5490	4830	8510	10900	1670	2150	---	---	e15500
12	e10800	9000	622	5350	4910	8850	e11300	9730	2820	---	---	---
13	e10900	6500	1300	1630	5030	9010	12200	14500	4100	---	---	---
14	e11000	6740	2800	1860	5210	9170	6450	e14700	4750	e4090	---	---
15	e11100	5470	3500	3400	5400	5700	1300	e14900	5190	2620	---	---
16	e11200	1020	3980	6800	5660	10200	2680	e15100	6010	2050	---	---
17	e11300	1260	4300	6880	5990	10400	3960	e15200	7520	6360	---	---
18	e11400	2660	4720	6890	6210	e10600	5060	e15500	7880	2160	---	---
19	e11300	4100	1260	4250	6400	10900	6000	e15800	8420	e2800	---	---
20	e11200	5100	601	3680	6550	11000	6300	e16000	8650	3700	---	---
21	e11300	e5810	1280	1920	6660	11100	6600	4470	8690	6470	---	---
22	e11400	6460	664	2200	6890	11200	7950	1430	6840	8430	---	---
23	---	7350	1200	3490	6500	11400	9570	2790	2030	10600	---	---
24	---	e8270	2660	4400	1520	11500	10600	986	3900	14300	---	---
25	---	9190	3210	4970	1310	11600	11300	525	6090	15300	e1450	---
26	---	9600	2600	1510	2480	11700	11700	860	5110	e15600	1020	---
27	---	e9700	3120	1940	3860	11600	11900	1900	1260	15900	1480	---
28	715	e9800	3960	2580	4600	8070	13500	467	2620	16000	4830	---
29	1820	10000	4320	3560	4870	7740	13900	1100	4660	16200	11100	---
30	3120	10600	4460	4320	---	11600	14300	2160	6860	e8650	e13200	---
31	3630	---	4600	4820	---	12000	---	3110	---	980	10700	---
MEAN	9540	6820	5670	4250	4460	8860	8820	7400	4130	8940	7140	8640

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	2.0	---	4.5	6.0	12.5	7.0	---	17.0	23.5	22.0	18.0
2	16.0	2.0	---	2.5	12.0	13.0	9.0	---	18.5	22.5	23.0	21.0
3	17.0	---	---	3.0	10.5	14.0	5.0	---	18.0	21.5	21.0	20.0
4	17.0	2.5	---	6.0	9.0	9.0	8.0	---	19.0	24.0	21.0	21.0
5	10.5	3.5	---	7.0	---	8.0	14.0	---	19.0	---	21.5	21.0
6	---	5.5	---	5.0	4.5	8.0	12.5	---	20.0	21.0	22.0	23.5
7	---	6.0	---	6.5	3.0	8.0	12.0	---	20.0	---	21.0	---
8	---	4.5	---	3.5	4.0	18.0	13.0	---	20.0	---	23.0	21.0
9	---	6.0	---	2.5	7.0	7.0	15.0	---	20.0	---	---	22.0
10	---	---	---	2.0	7.0	1.5	15.0	---	20.0	---	---	---
11	---	8.0	---	5.0	11.0	3.5	15.0	22.0	21.0	---	---	---
12	---	9.5	11.5	6.0	8.5	5.0	---	15.0	19.0	---	---	---
13	---	12.0	8.0	3.0	9.5	7.5	14.0	17.5	21.5	---	---	---
14	---	14.0	4.5	2.0	10.0	8.0	16.0	---	23.0	---	---	---
15	---	13.0	7.0	.5	6.5	13.0	14.5	---	22.5	20.0	---	---
16	---	10.0	7.0	.5	10.0	11.0	16.5	---	21.0	22.0	---	---
17	---	13.0	7.0	1.0	5.0	14.5	15.0	---	21.0	20.0	---	---
18	---	7.0	6.0	---	3.5	---	14.5	---	21.0	21.0	---	---
19	---	9.0	5.0	8.0	4.0	8.0	14.5	---	22.0	---	---	---
20	---	4.5	8.0	1.0	7.0	9.0	9.5	---	22.0	20.0	---	---
21	---	---	6.5	5.0	8.0	11.0	9.5	19.0	20.0	22.0	---	---
22	---	7.0	6.0	4.0	8.0	10.0	13.0	19.0	20.0	21.0	---	---
23	---	4.0	5.0	1.5	12.5	6.5	14.5	17.0	23.0	21.5	---	---
24	---	---	2.0	2.0	8.5	8.5	14.5	17.0	22.0	22.0	---	---
25	---	7.0	5.0	3.0	5.0	8.0	11.0	15.5	21.5	21.0	---	---
26	---	10.0	5.5	7.5	5.5	10.5	15.5	16.5	22.5	---	20.0	---
27	---	---	6.5	8.0	6.5	16.5	13.5	17.0	20.0	23.0	19.0	---
28	14.0	---	6.5	9.0	8.0	14.0	16.0	14.0	27.0	22.0	17.0	---
29	10.0	14.0	5.0	8.5	8.5	15.0	15.0	12.5	21.0	21.5	18.5	---
30	5.0	4.5	5.0	8.5	---	15.0	15.5	15.0	22.0	---	---	---
31	2.0	---	8.0	9.0	---	10.0	---	16.5	---	21.0	20.5	---
MEAN	11.8	7.4	6.2	4.5	7.4	10.1	13.0	16.7	20.8	21.6	20.7	20.9

## BRAZOS RIVER MAIN STEM

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX  
(National stream-quality accounting network)

LOCATION.--Lat 33°00'29", long 100°10'49", Stonewall County, Hydrologic Unit 12050004, on right bank at downstream side of bridge on U.S. Highway 83, 0.3 mi downstream from Hitson Creek, 10 mi south of Aspermont, and at mile 34.5, measured from confluence with Salt Fork Brazos River, which is at mile 923.2 on the Brazos River.

DRAINAGE AREA.--8,796 mi<sup>2</sup>, of which 6,932 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1923 to September 1934, June 1939 to current year.

REVISED RECORDS.--WSP 733: 1927(M). WRD TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,624.79 ft above National Geodetic Vertical Datum of 1929. Dec. 3, 1923, to Sept. 30, 1934, nonrecording gage at site 90 ft downstream at datum 2.0 ft higher, and June 8, 1939, to Aug. 12, 1972, water-stage recorder at present site and datum 2.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are small diversions above station for oil field operations.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,800 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 24	1600	8,940	10.63				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	231	38	122	149	251	64	53	807	378	134	257
2	89	151	38	102	130	196	64	47	1340	205	443	791
3	78	e110	37	91	148	183	68	43	1740	145	563	335
4	68	e83	35	86	743	228	86	39	943	129	303	347
5	62	e74	33	91	1270	165	82	38	757	91	172	299
6	57	e71	32	80	1420	141	89	37	648	79	122	192
7	53	e65	31	75	964	206	129	33	527	66	89	121
8	49	e61	30	68	613	167	147	31	2280	59	65	99
9	46	e57	30	62	381	116	116	30	2480	53	52	79
10	48	e54	29	57	274	97	97	36	2550	46	44	66
11	50	e49	37	56	208	88	84	605	2580	40	39	58
12	58	e45	54	54	172	83	74	458	1520	35	518	53
13	68	e42	1100	88	152	77	71	319	1050	35	180	45
14	55	e38	748	99	136	71	66	139	715	31	94	38
15	40	e34	393	114	120	65	60	92	655	36	62	32
16	29	e31	255	397	108	58	57	68	541	44	48	28
17	27	331	174	213	94	194	613	55	342	35	36	23
18	25	255	127	175	83	352	523	47	247	45	31	20
19	23	197	203	143	75	169	502	42	198	123	32	18
20	22	156	587	128	68	123	424	37	175	89	33	16
21	20	126	1370	149	64	105	251	36	146	66	27	14
22	20	91	1200	156	63	87	178	31	138	139	24	12
23	18	74	1310	131	63	79	139	38	220	110	20	10
24	17	66	1020	166	780	73	113	5400	274	89	17	8.9
25	17	59	527	192	1310	68	93	3200	154	63	15	7.8
26	19	55	440	158	1190	65	83	5150	292	51	16	e5.3
27	27	51	323	161	737	68	75	1890	260	43	16	e3.6
28	102	48	237	143	517	73	69	1870	623	39	16	2.6
29	2610	44	215	131	363	67	63	4330	653	35	18	2.2
30	740	41	181	136	---	60	58	1460	546	29	21	2.2
31	402	---	147	180	---	61	---	902	---	42	20	---
TOTAL	5044	2790	10981	4004	12395	3836	4538	26556	25401	2470	3270	2985.6
MEAN	163	93.0	354	129	427	124	151	857	847	79.7	105	99.5
MAX	2610	331	1370	397	1420	352	613	5400	2580	378	563	791
MIN	17	31	29	54	63	58	57	30	138	29	15	2.2
AC-FT	10000	5530	21780	7940	24590	7610	9000	52670	50380	4900	6490	5920
CFSM	.09	.05	.19	.07	.23	.07	.08	.46	.45	.04	.06	.05
IN.	.10	.06	.22	.08	.25	.08	.09	.53	.51	.05	.07	.06

e Estimated

BRAZOS RIVER MAIN STEM

163

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1992, BY WATER YEAR (WY)

MEAN	268	42.9	34.9	15.6	29.9	31.0	114	385	327	196	181	277
MAX	2640	261	354	129	427	259	1190	2785	1564	1202	2847	2712
(WY)	1927	1985	1992	1992	1992	1955	1941	1941	1967	1960	1972	1955
MIN	.000	.000	.000	.000	.000	.000	.000	.50	1.33	.000	.000	.000
(WY)	1953	1925	1925	1952	1925	1925	1978	1984	1984	1934	1931	1939

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1925 - 1992

ANNUAL TOTAL	69778.28	104270.6	
ANNUAL MEAN	191	285	160
HIGHEST ANNUAL MEAN			525
LOWEST ANNUAL MEAN			18.8
HIGHEST DAILY MEAN	9490 Jun 3	5400 May 24	55600 Sep 26 1955
LOWEST DAILY MEAN	.00 May 31	2.2 Sep 29	.00 Oct 4 1924
ANNUAL SEVEN-DAY MINIMUM	.19 Apr 25	4.7 Sep 24	.00 Oct 21 1924
INSTANTANEOUS PEAK FLOW		8940 May 24	91400 Sep 26 1955
INSTANTANEOUS PEAK STAGE		10.63 May 24	29.50 Sep 26 1955
INSTANTANEOUS LOW FLOW		2.2 Sep 29, 30	.00 *
ANNUAL RUNOFF (AC-FT)	138400	206800	115700
ANNUAL RUNOFF (CFSM)	.10	.15	.086
ANNUAL RUNOFF (INCHES)	1.39	2.08	1.16
10 PERCENT EXCEEDS	306	722	219
50 PERCENT EXCEEDS	34	86	6.5
90 PERCENT EXCEEDS	3.3	28	.00

\* No flow at times most years.



## BRAZOS RIVER MAIN STEM

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1948 to November 1951, and September 1956 to current year. Chemical and biochemical analyses: June 1978 to current year. Sediment analyses: September 1944 to November 1951, and June 1978 to current year. Pesticide analyses: March to June 1979.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to November 1951, September 1956 to current year.

WATER TEMPERATURE: November 1949 to November 1951, September 1956 to current year.

SUSPENDED-SEDIMENT DISCHARGE: November 1949 to September 1951.

REMARKS.--No daily observer record for October, November, and December. Daily observer temperature readings are to nearest 5.0°C increment for June 29 to September 30. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 13,100 microsiemens July 29, 1980; minimum daily, 720 microsiemens Oct. 18, 1985.

WATER TEMPERATURE: Maximum daily, 38.0°C July 18, 1966; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,160 microsiemens May 9; minimum estimated daily, 840 microsiemens May 24.

WATER TEMPERATURE: Maximum daily, 35.0°C July 1, 2; minimum daily, 0.0°C Jan. 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV 20...	1550	98	2960	8.3	11.5	2500	11.8	114	2.3	K12000	9500	510
JAN 15...	1440	94	4430	8.3	3.5	150	14.2	113	1.3	110	250	1100
MAR 11...	1130	96	5100	8.2	10.0	6.0	12.4	118	2.2	120	K30	1300
APR 29...	1355	16	5340	8.2	24.0	52	8.2	104	2.4	170	67	1200
MAY 27...	1210	2050	1050	--	18.0	--	--	--	--	--	--	240
AUG 12...	1415	540	1930	7.8	24.0	2000	8.2	103	3.1	K9200	8800	770

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 20...	360	130	45	420	8	8.5	7	173	153	--	490	570
JAN 15...	880	260	96	590	8	8.8	0	202	166	--	910	860
MAR 11...	1100	330	120	640	8	10	0	211	173	--	1100	990
APR 29...	1100	280	120	750	9	12	0	160	131	--	1100	1100
MAY 27...	120	70	17	120	3	5.1	--	--	--	120	210	120
AUG 12...	720	240	40	130	2	7.1	0	54	44	--	730	200

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 20...	1.6	10	1790	1770	--	--	<0.010	<0.010	0.220	0.190	<0.010
JAN 15...	1.1	10	4980	2840	0.450	0.480	0.010	0.010	0.460	0.490	0.020
MAR 11...	1.2	11	3450	3310	--	--	<0.010	<0.010	0.140	0.130	0.020
APR 29...	1.2	13	3800	3460	--	--	<0.010	<0.010	<0.050	<0.050	0.020
MAY 27...	0.80	11	--	626	--	--	--	--	--	--	--
AUG 12...	0.30	6.4	1480	1380	0.190	0.170	0.010	0.010	0.200	0.180	0.020

## BRAZOS RIVER MAIN STEM

165

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE		NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 20...		<0.010	--	2.0	1.90	0.010	<0.010	0.010	4250	1120	93	<10
JAN 15...		0.020	0.18	0.20	0.050	0.010	<0.010	<0.010	311	79	98	<10
MAR 11...		0.010	0.38	0.40	0.050	<0.010	<0.010	<0.010	254	66	92	--
APR 29...		<0.010	--	<0.20	<0.010	<0.010	<0.010	0.020	96	4.1	97	10
MAY 27...		--	--	--	--	--	--	--	--	--	--	--
AUG 12...		0.020	1.7	1.7	1.20	<0.010	<0.010	0.010	3970	5790	95	--
DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 20...		100	<1	<10	120	<10	7	1	<1	<1.0	4200	26
JAN 15...		<100	<1	<10	120	10	5	<1	1	<1.0	5000	26
MAR 11...		--	--	--	--	--	--	--	--	--	--	--
APR 29...		200	<1	<10	150	20	8	2	1	<1.0	7000	34
MAY 27...		--	--	--	--	--	--	--	--	--	--	--
AUG 12...		72	<3	45	33	16	<10	<1	<1	<1.0	2800	8
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)		
OCT.	1991	5044	*	*	*	*	*	*	*	*		
NOV.	1991	2790	*	*	*	*	*	*	*	*		
DEC.	1991	10981	*	*	*	*	*	*	*	*		
JAN.	1992	4004		3970	2620	28300	790	8520	870	9440	960	
FEB.	1992	12395		2750	1800	60300	530	17700	610	20300	670	
MAR.	1992	3836		4590	3050	31600	940	9710	1000	10400	1100	
APR.	1992	4538		3400	2240	27500	680	8280	750	9160	820	
MAY	1992	26556		1210	780	55900	220	15800	270	19100	290	
JUNE	1992	25401		1520	982	67400	280	19000	340	23100	370	
JULY	1992	2470		3420	2250	15000	670	4470	750	5020	830	
AUG.	1992	3270		2800	1830	16200	540	4780	620	5440	680	
SEPT	1992	2985.6		3100	2040	16400	600	4870	680	5510	750	
TOTAL		104270.6	**	**		319000	**	93100	**	108000	**	
WID.AVG.		285		1730	1130	**	330	**	380	**	420	

## BRAZOS RIVER MAIN STEM

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	e3480	4280	e3120	6180	5660	1400	2170	e3860	4840
2	---	---	---	3510	e4320	3610	6340	5850	1370	2340	e2960	2870
3	---	---	---	3730	4410	4070	6250	e6060	1310	2870	2050	2200
4	---	---	---	3870	3030	4030	6170	6280	1340	e3220	2110	2200
5	---	---	---	e3720	2150	4300	e5680	6480	1390	e3570	2310	e2350
6	---	---	---	4160	1750	4550	5190	6730	1490	3920	2650	e2450
7	---	---	---	4190	1800	4650	5030	6860	e1600	4090	2660	e2600
8	---	---	---	4290	1830	4370	4190	7000	1390	4250	e3080	2740
9	---	---	---	4390	e2200	4100	4520	7160	1210	4380	e3510	3010
10	---	---	---	4480	2580	4600	4570	e6060	1250	4610	3930	3480
11	---	---	---	4580	3120	5040	4930	2850	1010	e4840	3970	3780
12	---	---	---	e4560	3540	5220	e5220	2780	1020	e5060	1440	e4050
13	---	---	---	4540	3880	5360	5520	2790	1460	5290	2210	e4300
14	---	---	---	4610	4150	5450	5690	2800	e1640	5340	3050	4590
15	---	---	---	4480	4330	e5540	5860	2810	1830	5350	e3650	4940
16	---	---	---	3310	e4440	5630	6130	3530	1880	5360	e4260	5300
17	---	---	---	3380	4560	4250	2250	e4230	2040	5610	4860	5570
18	---	---	---	e3470	4710	3430	2030	4940	2160	e4410	5280	5830
19	---	---	---	3240	4780	4210	e2060	5400	2510	e2850	5320	e6050
20	---	---	---	3760	4950	4580	2100	5610	2780	3100	5400	e6250
21	---	---	---	4150	5070	5040	2210	5820	e2920	3610	5550	6460
22	---	---	---	4310	5190	e5320	2540	6220	3050	3060	e5780	6600
23	---	---	---	4450	e5260	5600	2890	6200	3460	3070	e6070	6780
24	---	---	---	4270	4760	5850	3370	e840	2720	3090	6350	6770
25	---	---	---	3880	2590	6070	3940	e1040	2810	e3490	6370	6770
26	---	---	---	e3910	2700	6180	e4360	980	2910	e3880	6380	e6790
27	---	---	---	3940	2630	6260	4770	1030	3030	4280	6390	e6800
28	---	---	---	4340	2510	6780	5050	1240	e2710	4510	6420	6810
29	---	---	---	4460	2640	e6690	5300	867	2320	4760	e6470	6830
30	---	---	---	4640	---	6600	5440	902	1800	4930	e6520	6850
31	---	---	---	4240	---	6440	---	1100	---	4160	6570	---
MEAN	---	---	---	4080	3590	5060	4530	4130	1990	4050	4430	4900

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	9.0	---	10.0	21.0	19.5	35.0	---	20.0
2	---	---	---	7.0	---	15.0	10.5	19.5	20.0	35.0	---	25.0
3	---	---	---	6.0	10.0	16.0	12.0	---	20.5	25.0	25.0	25.0
4	---	---	---	7.0	10.0	14.5	16.0	20.0	22.5	---	25.0	25.0
5	---	---	---	---	7.0	12.0	---	20.0	23.0	---	25.0	---
6	---	---	---	7.0	7.0	14.0	14.5	17.0	24.0	30.0	25.0	---
7	---	---	---	9.0	7.0	13.0	16.0	17.0	---	25.0	25.0	---
8	---	---	---	6.0	7.0	---	19.0	19.5	23.5	25.0	---	25.0
9	---	---	---	6.0	---	13.5	17.0	20.0	23.0	25.0	---	25.0
10	---	---	---	6.0	10.0	6.0	19.5	---	24.0	30.0	25.0	25.0
11	---	---	---	5.0	11.0	9.0	20.0	19.5	24.0	---	25.0	20.0
12	---	---	---	---	11.0	10.5	---	23.0	24.0	---	25.0	---
13	---	---	---	5.5	10.0	13.0	16.5	23.0	25.0	25.0	25.0	---
14	---	---	---	4.0	11.0	14.5	19.0	22.0	---	30.0	25.0	25.0
15	---	---	---	3.0	10.5	---	19.5	24.0	26.5	25.0	---	25.0
16	---	---	---	1.0	---	16.5	20.0	20.5	26.0	25.0	---	25.0
17	---	---	---	3.0	9.0	17.0	19.0	---	26.0	25.0	25.0	25.0
18	---	---	---	---	9.0	14.0	19.0	21.0	26.5	---	25.0	25.0
19	---	---	---	3.0	10.0	11.0	---	21.5	27.5	---	20.0	---
20	---	---	---	.0	10.0	13.0	14.5	21.5	26.0	25.0	25.0	---
21	---	---	---	5.0	11.0	15.0	14.0	23.5	---	30.0	25.0	30.0
22	---	---	---	6.0	11.0	---	17.0	21.0	---	30.0	---	30.0
23	---	---	---	4.0	---	11.0	19.5	20.5	26.0	25.0	---	25.0
24	---	---	---	5.0	11.0	13.0	17.0	---	25.5	30.0	25.0	25.0
25	---	---	---	6.0	7.0	14.5	16.5	---	26.0	---	25.0	25.0
26	---	---	---	---	8.0	16.5	---	16.0	26.0	---	20.0	---
27	---	---	---	9.0	9.0	17.0	19.5	18.0	26.0	25.0	20.0	---
28	---	---	---	9.0	11.0	18.0	19.0	16.0	---	30.0	20.0	20.0
29	---	---	---	10.0	13.0	---	25.0	14.0	30.0	30.0	---	20.0
30	---	---	---	10.0	---	16.0	19.5	15.5	25.0	30.0	---	30.0
31	---	---	---	10.0	---	13.0	---	16.5	---	25.0	25.0	---
MEAN	---	---	---	5.9	9.6	13.7	17.3	19.7	24.6	27.8	24.0	24.8

## BRAZOS RIVER BASIN

16/

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX  
(National stream-quality accounting network)

LOCATION.--Lat 33°20'02", long 100°14'16", Stonewall County, Hydrologic Unit 12050007, on left bank at downstream side of bridge on U.S. Highway 83, 5.5 mi downstream from Salt Croton Creek, 13.2 mi north of Aspermont, and at mile 27.3 measured from confluence with Double Mountain Fork Brazos River which is at mile 923.2 on the Brazos River.

DRAINAGE AREA.--5,130 mi<sup>2</sup>, of which 2,634 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1923 to August 1925, June 1939 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,588.70 ft above National Geodetic Vertical Datum of 1929. Dec. 5, 1923, to Aug. 29, 1925, nonrecording gage at site 6.7 mi downstream at different datum. June 15, 1939, to July 13, 1972, water-stage recorder at present site. July 14, 1972, to July 14, 1975, at site 0.1 mi upstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Daily discharges below 160 ft<sup>3</sup>/s were based on a graph of once daily wire-weight gage readings. There are no large diversions above station. Some regulation by White River Reservoir (capacity, 44,900 acre-ft), 106 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 14.4 ft, and flood in November 1934 reached a stage of 13.7 ft, from information by local residents.

PEAK DISCHARGE FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
------	------	-----------------------------------	---------------------	------	------	-----------------------------------	---------------------

No peak greater than base discharge during year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	219	28	e162	138	e152	79	29	438	173	e18	81
2	133	149	29	146	130	130	78	24	635	144	e20	95
3	119	e118	28	130	142	124	80	e23	1100	121	23	81
4	88	95	26	101	440	150	77	22	867	107	26	58
5	71	85	26	e98	556	149	75	20	448	102	18	e44
6	e63	78	26	98	639	166	85	19	511	90	13	e32
7	56	68	26	95	394	e173	96	18	1450	81	8.5	e24
8	50	61	26	93	286	136	87	17	1630	74	e7.1	18
9	42	58	28	88	228	115	75	16	1770	65	e6.5	13
10	40	e58	28	85	196	95	66	e21	3120	61	5.9	8.5
11	38	e54	36	85	171	106	59	137	2500	e58	e6.5	7.8
12	36	52	94	e93	160	100	e52	117	1270	e56	20	e6.5
13	e32	52	307	115	149	99	44	70	2020	54	57	e5.9
14	e27	50	313	178	140	98	44	50	1190	50	40	5.4
15	26	50	221	159	123	92	76	36	810	46	e29	4.9
16	26	48	149	146	111	91	77	31	602	44	e44	4.9
17	24	e48	113	136	98	92	324	e29	433	44	31	4.9
18	23	46	90	e146	89	96	440	27	335	170	23	4.9
19	22	54	194	155	85	94	345	26	269	e51	15	e4.9
20	e20	65	501	146	82	94	208	24	226	76	10	e4.9
21	20	64	579	142	77	88	151	23	215	73	4.4	4.9
22	20	57	e744	155	75	82	108	31	195	52	e2.3	4.9
23	20	46	727	152	75	77	89	74	225	50	e1.8	4.9
24	20	42	716	146	481	76	73	614	311	50	3.2	4.9
25	20	40	e473	139	480	66	50	847	267	e48	4.0	e4.0
26	19	39	365	e136	340	61	e42	969	196	e44	50	2.9
27	e18	38	290	191	371	81	38	652	369	36	34	e1.8
28	408	38	250	169	280	113	38	751	220	20	23	.89
29	772	35	211	160	203	91	36	1820	147	19	e18	.76
30	391	30	191	152	---	78	31	670	140	17	e22	.35
31	273	---	180	145	---	73	---	402	---	17	90	---
TOTAL	3063	1937	7015	4142	6739	3238	3123	7609	23909	2093	674.2	539.80
MEAN	98.8	64.6	226	134	232	104	104	245	797	67.5	21.7	18.0
MAX	772	219	744	191	639	173	440	1820	3120	173	90	95
MIN	18	30	26	85	75	61	31	16	140	17	1.8	.35
AC-FT	6080	3840	13910	8220	13370	6420	6190	15090	47420	4150	1340	1070

e Estimated

## BRAZOS RIVER BASIN

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1992, BY WATER YEAR (WY)

MEAN	209	32.3	21.3	13.0	17.4	20.7	77.1	263	272	97.2	114	153
MAX	2210	215	226	134	232	180	1006	2175	1283	642	1054	1605
(WY)	1942	1958	1992	1992	1992	1941	1925	1941	1957	1945	1972	1955
MIN	.059	.010	.11	.13	.007	.042	.26	.22	.013	.031	.024	.10
(WY)	1980	1940	1990	1953	1953	1946	1971	1945	1953	1974	1983	1947

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1924 - 1992

ANNUAL TOTAL	61857.38		64082.00		107	
ANNUAL MEAN	169		175		463	1941
HIGHEST ANNUAL MEAN					13.8	1988
LOWEST ANNUAL MEAN					23300	Sep 26 1955
HIGHEST DAILY MEAN	8280	Jun 3	3120	Jun 10		
LOWEST DAILY MEAN	.56	Aug 9	.35	Sep 30	.00	Apr 22 1924
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 4	2.2	Sep 24	.00	Jun 11 1924
INSTANTANEOUS PEAK FLOW			3980	Jun 11	52200	Sep 25 1955
INSTANTANEOUS PEAK STAGE			6.05	Jun 11	14.92	Sep 25 1955
INSTANTANEOUS LOW FLOW			.35	Sep 30	.00	at times
ANNUAL RUNOFF (AC-FT)	122700		127100		77710	
10 PERCENT EXCEEDS	309		434		134	
50 PERCENT EXCEEDS	22		77		5.9	
90 PERCENT EXCEEDS	2.8		17		.15	



## BRAZOS RIVER BASIN

169

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1941 to October 1951, and October 1956 to September 1974. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: March to June 1979. Sediment analyses: June 1961 to September 1965, and October 1974 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to October 1951, October 1956 to September 1982.

WATER TEMPERATURE: October 1948 to October 1951, October 1956 to September 1982.

INSTRUMENTATION.--Specific conductance was recorded continuously from January 1969 to September 1982.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 173,000 microsiemens Apr. 12, 1974; minimum daily, 1,690 microsiemens July 8, 1960.

WATER TEMPERATURE: Maximum daily, 38.0°C Aug. 2, 1973; minimum daily, 0.0°C on many days during winter months.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 20...	0935	48	27900	8.2	10.0	10	13.6	140	0.4	51	95	2500
JAN 15...	1045	162	20300	8.3	1.5	42	13.1	105	0.8	50	290	2000
APR 29...	0930	42	23700	8.2	18.0	15	8.2	100	1.2	42	77	2300
AUG 12...	1025	30	24800	8.0	23.0	1.0	7.6	102	0.7	220	340	2600

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FLD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FLD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FLD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 20...	2300	630	220	5900	52	21	0	185	151	2300	9100	0.50
JAN 15...	1900	510	180	3700	36	14	0	195	160	1700	5900	0.80
APR 29...	2200	560	220	4800	44	18	0	170	139	2100	7500	0.60
AUG 12...	2500	700	210	5300	45	21	0	132	108	2400	8600	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NITRITE NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 20...	11	18300	18300	0.330	0.320	0.010	0.010	0.340	0.330	0.080	0.070
JAN 15...	8.7	14000	12100	0.330	--	0.020	<0.010	0.350	0.350	0.080	0.060
APR 29...	9.9	17300	15300	0.220	--	0.020	<0.010	0.240	0.250	0.040	0.050
AUG 12...	9.4	16700	17300	0.420	0.420	0.010	0.020	0.430	0.440	0.090	0.080

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 20...	--	<0.20	0.030	<0.010	<0.010	0.020	--	58	7.5	72	<30
JAN 15...	0.22	0.30	0.100	0.010	0.020	0.020	0.06	122	53	97	<50
APR 29...	--	<0.20	<0.010	<0.010	<0.010	0.030	--	70	7.9	92	<30
AUG 12...	--	<0.20	<0.010	<0.010	<0.010	0.010	--	3	0.24	73	<10

## BRAZOS RIVER BASIN

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 20...	100	<5	<10	110	60	3	<1	3	<1.0	9700	180
JAN 15...	<100	<2	<10	110	20	4	1	3	<1.0	6000	90
APR 29...	300	<1	<10	150	30	5	1	3	<1.0	9700	120
AUG 12...	<100	<1	20	150	100	6	<2	8	<1.0	10000	46

## 08082500 BRAZOS RIVER AT SEYMOUR, TX

LOCATION.--Lat 33°34'51", long 99°16'02", Baylor County, Hydrologic Unit 12060101, on left bank at downstream side of bridge on U.S. Highways 277 and 283, 0.8 mi upstream from Wichita Valley Railway bridge, 1.0 mi southwest of courthouse in Seymour, and at mile 847.4.

DRAINAGE AREA.--15,538 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1923 to current year.

REVISED RECORDS.--WSP 808: 1924-29. WSP 1312: 1933. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,238.97 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 6, 1972, at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. There are small diversions upstream from station for irrigation and for oil field operation. For statement regarding upstream regulation by Soil Conservation Service flood-water-retarding structures, see remarks paragraph for station 08080950. Gage-height telemeter at station via Handar data collection platform.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood in 1906 reached about the same stage as the flood in 1955.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 8	1000	11,500	10.40	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390	697	118	546	466	1210	265	202	2500	720	184	196
2	346	531	122	489	466	966	253	185	2840	600	241	227
3	311	445	121	447	555	788	258	164	2910	1470	341	271
4	269	378	122	411	3000	976	262	153	3200	2240	407	398
5	229	335	120	390	2490	764	259	148	4030	999	447	472
6	211	290	117	364	2400	654	256	139	4260	630	402	290
7	186	253	116	359	2790	579	284	133	5250	461	288	271
8	162	233	113	339	1740	571	291	130	9850	378	224	252
9	148	220	114	314	1340	564	265	126	8510	317	176	208
10	143	202	112	293	1120	554	274	129	9250	280	157	170
11	143	186	123	291	929	479	282	773	8060	247	145	149
12	142	180	160	298	778	440	245	457	5420	275	140	138
13	143	173	136	333	665	420	231	382	4020	203	133	127
14	131	170	147	397	600	411	228	545	4470	190	251	115
15	124	167	606	387	541	384	223	513	2470	184	388	103
16	121	164	679	419	496	363	263	352	1870	198	245	95
17	117	161	515	390	454	354	524	262	1650	199	187	91
18	113	155	392	382	409	421	512	221	1380	185	155	84
19	104	143	444	456	379	408	671	212	999	186	143	78
20	104	134	1460	444	350	517	796	188	768	188	137	94
21	103	129	1510	504	327	524	767	170	657	228	130	76
22	102	129	1790	583	319	453	659	176	611	251	123	66
23	102	198	1900	544	311	373	531	158	583	265	115	59
24	99	183	1430	515	507	341	417	146	659	227	108	56
25	96	166	1550	452	4150	306	348	3790	522	237	102	50
26	125	152	1070	417	3150	286	307	3740	520	224	122	45
27	194	145	891	519	1870	276	275	4890	555	195	121	42
28	437	141	799	573	2010	281	252	3950	697	177	102	40
29	343	138	716	573	1520	270	231	4780	827	170	105	36
30	1510	125	616	538	---	280	214	5150	602	228	128	34
31	1020	---	569	491	---	279	---	3040	---	233	109	---
TOTAL	7768	6723	18678	13458	36132	15492	10643	35404	89940	12585	6056	4333
MEAN	251	224	603	434	1246	500	355	1142	2998	406	195	144
MAX	1510	697	1900	583	4150	1210	796	5150	9850	2240	447	472
MIN	96	125	112	291	311	270	214	126	520	170	102	34
AC-FT	15410	13340	37050	26690	71670	30730	21110	70220	178400	24960	12010	8590

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1992, BY WATER YEAR (WY)

	MEAN	628	137	92.5	59.7	97.6	97.8	277	870	850	362	394	686
MAX	5545	764	859	434	1481	640	2245	6746	3505	2100	4343	4581	
(WY)	1942	1935	1931	1992	1938	1973	1925	1941	1990	1961	1926	1932	
MIN	.000	.067	.000	.000	.40	.000	.000	2.88	6.75	.24	.000	.000	
(WY)	1929	1940	1925	1929	1926	1925	1928	1937	1953	1970	1954	1931	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1925 - 1992

ANNUAL TOTAL	194733	257212	
ANNUAL MEAN	534	703	
HIGHEST ANNUAL MEAN			380
LOWEST ANNUAL MEAN			1294
HIGHEST DAILY MEAN	19600	Jun 5	46.7
LOWEST DAILY MEAN	22	Apr 22	.00
ANNUAL SEVEN-DAY MINIMUM	24	Apr 19	.00
INSTANTANEOUS PEAK FLOW		11500	95400
INSTANTANEOUS PEAK STAGE		10.40	23.00
INSTANTANEOUS LOW FLOW		33	.00
ANNUAL RUNOFF (AC-FT)	386300	510200	275400
10 PERCENT EXCEEDS	1040	1580	655
50 PERCENT EXCEEDS	134	291	39
90 PERCENT EXCEEDS	35	117	.00

08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1942 to current year. Chemical and biochemical analyses: October 1974 to September 1977. Sediment analyses: October 1974 to September 1977. Pesticide analyses: April 1975 to August 1977.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1959 to current year.

WATER TEMPERATURES: August 1959 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 80,400 microsiemens May 24, 1971; minimum daily, 47 microsiemens May 16, 1989.

WATER TEMPERATURES (1959-84, 1988 to current year): Maximum daily, 38.0°C Aug. 1, 1983; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 19,500 microsiemens July 23; minimum daily, 1,040 microsiemens June 8.

WATER TEMPERATURE: Maximum daily, 35.0°C July 27; minimum daily 4.0°C Jan. 17.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 15...	1225	388	10300	3.5	1500	1300	370	140	1700
FEB 25...	1030	506	5930	8.0	940	830	240	83	810
APR 06...	1215	255	14000	15.0	2000	1900	500	190	2300
JUN 08...	1110	11400	920	21.5	200	130	57	14	95
AUG 10...	1055	156	8000	26.0	1100	940	270	93	1300

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN 15...	19	11	180	1100	2800	1.2	8.5	6240
FEB 25...	11	9.5	110	800	1300	0.40	7.2	3320
APR 06...	22	14	160	1800	3700	3.4	7.7	8610
JUN 08...	3	6.1	70	140	130	0.20	3.6	488
AUG 10...	17	10	110	1000	2000	1.3	12	4750

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1991	7768	8190	5070	106000	2200	45900	990	20800	1100
NOV. 1991	6723	8360	5190	94200	2200	40800	1000	18200	1100
DEC. 1991	18678	5560	3390	171000	1400	72900	690	34600	760
JAN. 1992	13458	9730	6040	219000	2600	95000	1200	42500	1300
FEB. 1992	36132	5360	3210	313000	1300	131400	680	66100	750
MAR. 1992	15492	9270	5750	240000	2500	103900	1100	46800	1200
APR. 1992	10643	9580	5990	172000	2600	74900	1100	32800	1300
MAY 1992	35404	3750	2250	215000	950	90700	470	45100	520
JUNE 1992	89940	2260	1310	317000	530	129100	300	72500	330
JULY 1992	12585	7540	4640	158000	2000	67700	920	31300	1000
AUG. 1992	6056	7610	4650	76100	2000	32500	940	15300	1000
SEPT 1992	4333	7500	4560	53400	1900	22700	930	10900	1000
TOTAL	257212	**	**	2135000	**	908000	**	437000	**
WTD. AVG.	703	5070	3070	**	1300	**	630	**	700

## 08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6240	4560	e12000	e7780	e11000	8790	14600	e11400	2150	5080	6670	6100
2	6490	3260	12400	8250	e10600	5870	14600	12500	2160	5080	7520	5790
3	7060	3250	13700	e8700	10300	6020	e13500	e12800	2170	e5080	7560	9050
4	12300	e4600	e13800	9200	5680	6040	13600	13100	1770	e5070	5810	8030
5	7970	5940	e13900	e9480	2480	7350	12600	13100	1770	5070	5600	6220
6	8360	6670	14000	e9750	4400	8440	13000	e13500	1770	5090	e5600	e6240
7	8970	7200	14100	10300	5380	8810	e12900	13900	1090	6180	5590	6260
8	9560	8210	13700	8700	5360	e9440	12900	14300	1040	e7640	e6750	6000
9	10600	8220	13700	11000	4490	10100	11600	14300	2280	9100	7910	e6230
10	e11000	e9020	14000	11200	e4800	10000	12300	e9200	2180	9110	7920	e6470
11	11300	9820	e12600	11000	5230	10900	12300	4040	2210	9480	7730	6670
12	11300	10200	11100	e10800	5970	9890	12400	5580	1650	10100	7680	7230
13	e11700	10800	13300	10600	6990	9870	12000	8440	e2180	10400	8100	7510
14	e12200	e11100	13500	11000	7680	e10600	e12100	9430	2610	10500	9320	7880
15	e12600	11400	16800	e10700	8440	11400	12300	14800	2370	10800	3850	8220
16	13000	11300	9880	10400	9110	11400	12200	e12000	2370	9900	5290	9200
17	13500	11800	3480	13800	9420	11700	6710	e10000	3090	9820	5280	9220
18	13700	12800	4000	11500	e9800	10500	7600	8000	3100	10700	11700	9430
19	14200	13600	e2980	10400	10400	11000	e9000	8840	e3720	e10800	11700	9550
20	e14500	14500	1950	e9140	10900	11800	11500	10500	4440	10900	e10800	9770
21	14700	15400	2620	7870	10900	7780	5290	11300	5420	e11100	9970	9060
22	14700	e14200	e3740	8020	e9000	7630	e5000	11000	5440	11300	10300	9910
23	15200	e13100	4850	9620	7090	9660	5300	10900	e5870	19500	10500	e10100
24	15200	e11900	4610	9460	7010	10700	5610	e7000	6300	e15800	e11100	10200
25	2850	10800	e4260	9780	3660	10900	6460	3140	6130	12100	11700	10400
26	e2780	10800	3910	e9850	3860	11400	7390	5030	8210	e10400	10700	10500
27	2720	10100	e3960	9920	3730	e11600	8900	1970	e6260	8770	10700	10600
28	e3500	10100	4010	8560	4040	11700	8900	1960	4310	8770	8960	10400
29	e5000	10900	e5520	8220	e6420	12300	10300	1860	4320	9120	e10400	10700
30	7480	11600	7040	e9810	---	12300	10300	2160	5540	9700	11800	10700
31	5870	---	7310	11400	---	12400	---	1520	---	10400	e8950	---
MEAN	9890	9900	8930	9880	7040	9940	10400	8950	3460	9450	8500	8450
MAX	15200	15400	16800	13800	11000	12400	14600	14800	8210	19500	11800	10700
MIN	2720	3250	1950	7780	2480	5870	5000	1520	1040	5070	3850	5790

WTR YR 1992 MEAN 8750 MAX 19500 MIN 1040

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.5	8.0	e9.0	e10.0	e12.0	13.0	13.0	e24.0	22.0	29.0	30.0	28.0
2	21.0	6.0	9.0	10.0	e12.0	19.0	12.0	26.0	24.0	28.0	27.0	32.0
3	25.0	5.0	10.0	e8.0	12.0	18.0	e14.0	e23.5	24.0	e29.0	28.0	28.0
4	22.0	e8.0	e12.0	7.0	10.0	19.0	15.0	21.0	26.0	e29.0	30.0	29.0
5	14.5	11.0	e13.5	e9.0	9.5	19.0	17.0	19.0	25.0	30.0	30.0	30.0
6	15.0	12.0	15.0	e11.0	10.0	20.0	15.0	e22.0	26.0	30.0	e30.0	e29.0
7	15.0	5.0	11.0	13.0	10.0	18.0	e18.0	25.0	23.0	25.0	31.0	28.0
8	24.0	5.0	14.0	10.0	9.0	e17.0	22.0	29.0	25.0	e27.0	e30.0	28.0
9	23.0	5.0	16.5	10.0	10.0	17.0	21.0	30.0	24.0	29.0	30.0	e27.0
10	e20.5	e7.0	15.0	10.0	e12.0	18.0	26.0	e26.5	27.0	31.0	30.0	e26.0
11	18.0	9.0	e16.0	6.0	14.0	14.0	25.0	23.0	27.0	32.0	28.0	25.0
12	19.0	12.5	17.0	e7.0	12.0	13.0	18.0	30.0	28.0	30.0	30.0	26.0
13	e19.5	14.5	15.0	8.0	11.0	13.0	15.0	29.0	e28.0	24.0	30.0	28.0
14	e20.0	e14.5	15.0	6.5	14.0	e16.0	e18.0	24.0	29.0	26.0	30.0	28.0
15	e20.5	15.0	10.0	e6.0	13.0	19.0	21.0	23.0	29.0	26.0	27.0	23.0
16	21.0	15.0	9.0	5.0	14.0	19.0	20.0	e23.0	27.0	26.0	24.0	30.0
17	23.0	12.0	8.0	4.0	13.0	19.0	24.0	e24.0	29.0	27.0	20.0	31.0
18	25.5	17.0	7.0	5.0	e14.0	17.0	24.0	24.0	29.0	30.0	20.0	32.0
19	14.0	12.0	8.0	5.0	15.0	14.0	22.0	28.0	e28.0	e28.0	20.0	e32.0
20	e18.5	15.0	8.0	e5.0	15.0	13.0	19.0	24.0	27.0	25.0	e24.0	32.0
21	23.0	15.0	6.5	5.0	16.0	18.0	18.0	24.0	24.0	e25.0	28.0	28.0
22	22.0	e14.5	e7.5	8.0	e14.0	12.0	19.0	24.0	24.0	25.0	23.0	24.0
23	26.0	e14.0	8.5	9.0	13.0	11.0	20.0	26.0	e26.5	26.0	20.0	e25.0
24	26.0	e13.5	7.0	10.0	10.0	17.0	21.0	24.0	29.0	e25.0	e22.0	25.0
25	20.5	13.0	e6.5	6.0	10.0	19.0	20.0	21.0	26.0	25.0	24.0	23.0
26	e19.0	13.0	6.0	e7.5	12.0	15.0	24.0	19.0	29.0	e30.0	28.0	e20.0
27	17.0	15.0	e6.5	9.0	13.0	e18.0	19.0	17.0	e28.0	35.0	28.0	18.0
28	e15.0	17.0	7.0	9.0	15.0	22.0	19.0	16.0	28.0	34.0	24.0	18.0
29	e12.0	12.0	e8.0	11.0	e14.0	15.0	21.0	17.0	28.0	32.0	e23.5	28.0
30	10.0	9.0	9.0	e11.5	---	14.0	23.0	17.0	30.0	32.0	23.0	26.0
31	7.0	---	9.0	12.0	---	16.0	---	19.0	---	25.0	e26.0	---
MEAN	19.3	11.5	10.3	8.2	12.4	16.5	19.4	23.3	26.6	28.2	26.4	26.9
MAX	26.0	17.0	17.0	13.0	16.0	22.0	26.0	30.0	30.0	35.0	31.0	32.0
MIN	7.0	5.0	6.0	4.0	9.0	11.0	12.0	16.0	22.0	24.0	20.0	18.0

WTR YR 1992 MEAN 19.1 MAX 35.0 MIN 4.0

e Estimated



## BRAZOS RIVER BASIN

08082700 MILLERS CREEK NEAR MUNDAY, TX

LOCATION.--Lat 33°19'45", long 99°27'53", Throckmorton County, Hydrologic Unit 12060101, near right bank at downstream side of bridge on Farm Road 1720, 12.7 mi southeast of Munday, and 24.6 mi upstream from mouth.

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

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

Water-quality records.--Sediment records: October 1976 to September 1978.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,350 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good, except those for periods of estimated daily discharges, which are fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1883 occurred June 13, 1930, and exceeded 18.0 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 5	0230	1,130	13.23	June 3	1100	440	8.63
Feb. 25	2330	637	11.02	June 8	1600	3,190	14.35
May 29	1700	543	9.98				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.42	7.4	12	1.7	.37	19	.67	.83	.00
2	.00	.00	.00	.37	5.3	8.8	1.4	.32	204	.44	.34	.00
3	.00	.00	.00	.32	15	7.2	1.3	.24	413	.38	.15	.00
4	.00	.00	.00	.27	517	7.1	1.5	.20	160	.36	.09	.00
5	.00	.00	.00	.27	809	10	1.9	.20	91	.29	.05	.00
6	.00	.00	.00	.23	207	19	2.3	.19	503	.21	.00	.00
7	.00	.00	.00	.23	44	11	1.3	.17	825	.31	.00	.00
8	.00	.00	.00	.20	22	7.1	1.5	.17	2340	.40	.00	.00
9	.00	.00	.00	.17	15	5.1	1.5	.17	888	.25	.00	.00
10	.00	.00	.00	.17	11	3.7	1.2	.25	254	.18	.00	.00
11	.00	.00	.00	.14	8.5	2.6	1.1	.70	206	.14	.00	.00
12	.00	.00	.36	.14	7.0	1.5	.81	.34	72	.12	.00	.00
13	.00	.00	.11	2.6	5.8	1.3	.78	.18	57	.12	.00	.00
14	.00	.00	.03	3.3	5.1	1.2	.90	.13	87	.12	.00	.00
15	.00	.00	.00	.96	4.5	1.0	.93	.11	161	.12	.00	.00
16	.00	.00	.00	.52	3.8	1.0	.74	.11	41	.13	.00	.00
17	.00	.00	.00	.29	3.2	4.6	1.6	.13	17	.14	.00	.00
18	.00	.00	.00	.35	2.5	78	.86	.12	e8.9	.12	.00	.00
19	.00	.00	7.5	.60	1.6	81	.73	.13	e6.5	.12	.00	.00
20	.00	.00	87	.62	1.3	20	.66	.09	e6.0	.12	.00	.00
21	.00	.00	144	12	e.94	11	.83	.07	e5.5	.13	.00	.00
22	.00	.00	70	29	e.58	7.2	.72	.06	e5.0	.14	.00	.00
23	.00	.00	43	48	e.23	5.3	.64	.06	e4.8	.14	.00	.00
24	.00	.00	25	27	31	3.5	.53	.12	e4.0	.14	.00	.00
25	.00	.00	14	13	446	2.3	.50	1.9	e3.1	.14	.00	.00
26	.00	.00	.7.2	9.0	435	1.8	.49	6.5	e2.7	.14	.00	.00
27	.00	.00	3.6	19	86	1.6	.51	3.2	e1.9	.14	.00	.00
28	1.1	.00	2.7	43	27	1.9	.46	79	e1.3	.26	.00	.00
29	.05	.00	1.0	35	17	2.9	.56	419	e.92	.15	.00	.00
30	.00	.00	.68	19	---	3.7	.44	231	.84	6.5	.00	.00
31	.00	---	.49	12	---	2.6	---	35	---	3.7	.00	---
TOTAL	1.17	0.00	406.67	278.17	2739.75	327.0	30.39	780.23	6389.46	16.32	1.46	0.00
MEAN	.038	.000	13.1	8.97	94.5	10.5	1.01	25.2	213	.53	.047	.000
MAX	1.1	.00	144	48	809	81	2.3	419	2340	6.5	.83	.00
MIN	.00	.00	.00	.14	.23	1.0	.44	.06	.84	.12	.00	.00
AC-FT	2.3	.00	807	552	5430	649	60	1550	12670	32	2.9	.00
CFSM	.00	.00	.13	.09	.91	.10	.01	.24	2.05	.01	.00	.00
IN.	.00	.00	.15	.10	.98	.12	.01	.28	2.29	.01	.00	.00

e Estimated

BRAZOS RIVER BASIN

175

08082700 MILLERS CREEK NEAR MUNDAY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

MEAN	4.93	1.72	.83	2.11	5.54	2.87	6.63	16.3	33.3	2.24	19.1	7.29
MAX	92.7	37.7	13.1	34.8	94.5	25.8	128	182	420	43.4	403	72.1
(WY)	1987	1973	1992	1968	1992	1973	1990	1982	1982	1967	1978	1988
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1964	1966	1964	1964	1966	1964	1964	1967	1966	1964	1964	1965

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1964 - 1992	
ANNUAL TOTAL	5755.90		10970.62			
ANNUAL MEAN	15.8		30.0		8.54	
HIGHEST ANNUAL MEAN					50.7	
LOWEST ANNUAL MEAN					.033	
HIGHEST DAILY MEAN	1390	Jun 9	2340	Jun 8	8730	Aug 4 1978
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 2	.00	Oct 1 1963
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 2	.00	Oct 1 1963
INSTANTANEOUS PEAK FLOW	2730	Jun 9	3190	Jun 8	34600	Aug 4 1978
INSTANTANEOUS PEAK STAGE	14.13	Jun 9	14.35	Jun 8	17.53	Aug 4 1978
ANNUAL RUNOFF (AC-FT)	11420		21760		6190	
ANNUAL RUNOFF (CFSM)	.15		.29		.082	
ANNUAL RUNOFF (INCHES)	2.06		3.92		1.12	
10 PERCENT EXCEEDS	3.2		30		1.3	
50 PERCENT EXCEEDS	.00		.25		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

## BRAZOS RIVER BASIN

## 08082800 MILLERS CREEK RESERVOIR NEAR BOMARTON, TX

LOCATION.--Lat 33°24'32", long 99°23'19", Baylor County, Hydrologic Unit 12060101, at intake tower on left bank of Millers Creek, 1.1 mi upstream from dam, 7.1 mi southeast of Bomarton, and 13.2 mi upstream from mouth.

DRAINAGE AREA.--240 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1974 to current year.

Water-quality records.--Chemical analyses: October 1975 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Freese and Nichols, Inc., Consulting Engineers bench mark).

REMARKS.--The reservoir is formed by an earthfill dam 9,250 ft long. The dam was completed in 1974 and storage began in July 1974. Dead storage, 1,240 acre-ft below elevation, 1,303.4 ft. The reservoir is used for municipal and industrial water supply. The uncontrolled spillway is an open cut 3,000 ft wide located on left bank about 800 ft upstream from levee. The service spillway is an uncontrolled morning-glory-type drop inlet, 16.5 ft square, that discharges through a 5.0-foot-square concrete conduit. Low-flow releases are made by valves in the outlet vault of the drop inlet. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,355.0	-
Crest of spillway.....	1,340.1	49,080
Crest of spillway.....	1,334.4	32,230
Lowest gated outlet (invert).....	1,305.0	1,660
Dead storage.....	1,303.4	1,240

COOPERATION.--The area-capacity tables, prepared from data of Sept. 17, 1965, were provided by Freese and Nichols, Inc., Consulting Engineers. Record of diversions provided by North Central Texas Municipal Water Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,850 acre-ft June 26, 1982 (elevation, 1,341.42 ft); minimum contents were below dead storage elevation prior to Apr. 20, 1977, and July 17 to Aug. 3, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 50,440 acre-ft June 10 at 0100 hours (elevation, 1,340.48 ft); minimum, 28,180 acre-feet Dec. 6-8 (elevation, 1,332.65 ft).

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

1,332.0	26,800	1,336.0	36,340	1,340.0	48,730
1,334.0	31,240	1,338.0	42,170	1,342.0	56,050

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29460	28760	28250	30550	31860	34080	32700	31980	33540	33090	31560	30220
2	29440	28670	28270	30550	31910	33870	32700	31930	34530	32970	31440	30220
3	29390	28670	28250	30520	32280	33740	32700	31880	35240	32970	31460	30130
4	29230	28650	28230	30520	34600	33640	32670	31860	35290	32940	31390	30130
5	29210	28650	28210	30520	36400	33460	32650	31810	35240	32800	31310	30080
6	29210	28630	28210	30520	36210	33410	32670	31710	36820	32720	31260	30040
7	29120	28530	28180	30520	35550	33310	32670	31660	41060	32620	31170	29990
8	29050	28590	28250	30500	35020	33270	32650	31640	48220	32500	31120	29950
9	29050	28590	28230	30480	34790	33040	32620	31510	50410	32520	31030	29920
10	29000	28570	28230	30480	34520	33040	32600	31730	49800	32350	30990	29780
11	29000	28570	28350	30480	34340	33020	32550	31730	48420	32280	30890	29780
12	28980	28570	28350	30450	34100	32920	32470	31680	46700	32180	30890	29760
13	28950	28570	28330	30640	34030	32890	32500	31640	44930	32080	30850	29690
14	28840	28610	28310	30620	33870	32850	32520	31640	43340	32150	30730	29670
15	28820	28630	28290	30550	33820	32800	32500	31560	41690	32100	30710	29620
16	28780	28630	28270	30590	33710	32750	32450	31510	39830	32150	30660	29580
17	28800	28610	28250	30570	33590	32890	32600	31460	38070	32150	30570	29480
18	28720	28630	28290	30640	33240	32920	32600	31510	36740	32100	30520	29390
19	28670	28570	28530	30660	33220	33120	32520	31590	35810	32100	30520	29390
20	28670	28570	29280	30690	32990	33120	32450	31540	35130	32080	30520	29460
21	28630	28550	29850	30780	32940	33120	32450	31510	34680	32080	30500	29390
22	28610	28500	30270	30940	32870	32990	32380	31510	34370	32060	30430	29300
23	28570	28460	30340	31100	32800	32940	32350	31490	34030	31980	30390	29230
24	28550	28440	30450	31190	33090	32890	32230	31490	33870	31910	30340	29180
25	28530	28400	30480	31190	34050	32850	32200	31610	33590	31780	30290	29090
26	28650	28380	30520	31290	35000	32800	32180	31590	33440	31730	30220	29020
27	28870	28380	30520	31440	34870	32850	32180	31590	33340	31660	30180	28980
28	29000	28350	30520	31590	34580	32870	32060	32130	33270	31730	30150	28930
29	28780	28330	30550	31730	34260	32820	32080	32850	33270	31680	30080	28890
30	28800	28250	30550	31810	---	32770	32060	33460	33170	31590	29990	28870
31	28800	---	30520	31860	---	32720	---	33510	---	31610	30020	---
MAX	29460	28760	30550	31860	36400	34080	32700	33510	50410	33090	31560	30220
MIN	28530	28250	28180	30450	31860	32720	32060	31460	33170	31590	29990	28670
(↑)	1332.94	1332.68	1333.69	1334.25	1335.21	1334.60	1334.30	1334.92	1334.78	1334.15	1333.47	1332.97
(Φ)	-680	-550	+2270	+1340	+2400	-1540	-660	+1450	-340	-1560	-590	-1150
(↑↑)	102	81.5	93.2	91.2	78.2	96.6	95.4	102	107	132	131	114

CAL YR 1991 MAX 35840 MIN 24800 (Φ) +3740 (↑↑) 1258  
WTR YR 1992 MAX 50410 MIN 28180 (Φ) -610 (↑↑) 1224

(↑) Elevation, in feet at end of month.

(Φ) Change in contents, in acre-feet.

(↑↑) Diversions, in acre-feet, for municipal use by North Central Texas Municipal Water Authority.

## BRAZOS RIVER BASIN

177

08083100 CLEAR FORK BRAZOS RIVER NEAR ROBY, TX

LOCATION.--Lat 32°47'15", long 100°23'18", Fisher County, Hydrologic Unit 12060102, on right bank at downstream side of pile bent of bridge on State Highway 70, 3.0 mi north of Roby, 3.2 mi upstream from Cottonwood Creek, and 255.7 mi upstream from mouth.

DRAINAGE AREA.--228 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,885.09 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions above station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since the 1890's, about 22 ft in May and June 1935, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 18	2330	300	8.99				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.3	4.3	5.6	9.2	14	12	5.0	11	19	5.0	45
2	4.3	4.9	4.4	5.6	9.4	13	13	4.9	15	7.9	18	22
3	4.2	4.7	4.4	5.4	12	17	13	4.8	11	6.4	6.8	7.8
4	4.2	4.6	4.4	5.5	46	33	13	4.8	9.0	6.0	5.4	5.0
5	4.0	4.6	4.4	5.6	67	17	13	4.6	8.2	5.9	5.1	4.1
6	4.1	4.5	4.4	5.7	39	13	18	4.6	7.7	5.6	4.9	3.9
7	4.0	4.5	4.5	5.7	24	11	24	4.6	7.3	5.5	4.8	3.8
8	4.0	4.5	4.6	5.6	16	11	15	4.5	7.2	5.4	4.7	3.8
9	4.0	4.5	4.5	5.6	14	11	13	4.5	8.2	5.4	4.7	3.7
10	3.9	4.5	4.5	5.5	13	10	12	4.7	9.0	5.3	4.6	3.7
11	3.8	4.4	4.7	5.5	12	9.9	11	6.2	6.8	5.2	4.6	3.7
12	3.8	4.5	4.8	5.7	12	10	9.8	5.4	23	5.2	5.8	3.7
13	3.7	4.5	4.8	7.1	12	11	9.1	4.6	26	5.2	4.8	3.7
14	3.7	4.5	5.0	12	12	11	8.6	4.6	11	5.2	4.8	3.7
15	3.7	4.5	4.8	8.9	12	11	8.3	4.5	7.4	5.2	4.8	3.7
16	3.7	4.6	4.5	6.9	10	11	8.1	4.4	6.5	5.1	4.7	3.7
17	3.7	4.5	4.5	6.2	11	12	7.8	4.3	6.2	5.1	4.7	3.7
18	3.7	4.5	4.6	7.0	10	11	7.4	4.3	6.1	49	4.7	3.7
19	3.6	4.4	5.7	7.2	9.9	11	7.0	4.3	6.0	67	4.7	3.7
20	3.5	4.4	10	7.6	9.9	11	6.7	4.3	6.0	5.6	4.8	3.7
21	3.5	4.4	25	9.2	10	11	6.3	4.3	6.0	5.4	4.7	3.7
22	3.6	4.4	14	12	10	11	6.1	4.2	6.1	5.5	4.7	3.7
23	3.5	4.3	29	13	11	12	5.8	4.3	30	5.2	4.6	3.6
24	3.5	4.3	20	9.6	50	12	5.6	5.1	13	5.2	4.6	3.5
25	3.5	4.4	8.6	8.1	117	12	5.5	34	7.0	5.1	4.5	3.6
26	3.6	4.4	7.3	8.4	63	12	5.4	38	6.0	5.1	4.6	3.6
27	6.5	4.4	7.8	9.6	35	13	5.3	17	19	5.0	4.6	3.5
28	43	4.4	7.1	12	21	13	5.3	87	44	5.0	4.6	3.5
29	37	4.4	6.3	12	16	13	5.3	115	9.5	5.0	4.7	3.5
30	15	4.3	6.0	10	---	13	5.3	31	21	4.9	4.7	3.5
31	6.6	---	5.8	9.6	---	12	---	14	---	4.9	17	---
TOTAL	207.2	135.1	234.7	243.4	693.4	392.9	285.7	447.8	360.2	286.5	175.7	175.5
MEAN	6.68	4.50	7.57	7.85	23.9	12.7	9.52	14.4	12.0	9.24	5.67	5.85
MAX	43	5.3	29	13	117	33	24	115	44	67	18	45
MIN	3.5	4.3	4.3	5.4	9.2	9.9	5.3	4.2	6.0	4.9	4.5	3.5
AC-FT	411	268	466	483	1380	779	567	888	714	568	349	348
CFSM	.03	.02	.03	.03	.10	.06	.04	.06	.05	.04	.02	.03
IN.	.03	.02	.04	.04	.11	.06	.05	.07	.06	.05	.03	.03

## BRAZOS RIVER BASIN

08083100 CLEAR FORK BRAZOS RIVER NEAR ROBY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)

MEAN	12.3	2.84	3.05	2.96	3.80	3.77	6.95	29.7	15.7	6.81	10.4	22.9
MAX	142	17.6	15.8	12.7	23.9	19.6	51.6	257	84.4	60.6	141	249
(WY)	1966	1987	1987	1987	1992	1987	1981	1982	1981	1975	1971	1969
MIN	.16	.26	.34	.36	.39	.34	.15	.38	.80	.17	.18	.060
(WY)	1980	1965	1990	1965	1990	1965	1965	1962	1984	1964	1989	1965

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1962 - 1992

ANNUAL TOTAL	4210.77		3638.1			
ANNUAL MEAN	11.5		9.94		10.2	
HIGHEST ANNUAL MEAN					29.6	1982
LOWEST ANNUAL MEAN					1.29	1964
HIGHEST DAILY MEAN	677	Jun 9	117	Feb 25	3860	Oct 18 1965
LOWEST DAILY MEAN	.55	Jun 1	3.5	Oct 20	.00	Apr 24 1963
ANNUAL SEVEN-DAY MINIMUM	.58	May 26	3.5	Oct 19	.00	Aug 3 1964
INSTANTANEOUS PEAK FLOW			300	Jul 18	7050	Oct 18 1965
INSTANTANEOUS PEAK STAGE			8.99	Jul 18	21.52	Sep 19 1969
INSTANTANEOUS LOW FLOW			3.5	*	.00	at times
ANNUAL RUNOFF (AC-FT)	8350		7220		7370	
ANNUAL RUNOFF (CFSM)	.051		.044		.045	
ANNUAL RUNOFF (INCHES)	.69		.59		.61	
10 PERCENT EXCEEDS	11		17		7.8	
50 PERCENT EXCEEDS	3.9		5.6		1.8	
90 PERCENT EXCEEDS	1.0		3.8		.40	

\* No flow Oct. 19-26, Sept. 23-30.



## BRAZOS RIVER BASIN

179

08084000 CLEAR FORK BRAZOS RIVER AT NUGENT, TX

LOCATION.--Lat 32°41'24", long 99°40'09", Jones County, Hydrologic Unit 12060102, on right bank 33 ft downstream from bridge on Farm Road 600 at Nugent, 2 mi downstream from Elm Creek, 4 mi upstream from Deadman Creek, and 167.8 mi upstream from mouth.

DRAINAGE AREA.--2,199 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: August 1948 to September 1953. Chemical and biochemical analyses: February 1968 to September 1981.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,531.91 ft above National Geodetic Vertical Datum of 1929 (levels by Brazos River Authority). Prior to Dec. 12, 1933, nonrecording gage at site 575 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow is affected by four upstream reservoirs with a total capacity of 103,600 acre-ft. There are numerous diversions above station for municipal supply and oil field operation that materially affect streamflow.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--14 years (water years 1925-38) prior to completion of Fort Phantom Hill Reservoir, 186 ft<sup>3</sup>/s (134,800 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-38).--Maximum discharge observed, 47,000 ft<sup>3</sup>/s Sept. 8, 1932 (gage height, 27.05 ft), site then in use, from rating curve extended above 25,000 ft<sup>3</sup>/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 30 ft in 1876; floods in 1900 and May 1923 reached stages of 24 and 24.5 ft, respectively, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	135	36	331	314	837	117	71	258	364	625	133
2	64	96	35	293	282	668	123	69	493	686	381	446
3	60	77	35	258	345	576	135	65	749	520	200	500
4	56	69	35	230	1950	667	135	63	391	639	155	164
5	49	63	35	213	4970	618	136	62	261	284	113	85
6	47	59	35	190	4120	717	146	60	206	204	84	62
7	45	56	36	183	1890	472	147	58	182	168	70	53
8	43	53	36	157	1160	405	146	56	160	138	61	48
9	42	51	37	143	898	353	149	55	175	119	54	45
10	40	50	37	132	721	306	137	56	239	103	49	41
11	39	47	49	129	615	295	128	56	348	89	47	40
12	38	47	86	128	541	268	115	55	382	80	44	39
13	37	47	86	131	439	247	110	55	627	70	275	38
14	35	47	70	151	408	237	113	55	1040	65	879	39
15	33	47	64	142	353	212	119	53	700	108	508	37
16	32	47	56	147	323	221	125	65	477	133	102	36
17	32	48	51	137	310	218	264	57	341	106	79	35
18	32	47	46	143	270	221	721	53	272	138	70	34
19	31	45	106	182	242	187	395	52	230	206	62	33
20	30	43	2740	204	229	180	190	52	192	260	58	33
21	30	41	6300	218	216	178	142	52	255	323	54	33
22	29	40	3150	314	211	152	126	53	442	197	55	34
23	29	39	1990	329	210	146	112	51	904	140	50	31
24	29	38	1400	304	1060	142	99	56	625	109	48	30
25	30	37	1010	256	5150	131	91	112	411	86	45	30
26	81	37	811	239	6360	131	87	679	319	76	44	29
27	151	37	755	457	3540	126	83	1020	272	65	42	28
28	781	37	661	532	1540	136	79	498	236	60	42	28
29	1250	37	550	484	1060	131	74	670	316	84	41	28
30	1130	37	447	433	---	126	72	867	315	104	40	28
31	302	---	382	378	---	123	---	459	---	205	43	---
TOTAL	4693	1554	21167	7568	39727	9427	4616	5685	11818	5929	4420	2240
MEAN	151	51.8	683	244	1370	304	154	183	394	191	143	74.7
MAX	1250	135	6300	532	6360	837	721	1020	1040	686	879	500
MIN	29	37	35	128	210	123	72	51	160	60	40	28
AC-F1	9310	3080	41980	15010	78800	18700	9160	11280	23440	11760	8770	4440

## BRAZOS RIVER BASIN

08084000 CLEAR FORK BRAZOS RIVER AT NUGENT, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1992#, BY WATER YEAR (WY)

MEAN	134	35.8	37.8	23.7	62.7	38.8	72.1	254	157	75.3	54.6	105
MAX	1438	516	683	244	1370	389	1159	4694	1385	728	496	610
(WY)	1987	1975	1992	1992	1992	1987	1957	1957	1957	1945	1940	1969
MIN	.000	.56	.090	.032	.046	.010	.017	2.28	1.88	.035	.000	.000
(WY)	1953	1954	1955	1957	1954	1955	1955	1964	1984	1952	1956	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1939 - 1992#
ANNUAL TOTAL	68146.2	118844	
ANNUAL MEAN	187	325	87.7
HIGHEST ANNUAL MEAN			662
LOWEST ANNUAL MEAN			9.31
HIGHEST DAILY MEAN	6300 Dec 21	6360 Feb 26	18800 May 26 1957
LOWEST DAILY MEAN	2.9 Jun 1	28 Sep 27	.00 Aug 10 1946
ANNUAL SEVEN-DAY MINIMUM	4.5 May 26	29 Sep 24	.00 Aug 10 1946
INSTANTANEOUS PEAK FLOW		7360 Dec 21	19500 May 26 1957
INSTANTANEOUS PEAK STAGE		16.87 Dec 21	24.17 May 26 1957
INSTANTANEOUS LOW FLOW		27 Sep 28	.00 at times
ANNUAL RUNOFF (AC-FT)	135200	235700	63510
10 PERCENT EXCEEDS	430	673	122
50 PERCENT EXCEEDS	33	127	12
90 PERCENT EXCEEDS	12	37	.60

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

181

08084800 CALIFORNIA CREEK NEAR STAMFORD, TX

LOCATION.--Lat 32°55'51", long 99°38'32", Jones County, Hydrologic Unit 12060103, near right bank at downstream side of bridge on Farm Road 142, 9 mi east of Stamford, and 19.4 mi upstream from Paint Creek.

DRAINAGE AREA.--478 mi<sup>2</sup>.

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

Water-quality records.--Specific conductance: October 1962 to September 1979. Water temperature: October 1962 to September 1979.

REVISED RECORDS.--WSP 2122: 1965. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,470 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are three small diversions upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1962, reached a stage of 29.6 ft, from floodmark; flood of July 1961 (stage unknown) was third highest. Other large floods are reported to have occurred in June 1909, June 24, 1915, and May 1957; flood of September 1962 reached a stage of 28.1 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 29	1610	716	13.03	June 15	1510	1,310	16.39
Dec. 20	1740	1,960	19.36	June 24	1130	1,830	18.84
Feb. 5	1700	3,110	23.30	July 5	1700	2,480	21.30
Feb. 26	2230	3,920	25.08	July 15	1330	966	14.57
Mar. 4	1640	431	11.09	July 19	0130	1,020	14.86
June 2	0350	1,210	15.90	Aug. 1	1730	1,310	16.44
June 10	0430	1,930	19.25	Aug. 15	0600	578	12.15

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	99	10	39	48	195	19	8.5	74	32	1160	66
2	7.3	48	7.4	35	44	138	19	8.5	866	34	434	186
3	7.0	35	6.8	33	107	112	19	8.2	454	392	77	e50
4	6.7	28	8.4	32	2320	323	19	8.0	115	1330	41	e23
5	6.9	24	7.9	31	3030	342	24	7.8	55	2290	33	e17
6	7.1	20	7.6	30	2550	182	22	7.2	40	583	e28	e14
7	5.6	16	8.3	28	823	124	20	6.7	32	99	e23	e11
8	5.2	15	7.6	29	344	90	21	6.9	31	54	e19	e10
9	5.2	16	8.1	25	191	71	20	6.6	362	41	e15	e8.4
10	5.8	12	7.4	22	132	58	20	8.1	1580	36	13	e7.5
11	5.7	11	10	21	108	42	19	7.5	980	33	11	e6.8
12	4.9	8.8	30	22	88	37	17	7.9	590	30	9.4	e6.2
13	4.6	8.4	46	32	74	35	15	10	246	29	40	e5.8
14	4.4	8.8	33	38	68	34	16	76	319	27	245	e5.6
15	4.3	11	22	41	63	33	121	13	1160	613	471	e5.4
16	4.3	12	16	34	57	32	24	8.4	497	122	68	e5.2
17	4.5	9.1	13	32	55	32	166	e8.0	106	39	40	e5.0
18	4.4	9.1	12	31	51	31	49	7.5	51	201	33	e4.8
19	4.3	11	31	36	47	31	27	6.7	39	449	28	e4.7
20	4.4	9.4	1330	45	48	30	25	6.6	33	86	24	e4.5
21	4.4	8.1	1540	96	44	28	18	6.9	33	43	21	e4.4
22	4.3	7.5	742	228	39	28	12	8.8	160	30	19	e4.3
23	4.5	8.4	495	159	41	26	11	42	972	e26	18	e4.2
24	4.6	7.5	259	107	724	24	13	17	1630	e20	16	e4.1
25	4.6	6.7	147	66	2900	23	9.9	125	507	e19	14	e4.0
26	4.7	7.0	106	59	3660	22	9.2	73	162	e25	13	e4.0
27	10	7.3	95	216	3070	22	8.9	93	64	e19	12	e3.9
28	376	8.3	77	181	698	23	8.8	93	45	e18	11	e3.8
29	660	8.4	56	112	333	25	8.9	45	38	32	10	e3.8
30	250	12	47	82	---	22	8.7	36	34	78	9.6	e3.8
31	178	---	41	59	---	21	---	36	---	432	22	---
TOTAL	1611.6	492.8	5227.5	2001	21757	2236	790.4	803.8	11275	7262	2978.0	487.2
MEAN	52.0	16.4	169	64.5	750	72.1	26.3	25.9	376	234	96.1	16.2
MAX	660	99	1540	228	3660	342	166	125	1630	2290	1160	186
MIN	4.3	6.7	6.8	21	39	21	8.7	6.6	31	18	9.4	3.8
AC-FT	3200	977	10370	3970	43160	4440	1570	1590	22360	14400	5910	966
CFSM	.11	.03	.35	.14	1.57	.15	.06	.05	.79	.49	.20	.03
IN.	.13	.04	.41	.16	1.69	.17	.06	.06	.88	.57	.23	.04

e Estimated

## BRAZOS RIVER BASIN

08084800 CALIFORNIA CREEK NEAR STAMFORD, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1992, BY WATER YEAR (WY)

MEAN	40.0	16.8	13.8	12.7	41.1	15.8	23.1	88.3	74.6	23.1	70.3	58.0
MAX	481	229	169	84.0	750	132	174	741	400	234	930	575
(WY)	1987	1973	1992	1968	1992	1973	1985	1982	1991	1992	1971	1980
MIN	.002	.11	.10	.081	.15	.092	.25	1.15	.15	.000	.000	.017
(WY)	1969	1971	1965	1965	1965	1966	1967	1984	1976	1964	1965	1968

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1963 - 1992	
ANNUAL TOTAL	33145.1		56922.3			
ANNUAL MEAN	90.8		156		39.8	
HIGHEST ANNUAL MEAN					156	
LOWEST ANNUAL MEAN					1.95	
HIGHEST DAILY MEAN	2720	Jun 9	3660	Feb 26	20400	Aug 4 1978
LOWEST DAILY MEAN	1.0	Jun 1	3.8	Sep 28	.00	Sep 11 1963
ANNUAL SEVEN-DAY MINIMUM	2.1	May 26	3.9	Sep 24	.00	May 17 1964
INSTANTANEOUS PEAK FLOW			3920	Feb 26	40000	Aug 4 1978
INSTANTANEOUS PEAK STAGE			25.08	Feb 26	31.00	Aug 4 1978
INSTANTANEOUS LOW FLOW			3.8	Sep 28	.00	*
ANNUAL RUNOFF (AC-FT)	65740		112900		28800	
ANNUAL RUNOFF (CFSM)	.19		.33		.083	
ANNUAL RUNOFF (INCHES)	2.58		4.43		1.13	
10 PERCENT EXCEEDS	131		349		32	
50 PERCENT EXCEEDS	8.6		28		2.6	
90 PERCENT EXCEEDS	3.1		5.8		.10	

\* No flow at times in 1963-67.

## 08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX

LOCATION.--Lat 32°56'04", long 99°13'27", Shackelford County, Hydrologic Unit 12060104, on right bank just downstream from pier of bridge on old Fort Griffin-Throckmorton Road, 0.4 mi northeast of Fort Griffin, 1.0 mi upstream from bridge on U.S. Highway 283, 1.7 mi upstream from Mill Creek, and 74.6 mi upstream from mouth.

DRAINAGE AREA.--3,988 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1923 to current year.

REVISED RECORDS.--WSP 1392: 1949. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,174.09 ft above National Geodetic Vertical Datum of 1929. Prior to June 23, 1932, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. There are diversions upstream from station for irrigation, municipal supply, and for oil field operations that materially affect low flow. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1900 reached a stage of 38.0 ft.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	1130	11,500	27.90	June 8	2130	5,670	16.86
Feb. 6	0830	10,900	25.70	June 11	0400	4,610	14.54
Feb. 26	2000	17,000	31.49				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	716	86	774	898	3190	355	179	870	503	612	129
2	120	394	80	671	803	2480	328	174	1730	530	1880	155
3	113	283	80	592	954	2010	333	165	3180	777	889	622
4	109	229	89	531	5520	2190	368	160	2160	1380	456	840
5	103	195	95	494	9580	2860	372	159	1400	2420	321	409
6	97	179	81	460	10500	2090	383	150	1100	2540	261	236
7	91	165	83	456	10300	1820	432	148	1000	804	198	174
8	87	149	81	431	5630	1490	416	141	4230	432	163	145
9	84	142	84	393	2700	1390	386	130	3530	331	140	127
10	84	135	81	370	2050	1180	364	126	3160	266	123	113
11	82	132	93	349	1670	1030	343	132	3840	232	110	104
12	79	130	112	331	1440	940	325	124	3210	202	99	94
13	71	124	172	355	1370	861	294	121	2870	179	95	94
14	67	121	252	434	1170	798	277	118	3190	166	92	94
15	63	120	211	535	1050	714	273	151	2630	165	764	92
16	64	123	168	458	916	655	371	169	2870	722	1160	83
17	64	119	146	403	818	635	384	136	1730	438	348	82
18	62	121	130	400	751	627	620	130	1160	295	203	77
19	53	118	231	445	662	627	953	125	903	517	172	69
20	62	112	5320	549	583	589	761	118	735	648	157	68
21	66	109	7790	660	541	567	448	118	632	446	131	66
22	64	104	11100	902	521	553	340	134	750	453	118	62
23	64	101	8690	1310	495	511	299	136	1200	390	107	64
24	63	96	4150	1010	2580	466	272	152	2630	270	100	68
25	64	93	2350	804	9510	438	245	204	2400	216	115	67
26	71	91	1690	713	15300	411	224	287	1210	179	93	67
27	144	90	1460	1050	15900	383	208	664	933	157	91	65
28	839	89	1370	1810	13200	386	203	1320	639	146	87	64
29	2300	86	1190	1460	6370	402	199	968	544	136	83	59
30	2130	87	1020	1190	---	388	189	957	513	121	80	59
31	1420	---	892	1030	---	371	---	1170	---	136	100	---
TOTAL	8909	4753	49377	21370	123782	33052	10965	8966	56949	16197	9348	4448
MEAN	287	158	1593	689	4268	1066	365	289	1898	522	302	148
MAX	2300	716	11100	1810	15900	3190	953	1320	4230	2540	1880	840
MIN	53	86	80	331	495	371	189	118	513	121	80	59
AC-FT	17670	9430	97940	42390	245500	65560	21750	17780	113000	32130	18540	8820

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1992, BY WATER YEAR (WY)

	MEAN	278	79.3	91.2	57.9	151	93.0	189	651	475	216	193	360
MAX	2866	1010	1593	689	4268	1066	3098	7312	2992	2278	6071	4665	
(WY)	1942	1975	1992	1992	1992	1992	1957	1957	1935	1932	1978	1932	
MIN	.000	.000	.000	.000	.000	.000	.000	4.90	.078	.000	.000	.000	
(WY)	1935	1944	1944	1950	1950	1928	1952	1960	1974	1952	1934	1931	

## SUMMARY STATISTICS

	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1924 - 1992
ANNUAL TOTAL	179639	348116	
ANNUAL MEAN	492	951	237
HIGHEST ANNUAL MEAN			1177
LOWEST ANNUAL MEAN			8.78
HIGHEST DAILY MEAN	11100	15900	72800
LOWEST DAILY MEAN	16	53	.00
ANNUAL SEVEN-DAY MINIMUM	27	62	.00
INSTANTANEOUS PEAK FLOW		17000	149000
INSTANTANEOUS PEAK STAGE		31.49	38.88
INSTANTANEOUS LOW FLOW		52	.00
ANNUAL RUNOFF (AC-FT)	356300	690500	172000
10 PERCENT EXCEEDS	1220	2220	333
50 PERCENT EXCEEDS	101	341	22
90 PERCENT EXCEEDS	41	83	.00



## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX

LOCATION.--Lat 32°43'58", long 99°08'25", Shackelford County, Hydrologic Unit 12060105, on left bank 0.5 mi downstream from Salt Prong Hubbard Creek, 2.8 mi upstream from Newcomb Creek, 4.5 mi upstream from U.S. Highway 180, 9.1 mi east of Albany, 22.6 mi upstream from Hubbard Creek Reservoir, and 35.2 mi upstream from mouth.

DRAINAGE AREA.--613 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,184.99 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 1968, water-stage recorder at site 2.1 mi downstream at datum 7.63 ft lower.

REMARKS.--No estimated daily discharges. Records good.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	2300	2,990	11.43	Mar. 4	1600	3,850	12.92
Dec. 20	1330	22,500	28.19	June 8	0530	4,620	14.05
Feb. 4	1330	11,700	21.26	July 31	0630	2,450	10.43
Feb. 24	2100	19,100	26.28	Sept. 1	1730	2,660	10.82

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

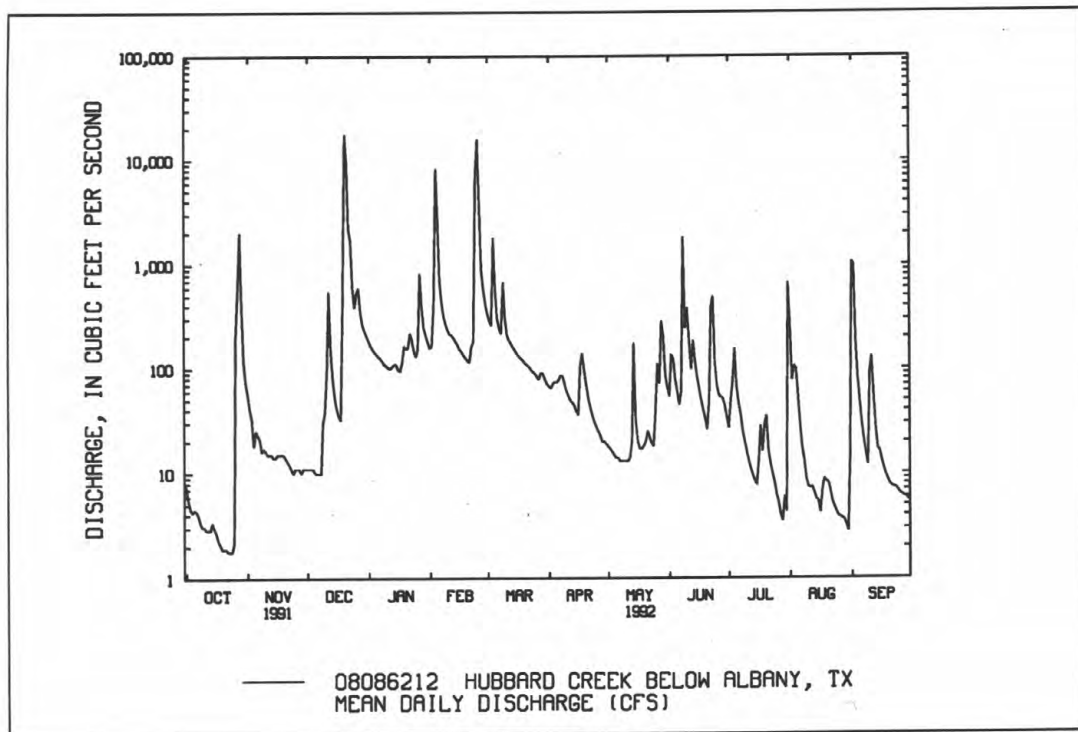
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	57	11	188	158	342	68	18	54	27	257	1060
2	5.6	41	11	169	165	289	65	17	136	49	77	999
3	4.6	33	11	156	388	262	71	16	124	76	105	180
4	4.3	18	11	147	8370	1800	75	15	79	155	99	80
5	4.5	25	10	139	2710	588	74	14	59	66	52	47
6	4.4	23	9.9	132	720	308	78	14	45	46	28	29
7	4.0	21	9.9	126	448	245	86	13	60	36	17	20
8	3.4	16	9.9	119	324	217	85	13	1820	25	13	15
9	3.1	17	30	110	271	685	72	13	244	20	8.8	12
10	3.1	16	38	107	238	309	61	13	385	16	7.4	93
11	2.9	15	93	103	214	209	55	13	187	13	7.2	131
12	2.9	15	556	100	211	188	50	14	99	11	7.3	54
13	2.9	15	154	105	198	174	47	20	186	9.5	6.5	26
14	3.4	14	81	110	184	161	44	176	119	8.4	5.6	17
15	3.0	14	53	110	170	150	39	32	83	7.7	5.4	16
16	2.7	15	41	98	154	140	36	20	64	13	4.2	13
17	2.3	15	35	95	147	131	107	17	50	28	7.0	11
18	2.1	15	32	114	136	126	141	17	40	16	8.8	9.5
19	1.9	15	355	165	127	120	97	18	33	29	8.3	8.6
20	1.9	14	17600	156	121	113	71	20	26	35	8.1	7.8
21	1.9	13	9700	159	115	109	53	25	48	16	6.9	7.4
22	1.8	12	2220	220	163	105	43	22	390	12	5.4	7.3
23	1.8	11	1710	189	182	98	36	19	496	9.8	4.8	7.2
24	1.8	9.9	612	148	6930	94	31	18	114	8.0	4.3	6.8
25	2.2	11	388	131	15900	90	28	41	70	6.2	3.9	6.4
26	206	11	543	154	3750	84	25	111	55	5.2	3.8	6.2
27	583	11	600	832	917	79	23	72	53	4.0	3.7	6.0
28	2030	10	351	405	594	90	20	287	51	3.5	3.6	5.9
29	402	11	268	251	433	90	20	206	44	6.0	3.2	5.6
30	117	11	235	211	---	80	19	86	34	4.3	2.8	5.4
31	74	---	208	181	---	72	---	65	---	669	15	---
TOTAL	3491.8	524.9	35986.7	5430	44438	7548	1720	1445	5248	1430.6	790.0	2893.1
MEAN	113	17.5	1161	175	1532	243	57.3	46.6	175	46.1	25.5	96.4
MAX	2030	57	17600	832	15900	1800	141	287	1820	669	257	1060
MIN	1.8	9.9	9.9	95	115	72	19	13	26	3.5	2.8	5.4
AC-FT	6930	1040	71380	10770	88140	14970	3410	2870	10410	2840	1570	5740
CFSM	.18	.03	1.89	.29	2.50	.40	.09	.08	.29	.08	.04	.16
IN.	.21	.03	2.18	.33	2.70	.46	.10	.09	.32	.09	.05	.18

## 08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

MEAN	113	14.5	57.7	73.6	83.2	43.1	61.4	147	51.7	6.89	140	63.4
MAX	1483	228	1161	1544	1532	243	502	906	268	46.1	3365	1170
(WY)	1982	1975	1992	1968	1992	1992	1968	1969	1989	1992	1978	1974
MTN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1969	1971	1971	1969	1971	1971	1971	1984	1984	1974	1968	1968

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1967 - 1992
ANNUAL TOTAL	52907.23	110946.1	
ANNUAL MEAN	145	303	71.4
HIGHEST ANNUAL MEAN			303
LOWEST ANNUAL MEAN			.49
HIGHEST DAILY MEAN	17600 Dec 20	17600 Dec 20	94700 Aug 4 1978
LOWEST DAILY MEAN	.00 May 21	1.8 Oct 22	.00 Apr 5 1967
ANNUAL SEVEN-DAY MINIMUM	.20 May 17	1.9 Oct 18	.00 Apr 24 1967
INSTANTANEOUS PEAK FLOW		22500 Dec 20	330000 Aug 4 1978
INSTANTANEOUS PEAK STAGE		28.19 Dec 20	41.41 Aug 4 1978
INSTANTANEOUS LOW FLOW		1.8 Oct 21	.00 at times
ANNUAL RUNOFF (AC-FT)	104900	220100	51740
ANNUAL RUNOFF (CFSM)	.24	.49	.12
ANNUAL RUNOFF (INCHES)	3.21	6.73	1.58
10 PERCENT EXCEEDS	120	352	49
50 PERCENT EXCEEDS	4.6	46	1.2
90 PERCENT EXCEEDS	1.2	5.3	.00



## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE:--October 1966 to current year.

WATER TEMPERATURE: October 1966 to current year.

INSTRUMENTATION.--Since December 1970, specific conductance is continuously recorded at this station. Since March 1982, specific conductance and water temperature are continuously recorded at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 21,200 microsiemens Feb. 15, 21, 1978; minimum measured, 180 microsiemens Oct. 27, 1984, May 13, 1985 and Oct. 6, 1986; minimum estimated, 129 microsiemens Aug. 4, 1978.

WATER TEMPERATURE (1966-80, 1983-current year): Maximum, 37.5°C July 20, 1986; minimum, 0.0°C on several days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 4,520 microsiemens May 13; minimum, 242 microsiemens Dec. 21.

WATER TEMPERATURE: Maximum, 32.0°C July 2; minimum, 4.5°C Jan. 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 22...	1105	1.8	2160	19.5	460	290	120	40	260
DEC 29...	1445	266	1380	9.0	390	200	110	27	130
FEB 06...	1240	678	880	9.0	270	100	80	16	66
APR 28...	0910	20	3020	21.0	770	550	190	71	320
JUN 17...	0907	50	1760	27.5	450	270	120	36	170
AUG 18...	1324	8.8	1980	25.5	460	310	120	40	210

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 22...	5	5.1	180	140	500	0.40	7.7	1180
DEC 29...	3	4.4	190	80	280	0.30	11	756
FEB 06...	2	4.8	170	52	150	0.20	12	481
APR 28...	5	4.8	210	300	670	0.40	6.7	1690
JUN 17...	3	4.9	180	140	380	0.30	6.3	964
AUG 18...	4	4.8	150	180	410	0.20	9.0	1070

BRAZOS RIVER BASIN

187

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT. 1991	3491.8	704	384	3620	160	1510	49	464	170
NOV. 1991	524.9	1460	798	1130	350	490	99	140	340
DEC. 1991	35986.7	565	308	29900	130	12400	40	3850	140
JAN. 1992	5430	1710	938	13800	410	6060	110	1680	390
FEB. 1992	44438	709	387	46400	160	19400	49	5920	170
MAR. 1992	7548	1520	834	17000	370	7450	100	2080	350
APR. 1992	1720	3170	1760	8170	820	3820	200	938	670
MAY 1992	1445	2780	1540	6000	710	2790	180	695	600
JUNE 1992	5248	1310	718	10200	310	4370	90	1270	310
JULY 1992	1430.6	1670	916	3540	400	1550	110	434	380
AUG. 1992	790.0	1660	909	1940	400	846	110	239	380
SEPT 1992	2893.1	709	386	3020	160	1260	50	387	170
TOTAL	110946.1	**	**	145000	**	61900	**	18100	**
WTD.AVG.	303	882	483	**	210	**	60	**	210

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1490	1190	1370	921	858	890	2360	2320	2340	1680	1600	1640
2	1550	1170	1390	944	921	930	2380	2000	2190	1780	1680	1720
3	1580	1330	1420	1010	944	969	2340	2020	2190	1860	1780	1810
4	1720	1560	1590	1010	823	989	2240	1960	2060	1900	1840	1870
5	1820	1680	1750	1100	1010	1040	2120	1980	2050	2000	1900	1930
6	1800	1680	1750	1160	1100	1120	2160	2080	2120	2040	1980	2020
7	1720	1620	1660	1200	1160	1180	2270	2100	2180	2080	2020	2060
8	1780	1700	1730	1310	1200	1260	2330	2230	2300	2120	2080	2100
9	1800	1760	1790	1440	1310	1350	2310	1990	2180	2120	2100	2110
10	1830	1720	1770	1480	1400	1460	2070	1970	2000	2180	2120	2150
11	1830	1750	1790	1530	1490	1520	3090	2070	2210	2220	2180	2200
12	1990	1790	1880	1600	1530	1570	3280	1140	1570	2300	2220	2230
13	1970	1850	1900	1620	1580	1600	1200	1120	1140	2280	2260	2280
14	2090	1870	1930	1690	1620	1660	1280	1220	1250	2280	2260	2270
15	2150	2070	2090	1740	1690	1710	1310	1270	1290	2400	2280	2330
16	2150	2050	2100	1780	1720	1740	1310	1270	1290	2460	2400	2420
17	2080	2030	2070	1870	1740	1790	1820	1290	1500	2460	2420	2440
18	2100	2060	2080	1920	1830	1850	1700	1470	1620	2440	2360	2380
19	2160	2100	2120	1950	1900	1920	1870	1000	1480	2400	2280	2340
20	2180	2120	2160	2000	1930	1980	1190	262	460	2700	2360	2610
21	2180	2140	2160	2020	1860	1950	546	242	354	2560	2220	2340
22	2220	2140	2180	2060	1880	1950	770	566	655	2220	2000	2060
23	2270	2190	2230	2160	2040	2100	732	568	624	2220	2060	2140
24	2270	2230	2260	2160	1860	1970	958	732	839	2060	1900	1970
25	2420	2070	2290	1920	1820	1860	1160	815	1060	1880	1820	1860
26	1980	847	1310	2050	1920	1980	1490	1160	1280	2080	1800	1860
27	1370	648	1070	2110	2050	2080	1470	1170	1250	1700	840	1270
28	567	425	510	2230	2110	2160	1340	1230	1280	840	700	769
29	671	507	592	2270	2230	2250	1400	1340	1370	720	700	707
30	795	671	733	2340	2210	2260	1520	1400	1450	740	700	718
31	879	795	837	---	---	---	1600	1500	1550	780	720	752
MONTH	2420	425	1690	2340	823	1640	3280	242	1520	2700	700	1910

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	820	780	796	1460	1380	1420	3320	3180	3270	3400	3300	3350
2	860	820	833	1500	1460	1470	3280	3240	3260	3720	3380	3520
3	900	840	876	1540	1480	1520	3260	3180	3230	3800	3570	3700
4	---	---	445	1540	480	1000	3210	3010	3130	4030	3580	3790
5	---	---	e600	---	---	e800	3210	3150	3180	3990	3780	3850
6	---	---	830	---	---	e1000	3240	3150	3200	4110	3810	3970
7	1200	1000	1100	---	---	e1200	3260	3200	3250	4080	3860	3970
8	1360	1200	1270	---	---	e1300	3240	3160	3210	4150	3910	4040
9	1460	1340	1400	---	---	e1000	3320	3120	3190	4200	4120	4170
10	1560	1460	1510	---	---	1200	3340	3120	3260	4200	4130	4170
11	1620	1560	1590	1510	1280	1410	3320	3080	3230	4280	4190	4230
12	1700	1640	1670	1720	1510	1610	3340	3260	3300	4300	4240	4270
13	1740	1700	1710	1910	1720	1810	3280	3240	3260	4520	4280	4350
14	1760	1720	1730	2060	1910	1990	3260	3200	3220	4480	3170	3530
15	1860	1760	1800	2190	2060	2130	3240	3180	3210	3130	2360	2680
16	1920	1860	1890	2300	2190	2250	3300	3240	3270	2570	2120	2390
17	1940	1900	1920	2390	2300	2340	3320	3140	3210	2560	2080	2370
18	2000	1940	1970	2480	2370	2440	3140	3100	3120	2870	2380	2610
19	2040	2000	2020	2550	2480	2510	3100	3060	3090	2540	2350	2400
20	2100	2060	2080	2650	2550	2600	3100	3080	3090	2670	2380	2560
21	2140	2080	2110	2720	2650	2680	3100	3060	3070	---	---	2650
22	2160	2100	2140	2740	2700	2730	3080	3020	3050	---	---	e2800
23	2700	2160	2380	2770	2720	2750	3060	2980	3030	---	---	e3000
24	---	---	1220	2840	2770	2800	3060	2980	3050	---	---	e3100
25	---	---	e400	2890	2820	2860	3020	2960	3000	---	---	e3200
26	---	---	e600	3000	2890	2940	3040	2980	3020	3810	3090	3460
27	---	---	e1000	3030	2960	3000	3060	3000	3020	3290	2830	3090
28	---	---	1200	3080	3010	3030	3090	2940	3010	3070	1440	2590
29	1380	1320	1350	3150	3040	3090	3250	3090	3190	1900	1390	1600
30	---	---	---	3090	3030	3060	3300	3120	3200	1880	1610	1720
31	---	---	---	3200	3050	3120	---	---	---	2000	1850	1880
MONTH	2700	780	1390	3200	480	2100	3340	2940	3160	4520	1390	3190

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	2100	1860	2010	1980	1820	1900	2780	520	1920	---	---	e700
2	2310	1430	1980	2000	1880	1940	1740	1460	1580	---	---	e450
3	2050	1620	1810	2440	1940	2060	1600	1440	1510	---	---	650
4	2270	1950	2080	2160	1980	2040	1460	1100	1290	---	---	e700
5	2160	1760	1930	1940	1640	1810	1160	1080	1130	---	---	e800
6	2240	1980	2170	1680	1540	1640	1140	1100	1130	---	---	e900
7	2220	2000	2170	1740	1660	1680	1200	1120	1170	---	---	e1000
8	---	---	1000	1760	1700	1720	---	---	1200	---	---	1030
9	---	---	e800	1820	1720	1770	---	---	e1300	1130	1020	1100
10	---	---	e900	1880	1820	1850	---	---	e1400	1320	792	1150
11	---	---	e1200	---	---	1870	---	---	e1500	1250	819	1060
12	---	---	e1600	---	---	e1900	---	---	e1600	824	677	750
13	---	---	e1400	---	---	e2000	---	---	e1700	1140	824	976
14	---	---	e1500	---	---	e2200	---	---	e1800	1310	1120	1200
15	---	---	e1600	---	---	e2400	---	---	e1900	1460	1310	1360
16	---	---	e1700	---	---	2200	---	---	e2100	1630	1440	1510
17	---	---	1800	2220	2100	2160	---	---	e2000	1680	1490	1590
18	1960	1780	1870	2220	2120	2160	---	---	1930	1790	1660	1720
19	2020	1920	1980	2320	2200	2250	1990	1810	1900	1820	1730	1770
20	2220	1960	2080	2420	2260	2330	1830	1720	1770	1890	1800	1850
21	2240	2080	2140	2540	2400	2450	1970	1720	1870	1920	1870	1910
22	2160	1000	1970	2540	2460	2510	2140	1850	2030	2010	1920	1970
23	2160	960	1290	---	---	2500	2280	2030	2170	2080	1990	2030
24	1360	980	1130	---	---	e2600	2380	2200	2280	2130	2060	2090
25	1280	940	1090	---	---	e2700	2480	2360	2410	2200	2090	2140
26	1380	1100	1230	---	---	e2800	2570	2420	2460	2290	2160	2220
27	1540	1180	1320	---	---	e2900	2630	2530	2580	2320	2230	2270
28	1760	1360	1500	---	---	e3000	2670	2570	2610	2370	2220	2300
29	1800	1640	1720	---	---	e2800	2710	2590	2640	2350	2220	2280
30	1820	1700	1770	---	---	e3000	2750	2670	2700	2350	2250	2310
31	---	---	---	---	---	1250	---	---	2600	---	---	---
MONTH	2310	940	1620	2540	1540	2210	2780	520	1880	2370	677	1460
YEAR	4520	242	1990									

e Estimated



## BRAZOS RIVER BASIN

189

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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

## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21.0	17.5	19.0	---	---	e29.5	28.0	23.5	26.5	---	---	---
2	21.5	19.5	20.5	32.0	28.5	30.0	30.0	26.5	28.0	---	---	---
3	23.0	20.5	21.5	29.5	28.0	28.5	30.5	27.0	28.5	---	---	e26.0
4	24.5	22.0	23.0	29.5	28.0	28.5	30.0	28.0	29.0	---	---	---
5	26.0	22.5	24.0	29.0	27.5	28.0	30.5	28.0	29.0	---	---	---
6	26.5	23.5	25.0	30.5	27.5	29.0	---	---	---	---	---	---
7	26.0	25.0	25.5	---	---	28.0	---	---	---	---	---	---
8	25.5	17.5	20.5	---	---	---	---	---	---	---	---	28.0
9	24.0	21.5	22.5	---	---	---	---	---	---	29.5	26.5	27.5
10	24.5	23.0	24.0	---	---	---	---	---	---	28.5	24.5	26.5
11	26.5	23.5	25.0	---	---	---	---	---	---	24.5	23.0	24.0
12	27.0	24.5	26.0	---	---	---	---	---	---	25.5	22.5	24.0
13	27.5	25.5	26.5	---	---	---	---	---	---	26.0	23.0	24.5
14	27.5	26.0	27.0	---	---	---	---	---	---	27.0	24.5	25.5
15	28.5	26.5	27.5	---	---	---	---	---	---	27.5	24.5	26.0
16	29.5	27.5	28.0	---	---	---	---	---	---	28.5	24.5	26.5
17	30.5	27.0	28.5	---	---	e27.0	---	---	---	28.5	24.0	26.5
18	31.5	27.5	29.5	---	---	---	---	---	25.0	29.5	25.0	e27.0
19	---	---	29.5	---	---	---	24.0	23.0	23.5	27.5	24.0	25.5
20	---	---	e29.0	---	---	e27.5	26.0	22.5	24.0	28.5	25.0	26.5
21	---	---	28.5	---	---	---	28.0	23.0	25.0	29.0	25.0	26.5
22	28.5	24.5	27.0	---	---	---	28.0	23.5	26.0	25.5	23.5	24.5
23	27.5	24.5	26.0	---	---	---	28.0	24.0	26.0	26.0	22.0	23.5
24	28.5	26.5	27.5	---	---	---	28.0	24.5	26.0	25.5	21.0	23.0
25	29.0	27.5	28.0	---	---	---	29.5	25.0	27.0	24.5	21.0	23.0
26	29.5	28.0	29.0	---	---	---	27.5	25.0	26.5	25.0	21.5	23.0
27	31.0	27.5	29.0	---	---	---	28.0	23.5	25.5	25.0	20.0	22.0
28	31.0	27.5	29.0	---	---	---	28.0	22.5	25.0	24.0	20.0	21.5
29	30.0	27.5	28.5	---	---	---	27.5	23.0	25.5	24.0	19.5	21.5
30	30.5	27.5	29.0	---	---	---	28.5	24.0	26.0	24.0	19.5	21.5
31	---	---	---	---	---	24.0	---	---	26.0	---	---	---
MONTH	31.5	17.5	26.0	32.0	27.5	28.0	30.5	22.5	26.0	29.5	19.5	24.5
YEAR	32.0	4.5	18.0									

e Estimated

## BRAZOS RIVER BASIN

191

## 08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX

LOCATION.--Lat 32°38'54", long 99°00'15", Stephens County, Hydrologic Unit 12060105, on left bank 600 ft downstream from Battle Creek, 1.6 mi upstream from bridge on Farm Road 576, 9.8 mi southwest of Breckenridge, and about 14.6 mi upstream from Hubbard Creek Dam.

DRAINAGE AREA.--280 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1962 to current year. Prior to October 1975, published as "near Breckenridge."

REVISED RECORDS.--WDR TX-76-2: Drainage area at former site.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,185.83 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at site 1.6 mi downstream at datum 7.41 ft lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to information from State Department of Highways and Public Transportation, the floods of May 16, 1949, July 20, 1953, and Apr. 29, 1957, each reached a stage of 24.6 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 20	1500	8,590	a/25.02	May 29	0100	3,150	a/16.40
Feb. 4	1730	3,420	a/17.38	June 11	0430	3,200	16.58
Feb. 25	1300	7,010	a/24.18	July 31	0900	2,010	12.01
Mar. 4	0900	5,970	23.07				

a/ From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	5.6	.97	36	28	66	16	2.1	41	20	e319	344
2	.25	e3.4	1.4	32	25	51	14	1.7	313	14	e41	301
3	.25	e3.1	.87	29	115	49	15	1.6	118	11	e55	51
4	.22	e2.8	.43	26	2350	4130	16	1.5	45	9.4	e57	27
5	.18	e2.5	.30	23	e1350	e1630	16	1.5	26	8.0	e25	16
6	.13	e2.3	.28	22	196	e225	16	1.2	16	6.8	e13	9.8
7	.12	e2.0	.28	20	104	e117	16	.95	19	4.7	e8.4	6.2
8	.10	e1.8	.29	17	67	e124	26	.83	247	3.6	e5.4	4.2
9	.08	e1.6	.28	16	51	680	19	.78	76	3.3	e4.6	3.1
10	.07	e1.4	.33	13	42	149	14	.78	111	2.9	e3.1	13
11	.06	e1.3	26	13	36	77	11	.75	1340	2.4	e2.3	19
12	.07	e1.1	116	12	33	60	8.5	.57	87	1.8	e2.0	7.2
13	.07	e1.0	44	12	31	52	7.4	.52	51	1.6	e1.8	16
14	.07	e.89	8.7	12	30	45	7.3	15	57	1.5	e1.6	8.9
15	.07	e.78	2.6	12	27	41	6.8	8.1	40	1.3	e1.5	5.0
16	.07	e.69	1.2	12	24	37	5.6	3.1	28	1.2	e1.0	2.9
17	.07	e.60	.63	12	21	34	127	1.9	20	1.1	e.89	2.0
18	.07	e.52	.45	14	17	33	62	2.2	15	1.1	1.3	1.6
19	.07	e.46	150	26	12	30	30	6.1	12	117	3.1	1.2
20	.07	.40	4980	40	12	29	21	69	9.8	24	1.7	1.1
21	.07	.39	e2990	30	11	27	12	13	55	10	1.6	.81
22	.07	.45	e1010	31	13	25	9.2	35	51	5.1	1.4	.65
23	.07	.46	e375	29	20	23	7.0	18	132	3.6	1.2	.50
24	.07	.46	e239	25	553	22	5.7	65	58	2.4	.90	.46
25	.32	.40	e176	18	e5230	20	4.7	e24	34	1.6	.80	.45
26	125	.42	e137	25	e2350	19	5.0	e15	44	1.1	.71	.37
27	383	.44	e108	290	245	18	3.8	e14	111	.89	.66	.34
28	239	.47	e84	143	126	18	2.8	e384	68	.77	.56	.34
29	175	.58	64	65	87	19	2.6	639	54	.76	.48	.33
30	28	.67	50	46	---	23	2.4	63	31	.75	.44	.29
31	11	---	42	36	---	21	---	39	---	1050	1.2	---
TOTAL	964.00	38.98	10610.01	1137	13206	7894	509.8	1429.18	3309.8	1313.67	558.64	844.74
MEAN	31.1	1.30	342	36.7	455	255	17.0	46.1	110	42.4	18.0	28.2
MAX	383	5.6	4980	290	5230	4130	127	639	1340	1050	319	344
MIN	.06	.39	.28	12	11	18	2.4	.52	9.8	.75	.44	.29
AC-FT	1910	.77	21040	2260	26190	15660	1010	2830	6560	2610	1110	1680
CFSM	.11	.00	1.22	.13	1.63	.91	.06	.16	.39	.15	.06	.10
IN.	.13	.01	1.41	.15	1.75	1.05	.07	.19	.44	.17	.07	.11

e Estimated

## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)

MEAN	61.6	13.2	19.3	22.4	27.2	27.5	33.5	68.7	35.2	6.40	15.8	22.3
MAX	1151	155	342	547	455	255	209	414	129	51.4	211	109
(WY)	1982	1965	1992	1968	1992	1992	1990	1965	1982	1962	1978	1974
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1969	1971	1971	1971	1962	1966	1980	1984	1964	1964	1980	1968

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1962 - 1992
ANNUAL TOTAL	18041.05	41815.82	
ANNUAL MEAN	49.4	114	29.4
HIGHEST ANNUAL MEAN			114
LOWEST ANNUAL MEAN			2.47
HIGHEST DAILY MEAN	4980 Dec 20	5230 Feb 25	28100 Oct 13 1981
LOWEST DAILY MEAN	.00 Jul 16	.06 Oct 11	.00 Feb 1 1962
ANNUAL SEVEN-DAY MINIMUM	.00 Jul 16	.07 Oct 10	.00 Feb 1 1962
INSTANTANEOUS PEAK FLOW		8590 Dec 20	a/80000 Oct 13 1981
INSTANTANEOUS PEAK STAGE		b/25.02 Dec 20	b/28.60 Oct 13 1981
INSTANTANEOUS LOW FLOW		.05 #	.00 **
ANNUAL RUNOFF (AC-FT)	35780	82940	21330
ANNUAL RUNOFF (CFSM)	.18	.41	.11
ANNUAL RUNOFF (INCHES)	2.40	5.56	1.43
10 PERCENT EXCEEDS	52	126	15
50 PERCENT EXCEEDS	.47	12	.06
90 PERCENT EXCEEDS	.07	.38	.00

a/ From field determination, based on 2-section slope-area measurement of peak flow.

b/ From outside floodmark.

\* For several days in October.

\*\* No flow at times most years.

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1975 to current year.

WATER TEMPERATURE: November 1975 to current year.

INSTRUMENTATION.--Since December 1970, specific conductance is continuously recorded at this station. Since March 1982, specific conductance and water temperature are continuously recorded at this station.

REMARKS.--Estimated mean specific conductance values and estimated mean temperature values were due to malfunctions of the instrument. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Prior to November 1975, this station was published as 08086300 Big Sandy Creek near Breckenridge.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 28,700 microsiemens Apr. 5, 10, 1976; minimum, 59 microsiemens Nov. 21, 1963.

WATER TEMPERATURE: Maximum, 37.0°C Aug. 9, 1987, July 16, 1989; minimum, 0.0°C Jan. 9, 10, 1977, Dec. 2, 3, 1985.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 13,200 microsiemens Oct. 24; minimum, 185 microsiemens Dec. 20.

WATER TEMPERATURE: Maximum, 33.0°C July 14; minimum, 3.5°C Jan. 19, 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 22...	1335	0.07	12900	19.5	2200	2000	640	150	2000
DEC 29...	1145	77	1740	7.5	500	310	140	36	170
FEB 04...	1030	2960	714	11.0	220	110	65	14	51
APR 28...	1058	3.1	4700	21.0	1100	900	310	89	540
JUN 17...	1104	17	2320	28.0	540	360	160	33	250
AUG 18...	1517	1.1	3660	24.0	750	580	220	48	470

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 22...	18	5.9	180	760	4000	0.40	7.5	7670
DEC 29...	3	5.8	190	170	360	0.20	12	1010
FEB 04...	1	5.1	110	75	110	0.20	10	399
APR 28...	7	6.8	240	450	1200	0.40	8.3	2750
JUN 17...	5	6.7	180	130	540	0.20	9.8	1240
AUG 18...	7	5.5	160	260	950	0.40	7.2	2060



## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1991	964.00	469	263	685	130	329	30	78	81
NOV. 1991	38.98	3150	1810	191	890	94	200	21	540
DEC. 1991	10610.01	566	317	9090	150	4350	36	1040	98
JAN. 1992	1137	2520	1430	4390	700	2140	160	489	430
FEB. 1992	13206	717	403	14400	190	6890	46	1640	120
MAR. 1992	7894	854	482	10300	230	4960	54	1160	150
APR. 1992	509.8	4370	2510	3450	1200	1710	270	373	750
MAY 1992	1429.18	1280	726	2800	350	1360	82	315	220
JUNE 1992	3309.8	1230	692	6190	330	2990	78	698	210
JULY 1992	1313.67	979	551	1950	270	941	63	222	170
AUG. 1992	558.64	1740	984	1480	480	718	110	167	300
SEPT 1992	844.74	2380	1350	3090	660	1510	150	342	410
TOTAL	41815.82	**	**	57900	**	28000	**	6550	**
WTD.AVG.	114	910	513	**	250	**	58	**	160

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	2920	2450	2740	---	---	e1000	7500	5990	6860	1810	1750	1780
2	3730	2880	3300	---	---	e1300	6430	5000	5910	1880	1800	1840
3	4920	3610	4330	---	---	e1600	4960	3670	4150	1980	1880	1930
4	5750	4800	5340	---	---	e1900	4420	3490	3780	2110	1980	2050
5	6470	5470	5770	---	---	e2200	5480	3910	4300	2270	2130	2190
6	7180	6430	6660	---	---	e2500	5980	4720	5330	2440	2250	2330
7	8390	7140	7860	---	---	e2800	6540	5520	5850	2550	2400	2460
8	9110	8410	8690	---	---	e3100	6300	5610	5880	2670	2500	2570
9	9640	9110	9300	---	---	e3300	6210	5570	5940	2780	2630	2690
10	9970	9590	9700	---	---	e3500	5550	4600	5240	2920	2760	2800
11	10500	9910	10100	---	---	e3700	4990	1220	3420	3030	2880	2930
12	10900	10400	10500	---	---	e4000	3230	1370	2150	3170	2990	3050
13	11200	10800	11000	---	---	e4300	1450	1010	1120	3220	3130	3170
14	11600	11200	11300	---	---	e4600	1290	1120	1180	3340	3200	3260
15	11800	11400	11500	---	---	e4900	1490	1310	1400	3380	3340	3360
16	12000	11700	11800	---	---	e5100	1540	1490	1510	3490	3340	3430
17	12300	11900	12100	---	---	e5300	1660	1540	1590	3510	2980	3430
18	12500	12200	12300	---	---	e5500	1880	1660	1760	3470	3250	3360
19	12600	12400	12500	---	---	e5700	2210	783	1410	4030	3330	3710
20	12700	12400	12600	---	---	5950	906	185	352	3480	2920	3100
21	13000	12700	12800	6490	5360	5910	---	---	e500	3150	2880	3040
22	13000	12800	12900	6740	5280	6050	---	---	e650	3440	2960	3260
23	13100	13000	13000	7490	5690	6280	---	---	e800	3490	3320	3410
24	13200	13000	13100	8290	6970	7680	---	---	e950	3680	3430	3500
25	13000	2620	12200	8030	7470	7750	---	---	e1100	3810	3680	3740
26	2040	200	447	8280	7180	7710	---	---	e1250	3850	2920	3670
27	380	260	319	8550	7180	7820	---	---	e1400	3000	1690	2420
28	560	400	466	8220	7410	7680	---	---	e1550	2210	1590	1830
29	700	560	622	7760	6840	7320	---	---	1760	2160	1780	1990
30	---	---	e700	8080	6820	7460	1890	1780	1840	2330	2140	2240
31	---	---	e900	---	---	---	1850	1750	1790	2500	2290	2400
MONTH	13200	200	7960	8550	5280	4800	7500	185	2670	4030	1590	2800

e Estimated

## BRAZOS RIVER BASIN

195

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2590	2460	2500	1990	1730	1860	4560	4350	4430	6060	5100	5500
2	2470	2030	2360	2250	2010	2120	4590	4530	4560	5980	5160	5410
3	2350	1400	1820	2420	1010	2200	4930	4590	4700	6240	5560	5920
4	1360	332	710	1030	238	361	5080	4910	5000	6460	5320	5790
5	---	---	e500	1170	278	597	5060	4960	5000	6360	5440	5720
6	---	---	700	---	---	1190	4960	4820	4890	6640	5560	5850
7	1060	800	918	---	---	e1230	5180	4890	4950	7020	5560	6160
8	1300	1040	1170	---	---	e1320	5210	4870	5070	7440	6340	6950
9	1520	1300	1400	---	---	e1370	5180	4870	5010	7800	5920	6900
10	1720	1540	1620	---	---	1490	5400	5190	5270	7680	6320	7110
11	1900	1720	1810	1940	1630	1760	5770	5360	5470	7580	6320	7140
12	2080	1900	1990	2270	1960	2110	6170	5730	5880	7340	6620	6900
13	2200	2080	2150	2620	2290	2450	6360	5950	6120	7600	5760	6960
14	2360	2200	2270	2890	2640	2760	6630	6120	6300	---	---	3000
15	2500	2360	2440	3080	2910	2980	7100	6550	6720	---	---	e4000
16	2660	2500	2580	3260	3090	3180	7230	6820	7040	---	---	e5000
17	2840	2660	2730	3450	3260	3350	7220	2220	4460	---	---	e6000
18	3040	2780	2870	3680	3450	3550	3170	2220	2730	---	---	e6000
19	3220	2900	3010	3790	3670	3720	3270	3180	3210	---	---	e4000
20	3360	3100	3180	3870	3780	3820	3370	3270	3300	---	---	2200
21	3420	3280	3330	3940	3870	3900	3450	3330	3380	3270	2580	2910
22	3500	3300	3370	4090	3940	4010	3560	3440	3490	4050	2070	2870
23	3780	3420	3510	4160	4070	4110	3710	3570	3620	4290	2790	3430
24	4020	355	2440	4290	4160	4210	3900	3720	3790	4680	1850	3200
25	---	---	e460	4320	4200	4260	4080	3900	3980	4410	1130	3090
26	---	---	e570	4400	4280	4330	4330	4100	4190	919	785	829
27	---	---	890	4460	4360	4410	4570	4330	4430	977	810	883
28	1440	1100	1260	4520	4410	4460	4920	4540	4710	1000	513	793
29	1730	1440	1580	4610	4480	4540	5520	4780	5130	1140	575	778
30	---	---	---	4690	4590	4640	5860	4860	5130	1450	1160	1310
31	---	---	---	4590	4310	4430	---	---	---	1690	1450	1570
MONTH	4020	332	1940	4690	238	2930	7230	2220	4730	7800	513	4330

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	1800	1660	1730	1940	1860	1890	---	---	e1300	5780	1850	3870
2	2120	895	1420	2100	1920	2010	---	---	e2200	---	---	e1400
3	1180	835	998	2250	2110	2170	---	---	e2000	---	---	680
4	1370	1120	1230	2470	2250	2380	---	---	e1800	791	632	708
5	1680	1390	1520	2720	2470	2600	---	---	e2300	974	810	874
6	1920	1680	1790	2940	2720	2780	---	---	e2500	1120	974	1050
7	1990	1840	1910	3170	2920	3020	---	---	e2800	1320	1140	1230
8	3660	679	1820	3450	3150	3270	---	---	e3000	1530	1340	1410
9	1340	1050	1270	4100	3420	3650	---	---	e3200	1870	1550	1670
10	1570	1110	1320	4230	4100	4160	---	---	e3400	2070	1090	1670
11	722	268	388	4230	4160	4200	---	---	e3600	---	---	1210
12	991	495	737	4370	4180	4240	---	---	e3700	---	---	e1450
13	1400	1010	1230	4610	4330	4400	---	---	e3800	---	---	e1750
14	1570	1360	1470	4930	4590	4680	---	---	e3900	---	---	e2050
15	1780	1510	1630	5020	4680	4870	---	---	e4000	---	---	e2300
16	2190	1800	2010	5070	4630	4780	---	---	e4200	---	---	e2600
17	2440	2190	2330	5230	4620	4850	---	---	e4000	---	---	e2850
18	2790	2440	2620	5210	4640	4910	---	---	3650	---	---	e3100
19	3190	2790	2970	---	---	1500	3380	2720	2890	---	---	e3400
20	3440	3190	3300	---	---	e1700	3120	2700	2830	---	---	e3650
21	4820	2090	3000	---	---	e2000	3360	2950	3090	---	---	e3900
22	6070	2620	4870	---	---	e2500	3510	3010	3210	---	---	e4200
23	2710	1520	2000	---	---	e3000	3740	3230	3390	---	---	e4400
24	2000	1800	1880	---	---	e3500	4060	3590	3700	---	---	e4650
25	2370	2020	2190	---	---	e4000	4330	3900	4040	---	---	e4850
26	2850	2370	2570	---	---	e4300	4650	4230	4400	---	---	e5050
27	3400	1650	2720	---	---	e4600	4790	4500	4610	---	---	e5250
28	2590	1690	1970	---	---	e4800	4980	4470	4700	---	---	e5400
29	2010	1700	1850	---	---	e4800	5200	4860	4980	---	---	e5550
30	1890	1830	1860	---	---	e5000	5320	5170	5230	---	---	e5700
31	---	---	---	---	---	e700	5460	4810	5260	---	---	---
MONTH	6070	268	1950	5230	1860	3460	5460	2700	3470	5780	632	2930
YEAR	13200	185	3670									

e Estimated

## 08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	23.5	18.5	21.0	---	---	e14.0	9.0	7.0	8.0	10.5	9.0	9.5
2	25.5	19.5	22.0	---	---	e13.0	10.0	6.5	8.0	10.0	8.0	9.0
3	26.5	20.5	23.5	---	---	e12.0	10.0	5.5	7.5	9.5	7.5	8.5
4	26.5	22.5	24.0	---	---	e11.0	9.5	5.5	7.0	10.0	8.5	9.5
5	22.0	18.0	20.0	---	---	e11.0	10.5	6.5	8.5	11.5	10.0	10.5
6	20.5	15.5	18.0	---	---	e12.0	12.5	9.5	10.5	11.0	9.5	10.5
7	21.0	15.5	18.0	---	---	e12.0	15.5	11.5	13.0	12.0	10.0	11.0
8	22.0	17.0	19.0	---	---	e10.5	16.5	14.0	15.0	11.0	9.5	10.5
9	24.0	18.5	21.0	---	---	e11.0	15.5	13.0	14.5	10.0	8.5	9.5
10	24.0	18.5	21.0	---	---	e11.5	14.0	10.5	12.5	10.0	8.0	9.0
11	25.0	19.5	22.0	---	---	e11.5	14.5	13.0	13.5	9.5	8.0	8.5
12	24.0	19.0	21.5	---	---	e12.0	15.0	14.0	14.5	11.0	8.5	9.5
13	22.5	18.5	20.5	---	---	e12.5	14.0	13.0	13.5	10.0	8.0	9.0
14	22.5	19.5	20.5	---	---	e13.0	13.0	10.5	12.0	8.5	6.5	7.5
15	20.5	16.5	18.5	---	---	e14.0	10.5	9.0	10.0	7.0	5.0	6.0
16	21.0	16.0	18.5	---	---	e15.0	10.5	8.5	9.5	6.0	4.0	5.0
17	23.0	18.0	20.0	---	---	e14.5	11.5	9.5	10.5	6.5	5.0	5.5
18	23.5	19.5	21.5	---	---	e14.5	11.0	10.0	10.5	6.0	4.5	5.0
19	21.0	17.0	19.0	---	---	e14.0	10.0	9.5	10.0	5.5	3.5	4.5
20	20.0	15.5	18.0	---	---	e13.0	10.5	10.0	10.5	5.5	3.5	4.5
21	20.0	16.5	18.5	12.5	7.5	10.5	10.5	9.5	10.0	6.0	4.5	5.5
22	22.0	18.0	19.5	14.0	11.0	12.5	9.5	8.5	9.0	8.0	5.5	6.5
23	23.5	20.0	21.5	11.5	7.5	9.5	9.5	8.5	9.0	8.0	6.0	7.0
24	24.0	20.5	22.0	11.0	9.0	10.0	9.0	8.0	8.5	8.5	5.5	7.0
25	22.5	19.0	21.5	11.0	8.0	9.5	8.0	7.0	8.0	9.5	7.0	8.0
26	19.0	17.5	18.5	12.5	9.0	11.0	8.0	8.0	8.0	9.5	8.0	9.0
27	19.0	18.0	18.5	14.5	10.5	12.5	8.0	7.5	8.0	9.5	9.0	9.5
28	19.5	19.0	19.0	16.5	13.0	14.5	8.5	7.5	8.0	10.0	9.5	9.5
29	19.5	18.5	19.0	17.0	14.5	15.5	8.5	7.0	8.0	10.5	9.5	10.0
30	---	---	e17.5	14.0	9.0	11.5	9.5	8.0	8.5	12.0	9.5	10.5
31	---	---	e15.5	---	---	---	9.5	8.5	9.0	12.0	10.0	11.0
MONTH	26.5	15.5	20.0	17.0	7.5	12.5	16.5	5.5	10.0	12.0	3.5	8.5

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	
FEBRUARY				MARCH				APRIL			MAY		
1	12.5	10.0	11.0	15.0	12.5	14.0	17.5	15.5	16.5	26.0	21.0	23.5	
2	12.0	11.5	11.5	16.0	13.5	15.0	15.5	14.0	15.0	26.5	22.0	24.0	
3	12.0	11.5	11.5	16.5	15.5	16.0	17.0	13.0	14.5	25.5	22.5	24.0	
4	11.5	10.0	11.0	15.5	13.0	14.5	18.5	15.0	16.5	26.5	22.0	24.0	
5	10.0	9.0	9.5	---	---	e12.5	17.0	16.5	17.0	26.5	21.0	24.0	
6	9.0	8.0	8.5	---	---	e13.0	17.5	16.5	17.0	26.0	21.5	23.5	
7	9.5	7.5	8.5	---	---	e13.0	20.0	16.0	18.0	25.0	19.0	22.0	
8	9.0	7.0	8.0	---	---	e13.5	20.5	18.5	19.5	25.0	19.5	22.0	
9	10.5	8.0	9.0	---	---	e13.0	21.5	18.5	20.0	23.0	20.0	21.5	
10	12.0	9.5	10.5	---	---	13.0	22.5	19.5	21.0	24.0	20.0	22.0	
11	13.5	11.5	12.5	13.0	11.0	12.0	25.0	20.0	22.0	27.0	21.5	24.0	
12	15.0	12.5	13.5	13.5	11.0	12.5	22.0	19.0	21.0	28.5	22.5	25.5	
13	13.5	12.0	13.0	14.5	12.0	13.5	21.0	18.0	19.5	29.0	23.5	26.0	
14	15.5	13.0	14.0	16.5	14.0	15.0	23.0	18.5	21.0	26.5	22.5	24.5	
15	15.0	12.5	13.5	17.5	15.0	16.0	23.5	20.5	22.0	28.5	23.5	25.5	
16	14.0	12.5	13.0	18.5	16.0	17.0	22.0	20.5	21.5	25.5	23.0	23.5	
17	14.0	12.0	13.0	18.0	17.0	17.5	20.5	18.5	19.5	26.5	22.0	24.0	
18	14.0	11.0	12.5	18.5	16.0	17.5	20.0	18.5	19.5	24.0	23.0	23.5	
19	14.0	10.5	12.0	17.5	15.5	16.5	20.0	19.5	20.0	26.5	23.0	24.0	
20	14.5	11.0	12.5	17.0	14.5	16.0	19.5	18.5	19.0	24.5	23.0	24.0	
21	15.5	11.5	13.5	17.0	15.5	16.0	20.0	17.5	19.0	23.0	22.0	23.0	
22	14.0	13.0	13.5	16.5	14.5	15.5	21.0	18.0	19.5	23.5	22.0	22.5	
23	14.5	12.5	13.5	16.0	13.0	14.5	22.0	19.0	20.5	23.5	21.5	22.5	
24	14.0	11.0	12.5	17.0	14.5	15.5	22.0	21.0	21.5	22.5	21.5	22.0	
25	11.0	7.5	8.5	18.0	15.5	16.5	21.5	20.0	21.0	22.0	20.5	21.5	
26	9.0	7.0	8.0	19.0	16.0	17.5	21.5	19.5	20.5	20.0	19.5	19.5	
27	11.5	8.5	10.0	18.5	17.5	18.0	22.0	20.0	21.5	19.5	19.0	19.0	
28	13.0	10.0	11.5	20.0	17.0	18.5	24.5	20.5	22.5	19.5	17.0	18.5	
29	14.0	11.0	12.5	20.5	18.5	19.5	23.5	20.5	22.0	17.0	16.5	17.0	
30	---	---	---	20.0	18.0	18.5	25.5	19.5	22.5	17.0	16.0	16.5	
31	---	---	---	18.5	17.0	17.5	---	---	---	17.5	16.5	17.0	
MONTH	15.5	7.0	11.5	20.5	11.0	15.5	25.5	13.0	19.5	29.0	16.0	22.5	

e Estimated

BRAZOS RIVER BASIN

197

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21.5	17.0	19.0	32.0	26.0	28.5	26.0	23.5	25.0	23.0	21.5	22.5
2	21.0	19.5	20.5	32.5	27.5	30.0	28.5	25.0	26.5	---	---	e22.5
3	23.0	20.0	21.5	30.0	26.5	28.0	26.0	22.0	25.0	---	---	24.5
4	24.0	21.0	22.5	31.0	25.5	28.0	27.5	26.0	26.5	26.5	24.0	25.0
5	26.0	22.0	24.0	30.5	26.5	28.5	28.0	26.5	27.0	27.0	24.5	26.0
6	27.0	23.0	25.0	31.5	26.0	28.5	29.0	26.0	27.5	27.0	25.0	26.0
7	26.0	23.5	24.5	31.0	26.0	28.5	29.0	26.0	27.5	28.0	25.0	26.5
8	25.0	20.0	23.0	31.5	26.0	28.5	29.5	27.0	28.0	28.0	25.0	26.5
9	24.0	21.5	22.5	31.5	25.5	28.0	30.0	27.0	28.5	28.5	25.0	26.5
10	25.5	23.0	24.0	32.0	26.0	28.5	30.5	26.5	28.5	27.0	24.5	25.5
11	25.0	21.5	23.0	31.5	25.5	28.5	28.5	27.0	27.5	24.5	23.5	24.0
12	26.5	23.5	25.0	31.5	25.5	28.0	27.5	26.0	26.5	25.0	23.0	23.5
13	27.5	25.0	26.0	31.0	25.0	28.0	27.5	25.0	26.5	25.0	23.5	24.5
14	27.0	25.5	26.0	33.0	25.5	29.0	28.0	25.0	26.0	25.0	24.0	24.5
15	29.0	25.5	27.0	31.0	26.0	28.5	26.5	24.5	25.5	25.5	24.0	25.0
16	30.5	26.5	28.0	28.5	26.5	27.5	27.0	23.5	25.0	26.0	24.0	25.0
17	31.5	26.5	28.5	31.5	24.5	27.5	26.0	23.0	24.5	26.0	23.5	24.5
18	31.5	26.0	29.0	28.5	25.5	26.5	25.0	22.0	23.5	26.5	23.5	25.0
19	31.5	26.5	29.5	25.5	22.0	24.0	22.5	21.0	21.5	25.5	23.5	24.5
20	31.5	26.5	29.0	26.0	24.0	25.0	26.5	20.5	23.0	26.0	23.5	24.5
21	28.5	24.5	27.0	26.5	24.5	25.5	28.0	21.0	24.0	26.5	24.0	25.0
22	28.0	25.0	26.5	27.5	24.5	26.0	28.5	21.5	24.5	25.5	23.5	24.5
23	28.0	25.5	26.5	29.0	25.5	27.0	28.5	22.0	25.0	24.0	21.5	23.0
24	30.0	26.5	28.0	29.5	26.0	28.0	28.0	23.0	25.0	23.0	20.0	21.5
25	30.5	27.5	29.0	30.0	26.0	28.0	30.0	23.5	26.5	22.0	19.5	21.0
26	30.5	27.0	28.5	30.0	26.5	28.0	29.0	24.0	26.0	23.5	20.5	22.0
27	29.0	26.5	28.0	30.0	26.5	28.5	30.0	22.0	25.0	23.0	20.0	21.5
28	28.5	26.5	27.5	28.5	26.5	27.5	26.5	19.5	23.0	22.0	19.0	21.0
29	30.0	26.5	28.0	28.0	25.5	27.0	27.5	20.5	23.5	22.0	19.0	20.5
30	29.5	26.0	27.5	29.0	26.0	27.5	26.5	22.0	24.0	21.0	18.5	20.0
31	---	---	---	27.5	21.5	23.5	27.0	23.0	24.5	---	---	---
MONTH	31.5	17.0	26.0	33.0	21.5	27.5	30.5	19.5	25.5	28.5	18.5	24.0
YEAR	33.0	3.5	18.5									

e Estimated

## 08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX

LOCATION.--Lat 32°49'53", long 98°58'03", Stephens County, Hydrologic Unit 12060105, on left bank just upstream from dam on Hubbard Creek, 1.4 mi upstream from U.S. Highway 183, 6.5 mi northwest of Breckenridge, and 12.6 mi upstream from mouth.

DRAINAGE AREA.--1,085 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rolled earthfill dam 5,630 ft long. There are two additional levees, the north and south, making an overall length of 3.5 mi. Storage began September 1962 and the dam was completed in December 1962. The emergency spillway is a 2,000-foot-wide cut through natural ground near the left end of dam. The service spillway is a partially controlled morning-glory type, with 12 lift gates designed to discharge 30,000 ft<sup>3</sup>/s with a 17.5-foot head through a 22.0-foot-diameter concrete conduit. The dam is the property of the West Central Texas Municipal Water District. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,208.0	-
Crest of emergency spillway.....	1,194.0	515,800
Top of gates.....	1,185.1	350,900
Top of conservation pool.....	1,183.0	317,800
Crest of spillway.....	1,176.6	230,100
Sill of gate.....	1,138.0	5,580
Lowest gated outlet (invert).....	1,136.0	3,470

COOPERATION.--The diversions and capacity table were furnished by the West Central Texas Municipal Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 441,200 acre-ft Oct. 14, 1981, for several hours (elevation, 1,190.22 ft); minimum since normal operating level was reached in May 1969, 157,400 acre-ft Oct. 1, 1984 (elevation, 1,169.89 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 363,000 acre-ft Dec. 21 (elevation, 1,185.83 ft); minimum, 300,300 acre-ft Aug. 31 (elevation, 1,181.83 ft).

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

1,181.0	288,300	1,183.0	317,800	1,185.0	349,300
1,182.0	302,800	1,184.0	333,300	1,186.0	365,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313700	316100	313600	318700	317500	309100	312500	310300	306500	308600	305200	308500
2	313700	314900	314300	317600	317600	306100	312700	310000	308500	307900	305500	310400
3	314000	315400	314200	317200	318000	305200	313400	310000	307900	308000	306100	310700
4	312200	315400	314200	317200	329900	310600	313400	309500	307000	308600	306100	311000
5	312200	315400	314300	317300	325700	305300	313300	309500	307100	308600	306100	311300
6	312400	315500	314500	317500	320600	304400	312700	309100	307000	308200	306100	311300
7	312400	314300	314600	318000	318600	305500	311900	309100	307100	307900	306100	311300
8	312100	315200	314900	317800	318000	306100	311000	308800	309800	307300	305600	310900
9	311600	315100	314900	317800	317600	307300	311900	308600	307700	307000	305200	310900
10	311600	314800	315200	318300	316600	308000	311900	308600	306200	306500	304900	310700
11	311600	314300	317500	318100	316600	308800	312200	307900	308500	306100	304400	310700
12	311000	314800	318000	317300	317200	309100	311800	307900	308500	305900	304100	311200
13	311200	315400	317600	315700	317800	310100	312200	307900	308200	305300	304100	311200
14	310600	315200	317600	315700	317600	310000	312500	308300	307700	304700	303100	311200
15	310000	315100	318100	316700	316700	310700	312200	308300	306700	303100	303100	310700
16	310400	315700	318300	316400	315700	311200	312400	308300	306200	302700	303100	310700
17	310400	315500	318000	315700	316000	311300	314900	308300	305900	302700	302800	310100
18	309500	315500	318300	316400	315800	311500	314200	308300	305900	302800	302400	309800
19	309100	314900	320900	317000	315800	311300	314200	309200	305900	303100	303200	309800
20	309100	314800	357900	317500	316000	311900	314200	309200	304700	302900	303700	309500
21	309200	314500	355200	317600	316600	312100	313900	309400	305800	304000	303400	309200
22	308900	314300	340000	317300	317000	311500	313900	309400	306100	303700	303400	308900
23	308900	314300	328800	316900	317600	311800	312500	309800	307700	303700	302800	308500
24	308800	314200	325900	317300	330000	311600	311000	309800	308200	303700	302800	308200
25	309100	314200	322600	317600	351800	312200	310400	310100	307900	303700	302400	308300
26	313000	314200	317200	318600	341600	312500	310400	307400	307900	303400	301900	307600
27	318100	314600	318400	318900	328300	312700	310100	306700	307900	302800	301500	307100
28	321200	314800	318000	316600	317000	313000	310600	308300	308200	302900	301500	306800
29	317500	314300	318300	315400	309400	313000	309800	308600	308500	302500	301100	306400
30	316000	313100	318000	316600	---	312700	310300	308000	308200	301200	300600	306400
31	316000	---	318700	316900	---	313100	---	307300	---	304400	303700	---
MAX	321200	316100	357900	318900	351800	313100	314900	310300	309800	308600	306100	311300
MIN	308800	313100	313600	315400	309400	304400	309800	306700	304700	301200	300600	306400
(↑)	1182.88	1182.69	1183.06	1182.94	1182.44	1182.69	1182.50	1182.30	1182.36	1182.11	1182.06	1182.24
(Φ)	+2300	-2900	+5600	-1800	-7500	+3700	-2800	-3000	+900	-3800	-700	+2700

CAL YR 1991 MAX 357900 MIN 282900 (Φ) +28200  
WTR YR 1992 MAX 357900 MIN 300600 (Φ) -7300

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.



## BRAZOS RIVER BASIN

199

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1963 to current year.

324932098575101 - HUBBARD CR RES SITE P01

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
FEB											
12...	1240	1.00	317000	772	8.4	10.5	1.20	9.9	93	190	90
12...	1242	10.0	--	773	8.4	10.0	--	9.8	91	--	--
12...	1244	20.0	--	778	8.4	10.0	--	9.8	91	--	--
12...	1246	30.0	--	780	8.3	9.5	--	9.4	86	--	--
12...	1248	40.0	--	800	8.2	9.5	--	9.1	83	--	--
12...	1250	50.0	--	824	8.2	9.0	--	8.9	80	--	--
12...	1252	60.0	--	838	8.1	9.0	--	8.6	78	--	--
12...	1254	68.0	--	1640	7.6	8.5	--	3.3	30	390	240
SEP											
02...	0930	1.00	310000	942	8.3	25.0	0.64	6.3	80	240	130
02...	0932	10.0	--	942	8.2	25.0	--	6.3	80	--	--
02...	0934	20.0	--	941	8.2	25.0	--	6.2	79	--	--
02...	0936	30.0	--	941	8.2	25.0	--	6.2	79	--	--
02...	0938	40.0	--	942	8.2	25.0	--	6.1	78	--	--
02...	0940	50.0	--	941	8.2	25.0	--	6.0	76	--	--
02...	0942	60.0	--	940	7.6	24.5	--	2.2	28	--	--
02...	0944	64.0	--	932	7.7	23.5	--	2.8	35	240	98

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
12...	56	13	71	2	6.6	100	40	150	0.20	6.6
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	110	28	150	3	5.8	150	120	340	0.40	7.4
SEP										
02...	67	18	87	2	6.0	110	62	190	0.30	7.1
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	68	17	83	2	5.8	140	45	180	0.30	9.5

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
12...	405	0.390	0.060	0.450	0.080	0.22	0.30	<0.010	<10	<10
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	0.170	0.010	0.180	0.070	0.23	0.30	<0.010	<10	20
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	853	0.012	0.050	0.062	0.090	0.91	1.0	<0.010	20	120
SEP										
02...	502	--	<0.010	<0.050	0.010	0.29	0.30	0.010	8	5
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	<0.010	0.072	0.020	0.28	0.30	0.010	10	70
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	494	--	0.010	<0.050	0.510	0.39	0.90	0.020	19	720

## BRAZOS RIVER BASIN

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324649099000501 - HUBBARD CR RES SITE P09

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB										
12...	1140	1.00	759	8.4	10.5	0.73	9.9	93	190	90
12...	1142	10.0	759	8.3	10.0	--	9.7	90	--	--
12...	1144	20.0	763	8.3	9.5	--	9.5	87	--	--
12...	1146	30.0	764	8.3	9.5	--	9.5	87	--	--
12...	1148	40.0	767	8.3	9.5	--	9.5	87	--	--
12...	1150	48.0	771	8.2	9.5	--	9.4	86	190	92
SEP										
02...	0845	1.00	936	8.2	24.5	0.61	6.3	79	240	130
02...	0847	10.0	936	8.2	24.5	--	6.3	79	--	--
02...	0849	20.0	936	8.2	24.5	--	6.3	79	--	--
02...	0851	30.0	936	8.2	24.5	--	6.0	76	--	--
02...	0853	40.0	936	8.2	24.5	--	6.0	76	--	--
02...	0855	45.0	936	8.2	24.5	--	6.3	79	240	130

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
FEB										
12...	56	12	67	2	5.6	99	42	150	0.30	6.8
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	56	13	71	2	6.5	100	44	150	0.40	6.7
SEP										
02...	69	17	86	2	6.1	110	60	190	0.30	7.3
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	69	17	87	2	5.9	110	61	190	0.30	7.2

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
12...	394	0.520	0.030	0.550	0.060	0.24	0.30	<0.010	<10	<10
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	408	0.440	0.040	0.480	0.070	0.23	0.30	0.010	10	<10
SEP										
02...	500	--	<0.010	<0.050	0.020	0.28	0.30	<0.010	5	1
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	<0.010	<0.050	0.020	0.28	0.30	<0.010	<10	<10
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	503	0.059	0.010	0.069	0.030	0.27	0.30	<0.010	6	27

324606099000201 - HUBBARD CR RES SITE P10

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
12...	1100	1.00	745	8.3	10.5	10.1	94
12...	1102	10.0	749	8.3	10.0	9.8	91
12...	1104	20.0	753	8.3	10.0	9.8	91
12...	1106	30.0	761	8.2	9.5	9.5	87
12...	1108	39.0	762	8.2	9.5	9.5	87
SEP							
02...	0825	1.00	937	8.2	24.5	6.4	81
02...	0827	10.0	937	8.2	24.5	6.3	79
02...	0829	20.0	937	8.2	24.5	6.2	78
02...	0831	30.0	915	8.1	24.0	5.8	72
02...	0833	38.0	875	8.0	23.5	5.4	67

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324514099010201 - HUBBARD CR RES SITE P11

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
12...	1645	1.00	762	8.4	10.5	10.1	94
12...	1647	10.0	764	8.3	10.5	9.9	93
12...	1649	20.0	766	8.2	10.0	9.5	88
12...	1701	29.0	774	8.1	10.0	9.3	86
SEP							
02...	1540	1.00	919	8.2	26.0	6.4	83
02...	1542	10.0	915	8.2	25.5	6.8	87
02...	1544	20.0	915	8.2	25.5	6.8	87
02...	1546	27.0	931	8.1	25.0	6.8	87

324301099001701 - HUBBARD CR RES SITE P12

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB										
12...	1705	1.00	612	7.9	11.0	0.21	7.9	75	170	76
12...	1707	10.0	678	7.9	10.0	--	7.9	73	--	--
12...	1709	16.0	1010	7.8	9.5	--	7.9	72	280	140
SEP										
02...	1630	1.00	1020	8.2	26.0	0.43	6.5	84	250	150
02...	1632	10.0	1020	8.0	25.0	--	6.2	79	--	--
02...	1634	14.0	1000	7.9	25.0	--	5.8	74	250	140

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
12...	53	10	48	2	5.7	97	43	100	0.30	11
12...	--	--	--	--	--	--	--	--	--	--
12...	84	16	89	2	5.1	130	70	190	0.20	13
SEP										
02...	73	17	96	3	5.9	100	63	210	0.30	7.1
02...	--	--	--	--	--	--	--	--	--	--
02...	72	17	94	3	5.8	110	61	210	0.30	7.1

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
12...	334	--	<0.010	<0.050	0.050	0.65	0.70	0.020	30	<10
12...	--	--	--	--	--	--	--	--	--	--
12...	547	0.440	0.040	0.480	0.060	1.0	1.1	<0.010	40	100
SEP										
02...	533	--	0.020	<0.050	0.030	0.47	0.50	0.040	9	9
02...	--	--	--	--	--	--	--	--	--	--
02...	531	--	<0.010	0.065	0.030	0.47	0.50	0.060	34	52

## BRAZOS RIVER BASIN

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324949098594301 - HUBBARD CR RES SITE P13

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
12...	1400	1.00	790	8.4	10.0	10.0	92
12...	1402	10.0	790	8.4	10.0	9.9	92
12...	1404	20.0	792	8.4	10.0	9.8	91
12...	1406	30.0	790	8.4	10.0	9.8	91
12...	1408	40.0	786	8.3	9.5	9.4	86
12...	1410	50.0	788	8.2	9.0	9.2	83
12...	1412	63.0	1370	7.6	9.0	1.5	14
SEP							
02...	1500	1.00	938	8.2	26.0	6.8	88
02...	1502	10.0	938	8.2	25.5	6.7	86
02...	1504	20.0	937	8.2	25.5	6.8	87
02...	1506	30.0	937	8.2	25.5	6.8	87
02...	1508	40.0	937	8.2	25.5	6.6	85
02...	1510	50.0	937	8.1	25.5	6.4	82
02...	1512	59.0	937	8.1	25.5	6.6	85

324802099021601 - HUBBARD CR RES SITE P15

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
12...	1440	1.00	783	8.3	10.5	9.4	88
12...	1442	10.0	783	8.3	10.5	9.4	88
12...	1444	20.0	787	8.2	10.0	9.2	85
12...	1446	30.0	794	8.2	9.5	9.2	84
12...	1448	38.0	800	8.2	9.5	9.2	84
SEP							
02...	1415	1.00	939	8.2	25.5	6.7	86
02...	1417	10.0	939	8.1	25.0	6.8	87
02...	1419	20.0	939	8.1	25.0	6.6	84
02...	1421	30.0	940	8.1	25.0	6.1	78
02...	1423	35.0	940	8.1	25.0	6.1	78

324653099032401 - HUBBARD CR RES SITE P16

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB										
12...	1510	1.00	826	8.2	11.5	0.36	9.1	87	230	100
12...	1512	10.0	824	8.2	11.0	--	9.0	85	--	--
12...	1514	23.0	1330	8.1	11.0	--	8.5	81	350	150
SEP										
02...	1150	1.00	943	8.2	24.5	0.30	4.2	53	240	140
02...	1152	10.0	962	8.2	24.0	--	3.6	45	--	--
02...	1154	22.0	1790	7.6	23.5	--	2.4	30	430	330

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
12...	69	15	69	2	4.8	130	54	150	0.20	9.6
12...	--	--	--	--	--	--	--	--	--	--
12...	100	24	110	3	4.1	200	90	250	0.20	11
SEP										
02...	68	18	88	2	5.8	100	65	190	0.30	7.1
02...	--	--	--	--	--	--	--	--	--	--
02...	110	38	190	4	5.5	100	200	380	0.30	7.8

## BRAZOS RIVER BASIN

203

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324653099032401 - HUBBARD CR RES SITE P16--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
12...	451	0.014	0.040	0.054	0.120	0.18	0.30	0.060	10	<10
12...	--	--	--	--	--	--	--	--	--	--
12...	709	0.480	0.040	0.520	0.050	1.0	1.1	<0.010	<10	50
SEP										
02...	505	--	0.020	<0.050	0.030	0.27	0.30	0.040	42	5
02...	--	--	--	--	--	--	--	--	--	--
02...	995	0.710	0.060	0.770	0.100	0.50	0.60	0.080	490	87

324608099042101 - HUBBARD CR RES SITE P17

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
12...	1540	1.00	1430	8.1	13.5	8.9	89
12...	1542	10.0	1480	8.1	12.0	8.8	85
12...	1544	22.0	1480	8.1	11.5	8.7	84
SEP							
02...	1230	1.00	585	7.8	23.0	5.6	68
02...	1232	10.0	500	7.8	22.5	5.8	70
02...	1234	21.0	507	7.8	22.5	5.9	71

324541099053601 - HUBBARD CR RES SITE P18

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD: AS CACO3 (MG/L)
FEB										
12...	1600	1.00	1660	8.2	14.0	0.55	8.7	88	460	240
12...	1602	10.0	1660	8.1	13.0	--	8.5	84	--	--
12...	1604	23.0	1670	8.1	13.0	--	8.6	85	460	240
SEP										
02...	1330	1.00	434	7.6	23.5	0.30	5.7	70	130	53
02...	1332	10.0	430	7.6	23.0	--	5.6	69	--	--
02...	1334	20.0	433	7.6	23.0	--	4.5	55	130	52

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
12...	130	33	160	3	4.1	220	130	330	0.20	9.1
12...	--	--	--	--	--	--	--	--	--	--
12...	130	33	160	3	4.1	220	130	330	0.30	9.1
SEP										
02...	37	9.1	30	1	5.6	76	34	59	0.20	7.4
02...	--	--	--	--	--	--	--	--	--	--
02...	38	9.0	30	1	5.4	80	35	61	0.30	7.3



## BRAZOS RIVER BASIN

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324541099053601 - HUBBARD CR RES SITE P18--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
12...	929	0.060	0.030	0.090	0.060	0.34	0.40	<0.010	<10	60
12...	--	--	--	--	--	--	--	--	--	--
12...	928	0.170	0.010	0.180	0.040	1.3	1.3	<0.010	<10	70
SEP										
02...	228	0.450	0.030	0.480	0.010	0.79	0.80	0.240	320	2
02...	--	--	--	--	--	--	--	--	--	--
02...	234	0.440	0.030	0.470	0.010	0.99	1.0	0.260	110	6

## BRAZOS RIVER MAIN STEM

205

08088000 BRAZOS RIVER NEAR SOUTH BEND, TX

LOCATION.--Lat 33°01'27", long 98°38'37", Young County, Hydrologic Unit 12060201, on left bank 225 ft downstream from bridge on State Highway 67, 1.8 mi downstream from Clear Fork Brazos River, 2.0 mi northeast of South Bend, and at mile 758.2.

DRAINAGE AREA.--22,673 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1938 to current year.

REVISED RECORDS.--WRD TX-74-1: 1973. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,002.98 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 23, 1939, nonrecording gage at site 255 ft upstream; and Feb. 23, 1939, to Mar. 9, 1961, water-stage recorder at site 225 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. There are many small diversions upstream from station for municipal supply and for oil field operations. Flow is also affected at times by discharge from the flood-detention pools of 12 floodwater-retarding structures with a combined detention capacity of 24,710 acre-ft. These structures control runoff from 108 mi<sup>2</sup> in the Duck Creek basin. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1876 reached a stage of 36.2 ft, from information by State Department of Highways and Public Transportation and U.S. Army Corps of Engineers. Flood of Sept. 24, 1900, reached a stage of 29.5 ft, and flood of June 16, 1930, reached a stage of 35.5 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft<sup>3</sup>/s.

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0030	32,000	28.20	Mar. 5	0030	14,000	18.77
Feb. 5	1930	22,800	23.31	June 3	0830	12,200	17.43
Feb. 27	1330	28,200	26.16	June 11	0030	23,600	24.60

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	662	2730	343	1750	e1590	24600	1070	682	4870	2030	526	642
2	607	1640	361	2040	1440	13900	1050	653	7090	e1760	818	796
3	559	1180	351	2050	e1690	7060	1010	616	10900	2420	1960	592
4	510	962	335	1700	e9400	10700	991	e592	7560	7090	1370	861
5	469	829	318	1300	20900	12900	988	e575	6280	4730	964	1120
6	439	728	332	1120	20600	10800	993	540	7760	3730	920	909
7	407	648	325	1060	16900	4380	1440	518	8220	3560	875	841
8	378	597	312	999	15400	3320	1600	507	12100	2020	803	637
9	351	555	312	953	13000	3960	1590	495	18600	e1360	671	539
10	330	519	307	904	e7850	3540	1130	e482	22600	e1140	587	508
11	315	494	342	859	e4670	2540	981	e491	22800	e1010	533	452
12	301	471	723	829	3180	2240	941	e486	19800	e906	490	399
13	291	449	1010	1530	2580	2040	926	858	14900	e834	457	365
14	275	434	624	1430	2380	1890	894	754	12200	e767	431	334
15	259	419	552	1110	2620	1770	851	700	11500	759	409	312
16	249	415	520	1130	2470	1690	821	774	7870	689	787	291
17	239	425	760	994	2260	1600	971	860	6660	972	1530	276
18	231	415	844	985	1640	1630	1350	738	5140	e1030	897	258
19	219	403	1140	999	1460	1820	1680	671	e3940	e951	659	243
20	214	393	13700	1020	1360	1690	1590	622	e3250	1050	562	240
21	205	385	27700	1180	1260	1560	1600	587	2720	1180	511	227
22	201	368	30900	e2030	1210	1560	1430	563	2350	921	466	212
23	210	353	29100	2880	1180	1530	1620	558	2220	e858	435	194
24	210	342	27200	2380	2390	1420	1710	582	2480	e814	410	191
25	201	364	20200	e1600	15100	1310	1540	571	3480	e766	387	184
26	1290	394	9500	1380	25000	1260	1040	3910	3510	e706	363	174
27	1540	382	6990	1950	27900	1190	831	4940	2360	649	353	169
28	8420	376	3570	4320	26900	1160	784	5320	2020	628	342	162
29	8050	359	3430	5000	26300	1140	722	6350	1870	597	345	155
30	5310	334	2450	2510	---	1130	702	6500	2200	561	335	147
31	3210	---	2200	1840	---	1100	---	6590	---	577	362	---
TOTAL	36152	18363	186751	51832	260630	128430	34846	49085	239250	47065	20558	12430
MEAN	1166	612	6024	1672	8987	4143	1162	1583	7975	1518	663	414
MAX	8420	2730	30900	5000	27900	24600	1710	6590	22800	7090	1960	1120
MIN	201	334	307	829	1180	1100	702	482	1870	561	335	147
AC-FT	71710	36420	370400	102800	517000	254700	69120	97360	474600	93350	40780	24650

e Estimated

## BRAZOS RIVER MAIN STEM

08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1992, BY WATER YEAR (WY)

MEAN	1329	373	298	205	417	333	780	2371	1866	742	666	1059
MAX	11620	2143	6024	1743	8987	4143	7910	22430	8652	4406	9363	7201
(WY)	1942	1975	1992	1968	1992	1992	1957	1957	1982	1961	1978	1955
MIN	.000	1.13	.39	.54	.60	.64	.82	22.1	5.61	1.51	.32	.000
(WY)	1953	1944	1939	1940	1953	1940	1971	1984	1984	1956	1970	1952

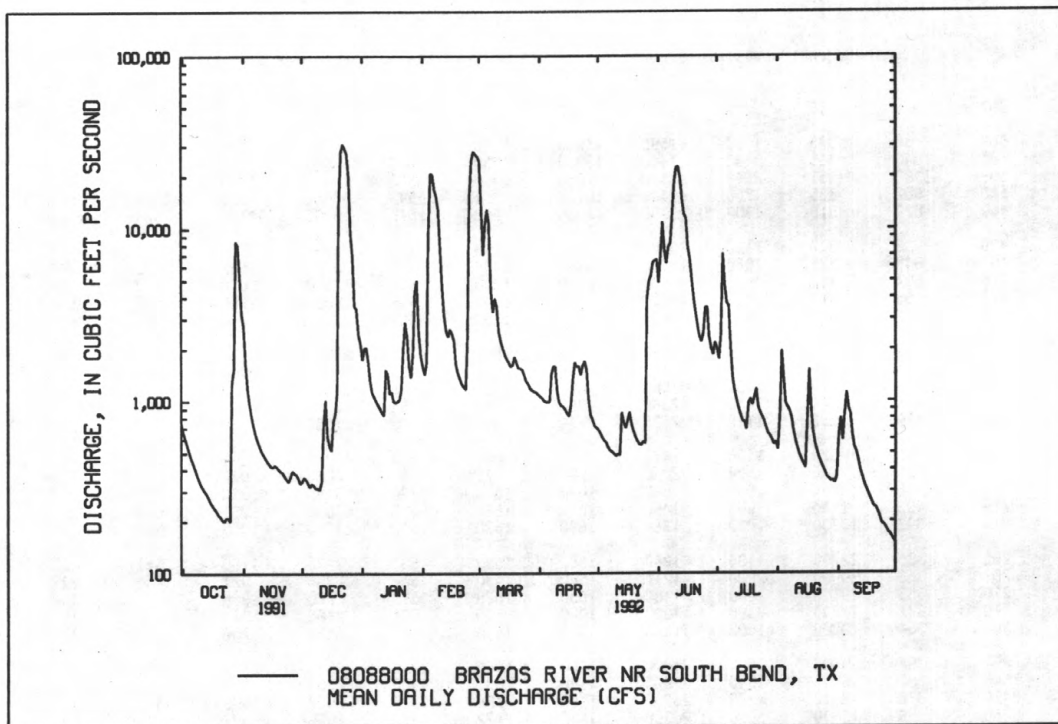
## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1939 - 1992

ANNUAL TOTAL	558975			1085392				872				
ANNUAL MEAN	1531			2966				3399				1957
HIGHEST ANNUAL MEAN								59.9				1952
LOWEST ANNUAL MEAN												
HIGHEST DAILY MEAN	30900	Dec 22		30900	Dec 22			84300		May 4	1941	
LOWEST DAILY MEAN	61	May 1		147	Sep 30			.00		Oct 29	1938	
ANNUAL SEVEN-DAY MINIMUM	79	Apr 19		169	Sep 24			.00		Oct 29	1938	
INSTANTANEOUS PEAK FLOW				32000	Dec 22			87400		May 4	1941	
INSTANTANEOUS PEAK STAGE				28.20	Dec 22			41.50		Aug 6	1978	
INSTANTANEOUS LOW FLOW				141	Sep 30			.00		at times		
ANNUAL RUNOFF (AC-FT)	1109000			2153000				631400				
10 PERCENT EXCEEDS	2560			7860				1550				
50 PERCENT EXCEEDS	373			983				117				
90 PERCENT EXCEEDS	121			328				6.2				



08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1941 to March 1948, May 1965 to current year. Chemical and biochemical analyses: November 1977 to current year. Pesticide analyses: March 1968 to April 1982. Sediment analyses: May to September 1962, November 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1942 to March 1948, November 1977 to September 1981.

WATER TEMPERATURE: November 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 14,000 microsiemens Dec. 4, 1979; minimum daily, 350 microsiemens Aug. 6, 1978.

WATER TEMPERATURE: Maximum daily, 36.0°C on several days during July and August 1981; minimum daily, 0.0°C Jan. 10, 11, 18, 21, Feb. 18, 1978.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-A-TURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECA, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 14...	1020	443	5750	8.1	12.5	130	7.2	71	1.1	490	400	800	
JAN 23...	1045	2880	3450	8.2	7.0	190	12.2	105	1.3	K1000	>1000	650	
MAR 18...	1030	1660	4880	8.1	17.0	28	12.9	142	1.6	240	360	990	
MAY 07...	1005	519	6420	8.1	20.5	26	11.6	135	1.0	K30	<5	1100	
AUG 06...	0920	942	5470	7.8	28.0	48	8.3	111	1.4	100	140	910	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 14...	640	210	65	880	14	9.2	0	186	152	150	630	1300	
JAN 23...	480	160	61	490	8	6.8	0	203	166	170	430	760	
MAR 18...	780	240	94	680	9	3.6	0	260	213	210	730	1100	
MAY 07...	920	270	100	1000	13	9.7	0	206	169	170	930	1600	
AUG 06...	800	230	81	870	13	9.5	0	139	114	110	760	1400	
DATE		FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 14...	0.80	8.6	3580	3200	--	--	<0.010	<0.010	0.540	0.530	0.040	0.060	
JAN 23...	0.50	7.2	2140	2020	0.580	0.550	0.020	0.020	0.600	0.570	0.070	0.060	
MAR 18...	0.30	7.4	2990	2990	0.450	--	0.040	<0.010	0.490	0.490	0.020	<0.010	
MAY 07...	0.80	6.8	4270	4020	--	--	0.030	<0.010	<0.050	<0.050	0.030	0.020	
AUG 06...	0.70	10	3750	3440	0.450	0.460	0.030	0.020	0.480	0.480	0.020	0.020	
DATE		NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOI VED (UG/L AS AL)	
NOV 14...	0.46	0.50	0.210	0.060	0.050	0.040	0.15	214	256		100	20	
JAN 23...	0.73	0.80	0.210	0.060	0.050	0.040	0.15	285	2220		99	--	
MAR 18...	0.68	0.70	0.100	<0.010	<0.010	0.090	--	101	453		91	<10	
MAY 07...	--	<0.20	0.060	<0.010	<0.010	0.050	--	80	112		96	<10	
AUG 06...	0.38	0.40	0.110	<0.010	0.020	0.060	0.06	114	290		99	<10	

## BRAZOS RIVER MAIN STEM

08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 14...	100	<1	20	60	20	3	1	2	<1.0	4300	40
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	200	<1	<10	70	20	3	<1	1	<1.0	3900	31
MAY 07...	200	<1	10	100	30	4	2	1	<1.0	5000	10
AUG 06...	200	<1	10	70	10	4	1	2	<1.0	4200	40



## 08088400 LAKE GRAHAM NEAR GRAHAM, TX

LOCATION.--Lat 33°08'04", long 98°36'48", Young County, Hydrologic Unit 12060201, near left end of earthen dam on Salt Creek, 2.2 mi northwest of Graham, 5 mi downstream from Briar Creek, and 9.5 mi upstream from mouth.

DRAINAGE AREA.--221 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1958 to September 1963 (unpublished record), October 1963 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.30 ft above National Geodetic Vertical Datum of 1929. Prior to October 1963, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,000 ft long. Lake Graham was connected with Lake Eddleman in 1959 by a cut channel at a gage height of 1,050.0 ft. Deliberate impoundment began Apr. 28, 1958, and dam was completed in July 1958. The uncontrolled emergency spillway is a 1,050-foot-wide cut at the right end of dam. The spillway is designed to discharge 136,500 ft<sup>3</sup>/s at a gage height of 1,087.5 ft. The dam is the property of the city of Graham and was built to impound water for municipal and industrial uses. In addition, water is used by the Texas Electric Service Co. for operation of their steam generating powerplant. The capacity table is based on an original survey of Lake Eddleman in 1928 and a Salt Creek survey of 1953. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,092.0	-
Crest of spillway.....	1,075.0	53,680
Bottom of interconnecting channel.....	1,050.0	8,670
Lowest gated outlet (invert).....	1,050.0	8,670

COOPERATION.--Capacity table was provided by Freese, Nichols, and Endress, Consulting Engineers. Record of diversions provided by the city of Graham.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 63,280 acre-ft May 3, 1990 (gage height, 1,078.52 ft); minimum, 23,390 acre-ft May 1, 1980 (gage height, 1,061.23 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 60,050 acre-ft Dec. 21 at 0400 hours (gage height, 1,077.38 ft); minimum, 44,640 acre-ft Oct. 25 (gage height, 1,071.34 ft).

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

1,070.0	41,480	1,076.0	56,290
1,072.0	46,220	1,078.0	61,780
1,074.0	51,140		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46050	54670	53480	54250	53840	54200	52330	50520	52360	54150	53270	51900
2	46000	54410	53530	54200	53810	54120	52180	50520	56030	54100	53530	51930
3	45930	54380	53500	54150	54410	54120	51930	50520	55980	54070	53480	51900
4	45690	54310	53500	54120	56480	54410	51880	50450	55610	56290	53430	51830
5	45790	54230	53450	54100	55900	54460	51830	50370	55740	56830	53350	51720
6	45760	54230	53430	54180	55510	54360	51750	50250	56370	56400	53270	51900
7	45690	54070	53450	54070	54910	54150	51520	50170	57210	55690	53150	51600
8	45640	54070	53450	54020	54650	54540	51390	50120	57420	55250	53150	51570
9	45570	53990	53480	53840	54490	56210	51290	50070	56030	54990	52970	51440
10	45570	53970	53450	53730	54280	55480	51220	50020	55610	54800	52920	51390
11	45500	53940	53710	53630	54230	55060	51160	50000	55220	54590	52790	51340
12	45480	53940	53840	53600	54020	54650	51140	49920	54910	54460	52710	51320
13	45430	53890	53910	53600	53970	54410	51140	49880	55220	54250	52640	51290
14	45310	53890	53840	53550	53860	54230	51120	49830	55820	54200	52510	51240
15	45260	53890	53840	53480	53730	54200	51120	49780	55660	54150	52440	51220
16	45090	53890	53810	53380	53760	54020	50990	49920	55300	54200	52280	51140
17	45040	53890	53810	53320	53710	54050	51020	50170	55040	54150	52210	51090
18	44970	53760	53840	53380	53530	53990	51320	50270	54800	54120	52210	51020
19	44880	53860	55400	53270	53430	53840	51320	50320	54720	54070	52210	50990
20	44880	53710	60020	53250	53250	53780	51090	50400	54490	53990	52180	50940
21	44830	53680	57610	53380	53120	53680	50920	50370	54410	53810	52210	50890
22	44730	53580	56830	53550	53100	53550	50990	50300	54330	53760	52030	50790
23	44730	53480	56110	53530	53020	53400	50920	50320	54280	53680	51980	50740
24	44680	53530	55530	53450	53170	53300	50890	50400	54280	53580	51880	50670
25	44900	53480	55270	53380	54750	53040	50790	50520	54250	53480	51770	50540
26	47730	53480	54910	53480	55090	52970	50770	50470	54230	53300	51830	50470
27	49230	53580	54780	53940	54850	52920	50720	50500	54200	53480	51750	50400
28	54910	53400	54570	54050	54540	52820	50670	50820	54200	53300	51700	50320
29	55270	53480	54540	54050	54360	52740	50640	50140	54200	53070	51720	50320
30	54960	53350	54380	54020	---	52610	50590	51290	54200	53250	51470	50220
31	54780	---	54330	53940	---	52560	---	51650	---	53250	51650	---
MAX	55270	54670	60020	54250	56480	56210	52330	51650	57420	56830	53530	51930
MIN	44680	53350	53430	53250	53020	52560	50590	49780	52360	26290	51470	50220
(↑)	1075.42	1074.87	1075.25	1075.10	1075.26	1074.56	1073.78	1074.20	1075.20	1074.83	1074.20	1073.63
(Φ)	+8680	-1430	+980	-390	+420	-1800	-1970	+1060	+2550	-950	-1600	-1430
CAL YR 1991	MAX	60020	MIN	44400	(Φ)	+8040						
WTR YR 1992	MAX	60020	MIN	26290	(Φ)	+4120						

(↑) Gage height, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX

LOCATION.--Lat 32°52'20", long 98°25'32", Palo Pinto County, Hydrologic Unit 12060201, at Morris Sheppard Dam on the Brazos River, 2.6 mi upstream from Loving Creek, 11.3 mi southwest of Grafard, and at mile 687.5.

DRAINAGE AREA.--23,596 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1941 to current year. Prior to October 1977, published as Possum Kingdom Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.10 ft National Geodetic Vertical Datum of 1929 (levels by Brazos River Authority). Prior to Mar. 19, 1968, mercury U-tube in powerhouse at present site and datum.

REMARKS.--The lake is formed by reinforced concrete dam, Ambursen-type, massive buttress with flat-slab deck, a controlled spillway, two bulkhead sections, and an earthen-dike section. Total length of dam is 2,740 ft long. The dam was completed and storage began Mar. 21, 1941. The spillway has nine roof-weir gates (modified bear-trap type) that are 73.66 by 13 ft each and are designed to discharge about 100,000 ft<sup>3</sup>/s at a gage height of 1,000.0 ft. The outlet works consist of one controlled 54-inch-diameter conduit. Water is used for power development, irrigation, municipal, industrial, and recreational purposes. Two generators located in the powerhouse at dam can produce 22,500 kilowatts at a 1,000-foot gage height. Eleven major reservoirs, with a combined capacity of 607,800 acre-ft, largely regulate the inflow. The capacity curve is based on recomputation of a survey made in 1974. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08080950. Gage-height telemeter at station since Jan. 13, 1981. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,024.0	
Design flood (top of gates).....	1,000.0	570,200
Crest of spillway.....	987.0	383,300
Invert of penstock.....	911.5	4,560
Lowest gated outlet (invert of 54-inch conduit).....	874.8	0

COOPERATION.--Capacity table 3-C provided by the Brazos River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 743,700 acre-ft Oct. 5, 1941 (gage height, 1,001.0 ft); maximum gage height, 1,003.60 ft Oct. 13, 1981; minimum contents observed, 273,000 acre-ft Feb. 19 to Mar. 17, 1953 (gage height, 967.0 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 563,200 acre-ft June 2 at 1600 hours (gage height, 999.60 ft); minimum, 503,400 acre-ft Feb. 12 (gage height, 995.96 ft).

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

995.0	488,800	997.0	519,800	999.0	552,800
996.0	504,000	998.0	536,000	1,000.0	570,200

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	536700	533400	534900	537000	549800	558400	531800	524200	553800	552500	545900	523500
2	536200	535200	535400	538700	548800	555400	531500	523800	560600	554700	545100	522900
3	536200	534900	534700	540700	542900	538700	529500	523200	555800	557100	547100	523000
4	536000	534100	535200	540900	537700	520000	531500	520100	547900	559800	549800	522100
5	534700	532900	535000	540200	540400	515800	531100	519600	539900	549900	551100	522100
6	534500	533100	534400	538700	543400	517100	531800	517000	534400	539200	552300	523000
7	534200	532900	535400	539200	539900	525300	534700	515800	529000	537300	552600	524700
8	534500	533700	536300	538400	534700	528400	536700	514400	527300	541200	550400	524800
9	533900	534100	536500	538000	527400	531800	538000	514700	529700	542600	548400	524000
10	533200	534400	537000	537500	517300	534100	536700	515100	532300	543600	548100	523500
11	531900	534700	537700	537000	505600	535700	535700	514400	532400	541400	547800	522900
12	532100	534100	535400	537300	506100	538400	535400	513200	533200	539400	545400	522600
13	532800	534700	534400	536700	508900	540400	535700	512200	530500	537700	543200	522400
14	531800	534500	535400	537700	512500	540400	534500	513000	522100	536500	540500	522200
15	531600	535500	536700	537300	514700	539400	533200	513600	512700	537000	539200	521100
16	532100	537000	536000	537900	516600	536800	532800	514700	514600	537000	538400	520400
17	531900	536000	535400	538400	518900	538500	533700	517300	523700	537200	537300	519500
18	532100	536300	536200	538500	519800	538200	532800	517800	534700	537800	537500	518900
19	531300	536800	542200	538700	519800	538000	533400	518400	542200	539900	538200	517300
20	531600	535700	550100	539200	520900	538500	532900	518500	547800	540900	537700	516600
21	531800	535800	532800	538900	521100	537800	533400	518900	552000	542900	536500	515200
22	530800	536200	540700	537700	523500	538000	533200	520100	554700	543700	534900	515200
23	530500	535400	541400	537700	525600	538000	533200	521600	556100	544400	534100	514600
24	531100	535400	538500	538700	532100	538000	532800	523200	539900	545100	532100	514400
25	530500	534500	531900	538000	535800	537300	532800	523700	533600	545100	530000	514000
26	543900	534700	525500	538200	532800	538000	531300	525600	539700	545400	530700	514000
27	548100	534700	521100	539400	540900	535500	530600	533000	543900	545200	529400	513800
28	542700	534900	524000	542600	550100	535400	528200	542000	546100	545900	528200	513400
29	528700	535500	528700	547400	555600	535700	527700	540000	548300	545600	526800	511700
30	526100	534400	532800	550400	---	534700	526300	540700	550300	545600	523500	511200
31	530200	---	536000	550600	---	532400	---	548300	---	544600	524500	---
MAX	548100	537000	550100	550600	555600	558400	538000	548300	560600	559800	552600	524800
MIN	526100	532900	521100	536700	505600	515800	526300	512200	512700	536500	523500	511200
(↑)	997.64	997.90	998.00	998.87	999.16	997.78	997.40	998.73	998.85	998.51	997.29	996.46
(Φ)	6100	+4200	+1600	+14600	+5000	-23200	-6100	+2200	+2000	-5700	-20100	-13300

CAL YR 1991 MAX 552500 MIN 486000 (Φ) +17300  
WIR YR 1992 MAX 560600 MIN 505600 (Φ) -25100

(↑) Gage height, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER MAIN STEM

211

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1962 to September 1977. Chemical and biochemical analyses: February 1978 to current year.

325208098254201 - POSSUM KINGDOM LK SITE AR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1555	1.00	1520	8.8	10.0	13.3	123
13...	1557	10.0	1520	8.6	10.0	11.4	105
13...	1559	20.0	1510	8.5	9.5	10.6	97
13...	1601	30.0	1520	8.5	9.5	10.5	96
13...	1603	40.0	1550	8.4	9.5	10.2	93
13...	1605	50.0	1740	8.4	9.5	9.7	89
13...	1607	60.0	1950	8.4	9.5	9.7	89
MAY							
20...	1220	1.00	1500	8.8	23.5	8.3	101
20...	1222	10.0	1500	8.8	23.0	8.1	98
20...	1224	20.0	1520	8.2	22.0	5.1	61
20...	1226	30.0	1530	7.9	20.5	3.5	40
20...	1228	40.0	1850	7.6	16.0	2.1	22
20...	1230	50.0	2230	7.6	15.5	1.9	20
20...	1232	60.0	2460	7.7	16.0	1.7	18
SEP							
01...	1450	1.00	1690	8.3	26.0	6.1	78
01...	1452	10.0	1690	8.2	25.5	6.1	78
01...	1454	20.0	1690	8.2	25.5	6.0	76
01...	1456	30.0	1690	8.1	25.5	5.8	74
01...	1458	40.0	1750	8.0	25.5	4.2	54
01...	1500	50.0	2050	8.0	25.0	0.4	5
01...	1502	60.0	2160	7.8	24.0	0.4	5

325218098254101 - POSSUM KINGDOM LK SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLO. AS CACO3 (MG/L)
FEB											
13...	1510	1.00	509000	1520	8.9	10.5	1.0/	13.7	128	290	180
13...	1512	10.0	--	1520	8.8	10.0	--	13.2	122	--	--
13...	1514	20.0	--	1530	8.6	10.0	--	11.4	105	--	--
13...	1516	30.0	--	1550	8.4	9.5	--	10.3	94	--	--
13...	1518	40.0	--	1590	8.4	9.5	--	10.1	92	--	--
13...	1520	50.0	--	1730	8.4	9.5	--	9.7	89	--	--
13...	1522	60.0	--	2180	8.3	9.0	--	8.9	81	--	--
13...	1524	70.0	--	2660	8.2	9.0	--	8.5	77	--	--
13...	1526	80.0	--	3260	8.1	8.5	--	8.0	72	--	--
13...	1528	90.0	--	3530	8.1	8.5	--	7.6	68	--	--
13...	1530	100	--	3730	8.0	8.5	--	7.3	66	610	430
MAY											
20...	1130	1.00	519000	1510	8.8	23.0	1.46	8.2	99	360	230
20...	1132	10.0	--	1510	8.8	23.0	--	8.1	98	--	--
20...	1134	20.0	--	1520	8.0	21.5	--	4.3	51	--	--
20...	1136	30.0	--	1530	7.9	20.0	--	3.3	38	--	--
20...	1138	40.0	--	1840	7.5	16.0	--	1.9	20	--	--
20...	1140	50.0	--	2160	7.6	15.5	--	1.8	19	--	--
20...	1142	60.0	--	2450	7.6	16.0	--	1.4	15	--	--
20...	1144	70.0	--	3030	7.5	16.5	--	0.5	5	--	--
20...	1146	80.0	--	3390	7.5	16.5	--	0.2	2	--	--
20...	1148	90.0	--	3980	7.5	17.0	--	0.2	2	--	--
20...	1200	100	--	4490	7.4	17.0	--	0.4	5	850	660
SEP											
01...	1410	1.00	523000	1690	8.3	25.5	2.00	5.9	75	370	250
01...	1412	10.0	--	1690	8.3	25.5	--	5.8	74	--	--
01...	1414	20.0	--	1690	8.2	25.5	--	5.8	74	--	--
01...	1416	30.0	--	1690	8.2	25.5	--	5.7	73	--	--
01...	1418	40.0	--	1770	8.2	25.5	--	3.6	46	--	--
01...	1420	45.0	--	1980	8.0	25.0	--	0.7	9	--	--
01...	1422	50.0	--	1990	8.0	24.5	--	0.2	3	--	--
01...	1424	60.0	--	2130	7.8	24.5	--	0.3	4	--	--
01...	1426	70.0	--	1910	7.8	23.0	--	0.4	5	--	--
01...	1428	80.0	--	2600	7.7	21.0	--	0.4	5	--	--
01...	1430	90.0	--	2880	7.7	20.0	--	0.1	1	--	--
01...	1432	97.0	--	3030	7.5	20.0	--	0.6	7	580	420

## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325218098254101 - POSSUM KINGDOM LK SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
FEB										
13...	80	22	180	5	6.4	110	180	290	0.20	7.7
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	150	57	480	8	7.5	180	420	760	0.40	8.8
MAY										
20...	93	30	190	4	5.7	120	200	290	0.30	3.7
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	200	84	650	10	8.2	190	570	1000	0.50	9.0
SEP										
01...	98	30	190	4	7.3	110	240	300	0.40	8.7
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	140	55	420	8	7.7	160	410	650	0.60	11
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
13...	832	0.430	0.030	0.460	0.050	0.45	0.50	<0.010	<10	<10
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	0.430	0.040	0.470	0.060	0.94	1.0	<0.010	10	<10
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	1990	0.530	0.030	0.560	0.070	1.9	2.0	0.070	20	110
MAY										
20...	886	--	<0.010	<0.050	0.010	0.39	0.40	0.040	11	10
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	<0.010	0.530	0.010	0.39	0.40	0.090	10	70
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	2640	--	<0.010	<0.050	1.50	0.60	2.1	0.570	150	810
SEP										
01...	943	--	<0.010	<0.050	0.010	0.29	0.30	0.020	4	5
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	<0.010	<0.050	0.160	0.24	0.40	0.050	30	260
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	1790	--	<0.010	<0.050	1.00	0.30	1.3	0.260	70	590

## BRAZOS RIVER MAIN STEM

213

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325250098275301 - POSSUM KINGDOM LK SITE BR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1430	1.00	1550	8.8	10.0	12.6	116
13...	1432	10.0	1550	8.5	9.5	10.6	97
13...	1434	20.0	1570	8.5	9.5	10.4	95
13...	1436	30.0	1590	8.5	9.5	10.2	93
13...	1438	40.0	1620	8.4	9.5	10.0	91
13...	1440	50.0	1790	8.3	9.5	9.5	87
13...	1442	56.0	1970	8.3	9.5	9.4	86
MAY							
20...	1300	1.00	1550	8.8	24.5	7.9	98
20...	1302	10.0	1560	8.7	24.0	7.7	95
20...	1304	20.0	1550	8.7	23.5	7.3	89
20...	1306	30.0	1720	7.9	21.0	3.1	36
20...	1308	40.0	2070	7.6	18.5	1.4	16
20...	1310	50.0	2310	7.6	17.0	1.8	19
20...	1312	57.0	2510	7.7	17.0	1.8	19
AUG							
31...	1735	1.00	1700	8.2	26.0	6.1	78
31...	1737	10.0	1700	8.2	26.0	6.0	77
31...	1739	20.0	1720	8.1	26.0	5.3	68
31...	1741	30.0	1780	7.9	25.0	4.3	54
31...	1743	40.0	2010	7.7	25.5	2.4	31
31...	1745	50.0	2530	7.5	25.0	0.5	6
31...	1747	60.0	2680	7.5	25.0	1.0	13

325256098275301 - POSSUM KINGDOM LK SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1353	1.00	1550	8.9	10.5	13.6	127
13...	1355	10.0	1540	8.8	10.0	12.4	114
13...	1357	20.0	1580	8.5	9.5	10.2	93
13...	1359	30.0	1580	8.4	9.5	10.1	92
13...	1401	40.0	1590	8.4	9.5	10.1	92
13...	1403	50.0	1760	8.3	9.5	9.4	86
13...	1405	60.0	2070	8.2	9.5	8.9	81
13...	1407	70.0	2480	8.2	9.0	8.3	75
13...	1409	80.0	3030	8.1	9.0	7.6	69
13...	1411	91.0	3230	8.1	9.0	6.9	63
MAY							
20...	1030	1.00	1550	8.7	23.5	7.4	91
20...	1032	10.0	1540	8.7	23.5	7.4	90
20...	1034	20.0	1560	8.5	22.5	6.3	76
20...	1036	30.0	1770	7.7	20.0	2.3	26
20...	1038	40.0	2080	7.6	17.5	1.5	16
20...	1040	50.0	2350	7.6	17.0	1.8	19
20...	1042	60.0	2750	7.6	17.0	1.2	13
20...	1044	70.0	3290	7.5	17.5	0.2	2
20...	1046	80.0	3840	7.5	18.0	0.2	2
20...	1048	91.0	4290	7.5	18.0	0.4	4
AUG							
31...	1444	1.00	1690	8.2	26.0	6.2	80
31...	1446	10.0	1690	8.2	26.0	6.3	81
31...	1448	20.0	1690	8.0	26.0	5.8	74
31...	1450	30.0	1690	8.0	26.0	5.3	68
31...	1452	40.0	1780	7.8	25.0	3.3	42
31...	1454	50.0	2570	7.5	25.0	0.4	5
31...	1456	60.0	2710	7.5	25.0	0.2	3
31...	1458	70.0	2440	7.4	22.5	0.3	4
31...	1500	80.0	2580	7.4	21.0	0.4	5
31...	1502	90.0	2940	7.3	20.0	0.8	9



## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325129098311801 - POSSUM KINGDOM LK SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1315	1.00	1560	8.6	10.5	11.3	105
13...	1317	10.0	1570	8.5	10.0	10.7	99
13...	1319	20.0	1560	8.4	10.0	10.1	93
13...	1321	30.0	1610	8.2	9.5	9.1	83
13...	1323	40.0	1640	8.3	9.5	9.2	84
13...	1325	50.0	2120	8.2	9.5	8.6	79
13...	1327	60.0	2400	8.1	9.5	8.0	73
13...	1329	70.0	2560	8.0	9.5	7.3	67
13...	1331	76.0	2880	7.9	9.0	5.6	51
MAY							
20...	0950	1.00	1690	8.6	23.0	7.1	86
20...	0952	10.0	1690	8.6	23.0	7.0	85
20...	0954	20.0	1660	8.6	23.0	6.7	81
20...	0956	30.0	2760	7.7	21.5	1.7	20
20...	0958	40.0	2790	7.5	19.0	0.4	4
20...	1000	50.0	3010	7.5	18.0	0.3	3
20...	1002	60.0	3400	7.5	18.5	0.2	2
20...	1004	70.0	3800	7.5	18.5	0.3	3
20...	1006	75.0	3990	7.5	18.5	0.5	6
SEP							
01...	1620	1.00	1850	8.6	26.5	7.2	94
01...	1622	10.0	1850	8.4	26.0	6.6	85
01...	1624	20.0	1850	8.3	26.0	4.2	54
01...	1626	30.0	1850	8.1	26.0	3.7	48
01...	1628	40.0	2440	7.9	25.5	0.8	10
01...	1630	50.0	2780	7.7	25.0	0.4	5
01...	1632	60.0	2780	7.7	25.0	0.4	5
01...	1634	70.0	2820	7.6	24.5	0.4	5
01...	1636	74.0	2800	7.5	23.5	0.4	5

325327098314001 - POSSUM KINGDOM LK SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
FEB										
13...	1240	1.00	1510	8.2	10.0	0.50	9.9	91	310	190
13...	1242	10.0	1520	8.2	10.0	--	9.8	90	--	--
13...	1244	20.0	1520	8.1	9.5	--	9.1	83	--	--
13...	1246	30.0	1560	8.0	9.0	--	8.8	79	--	--
13...	1248	40.0	1720	8.1	9.0	--	8.6	77	--	--
13...	1250	50.0	1900	8.1	9.5	--	8.7	79	--	--
13...	1252	60.0	2420	8.1	9.5	--	8.0	73	--	--
13...	1254	69.0	2670	8.0	10.0	--	6.8	63	460	320
MAY										
20...	0900	1.00	1740	8.6	23.5	1.65	7.1	87	390	260
20...	0902	10.0	1750	8.6	23.5	--	7.0	86	--	--
20...	0904	20.0	1770	8.5	23.0	--	6.5	79	--	--
20...	0906	30.0	2860	7.7	21.5	--	2.2	26	--	--
20...	0910	40.0	3080	7.5	19.5	--	0.2	2	--	--
20...	0912	50.0	3580	7.5	19.5	--	0.2	2	--	--
20...	0914	60.0	3620	7.5	19.5	--	0.3	3	--	--
20...	0916	60.0	3810	7.4	19.0	--	0.4	4	720	560
AUG										
26...	1705	1.00	1730	8.4	26.0	1.20	5.9	75	380	260
26...	1707	10.0	1730	8.4	26.0	--	4.2	54	--	--
26...	1709	20.0	1760	8.1	26.0	--	2.8	36	--	--
26...	1711	30.0	1870	7.9	26.0	--	2.3	29	--	--
26...	1713	40.0	2240	7.8	25.0	--	1.5	19	--	--
26...	1715	50.0	2600	7.6	25.0	--	1.3	16	--	--
26...	1717	60.0	2910	7.5	25.0	--	0.2	3	--	--
26...	1719	67.0	2910	7.5	25.0	--	0.4	5	550	430

BRAZOS RIVER MAIN STEM

215

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325327098314001 - POSSUM KINGDOM LK SITE DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
13...	80	26	170	4	6.5	120	170	290	0.20	8.5
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	120	43	340	7	7.0	140	320	520	0.30	8.6
MAY										
20...	100	33	210	5	6.1	130	240	340	0.30	5.6
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	170	71	550	9	7.6	150	520	830	0.50	6.4
AUG										
26...	100	31	200	4	7.5	120	260	320	0.40	9.0
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	130	54	400	7	8.2	120	430	600	0.50	9.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
13...	821	1.78	0.220	2.00	0.040	0.36	0.40	0.020	10	<10
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	0.370	0.040	0.410	0.060	1.0	1.1	0.030	20	<10
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	1440	0.410	0.040	0.450	0.060	1.2	1.3	0.030	<10	30
MAY										
20...	1010	--	0.010	<0.050	0.010	0.59	0.60	0.080	5	2
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	0.043	0.050	0.093	0.160	0.34	0.50	0.060	<10	40
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	2250	0.170	0.060	0.230	0.250	0.45	0.70	0.120	20	500
AUG										
26...	997	--	<0.010	<0.050	0.020	0.38	0.40	0.020	7	3
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	<0.010	<0.050	0.020	0.28	0.30	0.010	10	40
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	1700	--	<0.010	<0.050	0.280	0.42	0.70	0.070	60	410

## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325347098265/01 - POSSUM KINGDOM LK SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
14...	0940	1.00	1570	8.1	11.0	8.7	83
14...	0942	10.0	1570	8.0	11.0	8.7	83
14...	0944	20.0	1570	8.0	11.0	8.6	82
14...	0946	30.0	1740	8.0	10.5	8.2	77
14...	0948	40.0	1760	8.0	10.5	8.3	78
14...	0950	50.0	1780	7.9	10.5	8.3	78
MAY							
20...	1610	1.00	2130	8.5	24.0	6.6	82
20...	1612	10.0	2140	8.5	24.0	6.4	79
20...	1614	20.0	2900	7.7	23.5	1.7	21
20...	1616	30.0	4270	7.5	24.0	0.5	6
20...	1618	40.0	4440	7.5	23.5	0.5	6
20...	1620	49.0	5450	7.5	23.5	0.2	2
AUG							
26...	1620	1.00	1880	8.5	26.0	5.4	69
26...	1622	10.0	1880	8.4	26.0	5.2	67
26...	1624	20.0	1880	8.4	26.0	5.0	64
26...	1626	30.0	1890	8.3	26.0	4.6	59
26...	1628	40.0	2120	8.0	26.0	3.5	45
26...	1630	45.0	2830	7.5	25.5	0.4	5
26...	1632	49.0	2890	7.4	25.5	0.3	4

325557098264401 - POSSUM KINGDOM LK SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
14...	0915	1.00	1940	8.1	11.5	8.6	83
14...	0917	10.0	1940	8.1	11.5	8.5	82
14...	0919	20.0	1930	8.1	11.5	8.4	81
14...	0921	30.0	1930	8.0	11.0	8.3	79
14...	0923	38.0	1960	7.9	11.0	7.5	71
MAY							
20...	1720	1.00	2210	8.6	24.0	7.5	93
20...	1722	10.0	2210	8.6	24.0	7.4	92
20...	1724	20.0	2210	8.6	24.0	7.2	89
20...	1726	30.0	3240	8.0	24.0	2.5	31
20...	1728	39.0	3970	7.6	24.0	2.3	29
AUG							
26...	1540	1.00	1970	8.5	26.5	6.4	83
26...	1542	10.0	1980	8.5	26.5	6.4	83
26...	1544	20.0	1980	8.5	26.5	6.3	81
26...	1546	30.0	2320	8.0	26.0	3.7	47
26...	1548	37.0	2700	7.4	26.0	0.8	10

325715098250501 - POSSUM KINGDOM LK SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
FEB										
14...	0845	1.00	2070	8.1	12.0	0.34	8.4	82	440	290
14...	0847	10.0	2170	8.1	12.0	--	8.3	81	--	--
14...	0849	20.0	2170	8.1	12.0	--	8.3	81	--	--
14...	0851	24.0	2170	8.0	12.0	--	8.3	81	410	260
MAY										
20...	1650	1.00	2870	8.5	24.5	0.30	7.8	98	540	400
20...	1652	10.0	3040	8.3	24.0	--	6.5	81	--	--
20...	1654	20.0	3840	7.7	24.0	--	2.6	32	--	--
20...	1656	24.0	5020	7.5	24.0	--	0.9	11	830	680
AUG										
26...	1500	1.00	2120	8.5	27.0	0.30	6.5	85	440	330
26...	1502	10.0	2120	8.5	26.5	--	6.2	80	--	--
26...	1504	20.0	2320	8.2	26.5	--	4.5	58	--	--
26...	1506	24.0	2500	7.6	26.0	--	2.0	26	500	390

## BRAZOS RIVER MAIN STEM

217

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325715098250501 - POSSUM KINGDOM LK SITE GC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
FEB										
14...	110	39	250	5	8.1	150	300	390	0.30	8.9
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	100	39	260	6	8.1	150	300	360	0.30	8.3
MAY										
20...	130	52	390	7	6.9	130	390	610	0.50	6.5
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	200	80	730	11	8.8	150	650	1200	0.90	7.9
AUG										
26...	110	41	270	6	7.9	110	310	410	0.50	8.7
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	120	48	340	7	8.0	110	400	510	0.50	9.6

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
14...	1200	0.015	0.040	0.055	0.150	1.0	1.2	0.040	10	<10
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	1170	1.46	0.040	1.50	0.150	0.85	1.0	0.030	<10	10
MAY										
20...	1670	--	<0.010	<0.050	0.020	0.48	0.50	0.060	<10	20
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	2970	--	0.050	<0.050	0.170	0.53	0.70	0.080	20	400
AUG										
26...	1220	--	<0.010	<0.050	0.020	0.48	0.50	0.020	30	<10
26...	--	0.330	0.010	0.340	0.020	0.48	0.50	0.020	10	50
26...	--	--	--	--	--	--	--	--	--	--
26...	1500	--	<0.010	<0.050	0.030	0.77	0.80	0.120	20	280

325047098291201 - POSSUM KINGDOM LK SITE P03

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1625	1.00	1560	8.9	10.5	14.7	138
13...	1627	10.0	1570	8.8	10.5	13.5	126
13...	1629	20.0	1580	8.6	10.5	11.2	105
13...	1631	30.0	1570	8.4	10.0	10.2	94
13...	1633	40.0	1690	8.3	9.5	9.5	87
13...	1634	50.0	1810	8.3	9.5	9.4	86
13...	1636	58.0	2030	8.1	9.5	8.4	77
MAY							
20...	1340	1.00	1570	8.7	24.0	7.8	96
20...	1342	10.0	1590	8.6	23.5	7.1	87
20...	1344	20.0	1780	7.8	21.5	3.1	37
20...	1346	30.0	1970	7.6	20.0	0.9	10
20...	1348	40.0	2360	7.6	18.0	0.7	8
20...	1350	50.0	2510	7.6	17.5	0.9	10
20...	1352	57.0	2660	7.6	17.5	0.5	5
SEP							
01...	1530	1.00	1810	8.2	26.5	6.5	84
01...	1532	10.0	1810	8.2	26.0	6.3	81
01...	1534	20.0	1800	8.2	26.0	6.1	78
01...	1536	30.0	1800	8.2	26.0	5.7	73
01...	1538	40.0	1890	8.2	25.5	3.7	47
01...	1540	50.0	2230	7.9	25.5	0.3	4
01...	1542	57.0	2260	7.7	25.0	0.4	5

## BRAZOS RIVER MAIN SIEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325125098323/01 - POSSUM KINGDOM LK SITE P05

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1730	1.00	1540	8.4	10.5	10.1	95
13...	1732	10.0	1570	8.4	10.0	9.9	92
13...	1734	20.0	1570	8.3	10.0	9.8	91
13...	1736	25.0	1640	8.3	10.0	9.5	88
MAY							
20...	1500	1.00	1750	8.6	24.5	7.5	94
20...	1502	10.0	1750	8.5	24.0	6.8	84
20...	1504	20.0	1920	7.8	22.5	3.2	39
20...	1506	25.0	1800	8.0	24.0	4.2	52
SEP							
01...	1700	1.00	1820	8.7	26.0	7.7	99
01...	1702	10.0	1820	8.6	25.5	7.5	96
01...	1704	20.0	1820	8.6	25.5	7.0	89
01...	1706	25.0	1810	8.6	25.5	6.5	83

325301098342901 - POSSUM KINGDOM LK SITE P07

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
13...	1750	1.00	1350	8.8	10.5	12.4	116
13...	1752	10.0	1420	8.4	10.0	10.9	101
13...	1754	20.0	1550	8.2	9.5	9.1	83
13...	1756	30.0	1590	8.2	9.5	8.8	81
13...	1758	40.0	1680	8.0	9.5	7.8	71
13...	1800	50.0	2070	7.7	9.5	5.1	47
13...	1802	60.0	2400	7.6	9.5	2.9	27
MAY							
20...	1530	1.00	1700	8.6	25.0	7.7	97
20...	1532	10.0	1700	8.6	24.5	7.2	90
20...	1534	20.0	1710	8.4	23.5	6.0	74
20...	1536	30.0	2180	7.6	21.5	1.4	17
20...	1538	40.0	2330	7.4	18.0	0.2	2
20...	1540	50.0	2450	7.4	16.5	0.3	3
20...	1542	60.0	2570	7.5	16.5	0.7	7
AUG							
26...	1820	1.00	1650	8.5	27.0	6.2	81
26...	1822	10.0	1660	8.4	26.5	5.2	67
26...	1824	20.0	1670	8.1	26.0	3.7	47
26...	1826	30.0	1620	7.7	25.5	0.7	9
26...	1828	40.0	2180	7.5	25.0	0.2	3
26...	1830	50.0	2100	7.5	24.5	0.2	2
26...	1832	58.0	1950	7.4	23.5	0.3	4



## BRAZOS RIVER MAIN STEM

219

08088600 BRAZOS RIVER AT MORRIS SHEPPARD DAM NEAR GRAFORD, TX.

LOCATION.--Lat 32°52'19", long 98°25'32", Palo Pinto County, Hydrologic Unit 1206021, immediately below Morris Sheppard Dam (formerly Possum Kingdom Dam), 2.6 mi upstream from Loving Creek, 11.3 mi southwest of Grafard, and 20 mi upstream from gaging station near Palo Pinto.

DRAINAGE AREA.--23,596 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 8.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow totally regulated by Possum Kingdom Lake (station 080885) since March 1941.

REMARKS.--No estimated daily discharges. Records fair. Flow totally regulated by Possum Kingdom Lake (station 08088500) since March 1941.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SLP
1	789	2490	682	1560	3380	19900	1610	1520	3050	453	343	671
2	725	1730	445	1540	1540	19900	1610	1010	6810	482	346	1180
3	541	1710	520	1540	6270	19300	1590	1010	13900	535	125	674
4	538	1690	445	2360	12100	18200	344	1010	13800	4020	127	678
5	504	1680	437	2370	12000	13300	471	1070	13400	9470	128	115
6	474	878	445	2380	16000	10700	346	1020	13000	9120	128	115
7	494	695	69	1530	18200	5840	330	1010	12700	2680	937	303
8	73	89	69	1530	17900	3040	333	1010	12500	500	1670	690
9	777	490	69	1540	17500	3000	1310	66	12500	485	1630	690
10	826	479	73	1540	16700	2980	1900	67	15200	531	123	710
11	1020	474	1020	1500	14200	3000	1100	830	18400	1140	385	764
12	76	474	3640	1530	5680	1490	1100	1120	18300	1130	1610	347
13	76	395	1870	1750	2050	1380	1090	868	18200	1130	1570	117
14	165	344	80	1540	2030	1690	1090	70	17800	702	1560	668
15	74	326	80	1680	2100	2980	1090	71	15300	127	685	681
16	74	320	1170	1480	2060	2980	1080	73	11700	502	697	655
17	282	472	1020	1540	2090	1350	882	73	3520	134	846	659
18	77	467	1080	1530	2100	1600	1530	562	368	215	965	708
19	78	373	2020	1530	2010	1640	1520	548	471	129	954	328
20	78	371	21700	1560	1570	1600	1510	499	267	131	1100	335
21	78	468	32700	1970	1360	1580	1520	591	550	125	960	941
22	701	377	26200	3160	672	1580	1530	91	481	307	834	114
23	75	77	27100	3190	669	1570	1430	91	2870	428	838	112
24	297	467	26800	3220	1720	1580	1680	95	10100	227	842	101
25	76	463	25900	3220	11200	1580	1490	511	3460	395	813	93
26	1740	462	20700	3260	18600	1610	1510	85	416	349	821	101
27	3220	279	14000	3270	18700	1610	1520	643	438	347	816	98
28	11500	76	6360	3280	19200	1600	1510	2150	344	393	445	679
29	17100	463	2450	3330	19600	1590	1520	7090	432	355	1060	576
30	9920	611	1620	3330	---	1610	1510	6170	435	348	1130	86
31	3930	---	1580	3350	---	1600	---	3210	---	341	1460	---
TOTAL	56378	19690	222344	68110	251121	153380	37056	34234	240712	37231	25948	13989
MEAN	1819	656	7172	2197	8659	4948	1235	1104	8024	1201	837	466
MAX	17100	2490	32700	3350	19600	19900	1900	7090	18400	9470	1670	1180
MIN	73	76	69	1480	669	1350	330	66	267	125	123	86
AC-FT	111800	39060	441000	135100	498100	304200	73500	67900	477500	73850	51470	27750

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	671	305	2011	701
MAX	1819	656	7172	2197
(WY)	1992	1992	1992	1992
MIN	99.4	120	143	82.6
(WY)	1989	1990	1989	1989

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1989 - 1992

ANNUAL TOTAL	703774	1160193	1760	
ANNUAL MEAN	1928	3170	3170	1992
HIGHEST ANNUAL MEAN			549	1989
LOWEST ANNUAL MEAN			43800	May 5 1990
HIGHEST DAILY MEAN	32700	Dec 21	21	Feb 6 1990
LOWEST DAILY MEAN	28	Feb 24	25	Oct 1 1988
ANNUAL SEVEN-DAY MINIMUM	37	Feb 23	48000	Apr 26 1990
INSTANTANEOUS PEAK FLOW			88.98	Dec 21
INSTANTANEOUS PEAK STAGE			3.5	Dec 21
INSTANTANEOUS LOW FLOW			1275000	Jun 18 1992
ANNUAL RUNOFF (AC-FT)	1396000	2301000	3050	
10 PERCENT EXCEEDS	3590	12500	462	
50 PERCENT EXCEEDS	531	1070	25	
90 PERCENT EXCEEDS	53	113		

## BRAZOS RIVER MAIN SIEM

08089000 BRAZOS RIVER NEAR PALO PINTO, TX

LOCATION.--lat 32°51'45", long 98°18'08", Palo Pinto County, Hydrologic Unit 12060201, on right bank 100 ft upstream from bridge on Farm Road 4, 300 ft downstream from Dark Valley Creek, 6.5 mi north of Palo Pinto, and at mile 667.3.

DRAINAGE AREA.--23,811 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--January 1924 to current year. Monthly discharge only for some periods, published in WSP 1312. Published as "near Mineral Wells" 1924-33.

REVISED RECORDS.--WSP 1512: 1924-25, 1929, 1932-34. WSP 1712: 1935-36, 1937-38(M), 1939, 1940(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 834.23 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1933, nonrecording gage at site 19 mi downstream at datum 38.19 ft lower. Nov. 15, 1933 to Apr. 10, 1989 at datum 3.00 ft higher.

REMARKS.--Records fair, including those of estimated daily discharges. Since 1941, flow largely regulated by Possum Kingdom Lake (station 08088500) 20 mi upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--16 years (water years 1925-40) prior to completion of Possum Kingdom Lake, 1,262 ft<sup>3</sup>/s (914,300 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-40).--Maximum discharge, 95,600 ft<sup>3</sup>/s June 16, 1930, at site 19 mi downstream from Mineral Wells (gage height, 30 ft, present site and datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage occurred in 1876, from data by U.S. Army Corps of Engineers, and was several feet higher than the flood of June 16, 1930, which reached a stage of about 30 ft and was the highest since at least 1876.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	650	e2650	646	1710	3310	21300	1650	1600	3380	582	341	1110
2	927	e1900	713	1770	3280	21600	1650	1370	4870	592	353	676
3	827	e1800	502	1700	4750	20600	1650	1110	13900	703	388	1040
4	602	e1750	439	2350	13100	18600	1250	1100	13200	2440	159	658
5	694	e1700	418	2410	12000	14200	500	1110	12500	11700	141	650
6	512	e980	422	2680	16500	10200	602	1150	12100	11200	140	201
7	523	391	279	1850	19800	7470	489	1110	11600	6190	144	182
8	385	e485	151	1690	19200	3310	467	1110	11500	295	1310	348
9	129	e438	320	1580	18600	3310	493	1110	11600	652	1460	694
10	717	e435	179	1580	17600	3220	1760	225	13700	619	876	1010
11	864	e462	296	1580	15300	3190	1470	176	19700	1340	176	864
12	1080	e500	3460	1550	6750	2210	1190	854	19400	1510	900	778
13	141	e530	3290	1780	2410	1660	1180	1270	19200	1520	1430	364
14	e84	e465	466	1600	2240	1750	1180	847	18500	1220	1440	184
15	e181	e476	241	1730	1960	2640	1180	209	16500	480	934	597
16	e76	e468	508	1340	2230	3120	1180	175	10600	168	649	624
17	e76	e374	1120	1560	2260	2180	1180	211	6380	564	658	607
18	e562	e625	1090	1640	2220	1290	1240	187	287	161	775	610
19	e85	429	2700	1500	2210	1720	1600	576	593	208	906	637
20	e74	382	20300	1580	1530	1740	1600	610	746	144	932	319
21	e74	396	30800	1690	1580	1690	1590	678	450	132	1000	304
22	e74	366	28600	3170	1300	1670	1590	704	805	126	836	795
23	e552	260	28500	3150	789	1660	1590	279	1230	265	767	162
24	e434	248	28200	3150	2130	1660	1810	836	11300	408	849	137
25	e134	394	27200	3150	11400	1670	1540	364	6330	208	724	122
26	e75.0	396	25700	3390	18700	1670	1580	1040	737	366	727	106
27	e1850	273	20300	3680	19000	1680	1590	338	594	331	744	105
28	e12000	269	7890	3380	19900	1790	1590	2480	597	334	740	98
29	e17800	213	3230	3310	20800	1560	1600	4910	479	417	447	508
30	e10600	307	1960	3310	---	1660	1590	8710	576	349	950	480
31	e4200	---	1880	3320	---	1650	---	3390	---	340	1250	---
101A1	56982.0	20362	241800	69880	262849	163670	39581	39839	243354	45564	23146	14970
MEAN	1838	679	7800	2254	9064	5280	1319	1285	8112	1470	747	499
MAX	17800	2650	30800	3680	20800	21600	1810	8710	19700	11700	1460	1110
MIN	74	213	151	1340	789	1290	467	175	287	126	140	98
AL-11	113000	40390	479600	138600	521400	324600	78510	79020	482700	90380	45910	29690

e Estimated

BRAZOS RIVER MAIN STEM

221

08089000 BRAZOS RIVER NEAR PALO PINO, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1992#, BY WATER YEAR (WY)

MEAN	1477	540	490	454	552	515	925	2208	1936	928	764	1057
MAX	13140	3020	7800	2254	9064	5280	8881	30210	10540	3971	7486	7650
(WY)	1942	1975	1992	1992	1992	1992	1957	1957	1941	1961	1978	1966
MIN	22.6	34.1	29.5	25.7	12.4	23.0	26.5	26.9	53.8	34.2	78.9	30.4
(WY)	1953	1953	1955	1953	1971	1976	1971	1971	1978	1971	1988	1988

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1941 - 1992#	
ANNUAL TOTAL	741855.0		1221997.0		989	
ANNUAL MEAN	2032		3339		4145	
HIGHEST ANNUAL MEAN					98.5	
LOWEST ANNUAL MEAN					81700	
HIGHEST DAILY MEAN	30800	Dec 21	30800	Dec 21	81700	Apr 29 1957
LOWEST DAILY MEAN	27	Feb 28	74	Oct 20	3.4	Apr 15 1949
ANNUAL SEVEN-DAY MINIMUM	50	Feb 24	146	Oct 16	5.6	Nov 2 1940
INSTANTANEOUS PEAK FLOW			39300	Dec 20	85400	Apr 29 1957
INSTANTANEOUS PEAK STAGE			21.67	Dec 20	28.87	Apr 29 1957
INSTANTANEOUS LOW FLOW			74	Oct 20	3.2	Apr 14 1949
ANNUAL RUNOFF (AC-FT)	1471000		2424000		716600	
10 PERCENT EXCEEDS	3890		12000		1740	
50 PERCENT EXCEEDS	563		1110		216	
90 PERCENT EXCEEDS	98		206		29	

# Period of regulated streamflow.

## BRAZOS RIVER MAIN STEM

08090800 BRAZOS RIVER NEAR DENNIS, TX

LOCATION.--Lat 32°36'56", long 97°55'32", Parker County, Hydrologic Unit 12060201, on right bank at downstream side of highway embankment of bridge on Farm Road 1189, 0.2 mi south of Dennis, 1.0 mi upstream from Patrick Creek, and at mile 589.98.

DRAINAGE AREA.--25,237 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 697.67 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation benchmark).

REMARKS.--No estimated daily discharges. Records fair. Flow is largely regulated by releases from Possum Kingdom Lake (station 08088500) 96 mi upstream on the Brazos River, and by Lake Palo Pinto upstream on Palo Pinto Creek. Flow may be affected at times by discharge from the flood-detention pools of twelve floodwater-retarding structures with a combined detention capacity of 13,840 acre-ft. These structures control runoff from an 53.0 mi<sup>2</sup> area in the East Keechi and Pollard Creeks drainage basins. There are many diversions above station for irrigation, municipal supply and oil field operations. Gage-height telemeter (DCP) at station. Peak stage for 1992 water year was obtained from a graph drawn through plots of daily observer readings.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1930, 31.8 ft in May 1957, from floodmark, from information by State Department of Highways and Public Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	609	6060	253	2910	3330	20800	1520	1320	3510	788	467	1140
2	517	3790	372	2680	3250	21700	1500	1310	4870	796	454	1460
3	661	2540	760	2660	3530	22000	1490	1330	7010	797	558	899
4	749	2750	918	2520	10800	21000	1500	961	12600	886	740	1040
5	561	2680	705	2570	18600	19000	1480	899	12200	1150	621	872
6	436	2600	570	2870	12600	13300	713	879	11900	8820	356	765
7	511	2510	522	2930	16400	9890	612	919	12100	9700	272	634
8	491	1350	512	2700	20700	7680	593	870	10900	6600	244	371
9	490	882	1310	2200	19100	3820	524	858	10500	1390	298	280
10	464	820	614	2140	17600	3560	496	864	10400	733	1310	541
11	299	634	607	2090	16500	3330	919	558	16900	783	1400	1190
12	644	652	1730	2140	13900	3190	1580	326	23300	852	651	1260
13	889	648	3950	2100	7120	2870	1060	338	20100	1430	360	917
14	628	593	3570	2110	3430	1940	1010	780	19700	1440	1140	693
15	311	562	1670	2300	2750	1850	994	814	18800	1450	1380	508
16	219	518	740	2100	2610	2100	991	499	16000	928	1410	382
17	180	714	491	2020	2430	2970	1030	304	9980	577	798	649
18	185	788	897	2020	2380	2860	1090	463	7040	389	729	681
19	176	762	3040	2350	2290	1560	904	392	1920	554	894	682
20	159	654	27300	2390	2230	1850	1280	371	1170	350	1020	702
21	224	736	59000	2250	1840	1760	1340	612	1340	326	966	651
22	175	522	61000	2340	1800	1670	1390	1770	1170	306	1030	463
23	151	503	47500	3210	1660	1650	1380	1220	1130	248	1000	570
24	137	464	37400	3320	1730	1600	1380	909	1340	231	826	629
25	330	376	33500	3190	6500	1590	1360	1450	8090	278	834	351
26	6510	302	31700	3240	19000	1580	1500	2130	6910	441	919	265
27	17200	441	25200	5180	22000	1560	1320	2310	1740	327	795	239
28	10900	446	15900	5940	20000	1610	1320	2460	1050	421	843	214
29	16000	360	9510	4240	20300	1650	1330	4300	987	433	827	184
30	20300	312	4940	3700	---	1580	1330	4790	855	504	686	175
31	12900	---	3240	3470	---	1550	---	8130	---	522	846	---
TOTAL	94006	36969	379421	87880	276380	185070	34936	45136	255512	44450	24674	19407
MEAN	3032	1232	12240	2835	9530	5970	1165	1456	8517	1434	796	647
MAX	20300	6060	61000	5940	22000	22000	1580	8130	23300	9700	1410	1460
MIN	137	302	253	2020	1660	1550	496	304	855	231	244	175
AC-FT	186500	73330	752600	174300	548200	367100	69300	89530	506800	88170	48940	38490

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1992#, BY WATER YEAR (WY)

	MEAN	1845	766	903	549	848	1056	1231	2168	2511	708	861	795
MAX	17690	5000	12240	2835	9530	5970	13320	12090	13490	4376	7600	2666	
(WY)	1982	1975	1992	1992	1992	1992	1990	1990	1982	1982	1978	1971	
MIN	69.6	78.9	73.0	78.8	33.9	26.7	27.1	30.4	61.7	37.0	56.6	14.9	
(WY)	1983	1980	1969	1969	1971	1971	1971	1988	1971	1978	1988	1984	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1969 - 1992#

ANNUAL TOTAL	889772			1483841								
ANNUAL MEAN	2438			4054								
HIGHEST ANNUAL MEAN										1188		
LOWEST ANNUAL MEAN										4141		1982
HIGHEST DAILY MEAN	61000	Dec 22		61000	Dec 22					120		1988
LOWEST DAILY MEAN	69	Apr 21		137	Oct 24					87700	Oct 14	1981
ANNUAL SEVEN-DAY MINIMUM	80	Apr 16		172	Oct 18					1.2	Aug 2	1978
INSTANTANEOUS PEAK FLOW				65800	Dec 21					3.0	Jul 29	1978
INSTANTANEOUS PEAK STAGE				28.06	Dec 21					96600	Oct 14	1981
INSTANTANEOUS LOW FLOW				3.7	Oct 24					31.85	Oct 14	1981
ANNUAL RUNOFF (AC-FT)	1765000			2943000						.87	Aug 2	1978
10 PERCENT EXCEEDS	3850			12700						860500		
50 PERCENT EXCEEDS	628			1310						2230		
90 PERCENT EXCEEDS	181			359						270		
										44		

# Period of regulated streamflow.

08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to current year.

WATER TEMPERATURE: October 1970 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,410 microsiemens Apr. 18, 1984; minimum daily, 200 microsiemens Oct. 13, 1981.

WATER TEMPERATURE: Maximum daily, 38.5°C July 26, 1976; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,930 microsiemens Oct.14; minimum daily, 400 microsiemens Dec.20.

WATER TEMPERATURE: Maximum daily, 34.0°C July 26; minimum daily, 6.0°C Jan. 18.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FID. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
OCT 10...		1433	482	3000	8.3	26.0	490	380	140	34
DEC 05...		1523	779	2150	8.3	10.0	390	270	110	27
JAN 23...		1510	3420	1580	8.1	9.0	320	200	93	22
MAR 10...		1305	3760	1750	8.0	16.0	370	220	99	31
MAY 26...		1005	1940	1020	8.0	21.0	230	120	62	19
JUN 16...		1230	16900	2240	8.0	28.0	440	320	110	41
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 10...		420	8	8.5	100	380	610	0.60	6.9	1660
DEC 05...		270	6	6.3	120	280	400	0.50	6.3	1170
JAN 23...		200	5	5.7	120	200	330	0.20	7.5	932
MAR 10...		200	4	6.0	150	220	320	0.30	8.6	975
MAY 26...		110	3	4.3	110	130	170	0.30	7.2	569
JUN 16...		280	6	7.2	130	300	450	0.40	6.0	1270
MONTH YEAR		DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (lb./l)
OCT. 1991		94006	1590	960	244000	340	86700	220	55800	290
NOV. 1991		36969	1950	1170	117000	420	41900	270	26700	350
DEC. 1991		379391	1500	902	924000	320	328700	210	211700	270
JAN. 1992		87880	1720	1040	246000	370	87200	240	56400	320
FEB. 1992		276380	1610	969	723000	340	255300	220	166300	300
MAR. 1992		185070	1680	1010	505000	360	178800	230	116100	310
APR. 1992		34936	2200	1320	124000	480	45300	300	28100	400
MAY 1992		45136	1900	1140	139000	410	50100	260	31600	340
JUNE 1992		255512	2200	1320	910000	480	331300	300	206300	400
JULY 1992		44450	1870	1120	135000	400	48300	260	30800	340
AUG. 1992		24674	2160	1300	86400	470	31400	290	19600	390
SEPT 1992		19407	1920	1150	60400	410	21600	260	13800	350
TOTAL		1483811	**	**	4213000	**	1507000	**	963000	**
WTD. AVG.		4054	1750	1050	**	380	**	240	**	320



## BRAZOS RIVER MAIN STEM

08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2300	1880	2080	1630	2040	1620	1770	2640	1780	1810	2150	2180
2	2350	1940	2060	1620	2110	1620	1770	2680	1750	2280	2180	1940
3	2370	e1900	2020	1680	1900	1630	1790	2670	1890	2330	2140	1960
4	2400	1920	2080	1730	e1400	1680	1800	2610	1990	2230	1930	1980
5	2560	2010	2050	1760	1200	1700	1800	2610	2080	2000	2080	1970
6	2670	1990	1940	1830	1600	1660	1790	2640	2170	1740	2080	1960
7	2750	2080	1900	1870	1650	1670	1790	2610	2290	1650	1970	1990
8	2800	2110	1800	1920	1700	1630	1790	2600	2390	1650	1900	2000
9	2850	2010	1620	1910	1770	1650	1760	2650	2490	1680	1820	2100
10	2870	1990	1600	1920	1750	1740	1790	e2640	2490	1760	1940	1940
11	2850	e2000	1610	1940	1750	1750	1870	2630	2290	1790	2150	1750
12	2900	2010	1500	1930	1740	1790	1930	2610	2240	1780	2300	1820
13	e2920	1830	e1610	1920	1730	1750	2170	2560	2410	1910	2340	1740
14	2930	1950	1680	1940	1760	1750	2180	2630	2400	2340	2300	1600
15	2900	1970	1880	1950	1790	1690	2230	2650	2310	2440	2200	1560
16	2870	2000	1840	1890	1800	1760	2260	2600	2170	2450	2260	1680
17	2830	1950	1730	1760	1840	1780	2260	2590	2180	1860	2240	1890
18	2800	1950	1640	1790	1860	1770	2210	1970	2100	2370	2220	1950
19	2810	1910	1120	1730	1870	1720	2220	1710	2080	2360	2170	1980
20	2810	1900	400	1680	1890	1730	2360	1680	2060	2350	2200	1970
21	2790	1890	500	1600	1900	1740	2430	1640	1990	2320	2110	1970
22	2800	1840	1200	1600	1950	1780	2510	1620	1900	2350	2180	1970
23	2810	1830	1600	1650	2000	e1760	2550	1670	1950	2320	2180	e1980
24	2780	1810	2190	1770	1400	1770	2410	1650	2100	2250	2210	2000
25	1650	1800	2220	1810	1000	1840	2470	1420	1860	2280	2200	1990
26	800	1750	2300	1700	1200	1730	2530	1210	1730	2330	2190	1980
27	900	1900	2020	1500	1530	1780	2620	1280	1740	2140	2180	1970
28	1100	1980	1890	1200	1600	1790	2640	1300	1770	e2150	2160	e1970
29	1600	1960	1760	1540	1630	1740	2650	1420	1740	2190	2190	1970
30	1900	2080	1600	1750	---	1760	2570	1680	1730	1990	2220	1970
31	2000	---	1650	1910	---	1790	---	1810	---	2100	2220	---
MEAN	2440	1940	1710	1760	1700	1730	2170	2150	2070	2100	2150	1920
MAX	2930	2110	2300	1950	2110	1840	2650	2680	2490	2450	2340	2180
MIN	800	1750	400	1200	1000	1620	1760	1210	1730	1650	1820	1560

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	13.5	11.0	11.5	12.0	13.0	16.0	26.0	21.5	32.0	27.5	26.0
2	26.0	11.5	9.5	10.0	12.0	13.5	13.0	25.0	22.0	33.0	28.0	28.5
3	26.0	12.0	9.0	11.0	11.0	14.0	15.0	25.0	22.5	27.5	32.0	30.5
4	26.0	11.0	9.5	11.0	---	14.0	17.0	25.5	21.5	31.5	31.0	30.0
5	22.0	12.0	10.5	13.0	9.5	12.0	17.0	25.5	24.0	30.0	33.0	28.0
6	21.0	11.0	12.0	13.0	9.0	15.0	17.5	24.5	21.5	28.0	32.5	30.0
7	22.0	10.0	15.0	13.5	9.0	15.0	20.5	25.0	24.0	28.0	32.5	32.0
8	22.0	12.5	20.0	13.0	9.0	15.0	23.0	25.0	23.5	28.5	28.5	31.5
9	22.0	12.0	17.0	11.0	9.0	16.5	24.0	22.0	23.5	30.5	33.5	30.5
10	24.0	13.0	15.0	11.0	8.0	13.0	20.0	---	24.0	31.0	32.0	24.0
11	25.0	---	20.0	9.0	11.0	13.0	26.0	27.5	24.0	32.0	30.0	25.5
12	25.0	13.5	16.0	10.0	11.0	13.5	23.0	29.0	22.5	31.0	30.0	28.0
13	---	14.0	---	10.0	11.0	14.0	22.5	29.0	24.5	30.5	31.0	25.0
14	23.0	15.0	15.0	10.0	13.0	17.0	23.5	28.0	24.0	31.0	30.0	29.0
15	22.0	20.0	13.0	7.0	14.0	18.0	23.0	29.0	25.5	31.5	29.0	29.5
16	18.0	18.0	17.0	7.0	14.0	18.0	22.5	24.0	25.5	29.0	26.0	28.5
17	24.0	17.0	13.0	8.0	12.0	17.0	23.0	25.0	28.0	29.5	28.0	29.0
18	24.5	18.0	11.0	6.0	13.5	17.5	22.0	24.5	27.5	26.5	24.0	30.5
19	22.5	16.0	10.0	8.0	11.0	17.0	21.0	24.0	29.0	30.0	24.0	29.5
20	22.0	16.0	10.0	8.0	13.0	17.0	20.0	26.0	30.5	29.5	25.5	29.0
21	22.0	14.0	10.0	7.0	11.5	16.0	21.0	24.0	30.0	30.0	27.5	30.0
22	24.0	14.0	11.0	9.5	14.0	15.0	21.0	24.0	27.0	32.0	26.5	26.5
23	25.0	10.0	10.5	9.0	15.0	---	24.0	25.0	30.5	32.0	29.0	---
24	---	10.5	11.0	10.0	13.5	16.0	23.5	23.0	31.0	32.5	29.5	24.5
25	24.5	10.0	10.0	9.0	10.0	17.5	22.5	24.0	27.5	30.0	30.5	24.0
26	20.0	11.0	12.0	11.0	10.0	19.0	24.0	22.0	29.0	34.0	28.5	24.0
27	18.0	15.0	10.0	10.0	11.5	18.0	23.0	22.5	30.5	33.0	27.5	27.0
28	20.0	18.0	10.0	10.0	12.5	18.0	23.5	19.5	30.0	---	28.0	---
29	18.0	18.0	10.0	11.0	12.0	17.0	23.5	20.0	31.0	31.5	28.0	27.0
30	17.0	14.0	11.0	12.0	---	18.0	25.5	20.0	31.0	33.0	27.0	25.0
31	13.5	---	11.0	12.0	---	18.0	---	19.0	---	30.0	27.0	---
MEAN	22.2	13.8	12.3	10.0	11.5	15.8	21.4	24.4	26.2	30.6	28.9	27.9
MAX	26.0	20.0	20.0	13.5	15.0	19.0	26.0	29.0	31.0	34.0	33.5	32.0
MIN	13.5	10.0	9.0	6.0	8.0	12.0	13.0	19.0	21.5	26.5	24.0	24.0

## 08090900 LAKE GRANBURY NEAR GRANBURY, TX

LOCATION.--Lat 32°22'27", long 97°41'20", Hood County, Hydrologic Unit 12060201, at right end of spillway of DeCordova Bend Dam on Brazos River, 2.6 mi upstream from Fall Creek, 7.5 mi southeast of Granbury, and at mile 542.5.

DRAINAGE AREA.--25,679 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-/6-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.11 ft below National Geodetic Vertical Datum of 1929 (levels by Brazos River Authority).

REMARKS.--The lake is formed by an Ambursen-type concrete and earthfill dam 2,256 ft long, including a 932-foot concrete spillway. The dam was completed on Aug. 30, 1969, and deliberate impoundment began Sept. 15, 1969. The spillway consists of sixteen 36- by 35-foot tainter gates and two 7- by 8-foot sluice gates. The outflow from the sluice gates discharges into a bay where it is then controlled by two 4- by 4.5-foot sluice gates with invert at 625.8 ft. Flow is affected at times by discharge from the flood-detention pools of 12 floodwater-retarding structures with a combined detention capacity of 13,940 acre-ft. These structures control runoff from 53.9 mi<sup>2</sup> in the East Keetchi, Kickapoo, and Ruckers Creeks drainage basins. The lake was built by the Brazos River Authority for the conservation of water for irrigation, municipal, and industrial uses. Water is diverted from the lake for municipal, domestic, irrigation, and industrial uses by several lakeside developers, or residents. Water is also diverted into Squaw Creek Reservoir. The city of Granbury returns sewage effluent into Lake Granbury. Stage telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	706.5	-
Top of tainter gates (design flood).....	693.0	153,500
Crest of spillway.....	658.0	15,440
Lowest gated outlet (invert).....	640.0	2,200

COUPLICATION.--The capacity curve, based on data prepared by the Ambursen Engineering Corporation, was provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 158,800 acre-ft Mar. 27, 1977 (elevation, 693.60 ft); minimum since first filling in October 1969, 97,600 acre-ft Aug. 9, 1978 (elevation, 685.28 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 153,600 acre-ft Oct. 27 at 0400 hours (elevation, 693.01 ft); minimum, 130,700 acre-ft Feb. 14 (elevation, 690.19 ft).

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

690.0	129,200	693.0	153,500
691.0	136,900	694.0	162,400
692.0	145,000		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148700	148300	149000	150100	149400	139900	147500	149400	146800	148400	149200	149400
2	149400	148800	149300	149100	149400	138500	147800	149700	147900	149600	149400	149100
3	149400	148100	150000	149600	148600	136100	147900	150100	145700	149200	148600	148700
4	150000	150400	150300	148900	149100	137500	148800	149300	148100	148900	149100	149100
5	149300	150400	150100	149400	146700	140200	150000	148600	148700	147400	149800	150000
6	148800	149500	149900	148700	145300	141500	149700	148100	147700	148600	149600	150500
7	148600	148600	148800	147700	143300	142300	149400	148100	148800	148300	148800	150800
8	148800	148300	149100	147800	140300	144700	149000	148100	148200	147200	148300	149400
9	149800	149800	150000	148100	141100	146000	148500	149100	147400	148100	148000	148800
10	150800	150100	149400	148900	141500	146400	147800	150300	146800	148800	149800	148800
11	151000	149800	149100	148300	141400	147600	147600	150100	146700	148300	150700	148400
12	151000	149800	149400	147500	140900	148400	149300	149800	147100	147600	149300	149100
13	151500	149100	150000	148300	137300	149700	149100	148900	147400	148400	148100	148900
14	152200	149200	148500	148300	131700	149400	148800	148800	149000	149000	148600	148500
15	151800	149400	147800	148100	138200	148600	148300	149400	148900	149200	148600	148700
16	151200	149200	149000	148400	141100	148000	148900	150300	148800	149400	148800	148700
17	150500	148900	148800	149600	144000	150100	149400	149400	149800	148600	148500	149000
18	150100	149300	148400	149200	146400	149800	148900	149400	149400	149500	148900	149100
19	150000	149500	149400	148600	148500	148400	149100	148300	148100	149800	149600	149300
20	149800	148300	144100	149100	150100	149300	148800	146700	148100	149400	149400	149400
21	149700	148400	131700	148700	149500	149500	148600	148300	148100	149100	149400	150000
22	149600	149400	137500	147800	149800	148400	148300	148600	146900	149200	149400	148900
23	149400	148900	142300	147900	149400	148100	148000	147400	146700	148800	149400	148800
24	148800	148800	141300	148400	149100	148400	148400	148100	147700	148700	149000	149700
25	148800	149000	141800	148900	148300	149200	148400	148600	150200	148600	149000	149800
26	151000	148900	141500	149400	141300	149600	149000	148100	147500	148800	149100	149800
27	147900	149300	141100	149000	138200	149000	149000	146600	147100	149000	148500	149400
28	144700	149400	143600	148800	139100	148300	149200	145700	148400	148900	148400	149000
29	141200	150300	148900	148300	139500	149400	149400	146200	148400	149000	148400	148600
30	141600	149600	150800	148100	---	149100	149400	146500	148100	149000	149400	148300
31	141600	---	150400	148800	---	147800	---	148400	---	149200	150200	---
MAX	152200	150400	150800	150100	150100	150100	150000	150300	150200	149800	150700	150800
MIN	141200	148100	131700	147500	131700	136100	147500	145700	145700	147200	148000	148300
(+)	691.58	692.55	692.64	692.45	691.33	692.33	692.53	692.41	692.37	692.50	692.62	692.40
(Φ)	-6100	+8000	+800	-1600	-9300	+8300	+1600	-1000	-300	+1100	+1000	-1900
CAI YR 1991	MAX	152200	MIN	131700	(Φ)	+700						
WTR YR 1992	MAX	152200	MIN	131700	(Φ)	+600						

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

BRAZOS RIVER MAIN STEM  
08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued  
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1970 to current year.

32222/097412101 - LAKE GRANBURY SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV F.D. AS CAC03 (MG/L)
JAN											
31...	1108	149000	1.00	1610	8.6	11.5	1.10	11.2	105	340	190
31...	1113	--	10.0	1620	8.5	11.0	--	10.7	99	--	--
31...	1117	--	20.0	1640	8.3	10.5	--	9.7	89	--	--
31...	1121	--	30.0	1650	8.2	10.0	--	9.3	84	--	--
31...	1125	--	40.0	1640	8.2	9.5	--	9.4	84	--	--
31...	1129	--	50.0	1640	8.1	9.0	--	9.3	82	--	--
31...	1133	--	64.0	1670	7.8	9.0	--	9.2	81	350	200
MAY											
15...	1037	149000	1.00	1750	8.3	24.5	1.60	7.2	90	410	240
15...	1040	--	10.0	1750	8.2	23.5	--	6.7	82	--	--
15...	1043	--	20.0	1760	8.0	22.5	--	5.1	61	--	--
15...	1047	--	30.0	1770	7.8	22.0	--	4.0	47	--	--
15...	1050	--	40.0	1810	7.5	21.5	--	1.5	18	--	--
15...	1055	--	50.0	1840	7.4	20.5	--	0	0	--	--
18...	1101	--	61.0	1720	7.3	19.0	--	0	0	410	220
AUG											
05...	1048	150000	1.00	1910	8.2	29.5	1.20	5.3	72	380	260
05...	1052	--	10.0	1910	8.1	29.0	--	4.7	63	--	--
05...	1056	--	20.0	1910	8.1	29.0	--	5.0	67	--	--
05...	1100	--	30.0	1930	7.7	28.5	--	1.8	24	--	--
05...	1105	--	40.0	2000	7.5	28.0	--	0	0	--	--
05...	1110	--	50.0	2010	7.5	28.0	--	0	0	--	--
05...	1117	--	63.0	2020	7.4	28.0	--	0	0	400	250

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN											
31...	98	22	200	5	5.1	150	200	330	0.30	8.2	952
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	100	23	210	5	5.0	160	210	340	0.30	8.4	993
MAY											
15...	110	33	210	5	6.1	170	230	340	0.30	6.4	1040
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
18...	110	32	200	4	5.8	180	220	340	0.30	8.6	1030
AUG											
05...	97	34	230	5	6.6	120	260	360	0.30	8.0	1070
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	98	38	260	6	6.2	160	270	400	0.30	9.5	1180

## BRAZOS RIVER MAIN STEM

227

U8090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322227097412101 - LAKE GRANBURY SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
31...	0.110	0.020	0.130	<0.010	--	0.50	0.030	<0.010	<3	<1
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	0.180	0.020	0.200	0.060	0.44	0.50	0.050	0.020	4	20
MAY										
15...	--	0.020	<0.050	<0.010	--	<0.20	<0.010	0.010	<3	1
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	0.130	0.030	0.160	0.020	--	<0.20	<0.010	0.020	<10	<10
15...	0.270	0.020	0.290	<0.010	--	<0.20	0.010	0.030	<10	90
15...	--	--	--	--	--	--	--	--	--	--
18...	0.170	0.030	0.200	0.230	0.27	0.50	0.050	0.070	30	1500
AUG										
05...	--	<0.010	<0.050	0.040	0.46	0.50	0.070	<0.010	4	2
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<0.010	<0.050	0.050	0.55	0.60	0.060	<0.010	<10	<10
05...	--	<0.010	<0.050	0.040	0.36	0.40	0.040	0.010	<10	20
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	0.020	<0.050	0.840	0.46	1.3	0.210	0.110	120	1300

322231097412001 - LAKE GRANBURY SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1139	1.00	1610	8.6	11.5	10.8	101
31...	1141	10.0	1620	8.5	11.0	10.5	97
31...	1143	20.0	1640	8.4	10.5	9.7	89
31...	1145	30.0	1640	8.3	10.0	9.4	85
31...	1147	40.0	1630	8.3	9.5	9.3	83
31...	1150	50.0	1660	8.2	9.0	9.2	81
31...	1152	56.0	1670	8.3	9.0	9.4	83
MAY							
15...	1108	1.00	1750	8.3	24.5	7.2	88
15...	1110	10.0	1750	8.3	23.5	6.8	82
15...	1113	20.0	1750	8.0	22.5	5.1	60
15...	1115	30.0	1770	7.9	22.0	4.1	48
15...	1118	40.0	1810	7.7	21.5	1.6	19
15...	1122	52.0	1800	7.6	20.5	0	0
AUG							
05...	1123	1.00	1900	8.2	29.5	5.4	74
05...	1126	10.0	1900	8.2	29.0	5.2	70
05...	1130	20.0	1900	8.1	29.0	4.7	63
05...	1133	30.0	1940	7.6	28.5	0.8	11
05...	1137	40.0	2000	7.6	28.0	0	0
05...	1140	50.0	2010	7.5	28.0	0	0
05...	1143	56.0	2010	7.6	28.0	0	0

## BRAZOS RIVER MAIN STEM

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

## 322345097421901 - LAKE GRANBURY SITE BR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1227	1.00	1570	8.5	12.5	10.4	100
31...	1230	10.0	1570	8.3	11.0	9.7	90
31...	1232	20.0	1570	8.2	9.5	9.2	83
31...	1235	30.0	1600	8.2	9.0	9.3	83
31...	1238	43.0	1610	8.3	9.5	9.4	85
MAY							
15...	1157	1.00	1760	8.3	25.0	7.7	95
15...	1159	10.0	1780	8.2	23.5	5.8	70
15...	1201	20.0	1870	7.9	23.0	4.0	48
15...	1203	30.0	1880	7.8	22.5	2.5	30
15...	1206	42.0	1890	7.7	22.5	1.4	17
AUG							
05...	1219	1.00	1900	8.4	30.0	7.1	98
05...	1222	10.0	1900	8.3	29.5	6.2	84
05...	1225	20.0	1900	7.8	29.0	2.4	32
05...	1227	31.0	1910	7.6	29.0	0.5	7

## 322341097420601 - LAKE GRANBURY SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRAN- SPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
31...	1205	1.00	1570	8.4	11.5	0.85	10.3	97
31...	1207	10.0	1570	8.3	10.5	--	9.6	88
31...	1210	20.0	1560	8.2	9.5	--	9.2	83
31...	1212	30.0	1600	8.2	9.0	--	9.2	82
31...	1214	40.0	1630	8.2	9.0	--	9.1	81
31...	1217	50.0	1670	8.2	8.5	--	9.0	79
31...	1220	60.0	1690	8.2	9.0	--	9.0	80
MAY								
15...	1133	1.00	1750	8.3	25.0	1.50	7.6	94
15...	1135	10.0	1770	8.2	23.5	--	5.8	70
15...	1137	20.0	1920	7.9	23.0	--	4.0	48
15...	1140	30.0	1900	7.7	22.5	--	2.6	31
15...	1143	40.0	1900	7.6	21.5	--	1.0	12
15...	1146	50.0	1920	7.6	21.0	--	0	0
15...	1151	59.0	1750	7.6	19.5	--	0	0
AUG								
05...	1155	1.00	1900	8.4	30.0	--	6.9	95
05...	1157	10.0	1900	8.4	29.5	--	6.4	87
05...	1200	20.0	1900	7.8	29.0	--	2.6	35
05...	1202	30.0	1920	7.5	28.5	--	0.4	5
05...	1206	40.0	1960	7.5	28.0	--	0	0
05...	1209	50.0	2010	7.5	28.0	--	0	0
05...	1212	59.0	2050	7.5	28.0	--	0	0

## 322537097414501 - LAKE GRANBURY SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRAN- SPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
31...	1312	1.00	1430	8.3	11.0	1.04	9.4	88
31...	1316	14.0	1630	8.1	11.0	--	7.7	72
MAY								
15...	1232	1.00	1730	8.3	26.5	0.90	7.3	94
15...	1235	10.0	1780	8.0	24.5	--	4.2	52
15...	1237	15.0	1830	7.8	23.5	--	2.3	28
AUG								
05...	1256	1.00	1880	8.4	31.5	--	7.0	99
05...	1259	5.00	1880	8.4	31.0	--	6.8	95
05...	1302	14.0	1840	7.9	30.5	--	3.7	51



## BRAZOS RIVER MAIN STEM

229

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

## 322422097423901 - LAKE GRANBURY SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
31...	1329	1.00	1560	8.3	14.0	0.73	9.5	95
31...	1332	10.0	1500	8.2	10.5	--	8.9	82
31...	1334	20.0	1550	8.2	10.0	--	8.9	81
31...	1336	30.0	1560	8.2	9.5	--	8.8	79
31...	1338	40.0	1630	8.2	9.0	--	8.6	77
31...	1340	50.0	1680	8.1	9.0	--	8.2	73
31...	1342	55.0	1680	8.2	9.0	--	8.4	75
MAY								
15...	1251	1.00	1770	8.3	26.0	1.10	7.5	95
15...	1253	10.0	1800	8.1	24.0	--	6.0	73
15...	1256	20.0	2320	7.8	23.5	--	3.8	46
15...	1259	30.0	2300	7.8	23.5	--	3.4	41
15...	1302	40.0	2280	7.7	23.0	--	2.0	24
15...	1305	52.0	1900	7.7	21.0	--	0	0
AUG								
05...	1332	1.00	1910	7.9	32.5	--	3.9	56
05...	1335	5.00	1910	7.9	31.0	--	3.4	48
05...	1338	10.0	1900	7.6	29.5	--	1.8	25
05...	1341	20.0	1930	7.5	29.5	--	0	0
05...	1345	30.0	1880	7.5	28.5	--	0	0
05...	1350	40.0	1870	7.5	28.5	--	0	0
05...	1353	53.0	1890	7.4	28.5	--	0	0

## 322437097423901 - LAKE GRANBURY SITE DI

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1349	1.00	1570	8.3	15.0	9.6	98
31...	1352	10.0	1540	8.2	10.5	8.9	82
31...	1355	19.0	1560	8.2	10.5	8.8	81
MAY							
15...	1310	1.00	1780	8.3	26.0	7.4	95
15...	1312	10.0	1820	8.1	24.0	5.9	73
15...	1314	20.0	2220	7.9	24.0	4.0	49
AUG							
05...	1401	1.00	1920	8.0	33.5	4.3	63
05...	1405	10.0	1900	7.7	30.0	2.0	27
05...	1409	15.0	1900	7.6	29.5	1.0	14
05...	1413	21.0	1890	7.5	29.5	0	0

## 322458097443101 - LAKE GRANBURY SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1405	1.00	1410	8.1	12.0	8.7	83
31...	1408	10.0	1430	8.1	10.5	8.6	79
31...	1410	20.0	1490	8.1	10.5	8.6	79
31...	1413	30.0	1560	8.1	10.0	8.5	77
31...	1417	40.0	1560	8.1	9.0	8.1	72
31...	1420	57.0	1660	8.0	9.0	7.6	68
MAY							
15...	1325	1.00	1850	8.3	25.0	7.6	95
15...	1327	10.0	1880	8.3	25.0	6.8	85
15...	1329	20.0	2380	7.8	23.5	3.7	45
15...	1331	30.0	2480	7.8	23.5	3.4	42
15...	1333	40.0	2480	7.8	23.5	2.7	33
15...	1336	49.0	2290	7.7	23.0	1.0	12
AUG							
05...	1423	1.00	1900	8.3	32.0	6.8	97
05...	1427	10.0	1910	8.2	31.0	5.8	81
05...	1430	20.0	1910	7.7	29.5	2.5	34
05...	1434	30.0	1950	7.5	29.0	0	0
05...	1438	40.0	1880	7.4	28.5	0	0
05...	1442	49.0	1880	7.4	28.5	0	0

## BRAZOS RIVER MAIN SLM

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322619097463301 - LAKE GRANBURY SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN										
31...	1444	1.00	1320	8.1	11.5	8.8	83	280	150	80
31...	1447	10.0	1340	8.0	10.5	8.4	77	--	--	--
31...	1450	20.0	1370	8.0	10.5	8.3	76	--	--	--
31...	1453	30.0	1430	8.0	10.5	8.0	74	--	--	--
31...	1456	40.0	1520	8.0	10.5	7.6	70	320	180	91
MAY										
15...	1408	1.00	2110	8.3	26.0	8.4	108	480	310	120
15...	1411	10.0	2150	8.2	25.0	6.5	82	--	--	--
15...	1414	20.0	2400	7.9	24.0	4.1	51	--	--	--
15...	1418	30.0	2530	7.8	23.5	3.0	37	--	--	--
15...	1422	38.0	2520	7.8	24.0	2.5	31	560	390	140
AUG										
05...	1501	1.00	1900	8.5	31.5	8.2	116	390	270	98
05...	1505	10.0	1900	8.2	30.5	6.4	89	--	--	--
05...	1509	20.0	1980	7.7	29.5	2.4	33	--	--	--
05...	1513	25.0	2040	7.6	29.0	1.6	22	--	--	--
05...	1518	30.0	2060	7.6	29.0	1.4	19	--	--	--
05...	1522	37.0	2060	7.6	29.0	1.4	19	410	270	100

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SURP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)
JAN										
31...	19	160	4	4.6	130	160	260	0.30	8.2	772
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	22	190	5	5.7	140	190	300	0.30	7.8	891
MAY										
15...	43	270	5	6.4	170	280	420	0.40	6.7	1250
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	50	330	6	6.5	170	340	520	0.40	8.1	1500
AUG										
05...	35	240	5	6.7	120	260	380	0.30	8.4	1100
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	39	270	6	6.6	140	290	400	0.30	11	1200

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
31...	0.280	0.020	0.300	0.020	0.38	0.40	0.040	0.030	4	2
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	0.250	0.030	0.280	0.070	0.43	0.50	0.050	0.030	8	83
MAY										
15...	--	0.010	<0.050	0.010	--	<0.20	0.010	0.020	<10	10
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	0.060	<0.050	0.270	0.23	0.50	0.040	0.130	<10	400
AUG										
05...	--	<0.010	<0.050	0.040	0.46	0.50	0.070	0.010	<3	2
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<0.010	<0.050	0.140	0.56	0.70	0.110	0.020	<10	80

## BRAZOS RIVER MAIN STEM

231

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322703097451401 - LAKE GRANBURY SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1508	1.00	1300	8.1	11.5	8.9	84
31...	1510	10.0	1330	8.0	10.5	8.2	76
31...	1512	15.0	1360	8.0	11.0	8.3	77
MAY							
15...	1433	1.00	2230	8.2	25.0	8.0	101
15...	1435	10.0	2290	8.1	25.0	6.5	82
15...	1437	23.0	2370	7.6	24.0	0	0
AUG							
05...	1534	1.00	1880	8.5	31.5	8.2	116
05...	1538	10.0	1880	8.3	30.5	6.8	94
05...	1542	15.0	1870	7.9	29.5	4.2	57
05...	1546	23.0	1830	7.5	29.5	0.6	8

322834097470801 - LAKE GRANBURY SITE HC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1528	1.00	1240	8.1	11.0	8.6	80
31...	1530	10.0	1290	8.1	11.0	8.6	80
31...	1532	20.0	1270	8.0	11.0	8.3	77
31...	1534	31.0	1280	8.1	10.5	8.2	75
MAY							
15...	1453	1.00	2510	8.2	26.0	6.9	88
15...	1455	10.0	2530	8.1	25.5	5.3	67
15...	1457	20.0	2540	7.8	25.0	3.6	45
15...	1500	31.0	2550	7.7	24.0	0.8	10
AUG							
05...	1605	1.00	1930	8.5	31.0	8.5	119
05...	1609	5.00	1950	8.3	30.0	7.0	96
05...	1613	10.0	2050	7.9	29.5	4.7	64
05...	1616	20.0	2140	7.6	29.0	1.6	22
05...	1620	31.0	2160	7.5	29.0	0.4	5

322819097483201 - LAKE GRANBURY SITE IC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1544	1.00	829	8.0	12.0	8.6	82
31...	1547	10.0	1250	8.0	10.5	7.6	70
31...	1550	15.0	1410	7.9	10.5	5.9	54
MAY							
15...	1511	1.00	2400	8.2	26.5	7.7	100
15...	1514	10.0	2490	7.8	25.0	3.6	45
15...	1516	14.0	2440	7.6	24.5	0	0
AUG							
05...	1628	1.00	1960	8.3	31.0	7.6	106
05...	1632	5.00	2050	7.8	29.5	3.6	49
05...	1636	14.0	1990	7.6	29.0	1.9	26

## BRAZOS RIVER MAIN STEM

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

323318097480101 - LAKE GRANBURY SITE JC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
31...	1645	1.00	1710	8.1	11.5	8.8	83
31...	1648	10.0	1710	8.1	11.5	8.8	83
31...	1651	23.0	1700	8.1	11.5	8.5	80
MAY							
15...	1536	1.00	2520	8.1	28.0	6.5	86
15...	1539	10.0	2520	8.0	26.0	5.4	69
15...	1542	22.0	2570	7.8	23.5	2.1	26
AUG							
05...	1657	1.00	2040	8.3	31.5	7.8	110
05...	1700	10.0	1990	8.1	30.0	5.8	80
05...	1703	15.0	1990	7.8	29.5	3.2	44
05...	1706	22.0	2230	7.5	29.5	0	0

323435097492001 - LAKE GRANBURY SITE KC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FID. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN										
31...	1706	1.00	1800	8.1	11.5	8.9	84	350	200	99
31...	1710	10.0	1800	8.1	12.0	8.8	84	--	--	--
31...	1714	21.0	1800	8.1	12.0	8.7	83	360	210	100
MAY										
15...	1555	1.00	2590	8.2	28.0	6.8	90	560	390	140
15...	1559	10.0	2590	8.1	27.5	6.3	83	--	--	--
15...	1603	18.0	2540	8.0	27.5	5.3	70	560	380	140
AUG										
05...	1722	1.00	1680	8.4	32.0	7.7	109	370	220	94
05...	1726	5.00	1680	8.3	31.0	7.4	103	--	--	--
05...	1730	10.0	1990	8.1	30.0	5.7	78	--	--	--
05...	1736	17.0	1980	8.0	30.0	4.9	67	410	250	99

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN										
31...	25	230	5	5.1	150	220	390	0.30	8.5	1070
31...	--	--	--	--	--	--	--	--	--	--
31...	25	230	5	5.8	150	220	380	0.30	8.5	1060
MAY										
15...	51	350	6	7.1	170	340	520	0.40	5.6	1520
15...	--	--	--	--	--	--	--	--	--	--
15...	51	340	6	6.9	180	340	510	0.40	6.4	1500
AUG										
05...	34	200	4	5.8	150	230	300	0.30	8.2	964
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	40	260	6	6.2	160	290	380	0.30	8.5	1180

## BRAZOS RIVER MAIN STEM

233

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

32343509/492001 - LAKE GRANBURY SITE KC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
31...	0.340	0.020	0.360	0.010	0.39	0.40	0.050	0.040	<3	6
31...	--	--	--	--	--	--	--	--	--	--
31...	0.330	0.020	0.350	0.020	0.38	0.40	0.060	0.040	<7	4
MAY										
15...	--	0.010	<0.050	0.010	--	<0.20	<0.010	0.030	<10	<10
15...	--	--	--	--	--	--	--	--	--	--
15...	--	0.010	<0.050	0.020	--	<0.20	<0.010	0.020	<10	30
AUG										
05...	--	<0.010	<0.050	0.030	0.47	0.50	0.050	<0.010	4	2
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	<0.010	<0.050	0.040	0.56	0.60	0.060	0.020	<10	60



## BRAZOS RIVER MAIN STEM

08091000 BRAZOS RIVER NEAR GLEN ROSE, TX

LOCATION.--Lat 32°16'18", long 97°39'48", Somervell County, Hydrologic Unit 12060201, at downstream side of bridge on U.S. Highway 67, 600 ft downstream from Georges Creek, 4.1 mi upstream from Paluxy River, 6 mi northeast of Glen Rose, and at mile 511.2.

DRAINAGE AREA.--25,818 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--October 1923 to current year.

Water-quality records.--Chemical analyses: August to November 1946. Chemical and biochemical analyses: October 1980 to June 1987.

REVISED RECORDS.--WSP 1058: 1932. WSP 1512: 1946-47, 1949. WSP 1712: 1928(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 567.82 ft above National Geodetic Vertical Datum of 1929. Prior to May 7, 1931, nonrecording gage at site 2.5 mi downstream at same datum. May 7, 1931, to Sept. 30, 1957, water-stage recorder at site 2.4 mi downstream at same datum, used as supplementary gage Oct. 1, 1957, to Apr. 1, 1959. Apr. 27, 1950, to Sept. 30, 1957, water-stage recorder, present gage, used as supplementary gage.

REMARKS.--Records fair. Since September 1969, flow largely regulated by Lake Granbury (station 08090900) 31 mi upstream. There are many diversions above station for irrigation, municipal supply, and for oil field operations.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--46 years (water years 1924-69) prior to regulation by Lake Granbury, 1.56/ ft<sup>3</sup>/s (1,135,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1924-69).--Maximum discharge, 97,600 ft<sup>3</sup>/s May 18, 1935 (gage height, 23.68 ft, site then in use, from floodmarks); no flow at times prior to construction of Morris Sheppard Dam (1941) on the Brazos River forming Possum Kingdom Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of 27 ft, and flood in May 1922 reached a stage of 29.5 ft, each at site 2.4 mi downstream, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	10900	1270	3540	3330	22300	1850	902	6270	489	355	871
2	80	4420	620	3990	3490	23900	1310	903	4210	57	362	1840
3	206	4920	546	2630	4480	25000	1310	903	6010	39	972	1670
4	680	2110	524	2880	10300	25200	1290	1010	8450	621	823	1070
5	721	2520	1370	2390	19500	21500	627	1330	11100	591	356	542
6	714	3110	774	2470	20700	18300	1100	746	11800	2540	352	412
7	706	3030	1400	3730	16500	11400	723	561	11500	8910	344	484
8	472	2750	1260	3070	21200	8000	626	545	10800	8580	566	564
9	318	968	561	2380	23500	6690	603	257	10800	4480	296	1160
10	98	653	1330	1700	21300	3270	584	65	10200	381	184	498
11	44	1580	1340	1920	20500	2990	582	175	11800	301	215	2070
12	135	952	1500	2500	19000	2900	595	463	19100	1140	1710	1100
13	384	1520	2580	2160	14200	2680	917	151	21300	1110	1150	1100
14	400	1490	4140	1680	9590	2180	965	191	18100	987	738	1090
15	400	747	3920	2130	2020	2160	936	478	18500	1490	997	1070
16	401	1250	999	2070	840	2140	859	163	17300	1560	1370	425
17	394	1550	412	1550	1670	2120	597	429	12200	1110	1320	258
18	394	1000	1170	2280	1690	3010	928	266	7270	761	728	246
19	293	1530	1930	2920	1650	2800	935	574	5070	203	743	341
20	165	1620	35000	2400	1730	1490	976	2020	783	407	959	489
21	147	1460	82100	2280	2230	1350	1180	159	799	554	1150	500
22	100	729	68900	2920	2390	2020	1200	738	1370	341	993	728
23	97	618	58500	2940	2250	1940	1280	2080	1110	317	991	886
24	184	1160	44300	3070	2510	1330	1140	986	602	250	996	259
25	334	840	37100	3100	11100	1320	948	773	1600	137	1010	96
26	484	597	33800	3300	18700	1310	949	1880	9670	139	1010	83
27	28800	526	32500	6320	26800	1440	948	2810	4080	138	1000	215
28	29200	517	23000	6720	22200	1930	935	2960	774	307	1020	231
29	24700	496	10800	6320	22100	1400	909	3190	251	380	786	231
30	26900	516	6350	4730	---	1300	906	4110	505	355	542	229
31	23200	---	3770	3990	---	1840	---	5370	---	353	232	---
TOTAL	141490	56079	463766	96080	327470	207210	28708	37188	243324	39028	24270	20758
MEAN	4564	1869	14960	3099	11290	6684	957	1200	8111	1259	783	692
MAX	29200	10900	82100	6720	26800	25200	1850	5370	21300	8910	1710	2070
MIN	44	496	412	1550	840	1300	582	65	251	39	184	83
AC-FI	280600	111200	919900	190600	649500	411000	56940	73760	482600	77410	48140	41170

## BRAZOS RIVER MAIN STEM

08091000 BRAZOS RIVER NEAR GLEN ROSE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1992#, BY WATER YEAR (WY)

MEAN	1934	893	1094	609	1028	1225	1355	2285	2829	645	732	700
MAX	17860	6209	14960	3099	11290	6684	14360	13920	13660	4873	6621	2957
(WY)	1982	1975	1992	1992	1992	1992	1990	1990	1982	1982	1978	1972
MIN	22.3	13.7	25.1	34.4	15.9	34.3	9.99	30.5	145	12.1	17.2	20.7
(WY)	1989	1989	1989	1989	1984	1974	1974	1988	1972	1978	1984	1984

## SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1970 - 1992#

ANNUAL TOTAL	1091460	1685371	
ANNUAL MEAN	2990	4605	1277
HIGHEST ANNUAL MEAN			4605
LOWEST ANNUAL MEAN			115
HIGHEST DAILY MEAN	82100	82100	82100
LOWEST DAILY MEAN	16	39	.17
ANNUAL SEVEN-DAY MINIMUM	95	189	5.8
INSTANTANEOUS PEAK FLOW		89600	89600
INSTANTANEOUS PEAK STAGE		34.00	a/35.76
INSTANTANEOUS LOW FLOW		15	.00
ANNUAL RUNOFF (AC-FT)	2165000	3343000	925400
10 PERCENT EXCEEDS	4560	16700	2390
50 PERCENT EXCEEDS	572	1220	236
90 PERCENT EXCEEDS	107	259	27

# Period of regulated streamflow.

a/ Maximum stage since at least 18/6.

## 08091500 PALUXY RIVER AT GLEN ROSE, TX

LOCATION.--Lat 32°13'53", long 97°46'37", Somervell County, Hydrologic Unit 12060202, on left bank at downstream side of remaining pier of dismantled highway bridge, 500 ft upstream from bridge on U.S. Highway 67, 1.0 mi upstream from Cross Branch, 1.2 mi southwest of Glen Rose, and 5.1 mi upstream from mouth.

DRAINAGE AREA.--410 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to September 1925, May 1947 to current year. Prior to October 1965, published as Paluxy Creek at Glen Rose.

REVISED RECORDS.--WSP 1392: 1949, 1952. WSP 2122: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 609.66 ft National Geodetic Vertical Datum of 1929. Oct. 27, 1923, to Sept. 30, 1925, nonrecording gage at bridge 1.8 mi downstream at datum 13.62 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow is affected at times by discharge from the flood-detention pools of fourteen floodwater-retarding structures with a combined capacity of 20,100 acre-ft. These structures control runoff from 90.8 mi<sup>2</sup> above this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, 27.2 ft Apr. 17, 1908, present site and datum (discharge, 59,000 ft<sup>3</sup>/s), from rating curve extended as explained above. Flood of May 21, 1922, reached a stage of 26.0 ft, present site and datum (discharge, 53,000 ft<sup>3</sup>/s), from rating curve extended as explained above. Flood in November 1918 reached about the same stage as flood of May 21, 1922, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	1400	84	482	373	478	165	96	246	128	32	29
2	20	649	91	462	355	426	169	93	315	103	70	28
3	20	432	90	407	801	463	176	91	408	90	75	24
4	19	337	85	370	4550	874	171	157	247	84	52	22
5	17	278	82	347	2380	929	166	210	197	76	39	21
6	16	237	81	320	1600	535	191	113	179	70	34	19
7	17	209	80	306	1030	430	188	92	171	65	31	18
8	17	182	79	294	722	387	175	85	156	61	29	18
9	17	168	85	279	597	553	163	82	147	56	28	17
10	17	158	81	261	521	414	155	81	143	53	27	18
11	17	147	91	252	476	350	149	79	629	50	26	48
12	16	138	122	262	475	329	143	76	289	48	26	48
13	16	132	134	253	446	303	139	73	193	45	28	31
14	16	127	111	233	420	288	134	70	159	44	27	30
15	15	123	98	219	391	273	131	72	140	49	25	26
16	15	121	91	206	358	262	128	92	127	43	24	25
17	15	134	88	210	340	260	203	225	114	43	24	24
18	15	126	92	342	314	299	225	306	105	45	24	23
19	15	140	485	445	293	278	195	287	95	53	28	22
20	15	130	17200	351	281	244	173	301	90	47	31	21
21	15	118	6180	311	268	234	152	276	91	48	28	20
22	15	112	3410	329	263	230	137	500	96	49	26	20
23	15	102	2710	304	260	216	127	257	95	47	24	19
24	15	96	2160	266	1100	204	121	190	89	42	23	19
25	15	93	1830	243	4140	199	117	234	82	39	22	19
26	26	91	1730	327	1930	189	112	749	645	37	21	19
27	3050	90	1540	1430	1110	185	107	326	275	36	20	19
28	1960	90	1340	791	706	186	103	371	170	42	20	19
29	3500	90	1160	582	570	185	102	449	243	39	20	18
30	2030	86	853	479	---	177	99	288	188	37	19	17
31	2170	---	580	413	---	168	---	245	---	33	17	---
TOTAL	13146	6336	42843	11776	27070	10548	4516	6566	6124	1702	920	701
MEAN	424	211	1382	380	933	340	151	212	204	54.9	29.7	23.4
MAX	3500	1400	17200	1430	4550	929	225	749	645	128	75	48
MIN	15	86	79	206	260	168	99	70	82	33	17	17
AC-FT	26080	12570	84980	23360	53690	20920	8960	13020	12150	3380	1820	1390

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1992, BY WATER YEAR (WY)

	MEAN	64.7	28.4	56.2	44.6	67.5	77.4	121	252	95.6	29.9	14.9	28.9
MAX	724	211	1382	380	933	487	827	1191	890	133	106	335	335
(WY)	1960	1992	1992	1992	1992	1968	1990	1949	1989	1968	1968	1955	1955
MIN	.000	1.05	3.47	4.70	5.49	5.84	6.46	3.34	1.48	.000	.000	.000	.000
(WY)	1979	1984	1989	1984	1984	1956	1986	1988	1974	1978	1978	1984	1984

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1925 - 1992

ANNUAL TOTAL	71517.1	132248	73.7
ANNUAL MEAN	196	361	361
HIGHEST ANNUAL MEAN			6.24
LOWEST ANNUAL MEAN			26600
HIGHEST DAILY MEAN	17200	Dec 20	May 17 1949
LOWEST DAILY MEAN	4.4	Aug 8	Jul 13 1925
ANNUAL SEVEN-DAY MINIMUM	5.2	Aug 3	Jul 20 1925
INSTANTANEOUS PEAK FLOW		32300	Oct 4 1959
INSTANTANEOUS PEAK STAGE		21.28	Oct 4 1959
INSTANTANEOUS LOW FLOW		15	at times
ANNUAL RUNOFF (AC-FT)	141900	262300	53380
10 PERCENT EXCEEDS	140	607	96
50 PERCENT EXCEEDS	25	130	13
90 PERCENT EXCEEDS	11	19	1.2

## 08091730 SQUAW CREEK RESERVOIR NEAR GLEN ROSE, TX

LOCATION.--lat 32°18'00", long 97°47'12", Somervell County, Hydrologic Unit 12060202, on upstream side of intake structure near power house on Squaw Creek, 1.8 mi upstream from dam, 3.9 mi north of Glen Rose, and 6.1 mi upstream from mouth.

DRAINAGE AREA.--64.0 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: October 1982 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rolled earthfill dam 4,360 ft long. Deliberate impoundment began in February 1977, and the dam was completed in June 1977. The flood-control outlet works consist of an ungated 100-foot-long concrete ogee spillway located at right end of dam. The low-flow outlet works consist of a concrete outlet tower with three 4- by 6-foot slide gates and a 6- by 6-foot slide gate, which feed into a 6-foot inside diameter concrete conduit that extends through the dam. Water can be diverted by pipeline from Lake Granbury into this reservoir. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	796.0	228,100
Crest of spillway.....	783.0	178,100
Crest of spillway (normal operating level).....	775.0	151,100
Invert of slide gate (No. 1).....	764.0	117,300
Invert of slide gate (No. 2).....	715.0	24,670
Invert of slide gate (No. 3).....	666.5	380
Lowest gated outlet (invert).....	653.0	0

COOPERATION.--The capacity table, provided by Texas Utilities Services, Inc., was prepared by Freese and Nichols, Inc., Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 164,700 acre-ft Dec. 19, 1991 (elevation, 779.14 ft); minimum since initial filling of reservoir on May 3, 1979, 141,200 acre-ft Sep. 16, 1992 (elevation, 771.98 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 164,700 acre-ft Dec. 19 at 1100 hours (elevation, 779.14 ft); minimum, 141,200 acre-ft Sep. 16 (elevation, 771.98 ft).

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

771.0	138,200	775.0	151,000	779.0	164,300
773.0	144,500	777.0	157,600	780.0	167,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149900	154900	151600	152400	152700	153100	147100	144800	145800	143700	141900	141900
2	149800	154200	151500	152200	152700	152900	146900	144700	145900	143600	142000	141900
3	149700	153700	151400	152700	153800	152800	146700	144700	145700	143500	142200	141900
4	149500	153400	151400	152600	155600	153000	146500	144600	145500	143400	142200	141900
5	149400	153100	151400	152500	154800	152800	146200	144600	145300	143200	142200	141800
6	149300	152900	151400	152400	154200	152500	146200	144500	145100	143100	142200	141800
7	149200	152700	151500	152300	153800	152200	146000	144400	144900	142900	142100	141800
8	149100	152500	151500	152200	153500	151900	145800	144300	144400	142800	142100	141800
9	149000	152300	151500	152100	153300	152100	145800	144200	144500	142600	142100	141800
10	148900	152200	151700	152000	153100	151800	145800	144000	144400	142500	142100	141900
11	148900	152200	151800	152000	152900	151500	145800	143900	144500	142300	142100	141900
12	148800	152100	151800	152000	152800	151300	145700	143900	144400	142100	142100	141900
13	148800	152000	151700	151800	152700	151200	145700	143900	144300	142000	142100	141900
14	148600	152000	151600	151800	152600	150900	145600	143900	144300	141800	142000	141800
15	148500	152000	151600	151700	152400	150800	145600	143800	144200	141900	141900	141800
16	148400	152100	151700	151600	152300	150500	145600	144000	144100	141900	141900	141900
17	148400	152100	152400	152100	152100	150400	145700	144000	144000	141800	141800	142000
18	148300	152000	152200	152200	152000	150300	145700	144000	143900	141800	141800	142100
19	148200	152000	163200	152100	151900	150000	145800	145200	143900	141800	142000	142100
20	148200	152000	160300	152100	151800	149800	145700	145400	143800	141800	142000	142100
21	148100	152000	158100	152100	151800	149600	145500	146200	143900	141800	142000	142100
22	148100	151900	156600	152100	151800	149300	145500	146500	143800	141700	142000	142200
23	148000	151700	155400	152000	151800	149100	145400	146300	143800	141600	141900	142100
24	148000	151600	154800	152000	153900	148800	145400	146100	143800	141600	141900	142100
25	147900	151600	154200	152200	155100	148600	145200	146500	143600	141600	141900	142100
26	149300	151600	153700	153300	154500	148400	145200	146500	144000	141600	141800	142200
27	151800	151600	153400	153200	154000	148200	145100	146300	144000	141700	141800	142200
28	153100	151600	153100	153000	153700	148000	145000	146400	143900	141800	141800	142200
29	155500	151600	152900	152900	153400	147800	144900	146300	143800	142000	141700	142200
30	154900	151500	152700	152700	---	147600	144900	146100	143800	141900	141600	142300
31	155600	---	152500	152600	---	147400	---	145900	---	141900	141600	---
MAX	155600	154900	163200	153300	155600	153100	147100	146500	145900	143700	142200	142300
MIN	147900	151500	151400	151600	151800	147400	144900	143800	143600	141600	141600	141800
(†)	776.40	775.18	775.47	775.51	775.73	773.90	773.12	773.45	772.77	772.19	772.10	772.30
(Φ)	+5700	-4100	+1000	+100	+800	-6000	-2500	+1000	-2100	-1900	-300	+700
CAI YR 1991	MAX	163200	MIN	145700	(Φ)	+4800						
WIR YR 1992	MAX	163200	MIN	141600	(Φ)	-7600						

(†) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## 08091750 SQUAW CREEK NEAR GLEN ROSE, TX

LOCATION.--Lat 32°16'12", long 97°43'56", Somervell County, Hydrologic Unit 12060202, on left bank at downstream side of highway embankment 25 ft left of left end of bridge on State Highway 144, 2.1 mi upstream from mouth, 2.5 mi downstream from Squaw Creek Dam, and 2.8 mi northeast of Glen Rose.

DRAINAGE AREA.--70.3 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 599.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversions between Squaw Creek Reservoir and this station. Flow regulated since Feb. 15, 1977 by Squaw Creek Reservoir. During the year, low flows were sustained by releases from a pipeline used to divert water from Lake Granbury (station 08090900), to Squaw Creek Reservoir (station 08091730). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--4 years (1974-77) prior to regulation by Squaw Creek Reservoir 8.41 ft<sup>3</sup>/s (6,090 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1974-77).--Maximum discharge, 9,030 ft<sup>3</sup>/s Apr. 8, 1975 (gage height, 11.90 ft), from rating curve extended above 1,000 ft<sup>3</sup>/s on basis of area-velocity study; minimum, 0.02 ft<sup>3</sup>/s Aug. 28, 29, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1934, about 20.5 ft in May 1957, from information by State Department of Highways and Public Transportation (discharge not determined).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	640	22	112	92	153	105	1.7	105	2.5	.97	2.8
2	2.9	338	23	103	85	155	105	1.8	104	2.4	.97	3.8
3	2.9	181	22	93	114	190	104	1.8	104	2.4	1.5	4.9
4	3.2	111	15	84	488	220	103	1.8	104	2.4	1.1	4.7
5	3.7	96	14	78	437	233	103	1.9	102	2.3	1.1	4.7
6	4.1	85	14	73	317	212	103	1.9	102	2.3	1.2	4.7
7	4.1	78	13	66	239	178	97	2.0	102	2.3	1.1	4.7
8	4.1	68	14	64	184	158	68	1.8	103	2.2	1.1	4.9
9	4.5	61	16	54	150	161	12	1.8	105	2.2	1.1	5.0
10	4.6	55	16	46	127	155	13	1.9	60	2.3	1.1	4.9
11	4.6	53	18	39	113	128	12	1.9	6.4	2.3	1.1	4.7
12	4.6	51	23	38	103	118	11	1.8	5.5	2.3	1.1	4.9
13	4.6	49	26	59	94	111	11	1.4	5.5	2.3	1.1	5.3
14	4.6	49	25	30	87	110	18	1.3	5.6	2.3	1.5	5.4
15	4.6	48	22	26	82	109	7.5	1.2	5.6	2.3	1.6	5.2
16	4.6	49	21	19	75	110	5.7	1.6	5.6	2.3	1.6	5.1
17	4.6	53	20	16	73	109	5.7	1.7	5.6	2.3	1.6	4.8
18	4.6	52	21	38	65	109	5.7	1.6	5.5	2.9	1.6	4.4
19	4.6	54	40	51	55	109	5.7	10	5.2	2.8	1.7	4.8
20	4.6	44	4380	51	47	109	16	1.5	5.0	2.7	2.1	5.5
21	4.6	30	2910	49	42	108	42	35	5.0	2.7	1.7	5.0
22	4.6	30	1570	57	42	108	2.5	30	5.0	2.5	1.6	5.0
23	4.8	30	1070	57	42	107	2.3	95	4.9	2.2	1.5	5.0
24	5.1	24	729	46	42	106	2.0	95	4.8	2.1	1.5	4.7
25	5.2	21	525	41	321	106	1.7	99	4.8	2.1	1.6	4.7
26	13	19	389	54	426	106	1.7	98	8.0	2.0	1.6	4.7
27	409	19	283	131	322	105	1.6	98	2.8	2.0	1.5	4.4
28	455	19	221	133	239	105	1.6	102	2.6	1.7	1.5	4.4
29	966	19	170	124	184	105	1.7	101	2.5	.99	1.5	4.4
30	656	20	143	113	---	105	1.7	100	2.5	.89	2.4	4.1
31	797	---	121	101	---	105	---	101	---	.96	2.8	---
TOTAL	3403.3	2446	12896	2046	4687	4103	970.1	996.4	1089.4	67.94	45.44	141.6
MEAN	110	81.5	416	66.0	162	132	32.3	32.1	36.3	2.19	1.47	4.72
MAX	966	640	4380	133	488	233	105	102	105	2.9	2.8	5.5
MIN	2.9	19	13	16	42	105	1.6	1.2	2.5	.89	.97	2.8
AC-FT	6750	4850	25580	4060	9300	8140	1920	1980	2160	135	90	281

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1992#, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	12.3	9.66	32.3	9.48	17.1	29.5	25.3	66.3	54.8	6.43	5.02	5.60			
MAX	110	81.5	416	66.0	162	132	169	336	362	29.5	10.7	14.8			
(WY)	1992	1992	1992	1992	1992	1992	1990	1989	1989	1982	1989	1986			
MIN	2.16	2.47	2.36	2.56	2.46	1.61	1.78	2.39	1.28	1.59	1.47	2.20			
(WY)	1979	1979	1978	1978	1978	1978	1978	1978	1978	1978	1992	1978			

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1978 - 1992#
ANNUAL TOTAL	20661.1	32892.18	
ANNUAL MEAN	56.6	89.9	22.8
HIGHEST ANNUAL MEAN			89.9
LOWEST ANNUAL MEAN			2.18
HIGHEST DAILY MEAN	4380	4380	4380
LOWEST DAILY MEAN	1.4	.89	.89
ANNUAL SEVEN-DAY MINIMUM	1.7	1.1	.98
INSTANTANEOUS PEAK FLOW		8820	8940
INSTANTANEOUS PEAK STAGE		11.79	11.85
INSTANTANEOUS LOW FLOW		.89	.79
ANNUAL RUNOFF (AC-FT)	40980	65240	16550
10 PERCENT EXCEEDS	53	155	27
50 PERCENT EXCEEDS	3.8	16	4.3
90 PERCENT EXCEEDS	2.6	1.6	2.5

# Period of regulated streamflow.



BRAZOS RIVER BASIN

239

08092000 NOLAN RIVER AT BLUM, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°09'02", long 97°24'09", Hill County, Hydrologic Unit 12060202, on right bank 60 ft upstream from bridge on Farm Road 933, 0.6 mi northwest of Blum 2.8 mi downstream from Mustang Creek, 3.0 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.2 mi upstream from Rock Creek, and 8.5 mi upstream from mouth.

DRAINAGE AREA.--282 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1924 to September 1925. November 1947 to September 1985. Annual maximums, 1986 to current year.

REVISED RECORDS.--WSP 1312: 1925(M). WRD TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 551.48 ft above National Geodetic Vertical Datum of 1929. July 29, 1924, to Sept. 30, 1925, and Nov. 14, 1947, to May 28, 1949, nonrecording gage at railway bridge (now abandoned) 0.5 mi upstream at datum 5.00 ft higher. May 29 to July 7, 1949, nonrecording gage at present site and datum then in use (5.00 ft higher than present datum).

REMARKS.--Records fair. Since August 1984, flow from 100 mi<sup>2</sup> above this station has been affected by storage in Lake Pat Cleburne (station 08091900) located 13 mi upstream. The city of Cleburne diverts water from Lake Pat Cleburne and returns sewage effluent to a tributary upstream from the station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years (water years 1925, 1949-64) prior to regulation by Lake Pat Cleburne, 66.1 ft<sup>3</sup>/s (47,890 acre-ft/yr); 21 years (water years 1965-85) regulated, 81.2 ft<sup>3</sup>/s (58,830 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 62,200 ft<sup>3</sup>/s May 7, 1969 (gage height, 31.23 ft), from rating curve extended above 22,200 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, 35.0 ft May 8, 1922, present site and datum, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 1,200 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	1215	2,650	6.75	Feb. 14	1315	1,390	5.19
Oct. 28	2230	17,900	19.34	Feb. 24	2115	8,060	11.98
Oct. 31	1615	1,850	5.76	Mar. 4	0515	3,750	7.91
Nov. 19	1530	2,210	6.23	Mar. 9	0915	3,910	8.09
Dec. 9	0200	5,500	9.76	May 18	1130	1,400	5.21
Dec. 20	1930	54,900	31.58	May 25	2245	2,020	5.98
Jan. 27	0515	4,150	8.33	June 2	0200	3,880	8.06
Feb. 4	0930	5,120	9.27	June 29	0515	6,310	10.43
Feb. 12	1800	1,250	5.00				

## 08092500 LAKE WHITNEY NEAR WHITNEY, TX

LOCATION.--Lat 31°51'55", long 97°22'18", Bosque County, Hydrologic Unit 12060202, on State Highway 22, in intake structure of Whitney Dam on Brazos River, 2.4 mi upstream from Coon Creek, 3.5 mi upstream from Iron Creek, 7.4 mi southwest of Whitney, and at mile 442.4.

DRAINAGE AREA.--27,189 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--December 1951 to current year. Prior to October 1970, published as Whitney Reservoir. Prior to October 1980, published as Whitney Lake.

Water-quality records.--Chemical analyses: March 1960 to September 1987. Chemical and biochemical analyses: September 1970 to August 1987.

REVISED RECORDS.--WDR IX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--The lake is formed by a concrete-gravity and rolled earthfill dam 17,695 ft long, including spillway. The dam was completed in April 1951, and deliberate impoundment began Dec. 10, 1951. Concrete spillway is 680 ft long and includes 17 tainter gates 38.0 by 40.0 ft each. Outlet works are comprised of 16 gate-operated conduits that are 5.0- by 9.0 ft each. The space between elevations 522.0 and 571.0 ft is reserved for flood-control storage. At maximum design elevation of 573.0 ft the spillway is designed to discharge 684,000 ft<sup>3</sup>/s. The capacity table is based on a survey made in April and May 1959. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	584.0	-
Design flood.....	573.0	2,100,000
Top of gates.....	571.0	1,999,500
Crest of spillway (sill of gates).....	533.0	627,100
Top of conservation pool (top of designated power storage).....	522.0	411,100
Lowest controlled outlet (invert).....	448.83	4,270

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,980,000 acre-ft May 29, 1957 (elevation, 570.25 ft); minimum daily since power pool elevation first reached in April 1954, 250,200 acre-ft Nov. 1, 1956 (elevation 509.52 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,559,000 acre-ft Dec. 28 (elevation, 561.40 ft); minimum daily, 567,800 acre-ft Sept. 30 (elevation, 530.38 ft).

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

530.0	559,400	548.0	1,053,000	558.0	1,420,000
535.0	675,300	551.0	1,156,000	560.0	1,501,000
540.0	807,600	554.0	1,266,000	561.0	1,542,000
544.0	925,700	556.0	1,342,000	562.0	1,584,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	637000	827900	630800	1447000	722300	1003000	657900	638400	669400	648500	603200	593800
2	633200	811600	630800	1414000	716400	1048000	638200	638200	679200	641500	605300	592200
3	630100	785600	630600	1378000	716400	1096000	636700	637900	692500	637900	604100	594200
4	629000	753000	629700	1343000	757300	1158000	637700	637700	710500	635300	604300	593500
5	626600	720500	630600	1307000	796900	1206000	637900	637400	725400	632900	602700	592000
6	626200	690700	630600	1270000	839500	1244000	639800	637000	732000	631100	600900	590800
7	625500	671100	632000	1237000	866700	1270000	641300	635100	736700	640800	599300	589300
8	624500	660800	638600	1204000	898700	1287000	641300	633200	732800	652000	599000	587200
9	624300	656200	646800	1167000	937700	1313000	640500	632200	720300	657100	599900	586100
10	623100	651700	646100	1130000	965100	1303000	640100	631100	701700	651000	598100	589300
11	621500	646300	642200	1093000	978000	1287000	638900	629700	681900	643000	597600	593300
12	620100	641000	640300	1059000	983400	1266000	638600	629900	672100	636200	597000	587900
13	619400	639800	639300	1025000	977000	1244000	637900	628300	671600	632200	597200	587900
14	619000	639100	643700	988600	962300	1222000	637000	625500	666000	630400	596700	587000
15	619000	637700	650500	954900	933600	1194000	638200	623100	659300	628500	597000	586300
16	616200	636700	648800	919600	896900	1161000	640800	623400	655700	627600	598600	585500
17	615000	637700	643400	887200	863400	1130000	643000	626600	657600	627800	598300	583200
18	615000	637400	639600	858800	829000	1098000	643900	630100	651500	626400	597900	581000
19	615700	644400	649300	829300	794900	1066000	645400	632900	653900	626600	597600	578800
20	615500	643200	687900	798800	761700	1030000	645100	636200	651700	621500	596300	576600
21	614100	639300	1108000	773800	731800	993400	644600	639800	646100	619200	595800	577900
22	612200	638900	1264000	755200	707700	959800	643900	642000	642200	617600	597200	577900
23	609900	637200	1386000	735100	684900	930500	643900	640100	642500	615300	597900	578400
24	608500	636500	1459000	721500	705400	907100	644200	638400	641700	612900	597900	578200
25	607100	636200	1502000	715400	767600	877300	644200	637700	640300	611800	597400	576200
26	611300	633900	1531000	713900	811000	840900	643400	640800	651500	609700	597600	575700
27	654900	631300	1555000	724900	867600	806500	642500	644400	658600	609000	596300	573500
28	732300	629900	1559000	730200	915900	777300	640500	651000	656200	607800	594900	571600
29	794400	629000	1541000	733800	960400	749200	640800	652200	655200	606200	594700	569800
30	827600	630100	1514000	732600	---	717200	640100	654900	652200	604600	595600	567800
31	845000	---	1479000	728200	---	689700	---	659100	---	602900	593800	---
MAX	845000	827900	1559000	1447000	983400	1313000	657900	659100	736700	657100	605300	594200
MIN	607100	629000	629700	713900	684900	689700	636700	623100	640300	602900	593800	567800
(↑)	541.32	533.13	559.47	537.07	545.13	535.57	533.55	534.33	534.05	531.96	531.56	530.39
(Φ)	+204700	-214900	+848900	-750800	+232200	-270700	-49600	+19000	-6900	-49300	-9100	-26000
CAI YR 1991	MAX 1559000	MIN 605500	(Φ) +863300									
WTR YR 1992	MAX 1559000	MIN 567800	(Φ) -72500									

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX

LOCATION.--Lat 31°52'00", long 97°22'00", Hill County, Hydrologic Unit 12060202, immediately below Whitney Dam, 3.4 mi upstream from gaging station near Whitney, 4.0 mi upstream from Iron Creek, and 7.4 mi southwest of Whitney.

DRAINAGE AREA.--27,189 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1946 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to current year.

WATER TEMPERATURE: October 1947 to current year.

INSTRUMENTATION.--From July 1953 to September 1966, water temperature was continuously recorded at this station.

REMARKS.--Records of discharge are given for gaging station 08093100. No appreciable inflow between dam and gaging station except during periods of heavy local rains. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,620 microsiemens Aug. 24, 1978; minimum daily, 203 microsiemens May 23, 1952.

WATER TEMPERATURE: Maximum daily, 33.5°C July 3, 1973; minimum daily, 0.0°C Jan. 28, 29, 1948.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,870 microsiemens Sept. 25-30; minimum daily, 883 microsiemens Dec. 28.

WATER TEMPERATURE: Maximum daily, 27.5°C June 30, Aug. 10 and 11; minimum daily, 9.0°C Jan. 24.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FID. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
OCT										
02...	1313	2060	1810	7.6	24.5	280	190	78	21	
NOV										
21...	1338	4270	1760	7.9	20.0	280	170	79	19	
JAN										
22...	1611	16400	992	7.8	10.5	230	--	71	13	
MAR										
11...	1353	13800	1240	8.2	13.0	280	150	86	17	
APR										
28...	1531	2150	1290	7.8	20.5	270	140	80	17	
JUN										
16...	1518	20400	1380	7.7	34.0	350	210	95	27	
DATE		SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)
OCT										
02...	230	6	6.3	92	200	390	0.50	7.1	988	
NOV										
21...	210	6	6.1	100	190	340	0.30	7.4	915	
JAN										
22...	110	3	4.6	110	110	180	0.20	7.6	--	
MAR										
11...	130	3	4.7	130	140	220	0.30	7.9	687	
APR										
28...	130	3	4.5	130	140	250	0.30	6.5	706	
JUN										
16...	170	4	6.1	140	180	290	0.30	8.0	861	

## BRAZOS RIVER MAIN STEM

08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1991	69441	1840	1050	196000	380	70500	230	42400	350
NOV. 1991	199970	1740	982	530000	350	189500	210	115000	340
DEC. 1991	221591	1060	583	349000	200	120300	130	76900	240
JAN. 1992	558320	1030	563	849000	190	291700	120	187600	230
FEB. 1992	324506	1140	628	550000	220	190400	140	121300	250
MAR. 1992	424580	1240	684	784000	240	272700	150	172300	270
APR. 1992	88103	1280	710	169000	250	58900	160	37100	270
MAY 1992	74980	1320	729	148000	250	51600	160	32400	280
JUNE 1992	307014	1410	785	651000	280	228500	170	142300	290
JULY 1992	79974	1750	988	213000	350	76300	210	46300	340
AUG. 1992	24703	1820	1030	68800	370	24700	220	14900	350
SEPT 1992	30013	1860	1050	85500	380	30700	230	18500	350
TOTAL	2403195	**	**	4594000	**	1606000	**	1007000	**
WTD.AVG.	6566	1280	708	**	250	**	160	**	270

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1820	1820	1530	1040	1060	1200	e1280	1310	1330	1690	1820	1850
2	1810	1820	1490	1000	1100	1210	e1280	1310	1320	1730	1810	1850
3	1850	1810	1470	1020	1110	1210	e1280	1310	1320	1780	1800	1850
4	1860	1760	1470	1030	1040	1230	e1280	1310	1320	1790	1800	1850
5	1850	1750	1460	1080	1020	1240	e1280	1310	1320	1790	1800	1850
6	1850	1740	1460	1120	1040	1230	e1280	1310	1320	1770	1800	1850
7	1850	1760	1470	1150	1050	1210	e1280	1310	1320	1740	1800	1850
8	1850	1760	1460	1150	1070	1220	e1280	1310	1320	1730	1810	1850
9	1850	1710	1450	1030	1110	1220	e1280	1310	1320	1730	1810	1850
10	1850	1690	1430	1050	1110	1220	e1280	1310	1320	1740	1810	1850
11	1850	1690	1440	1030	1120	1240	e1280	1310	1330	1750	1810	1850
12	1850	1680	1450	1060	1140	1220	e1280	1320	1340	1760	1810	1850
13	1850	1670	1440	1070	1110	1220	e1280	1320	1370	1750	1810	1850
14	1850	1650	1400	956	1130	1220	e1280	1320	1400	1730	1810	1850
15	1850	1660	1380	973	1160	1220	e1290	1320	1440	1730	1800	1850
16	1850	1660	1390	958	1150	1220	e1290	1300	1460	1740	1810	1860
17	1850	1640	1380	990	1180	1230	e1290	1320	1490	1730	1820	1860
18	1850	1640	1390	969	1160	1230	e1290	1310	1480	1730	1820	1860
19	1850	1620	1370	971	1160	1230	e1290	1320	1490	1740	1820	1860
20	1850	1610	1350	988	1160	1240	e1290	1310	1520	1730	1820	1860
21	1850	1670	1330	1010	e1180	1230	e1290	1320	1510	1750	1830	1860
22	1850	1600	1150	1010	1200	1240	e1290	1320	1530	1750	1820	1860
23	1860	1570	1090	1000	1190	1230	e1290	1320	1610	1740	1820	1860
24	1850	1540	1130	1000	1200	1250	e1290	1320	1640	1760	1830	1860
25	1860	1550	e950	1020	1170	1240	e1290	1320	1620	1800	1830	1870
26	1850	1550	906	1030	1180	1250	e1290	1320	1600	1830	1840	1870
27	1800	1540	895	1040	1190	1250	e1290	1320	1620	1770	1840	1870
28	1850	1530	883	1020	1200	1260	1290	1320	1620	1770	1840	1870
29	1850	1530	884	1030	1190	1270	e1300	1310	1630	1760	1840	1870
30	1840	1520	990	1030	---	1270	e1300	1320	1660	1760	1840	1870
31	1840	---	1030	1030	---	1280	---	1320	---	1790	1850	---
MEAN	1850	1660	1290	1030	1130	1230	1290	1310	1450	1750	1820	1860
MAX	1860	1820	1530	1150	1200	1280	1300	1320	1660	1830	1850	1870
MIN	1800	1520	883	956	1020	1200	1280	1300	1320	1690	1800	1850

WTR YR 1992 MEAN 1470 MAX 1870 MIN 883

e Estimated





## 08093100 BRAZOS RIVER NEAR AQUILLA, TX

LOCATION.--Lat 31°48'44", long 97°17'51", Bosque County, Hydrologic Unit 12060202, on right bank at downstream side of highway embankment near right end of bridge on Farm Road 2114, 2.0 mi downstream from Tener Creek, 4.9 mi downstream from Iron Creek, 5.4 mi southwest of Aquilla, 9.0 mi downstream from Whitney Dam, and at mile 434.0.

DRAINAGE AREA.--27,244 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup>, probably is noncontributing.

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1974, published as Brazos River near Whitney.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 404.29 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1948, nonrecording gage at site 13.9 mi upstream at datum 27.77 ft higher. Oct. 1, 1948, to Feb. 12, 1975, at site 5.6 mi upstream at datum 13.10 ft higher.

REMARKS.--No estimated daily discharges. Records poor. Most flow is releases from Lake Whitney (station 08092500) 9.0 mi upstream. The Brazos River at Whitney Dam (station 08092600) uses the discharge record at this station for publication of water-quality records. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--13 years (water years 1939-51) prior to regulation by Lake Whitney, 1,802 ft<sup>3</sup>/s (1,306,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1939-51).--Maximum discharge, 71,800 ft<sup>3</sup>/s May 18, 1949 (gage height, 31.03 ft), at site and datum then in use (Oct. 1, 1948, to Feb. 12, 1975).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, 45 ft May 9, 1922, at site and datum in use Oct. 1, 1948, to Feb. 12, 1975, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2070	19000	590	23000	8440	1680	19300	2130	4000	3670	372	1150
2	2060	20300	1270	22800	8430	1910	13100	2150	2910	4810	39	1530
3	1120	20000	1140	22400	8430	3290	3380	2150	76	3070	778	1470
4	1740	19800	1120	22200	7740	6290	2230	2210	68	2500	1060	1130
5	1000	19600	1110	22300	4530	2630	2210	2150	4540	2510	1190	1150
6	671	19400	1090	22800	4450	2510	2230	2140	11900	2520	1100	1140
7	656	15600	1100	22600	4490	2600	1570	2140	11900	3980	1090	1210
8	694	8750	751	22400	4570	2640	2210	2150	15100	4770	348	1190
9	668	4300	1090	22100	4700	3890	2210	1270	19700	4810	31	1370
10	671	4290	2620	21900	7290	7640	2220	1190	22600	4810	1110	1250
11	826	4290	4190	21700	14400	13100	2220	1180	22600	4800	1140	1350
12	572	4290	4210	21600	19200	15900	2210	2280	22400	4800	1070	868
13	565	2580	4200	21400	20500	15800	2210	2300	22300	3710	1050	838
14	596	2330	2470	21100	20500	15700	2210	2400	22300	2360	1050	1140
15	668	2250	1900	20900	20300	17800	853	2080	22300	2220	332	1210
16	674	2600	2830	20700	20100	19800	659	1500	20400	2110	23	1210
17	682	2250	4180	20600	19900	19600	351	1630	16100	1560	740	1210
18	688	2290	4200	20700	19700	20200	1610	1690	13400	2090	1050	1320
19	217	2250	2520	20400	19600	21400	2090	1190	7890	2170	1050	1340
20	44	2550	5580	20300	19400	21200	2090	1940	4830	1360	1100	1090
21	521	4260	5800	18900	18800	21000	2090	2420	4810	2410	1290	235
22	944	2700	2780	16300	18400	20900	2100	2260	4790	1560	334	167
23	894	1660	4400	16200	16200	18600	2100	4460	2540	1710	45	166
24	1110	1510	8150	12600	9270	15500	2090	4460	2540	1740	802	167
25	807	1510	16600	8340	1520	17600	2080	2860	2570	984	1140	823
26	371	2070	20900	8580	700	20400	2070	2540	4800	1070	1150	496
27	672	2220	21700	9180	769	20200	2070	2130	4800	1180	1150	911
28	4140	1850	23600	8610	987	19000	2100	4020	4750	1140	1140	1020
29	10900	2200	23300	8600	1190	18000	2120	3980	4710	1150	780	934
30	14200	1270	23200	8570	---	18300	2120	3970	3390	1270	234	928
31	18000	---	23000	8540	---	19500	---	4010	---	1130	915	---
TOTAL	69441	199970	221591	558320	324506	424580	88103	74980	307014	79974	24703	30013
MEAN	2240	6666	7148	18010	11190	13700	2937	2419	10230	2580	797	1000
MAX	18000	20300	23600	23000	20500	21400	19300	4460	22600	4810	1290	1530
MIN	44	1270	590	8340	700	1680	351	1180	68	984	23	166
AC-FT	137700	396600	439500	1107000	643700	842200	174800	148700	609000	158600	49000	59530

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1992#, BY WATER YEAR (WY)

	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
MEAN	1576	1045	847	1263	1065	1307	1297	3695	3736	1440	896	1023
MAX	12300	7201	7148	18010	11190	13700	7285	29670	35640	8110	3879	8249
(WY)	1982	1975	1992	1992	1992	1992	1990	1957	1957	1982	1962	1966
MIN	24.5	20.5	29.0	9.92	15.6	26.7	12.5	13.0	286	28.6	61.5	32.7
(WY)	1989	1984	1984	1953	1984	1953	1953	1988	1983	1978	1988	1984

## SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1952 - 1992#

	1991	1992	1952-1992
ANNUAL TOTAL	943538	2403195	1601
ANNUAL MEAN	2585	6566	1992
HIGHEST ANNUAL MEAN			141
LOWEST ANNUAL MEAN			1953
HIGHEST DAILY MEAN	23600	Dec 28	55700
LOWEST DAILY MEAN	24	Mar 20	.40
ANNUAL SEVEN-DAY MINIMUM	110	Jan 13	.80
INSTANTANEOUS PEAK FLOW			23800
INSTANTANEOUS PEAK STAGE			21.43
INSTANTANEOUS LOW FLOW			18
ANNUAL RUNOFF (AC-FT)	1872000	4767000	1160000
10 PERCENT EXCEEDS	4870	20400	3210
50 PERCENT EXCEEDS	889	2310	590
90 PERCENT EXCEEDS	257	698	40

# Period of regulated streamflow.

BRAZOS RIVER BASIN

245

08093160 AQUILLA CREEK NEAR PEORIA, TX  
(Reconnaissance Partial-record Station)

LOCATION.--lat 31°58'40", long 97°14'44", Hill County, Hydrologic Unit 12060202, at bridge on State Highway 22, and 1.4 mi west of Peoria.

DRAINAGE AREA.--83.8 mi<sup>2</sup>.

PERIOD OF RECORD.--Periodic discharge measurements: October 1983 to September 1984. Chemical and biochemical analyses: October 1984 to September 1992 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 04...	1302	44	497	7.8	8.5	90	36	10.8	91	1.8	200	
20...	1021	195	291	8.3	13.0	130	120	8.7	83	4.4	110	
JAN 21...	1031	44	855	7.2	7.0	35	18	11.7	98	2.3	320	
MAR 10...	1136	144	460	7.8	12.0	80	100	10.1	95	2.3	170	
APR 27...	1122	3.7	1790	8.0	17.0	10	8.0	8.4	87	0.5	750	
MAY 13...	0844	16.0	719	7.6	24.0	40	62	6.6	80	2.8	250	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 04...	54	69	6.6	25	0.8	4.4	150	56	20	0.80	8.2	
20...	6	39	2.7	13	0.5	7.3	100	30	12	0.30	11	
JAN 21...	110	110	10	54	1	5.5	210	160	55	0.30	11	
MAR 10...	48	61	5.4	25	0.8	4.6	130	64	28	0.40	9.5	
APR 27...	370	250	29	140	2	2.5	380	440	140	0.70	16	
MAY 13...	110	86	8.0	48	1	5.1	140	150	45	0.50	8.6	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 04...	278	49	24	25	0.240	0.040	0.280	0.070	0.63	0.70	0.230	
20...	178	540	80	460	1.04	0.160	1.20	0.110	0.89	1.0	0.390	
JAN 21...	530	1	<1	--	1.27	0.030	1.30	0.690	1.2	1.9	0.250	
MAR 10...	274	139	30	109	0.290	0.020	0.310	0.510	1.1	1.6	0.290	
APR 27...	1250	13	1	12	0.200	0.010	0.210	0.050	0.15	0.20	0.010	
MAY 13...	435	250	26	224	1.10	0.100	1.20	0.090	0.61	0.70	0.060	
DATE		PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 04...	0.140	8.8	--	--	--	--	--	--	--	--	--	--
20...	0.320	23	4	43	0.7	2.0	<5	<3	20	200	<10	
JAN 21...	0.180	8.5	--	--	--	--	--	--	--	--	--	--
MAR 10...	0.140	15	--	--	--	--	--	--	--	--	--	--
APR 27...	0.020	4.4	2	110	<0.5	<1.0	<5	<3	<10	6	<10	
MAY 13...	0.080	16	4	68	<0.5	<1.0	<5	<3	<10	41	<10	

## BRAZOS RIVER BASIN

08093160 AQUILLA CREEK NEAR PEORIA, TX--Continued  
(Reconnaissance Partial-record Station)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	IRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 04...	--	--	--	--	--	--	--	--	--	--
20...	5	12	<0.1	<10	<10	<1	1.0	150	10	98
JAN 21...	--	--	--	--	--	--	--	--	--	--
MAR 10...	--	--	--	--	--	--	--	--	--	--
APR 27...	49	140	0.1	<10	<10	<1	<1.0	1500	<6	<3
MAY 13...	22	3	0.2	<10	<10	<1	<1.0	470	12	8

## BRAZOS RIVER BASIN

247

08093250 HACKBERRY CREEK AT HILLSBORO, TX

LOCATION.--lat 32°00'20", long 97°08'58", Hill County, Hydrologic Unit 12060202, 63 ft downstream from centerline of highway and 13 ft to right of right end of bridge on State Highway 22, 0.1 mi upstream from Little Hackberry Creek, and 1.2 mi west of county courthouse in Hillsboro.

DRAINAGE AREA.--57.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 546.00 ft above National Geodetic Vertical Datum of 1929. Crest-stage gage was revoked Aug. 8, 1988.

REMARKS.--No estimated daily discharges. Records fair. No known diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1936, 18.3 ft in September 1936, from information by Texas Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	2330	2,010	14.40	Feb. 4	1245	1,370	13.77
Oct. 29	2100	4,290	15.72	Feb. 22	0745	3,300	15.25
Oct. 31	2230	988	13.20	Feb. 24	2300	5,580	16.31
Dec. 9	1145	1,330	13.72	Mar. 5	0100	2,440	14.73
Dec. 20	2200	10,700	18.44	Mar. 9	1300	1,250	13.61
Jan. 18	1445	1,020	13.26	May 17	1915	1,160	13.49
Jan. 22	0400	871	12.98	May 28	1800	2,220	14.57
Jan. 27	0515	2,210	14.56	June 2	0445	5,580	16.31

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	297	21	165	40	48	16	6.2	272	9.9	.91	.00
2	.46	76	26	140	35	42	15	4.5	2740	6.8	.95	.00
3	.59	48	27	44	71	52	17	4.8	181	5.3	1.0	.00
4	.50	37	18	30	821	968	16	13	66	4.5	.99	.00
5	.34	33	16	96	256	898	14	4.9	43	4.0	1.0	.00
6	.22	29	16	50	86	120	22	3.5	82	3.5	.83	.00
7	.15	27	16	54	51	67	19	2.4	48	2.9	.57	.00
8	.07	23	22	55	38	51	16	1.6	38	2.5	.35	.00
9	.03	22	594	28	32	551	15	1.3	62	2.2	.20	.00
10	.03	21	80	22	29	80	13	1.0	39	1.9	.09	.00
11	.03	20	54	21	32	47	12	.88	32	1.7	.02	.00
12	.01	19	87	29	128	45	11	4.9	23	1.4	.20	.00
13	.00	19	55	24	99	42	11	10	19	1.0	.89	.00
14	.00	19	33	18	110	38	11	2.4	16	.98	.61	.00
15	.00	18	24	18	65	36	9.8	1.7	14	.95	.32	.00
16	.00	23	23	17	33	33	8.9	196	12	.78	.13	.00
17	.00	131	21	24	27	33	9.0	497	8.8	.83	.02	.00
18	.00	57	33	617	22	43	11	225	7.8	1.0	.00	.00
19	.00	73	440	149	19	32	11	121	6.7	1.0	.02	.00
20	.00	72	2850	52	18	27	12	35	5.8	2.5	.10	.00
21	.00	30	4100	92	16	25	9.4	22	5.5	3.1	.06	.00
22	.00	26	1120	445	1500	25	6.9	31	7.4	2.7	.01	.00
23	.00	22	538	61	250	21	5.8	24	9.0	2.1	.00	.00
24	.00	20	321	33	1370	20	5.1	15	8.7	1.6	.00	.00
25	.00	20	237	26	2220	20	4.1	28	6.3	1.3	.00	.00
26	.00	19	280	274	407	19	3.5	96	11	1.1	.00	.00
27	664	23	208	1350	185	18	3.2	23	9.2	1.1	.00	.00
28	909	24	86	258	102	20	3.6	816	9.2	1.1	.00	.00
29	2850	24	46	180	68	20	30	313	251	1.1	.00	.00
30	1300	21	33	84	---	17	8.1	53	18	1.0	.00	.00
31	447	---	28	56	---	16	---	129	---	.77	.00	---
TOTAL	6172.78	1293	11453	4512	8130	3474	349.4	2687.08	4051.4	72.61	9.27	0.00
MEAN	199	43.1	369	146	280	112	11.6	86.7	135	2.34	.30	.000
MAX	2850	297	4100	1350	2220	968	30	816	2740	9.9	1.0	.00
MIN	.00	18	16	17	16	16	3.2	.88	5.5	.77	.00	.00
AC-FT	12240	2560	22720	8950	16130	6890	693	5330	8040	144	18	.00

## BRAZOS RIVER BASIN

08093250 HACKBERRY CREEK AT HILLSBORO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1992, BY WATER YEAR (WY)

MEAN	21.6	7.82	58.3	24.9	54.7	43.6	32.5	60.8	73.3	2.82	1.71	1.57
MAX	199	43.1	369	146	280	165	222	226	282	19.2	16.3	7.15
(WY)	1992	1992	1992	1992	1992	1990	1990	1989	1981	1981	1991	1991
MIN	.000	.001	.049	.000	.42	.36	.71	.19	.016	.000	.000	.000
(WY)	1981	1981	1991	1981	1981	1986	1984	1988	1985	1980	1980	1982

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1980 - 1992
ANNUAL TOTAL	22470.05	42204.54	
ANNUAL MEAN	61.6	115	31.8
HIGHEST ANNUAL MEAN			115 1992
LOWEST ANNUAL MEAN			5.51 1984
HIGHEST DAILY MEAN	4100 Dec 21	4100 Dec 21	5620 Jun 16 1981
LOWEST DAILY MEAN	.00 Jun 24	.00 Oct 13	.00 Oct 13 1979
ANNUAL SEVEN-DAY MINIMUM	.00 Jul 12	.00 Oct 13	.00 Jun 12 1980
INSTANTANEOUS PEAK FLOW		10700 Dec 20	12000 Jun 16 1981
INSTANTANEOUS PEAK STAGE		18.44 Dec 20	18.95 Jun 16 1981
INSTANTANEOUS LOW FLOW		.00 Oct 12	.00 at times
ANNUAL RUNOFF (AC-FT)	44570	83710	23070
10 PERCENT EXCEEDS	63	229	32
50 PERCENT EXCEEDS	2.1	17	.65
90 PERCENT EXCEEDS	.00	.00	.00



## BRAZOS RIVER BASIN

249

08093250 HACKBERRY CREEK AT HILLSBORO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1979 to September 1992 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
OCT 03...	1312	0.60	490	8.4	29.5	30	7.7	11.0	146	3.0	150
NOV 21...	1600	28	572	8.1	13.5	70	54	11.0	107	1.2	240
JAN 23...	1621	52	553	8.0	8.5	35	62	11.8	102	2.1	230
MAR 12...	1717	46	507	8.1	15.0	35	25	10.2	103	0.2	240
APR 29...	1708	14	393	7.7	25.0	40	170	8.8	108	2.8	150
MAY 13...	1140	13	612	7.8	26.0	40	37	7.4	93	4.4	190
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
OCT 03...	92	56	2.6	34	1	5.5	59	140	30	0.50	7.6
NOV 21...	60	91	2.9	32	0.9	4.0	180	97	18	0.40	11
JAN 23...	64	89	2.7	27	0.8	2.8	170	100	12	0.40	8.9
MAR 12...	54	94	2.4	17	0.5	2.1	190	59	13	0.40	8.3
APR 29...	64	57	1.9	28	1	3.2	87	76	13	0.60	10
MAY 13...	69	70	2.9	39	1	10	120	110	31	0.60	5.5
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTI-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
OCT 03...	312	76	3	73	0.680	0.040	0.720	0.030	0.77	0.80	0.050
NOV 21...	365	103	24	79	2.47	0.130	2.60	0.060	0.54	0.60	0.090
JAN 23...	344	112	7	105	2.57	0.030	2.60	0.030	0.37	0.40	0.040
MAR 12...	311	35	15	20	1.26	0.040	1.30	0.070	0.33	0.40	0.050
APR 29...	243	282	48	234	3.33	0.170	3.50	1.20	13	14	0.300
MAY 13...	340	73	5	68	3.02	0.480	3.50	4.10	5.3	9.4	0.920
DATE	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 03...	0.020	8.3	--	--	--	--	--	--	--	--	--
NOV 21...	0.060	9.1	8	57	0.8	<1.0	<5	<3	<10	25	<10
JAN 23...	0.040	7.7	--	--	--	--	--	--	--	--	--
MAR 12...	0.060	3.9	--	--	--	--	--	--	--	--	--
APR 29...	0.220	19	7	39	<0.5	<1.0	<5	<3	10	380	<10
MAY 13...	0.890	12	6	53	<0.5	<1.0	<5	<3	<10	8	<10

## BRAZOS RIVER BASIN

08093250 HACKBERRY CREEK AT HILLSBORO, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 03...	--	--	--	--	--	--	--	--	--	--
NOV 21...	11	7	<0.1	<10	<10	<1	<1.0	640	8	4
JAN 23...	--	--	--	--	--	--	--	--	--	--
MAR 12...	--	--	--	--	--	--	--	--	--	--
APR 29...	10	19	0.2	<10	<10	<1	<1.0	350	21	14
MAY 13...	12	17	<0.1	10	<10	<1	<1.0	550	17	4

## BRAZOS RIVER BASIN

251

08093260 HACKBERRY CREEK BELOW HILLSBORO, TX  
(Low-flow partial-record station)

LOCATION.--Lat 31°59'43", long 97°08'38", Hill County, Hydrologic Unit 12060202, at abandoned steel truss bridge on county road, 0.7 mi downstream from Little Hackberry Creek, 0.8 mi downstream from State Highway 22, and 1.4 mi southwest of county courthouse in Hillsboro.

DRAINAGE AREA.--86.8 mi<sup>2</sup>.

PERIOD OF RECORD.--Periodic discharge measurements: October 1979 to current year. Chemical and biochemical analyses: October 1979 to September 1992 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
OCT 01...	1210	1.3	692	7.8	24.0	25	3.0	4.1	49	15	160
NOV 20...	1352	1.8	688	7.5	16.5	12	7.1	5.2	54	0.7	210
JAN 21...	1446	2.9	859	7.1	14.0	10	3.1	4.9	48	1.2	270
MAR 10...	1524	2.2	899	7.4	15.0	5	6.0	6.7	67	1.9	320
APR 27...	1451	3.7	806	8.0	19.5	20	30	10.0	109	2.3	240
MAY 12...	1257	2.6	810	7.5	30.0	15	18	8.4	113	2.6	220
AUG 03...	1448	1.9	715	7.3	28.5	7	31	4.6	60	1.8	170
12...	1427	1.8	794	7.4	29.0	13	4.4	5.0	66	0.8	170
SEP 01...	1517	1.8	701	7.5	26.0	8	2.5	5.1	64	1.8	160
DATE	HARD-NESS NONCARB DISSOLV F.L.D. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 01...	17	56	3.8	72	3	15	140	92	76	0.50	11
NOV 20...	63	78	3.7	58	2	9.5	150	120	56	0.50	11
JAN 21...	90	100	4.8	68	2	6.5	180	150	55	0.60	12
MAR 10...	130	120	4.4	67	2	6.6	180	150	54	0.50	10
APR 27...	63	88	4.0	70	2	7.2	170	140	60	0.60	8.1
MAY 12...	48	82	3.9	74	2	9.6	170	130	64	0.80	8.0
AUG 03...	31	61	3.5	67	2	10	140	100	69	0.70	9.5
12...	17	64	3.3	71	2	11	160	96	77	0.70	10
SEP 01...	25	59	3.4	72	2	10	140	93	70	0.70	9.9
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLATILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
OCT 01...	410	2	<1	--	0.160	0.120	0.280	0.710	2.3	3.0	3.80
NOV 20...	426	14	13	1	0.990	0.010	1.00	0.070	0.83	0.90	1.50
JAN 21...	505	6	<1	--	--	<0.010	7.90	0.030	0.97	1.0	1.90
MAR 10...	523	<1	<1	--	--	<0.010	8.90	0.030	0.97	1.0	2.00
APR 27...	483	54	8	46	0.570	0.080	0.650	1.50	1.0	2.5	0.970
MAY 12...	477	26	<1	--	0.210	0.080	0.290	2.90	1.4	4.3	3.10
AUG 03...	402	105	7	98	0.410	0.040	0.450	1.20	1.0	2.2	2.90
12...	428	12	12	0	0.110	0.040	0.150	5.50	2.2	7.7	1.20
SEP 01...	400	<1	<1	--	0.260	0.030	0.290	1.20	1.3	2.5	0.720

## Brazos River Basin

08093260 HACKBERRY CREEK BELOW HILLSBORO, TX--Continued  
(Low-flow partial-record station)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible][illegible]

## 08093350 AQUILLA LAKE ABOVE AQUILLA, TX

LOCATION.--lat 31°53'59", long 97°12'09", Hill County, Hydrologic Unit 12060202, 450 ft upstream from Farm Road 310 that runs along top of Aquilla Dam on Aquilla Creek, and 3.4 miles north-northeast of Aquilla.

DRAINAGE AREA.--255 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by an earthfill dam with a crest length of 11,890 ft and a top width of 38.0 ft. A reinforced concrete inlet structure, near center of dam, houses the flood-control gates and operating equipment. Closure of the dam began Mar. 20, 1982, and the dam was completed in January 1983. The dam was built and is owned by the U.S. Army Corps of Engineers. Deliberate impoundment began Apr. 29, 1983. The lake was built for water supply, flood control, and recreation purposes. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-ft)
Top of dam.....	582.5	-
Spillway crest (uncontrolled).....	564.5	213,700
Top of flood-control pool.....	556.0	146,000
Top of conservation pool.....	537.5	52,400
Invert, lowest gated outlet.....	503.0	932

COUPLATION.--Area and capacity tables by the U.S. Army Corps of Engineers. Records of elevations and contents provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 119,000 acre-ft, Dec. 23, 1991 (elevation, 551.89 ft); minimum observed, 4,600 acre-ft Oct. 6-10, 1983 (elevation, 511.31 ft Oct. 6, 7, 9, 10 and 511.30 ft Oct. 8).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 119,000 acre-ft Dec. 23 (elevation, 551.89 ft); minimum daily, 49,190 acre-ft Sept. 30 (elevation, 536.51 ft).

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

536.0	47,610	544.0	77,250	550.0	107,800
539.0	57,450	546.0	86,560	551.0	113,700
542.0	68,760	548.0	96,730	552.0	119,700

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52530	74830	55200	106200	66400	90320	55860	54090	64380	55340	52200	50520
2	52460	72350	55100	104800	65620	90470	55550	54120	71680	55100	52130	50390
3	52390	69200	54970	102600	65190	91490	55170	54970	72600	54930	52100	50450
4	52360	66400	54800	100200	69080	97960	54860	55480	72820	54660	52030	50390
5	52260	63770	54660	97960	70020	102900	54560	55480	72180	54390	51970	50290
6	52130	62370	54530	95410	69530	103600	54360	55340	71390	54160	51870	50260
7	52070	61450	54390	92610	68800	103900	54160	55240	70220	53990	51810	50200
8	52000	60570	54590	89820	68030	104100	54060	55140	68920	53890	51710	50130
9	51940	59910	57560	86850	67110	107100	53950	55000	67430	53720	51640	50070
10	51900	59260	58120	83630	66130	106100	53990	54900	65580	53580	51580	50450
11	51900	58620	57700	80460	65420	103800	53950	54860	63960	53380	51740	50420
12	51840	57910	57520	77160	65110	100600	54060	55000	62600	53220	51740	50320
13	51810	57450	57310	73970	64730	97050	54060	55140	61560	53090	51680	50290
14	51740	57140	57000	70760	64260	93690	54020	55070	60530	52990	51610	50230
15	51680	56860	56720	67550	63810	90320	54020	54900	59480	52820	51510	50230
16	51550	56760	56410	64230	62970	86900	54020	55750	58410	52660	51380	50200
17	51480	56930	56170	62600	62110	83770	54090	58200	57380	52760	51290	50130
18	51480	56860	56130	64070	61300	80550	54020	59300	56820	52760	51260	50070
19	51420	56960	57840	63620	60380	77200	54120	59660	56440	52690	51260	50040
20	51380	57280	73840	62670	59440	73800	54090	59660	56100	52790	51220	49880
21	51320	57030	110800	62220	58550	70680	54060	59480	55680	52790	51130	49910
22	51290	56790	116500	63240	63430	67350	53990	59340	55440	52760	51060	49850
23	51220	56410	118900	62640	63730	64690	53990	59080	55340	52690	50960	49720
24	51220	56100	118300	61890	71050	63010	54020	58800	55140	52620	50900	49630
25	51190	55860	117100	61080	86320	61700	53920	58550	55000	52590	50870	49530
26	51450	55720	116200	62000	88620	60570	53850	59080	54800	52490	50840	49530
27	53250	55580	114900	68070	89370	59620	53790	58840	54660	52460	50770	49440
28	56860	55480	113100	68550	89820	58730	53920	62940	54490	52490	50680	49340
29	70100	55440	111300	68430	90120	57840	54160	64070	55580	52390	50580	49280
30	76850	55380	109400	67910	---	56820	54160	63620	55550	52300	50520	49190
31	76580	---	107400	67230	---	56200	---	63620	---	52260	50450	---
MAX	76850	74830	118900	106200	90120	107100	55860	64070	7820	55340	52200	50520
MIN	51190	55380	54390	61080	58550	56200	53790	54090	54490	52260	50450	49190
(+)	543.85	538.40	549.93	541.62	546.72	538.64	538.04	540.69	538.45	537.47	536.91	536.51
(Φ)	+24050	-21200	+52020	-40170	+22890	-33920	-2040	+9460	-8070	-3290	-1810	-1266
CAL YR 1991	MAX 118900	MIN 47120	(Φ)	+60250								
WTR YR 1992	MAX 118900	MIN 49190	(Φ)	-3340								

(+) Elevation, in feet, at end of month.

(Φ) Change in contents, in acre-feet.



## BRAZOS RIVER BASIN

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

## WATER-QUALITY RECORDS

LOCATION.--lat 31°53'58", long 97°12'26", Hill County, Hydrologic Unit 12060202, at Aquilla Dam on Aquilla Creek at Farm Road 310 and 3.3 mi north-northeast of Aquilla.

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1984 to July 1992 (discontinued).

## 315354097125701 - AQUILLA LAKE SITE AR

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1053	1.00	291	8.0	8.5	9.3	81
24...	1055	10.0	293	8.0	8.5	9.3	81
24...	1058	20.0	292	8.0	8.5	9.3	81
24...	1101	27.0	292	7.9	8.5	9.3	81
APR							
30...	1158	1.00	380	8.3	21.0	8.4	96
30...	1200	10.0	380	8.2	20.5	8.0	90
30...	1202	20.0	380	8.2	20.5	7.9	89
30...	1204	32.0	380	8.1	20.5	7.2	81
JUL							
31...	1244	1.00	378	7.8	29.0	4.8	64
31...	1246	10.0	381	7.7	28.5	4.4	58
31...	1248	20.0	380	7.6	28.5	3.7	49
31...	1250	30.0	384	7.3	28.0	0.8	10

## 315358097122601 - AQUILLA LAKE SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
JAN												
24...	1004	61900	1.00	293	7.9	8.5	0.49	9.4	82	K14	21	120
24...	1007	--	10.0	292	7.8	8.5	--	9.4	82	--	--	--
24...	1010	--	20.0	291	7.8	8.5	--	9.4	82	--	--	--
24...	1013	--	30.0	294	7.7	8.5	--	9.4	82	--	--	--
24...	1016	--	40.0	293	7.6	8.5	--	9.5	83	--	--	--
24...	1022	--	47.0	290	7.5	8.5	--	9.5	83	--	--	120
APR												
30...	1058	54200	1.00	380	8.2	21.0	0.57	8.2	94	K2	40	150
30...	1100	--	10.0	380	8.1	20.5	--	8.0	90	--	--	--
30...	1102	--	20.0	380	8.0	20.5	--	7.9	89	--	--	--
30...	1104	--	30.0	380	7.8	20.5	--	7.2	81	--	--	--
30...	1106	--	44.0	402	6.9	17.0	--	0	0	--	--	170
JUL												
31...	1156	52300	1.00	380	7.8	28.5	0.70	5.1	67	K3	K2	150
31...	1202	--	10.0	380	7.7	28.0	--	4.6	60	--	--	--
31...	1208	--	20.0	382	7.6	28.0	--	4.3	56	--	--	--
31...	1213	--	30.0	385	7.2	27.5	--	0	0	--	--	--
31...	1215	--	35.0	388	7.2	27.0	--	0	0	--	--	--
31...	1221	--	43.0	469	7.0	23.5	--	0	0	--	--	180

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

315358097122601 - AQUILLA LAKE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	HARD- NESS NONCARB DISSOLV F.L.D. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN											
24...	24	46	2.3	11	0.4	4.1	100	34	11	0.30	8.7
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	22	46	2.3	11	0.4	4.3	100	34	11	0.30	8.8
APR											
30...	29	54	3.0	17	0.6	3.7	120	50	15	0.10	1.5
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	38	62	3.2	18	0.6	3.8	130	50	17	0.30	8.2
JUL											
31...	36	53	3.4	20	0.7	4.1	110	55	18	0.30	4.9
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	0	67	3.7	19	0.6	3.9	180	39	17	0.30	12

DATE	SOIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
24...	177	1.07	0.030	1.10	0.050	0.35	0.40	0.110	0.090	29	3
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	179	1.18	0.020	1.20	0.040	0.36	0.40	0.100	0.090	36	7
APR											
30...	215	0.650	0.020	0.670	0.020	0.18	0.20	<0.010	0.020	10	3
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	0.680	0.020	0.700	0.020	0.18	0.20	<0.010	0.020	<10	30
30...	241	0.550	0.090	0.640	0.120	0.28	0.40	0.030	0.060	6	470
JUL											
31...	225	0.540	0.020	0.560	0.040	0.36	0.40	<0.010	<0.010	6	9
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	0.550	0.020	0.570	0.050	0.25	0.30	<0.010	<0.010	120	30
31...	--	0.630	0.020	0.650	0.050	0.25	0.30	<0.010	0.010	20	260
31...	--	--	--	--	--	--	--	--	--	--	--
31...	280	--	0.030	<0.050	1.70	0.60	2.3	0.030	0.050	1200	6000

315402097115401 - AQUILLA LAKE SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1036	1.00	291	7.9	8.5	9.4	82
24...	1038	10.0	294	7.9	8.5	9.3	81
24...	1042	20.0	293	7.9	8.5	9.3	81
24...	1045	30.0	295	7.9	8.5	9.3	81
24...	1048	35.0	294	7.9	8.5	9.2	80
APR							
30...	1140	1.00	380	8.3	21.0	8.3	95
30...	1142	10.0	380	8.2	21.0	8.1	92
30...	1144	20.0	380	8.2	21.0	8.0	91
30...	1146	33.0	380	8.0	20.5	6.8	77
JUL							
31...	1229	1.00	381	7.7	28.5	4.6	60
31...	1231	10.0	380	7.7	28.5	4.6	60
31...	1234	20.0	381	7.7	28.0	4.4	57
31...	1237	33.0	385	7.3	27.5	0.7	9

## BRAZOS RIVER BASIN

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

315601097111501 - AQUILLA LAKE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
JAN											
24...	1113	1.00	290	8.0	8.5	9.3	81	--	--	120	20
24...	1117	10.0	287	8.0	8.5	9.1	79	--	--	--	--
24...	1122	20.0	296	8.0	8.5	9.1	79	--	--	--	--
24...	1127	30.0	444	7.9	7.5	8.8	75	--	--	--	--
24...	1132	37.0	447	7.9	7.5	8.8	75	--	--	200	47
APR											
30...	1416	1.00	380	8.3	21.5	8.8	101	K3	42	160	35
30...	1418	10.0	380	8.1	21.0	7.7	88	--	--	--	--
30...	1420	20.0	380	8.0	20.5	7.3	83	--	--	--	--
30...	1422	30.0	380	7.8	20.5	6.0	68	--	--	--	--
30...	1424	34.0	380	7.7	20.5	5.1	58	--	--	150	32
JUL											
31...	1309	1.00	377	8.2	29.0	6.8	90	K1	K1	140	35
31...	1312	10.0	378	7.9	28.5	5.3	70	--	--	--	--
31...	1315	20.0	382	7.3	28.0	1.3	17	--	--	--	--
31...	1320	34.0	383	7.2	28.0	0	0	--	--	150	36

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN											
24...	45	2.2	11	0.4	4.2	100	33	11	0.30	8.4	176
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	74	2.6	20	0.6	3.8	150	62	15	0.30	9.8	277
APR											
30...	58	2.9	18	0.6	3.4	120	48	16	0.30	1.7	221
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	57	3.0	17	0.6	3.6	120	47	16	0.30	3.0	221
JUL											
31...	52	3.3	19	0.7	4.0	110	55	17	0.30	4.8	220
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	53	3.3	19	0.7	4.0	110	54	17	0.30	5.6	222

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
24...	1.08	0.020	1.10	0.040	0.36	0.40	0.090	0.090	19	3
24...	--	--	--	--	--	--	--	--	--	--
24...	1.77	0.030	1.80	0.060	0.44	0.50	0.100	0.070	10	10
24...	1.07	0.030	1.10	0.050	0.35	0.40	0.100	0.090	30	<10
24...	1.85	0.050	1.90	0.070	0.63	0.70	0.150	0.100	9	15
APR										
30...	0.640	0.020	0.660	0.020	0.18	<0.20	<0.010	0.020	3	10
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	0.580	0.100	0.680	0.130	0.07	<0.20	0.040	<0.010	4	45
JUL										
31...	0.500	0.020	0.520	0.020	0.28	0.30	<0.010	<0.010	5	10
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	0.630	0.010	0.640	0.040	0.46	0.50	0.040	<0.010	6	250

## BRAZOS RIVER BASIN

257

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

315649097103701 - AQUILLA LAKE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
JAN											
24...	1155	1.00	390	8.1	8.5	0.40	9.9	86	K38	310	170
24...	1158	10.0	409	8.0	8.0	--	9.5	82	--	--	--
24...	1201	16.0	458	8.0	8.0	--	9.3	80	--	--	200
APR											
30...	1458	1.00	400	7.9	22.5	0.30	7.4	87	K2	140	150
30...	1500	10.0	390	7.8	21.0	--	5.4	62	--	--	--
30...	1502	15.0	390	7.6	21.0	--	3.6	41	--	--	--
30...	1504	23.0	400	7.6	21.0	--	1.5	17	--	--	160
JUL											
31...	1339	1.00	365	8.1	30.0	0.60	5.9	80	K5	K2	130
31...	1343	10.0	366	7.9	29.0	--	5.0	66	--	--	--
31...	1347	15.0	366	7.8	29.5	--	4.6	61	--	--	--
31...	1351	22.0	368	7.7	29.5	--	4.0	53	--	--	130
DATE	HARD- NESS NONCARB DISSOLV FID. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
JAN											
24...	39	65	2.3	17	0.6	3.8	130	51	13	0.30	9.8
24...	--	--	--	--	--	--	--	--	--	--	--
24...	52	75	2.6	21	0.6	3.5	150	65	15	0.30	9.6
APR											
30...	17	54	2.7	19	0.7	3.5	130	53	16	0.30	3.1
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	28	60	2.9	19	0.7	3.5	130	49	16	0.30	4.2
JUL											
31...	31	48	3.1	20	0.8	4.1	100	55	17	0.30	5.0
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	28	47	3.0	19	0.7	4.1	100	56	18	0.30	5.0
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
24...	242	1.67	0.030	1.70	0.010	0.49	0.50	0.100	0.080	6	4
24...	--	2.16	0.040	2.20	0.040	0.56	0.60	0.110	0.080	<10	<10
24...	280	2.44	0.060	2.50	0.060	0.64	0.70	0.120	0.100	12	14
APR											
30...	229	0.510	0.060	0.570	0.070	0.63	0.70	0.050	0.030	3	26
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	235	0.410	0.110	0.520	0.210	0.19	0.40	0.030	0.040	3	110
JUL											
31...	214	0.310	0.050	0.360	0.050	0.25	0.30	<0.010	0.010	3	9
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	214	0.300	0.030	0.330	0.090	0.41	0.50	0.030	<0.010	6	35

## BRAZOS RIVER BASIN

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

315518097123401 - AQUILLA LAKE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
JAN											
24...	1233	1.00	288	7.9	9.0	9.1	80	--	--	120	24
24...	1236	10.0	291	7.9	8.5	9.0	78	--	--	--	--
24...	1239	20.0	292	7.9	8.5	8.8	76	--	--	--	--
24...	1242	30.0	290	7.9	8.0	8.3	71	--	--	--	--
24...	1246	38.0	482	7.8	8.0	7.3	63	--	--	190	56
APR											
30...	1236	1.00	380	8.3	21.0	8.3	95	K2	K26	150	38
30...	1238	10.0	380	8.2	21.0	7.8	89	--	--	--	--
30...	1240	20.0	380	8.0	20.5	7.0	79	--	--	--	--
30...	1242	30.0	380	7.7	20.0	5.2	58	--	--	--	--
30...	1244	34.0	394	7.6	20.0	3.0	34	--	--	160	32
JUL											
31...	1415	1.00	376	8.1	30.0	6.1	82	K1	K1	140	34
31...	1418	10.0	377	7.8	28.5	4.7	62	--	--	--	--
31...	1422	20.0	381	7.6	28.5	3.8	50	--	--	--	--
31...	1426	25.0	385	7.2	28.0	0.6	8	--	--	--	--
31...	1429	32.0	392	7.2	28.0	0	0	--	--	150	29

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS S102)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN											
24...	45	2.4	12	0.5	4.1	98	35	12	0.30	8.3	178
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	69	5.3	26	0.8	4.5	140	76	26	0.30	9.1	299
APR											
30...	57	3.0	18	0.6	3.5	120	50	17	0.30	1.4	220
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	59	3.1	18	0.6	3.4	130	48	16	0.30	3.7	229
JUL											
31...	51	3.3	20	0.7	4.0	110	55	18	0.30	4.7	221
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	54	3.4	20	0.7	4.0	120	53	17	0.30	6.2	231

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
24...	0.980	0.020	1.00	0.050	0.35	0.40	0.110	0.090	14	5
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	0.630	0.030	0.660	0.130	0.47	0.60	0.090	0.070	42	49
APR										
30...	0.620	0.020	0.640	0.020	0.28	0.30	<0.010	0.020	4	31
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	0.560	0.040	0.600	0.090	0.31	0.40	0.060	0.010	5	260
JUL										
31...	0.440	0.020	0.460	0.040	0.26	0.30	<0.010	<0.010	4	130
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	0.290	0.020	0.310	0.180	0.52	0.70	0.030	<0.010	82	760



## BRAZOS RIVER BASIN

259

08093350 AQUILLA LAKE ABOVE AQUILLA, TX--Continued

315748097144901 - AQUILLA LAKE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
JAN											
24...	1319	1.00	3/8	7.9	9.0	0.46	9.0	79	290	660	150
24...	1325	10.0	488	7.8	8.5	--	8.3	72	--	--	--
24...	1330	23.0	562	7.7	8.5	--	7.2	63	--	--	220
APR											
30...	1314	1.00	440	8.0	22.0	0.30	7.2	84	K6	110	170
30...	1316	10.0	450	7.7	21.5	--	5.3	61	--	--	--
30...	1318	19.0	510	7.6	21.5	--	3.0	35	--	--	170
JUL											
31...	1505	1.00	357	8.4	31.0	0.30	8.1	111	61	K1	130
31...	1510	10.0	367	7.6	29.5	--	3.6	48	--	--	--
31...	1515	18.0	368	7.6	29.5	--	3.8	51	--	--	130

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN											
24...	42	55	4.1	20	0.7	4.0	110	57	21	0.30	8.5
24...	--	--	--	--	--	--	--	--	--	--	--
24...	73	78	6.4	33	1	4.2	150	93	33	0.30	9.1
APR											
30...	41	62	4.0	23	0.8	3.5	130	66	24	0.30	2.6
30...	--	--	--	--	--	--	--	--	--	--	--
30...	30	61	5.0	28	0.9	3.9	140	75	27	0.30	3.7
JUL											
31...	38	45	3.7	22	0.8	4.4	90	58	20	0.30	4.7
31...	--	--	--	--	--	--	--	--	--	--	--
31...	33	44	3.8	22	0.9	4.4	93	61	20	0.30	5.0

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
24...	237	0.730	0.030	0.760	0.080	0.52	0.60	0.130	0.090	14	8
24...	--	1.05	0.050	1.10	0.210	0.69	0.90	0.140	0.110	20	30
24...	346	0.850	0.050	0.900	0.190	0.51	0.70	0.090	0.070	17	63
APR											
30...	263	0.460	0.050	0.510	0.040	0.36	0.40	0.020	0.030	<3	31
30...	--	--	--	--	--	--	--	--	--	--	--
30...	290	0.330	0.070	0.400	0.200	0.10	0.30	0.010	0.040	4	160
JUL											
31...	212	0.100	0.030	0.130	0.030	0.37	0.40	0.020	0.010	11	4
31...	--	--	--	--	--	--	--	--	--	--	--
31...	216	0.080	0.030	0.110	0.090	0.51	0.60	0.050	<0.010	5	25

## Aquilla Lake AC (315358097122601)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-24-92
Time	1005

TOTAL CELLS/mL	1,977,549
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	0.8

Organisms	Cells/mL
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Aulacoseira italica</i> var. <i>tenuissima</i>	7,389
<i>Cyclotella glomerata</i>	1,056
<i>Cyclotella meneghiniana</i>	3,167
<i>Cyclotella ocellata</i>	302
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	603
Order Pennales	
<i>Epithemia sorex</i>	2,503
<i>Epithemia turgida</i>	2,503
<i>Nitzschia acicularis</i>	834
<i>Nitzschia palea</i>	1,669
<i>Synedra delicatissima</i>	5,006
<b>CHLOROPHYTA</b>	
<i>Chlamydomonas</i> sp.	50,065
<i>Tetradon minimum</i>	12,516
<b>CHRYSTOPHYTA</b>	
Unknown flagellate	75,097
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	1,689,678
<i>Chroococcus</i> sp.	75,097
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	12,516
<i>Rhodomonas minuta</i>	37,548

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquila Lake EC (315748097144901)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-24-92
Time	1320

<b>TOTAL CELLS/mL</b>	2,090,192
<b>NUMBER OF SPECIES</b>	16
<b>DEPTH COLLECTED (ft.)</b>	0.8

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Aulacoseira italica</i> var. <i>tenuissima</i>	7,905
<i>Cyclotella glomerata</i>	3,294
<i>Cyclotella meneghiniana</i>	659
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	659
Order Pennales	
<i>Nitzschia palea</i>	3,129
<i>Synedra delicatissima</i>	9,387
<b>CHLOROPHYTA</b>	
<i>Chlamydomonas</i> sp.	37,548
<i>Chlorella ellipsoidea</i>	25,032
<i>Chlorococcum humicola</i>	37,548
<i>Oocystis pusilla</i>	25,032
<b>CHRYSOPHYTA</b>	
Unknown flagellate	212,774
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	1,577,032
<i>Chroococcus</i> sp.	112,645
<i>Dactylococcopsis fascicularis</i>	12,516
<b>CHRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	12,516
<i>Rhodomonas minuta</i>	12,516

## BRAZOS RIVER BASIN

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake AC (315358097122601)

Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1057

TOTAL CELLS/mL	243,301
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	26,736
<i>Melosira varians</i>	19,416
<i>Stephanodiscus astraea</i>	34,057
Order Pennales	
<i>Asterionella formosa</i>	8,021
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	4,010
<i>Chlamydomonas</i> sp.	668
<i>Scenedesmus quadricauda</i>	1,337
<i>Selenastrum wistii</i>	2,674
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	133,682
<i>Chroococcus limneticus</i>	2,674
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	2,005
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	8,021

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquilla Lake CC (315649097103701)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1457

---

TOTAL CELLS/mL	160,418
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	0.5

---

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	15,840
<i>Melosira varians</i>	8,469
<i>Stephanodiscus astraea</i>	3,764
CHLOROPHYTA	
<i>Actinastrum</i> sp.	668
<i>Ankistrodesmus falcatus</i>	6,016
<i>Pediastrum</i> sp	668
<i>Scenedesmus arcuatis</i>	1,337
<i>Scenedesmus quadricauda</i>	668
<i>Selenastrum wistii</i>	2,674
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	110,288
<i>Chroococcus minimus</i>	8,021
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	2,005

---



## Aquilla Lake EC (315748097144901)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1313

TOTAL CELLS/mL	199,853
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	0.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	30,387
<i>Melosira varians</i>	7,081
<i>Stephanodiscus astraea</i>	5,310
Order Pennales	
<i>Cocconeis pediculus</i>	6,016
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	4,010
<i>Cosmarium</i> sp.	2,005
<i>Scenedesmus quadricauda</i>	668
<i>Selenastrum wistii</i>	2,674
<i>Ulothrix cylindricum</i>	4,010
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	113,630
<i>Chroococcus limneticus</i>	5,347
<i>Chroococcus minimus</i>	10,695
EUGLENOPHYTA	
<i>Euglena</i> sp.	668
<i>Trachelomonas</i> sp.	5,347
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	2,005

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquila Lake AC (315358097122601)

## Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1155

<b>TOTAL CELLS/mL</b>	221,243
<b>NUMBER OF SPECIES</b>	18
<b>DEPTH COLLECTED (ft.)</b>	1.2

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	1,086
<i>Melosira varians</i>	6,935
Order Pennales	
<i>Fragilaria crotenensis</i>	6,016
<i>Synedra ulna</i>	6,016
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	1,337
<i>Chlamydomonas</i> spp.	4,010
<i>Elakatothrix gelatinosa</i>	2,674
<i>Pediastrum</i> sp.	668
<i>Scenedesmus bijuga</i>	668
<i>Scenedesmus quadricauda</i>	2,005
Unknown filament	8,689
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	140,366
<i>Chroococcus limneticus</i>	1,337
<i>Merismopedia tenuissima</i>	29,410
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Euglena</i> sp.	1,337
<i>Trachelomonas</i> spp.	5,347
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	668
<i>Cryptomonas ovata</i>	2,674

## Aquilla Lake CC (315649097103701)

## Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1338

TOTAL CELLS/mL	292,094
NUMBER OF SPECIES	19
DEPTH COLLECTED (ft.)	1.9

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	637
<i>Melosira varians</i>	32
Order Pennales	
<i>Fragilaria crotenensis</i>	9,740
<i>Synedra ulna</i>	1,623
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	668
<i>Chlamydomonas</i> spp.	2,674
<i>Cosmarium</i> sp.	668
<i>Pediastrum</i> sp.	668
<i>Scenedesmus bijuga</i>	1,337
<i>Scenedesmus quadricauda</i>	1,337
<i>Staurastrum</i> sp.	668
Unknown filament	2,674
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	133,682
<i>Chroococcus limneticus</i>	12,031
<i>Merismopedia tenuissima</i>	96,251
<i>Oscillatoria subrevis</i>	20,052
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Trachelomonas</i> spp.	4,679
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	2,005
<i>Cryptomonas ovata</i>	668

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquila Lake EC (315748097144901)

Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1504

<b>TOTAL CELLS/mL</b>	254,662
<b>NUMBER OF SPECIES</b>	13
<b>DEPTH COLLECTED (ft.)</b>	0.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	68
<i>Melosira varians</i>	1,937
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	668
<i>hlamydomonas</i> sp.	1,337
<i>Pediastrum duplex</i>	668
<i>Scenedesmus bijuga</i>	1,337
<i>Scenedesmus quadricauda</i>	1,337
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	93,577
<i>Chroococcus limneticus</i>	28,073
<i>Merismopedia tenuissima</i>	110,956
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	10,026
PYRRHOPHYTA (Dinoflagellates)	
<i>Peridinium</i> sp.	668
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	4,010

## 08093360 AQUILLA CREEK ABOVE AQUILLA, TX

LOCATION.--Lat 31°53'43", long 97°12'10", Hill County, Hydrologic Unit 12060202, on right bank of excavated outlet channel, 0.2 mi downstream from Aquilla Dam on Aquilla Creek and Farm Road 310 (on top of Aquilla Dam), and 3.3 mi north-northeast of Aquilla.

DRAINAGE AREA.--255 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1982 to current year (operated as low-water record only). Prior to Mar. 16, 1982, operated as a full range continuous discharge station.

GAGE.--Water-stage recorder and concrete weir with sharp-crested, 90 degree v-notch weir section for low-flows. Datum of gage is 478.71 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 15, 1982, at site about 0.2 mi to left of current location at same datum.

REMARKS.--No estimated daily discharges. Records good. Daily discharges above 135 ft<sup>3</sup>/s are not published. Flow is completely regulated by Aquilla Lake, 0.2 mi upstream (station 08093350). Deliberate impoundment of water at Aquilla Lake began Apr. 19, 1983. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s June 16, 1981 (gage height, 26.98 ft); no flow for many days in 1980-86.

EXTREMES FOR CURRENT YEAR.--Maximum discharge not determined; maximum gage height, 14.53 ft Mar. 11; minimum discharge, 0.14 ft<sup>3</sup>/s July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	---	83	---	---	.48	---	.25	---	88	.43	.31
2	.33	---	84	---	---	.46	---	.25	---	87	.45	.22
3	.35	---	84	---	---	.51	---	.33	.32	88	.54	.27
4	.35	---	84	---	---	1.2	---	.39	.34	88	.58	.21
5	.32	---	84	---	---	1.3	---	18	---	85	.43	.21
6	.34	---	84	---	---	.58	---	27	---	63	.22	.18
7	.34	---	84	---	---	.55	107	19	---	31	.21	.18
8	.34	---	84	---	---	.56	76	23	---	31	.21	.18
9	.34	---	84	---	---	---	47	34	---	31	.19	.16
10	.34	---	---	---	---	---	.30	33	---	31	.21	.29
11	.33	---	---	---	---	---	.24	33	---	31	.29	.30
12	.32	---	---	---	---	---	.21	17	---	31	.27	.19
13	.33	---	---	---	---	---	.22	.32	---	31	.23	.19
14	.33	---	---	---	---	---	.20	40	---	31	.22	.18
15	.32	---	---	---	---	---	.19	74	---	31	.22	.19
16	.32	---	---	---	---	---	.19	74	---	31	.22	.19
17	.32	---	---	---	---	---	.23	73	---	17	.22	.18
18	.32	---	---	---	---	---	.22	72	---	1.1	.21	.18
19	.32	---	---	---	---	---	.20	73	---	1.2	.23	.18
20	.33	---	---	---	---	---	.18	113	---	.93	.22	.17
21	.34	---	---	---	---	---	.18	---	---	.22	.20	.17
22	.34	---	.84	---	---	---	.17	---	127	.19	.19	.17
23	.34	---	---	---	---	---	.16	---	84	.18	.19	.17
24	.33	---	---	---	---	---	.18	---	86	.16	.19	.17
25	.34	123	---	---	1.0	---	.16	---	85	.15	.20	.16
26	.43	82	---	---	.58	---	.17	---	85	.15	.20	.17
27	.73	82	---	---	.52	---	.18	---	85	.16	.20	.19
28	.48	82	---	---	.50	---	.19	---	85	.40	.22	.71
29	.86	82	---	---	.53	---	.39	---	85	.44	.29	1.1
30	---	82	---	---	---	---	.26	---	86	.38	.26	.95
31	---	---	---	---	---	---	---	---	---	.39	.23	---
CAL YR 1991	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---
WTR YR 1992	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---



## BRAZOS RIVER BASIN

269

08093500 AQUILLA CREEK NEAR AQUILLA, 1x

LOCATION.--Lat 31°50'40", long 97°12'04", Hill County, Hydrologic Unit 12060202, at downstream side of highway embankment near left end of bridge on Farm Road 1304, 1.0 mi southeast of Aquilla, 1.2 mi downstream from Cobb Creek, 4.7 mi below Aquilla Dam, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--308 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1938 to current year. Records of daily discharges for December 1924 to August 1925, published in WSP 608, are unreliable, and should not be used.

REVISED RECORDS.--WSP 1712: 1944(M), 1957-58. WDR TX-76-2: Drainage area. See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 451.48 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Since May 1983, flow from 252 mi<sup>2</sup> above this station has been regulated by Aquilla Lake, 4.7 mi upstream (on Aquilla Creek). Deliberate impoundment of water began Apr. 24, 1983.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--43 years (water years 1940-82) 119 ft<sup>3</sup>/s (5.25 in/yr), 86,220 acre-ft/yr.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1940-82).--Maximum discharge, 53,300 ft<sup>3</sup>/s June 16, 1981 (gage height, 31.35 ft), from rating curve extended above 25,900 ft<sup>3</sup>/s on basis of slope-area measurement of 74,200 ft<sup>3</sup>/s, adjusted gage site; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 31, 1887, reached a stage of 34 ft, from information by local resident. Flood of Sept. 27, 1936, was the highest since 1887 and reached a stage of 33 ft, from floodmark; discharge 84,500 ft<sup>3</sup>/s (by slope-area measurements at site 9 mi downstream) and 74,200 ft<sup>3</sup>/s (adjusted to gage site).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	1010	119	1300	546	26	209	13	520	75	1.1	.75
2	.46	1200	120	1210	542	23	210	20	1390	76	1.1	.82
3	.48	1180	122	1210	587	41	214	115	45	77	.89	.70
4	.49	1160	119	1450	982	1570	210	365	25	78	.86	.76
5	.49	1100	117	1480	687	266	205	26	286	76	1.1	.88
6	.50	702	118	1520	573	43	205	38	774	59	.99	1.0
7	.53	441	117	1760	550	30	134	23	770	26	.89	.97
8	.55	404	119	1740	540	26	79	23	817	25	.89	1.0
9	.57	322	601	1680	533	1190	60	33	1080	25	.96	1.0
10	.59	323	234	1770	528	597	13	32	1060	24	.97	1.3
11	.62	322	328	1880	526	1230	12	31	1050	23	1.3	1.7
12	.62	321	330	1880	527	2040	14	25	847	23	1.5	1.0
13	.63	260	263	1840	529	2000	14	8.8	586	23	.97	.95
14	.65	203	204	1810	526	1990	14	39	581	23	.82	.99
15	.63	204	200	1780	522	1970	14	82	579	22	.92	.95
16	.59	203	199	1750	515	1950	14	78	576	22	1.4	.97
17	.58	231	197	1290	514	1920	19	1540	573	16	1.3	.90
18	.54	216	200	1110	510	1930	20	711	379	1.0	1.7	.79
19	.50	209	473	730	505	1870	19	227	214	.86	1.6	.63
20	.48	209	1280	693	503	1840	17	173	215	.81	1.6	.66
21	.47	205	3990	684	499	1820	15	229	214	.80	2.0	.53
22	.42	199	459	742	573	1800	14	246	158	.52	1.9	.39
23	.39	194	309	558	549	1550	13	240	88	.54	2.2	.35
24	.39	191	961	538	1390	983	13	235	84	.80	1.8	.40
25	.41	158	1240	533	2600	710	13	251	84	.90	1.5	.54
26	.56	121	1280	835	123	636	13	266	92	.91	1.5	.60
27	105	120	1280	1700	48	561	12	228	86	.93	1.2	.54
28	13	120	1230	642	35	566	11	849	82	.88	1.3	.49
29	440	121	1220	619	29	564	22	397	78	.90	1.3	.50
30	442	119	1210	572	---	556	8.5	433	78	1.3	.95	.51
31	1060	---	1200	554	---	370	---	481	---	1.4	.74	---
TOTAL	2073.64	11768	19839	37860	17091	32668	1830.5	7457.8	13411	705.55	39.25	23.57
MEAN	66.9	392	640	1221	589	1054	61.0	241	447	22.8	1.27	.79
MAX	1060	1200	3990	1880	2600	2040	214	1540	1390	78	2.2	1.7
MIN	.39	119	117	533	29	23	8.5	8.8	25	.52	.74	.35
AC-FT	4110	23340	39350	75100	33900	64800	3630	14790	26600	1400	78	47

## BRAZOS RIVER BASIN

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992#, BY WATER YEAR (WY)

MEAN	36.6	50.5	138	173	140	207	67.2	160	249	25.7	10.5	6.99
MAX	168	392	640	1221	589	1054	277	568	717	111	95.5	39.8
(WY)	1985	1992	1992	1992	1992	1992	1990	1990	1987	1987	1991	1991
MIN	.000	.15	.32	.59	.18	3.25	1.00	.021	.043	.000	.000	.000
(WY)	1983	1983	1990	1984	1984	1986	1984	1984	1984	1984	1984	1983

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1983 - 1992#
ANNUAL TOTAL	44808.02	144767.31	
ANNUAL MEAN	123	396	105
HIGHEST ANNUAL MEAN			396
LOWEST ANNUAL MEAN			2.24
HIGHEST DAILY MEAN	3990 Dec 21	3990 Dec 21	3990 Dec 21
LOWEST DAILY MEAN	.39 Oct 23	.35 Sep 23	.00 Oct 1
ANNUAL SEVEN-DAY MINIMUM	.44 Oct 19	.44 Oct 19	.00 Oct 1
INSTANTANEOUS PEAK FLOW		7250 Dec 21	53300 Jun 16
INSTANTANEOUS PEAK STAGE		27.31 Dec 21	31.35 Jun 16
INSTANTANEOUS LOW FLOW		.18 Aug 4	.00 at times
ANNUAL RUNOFF (AC-FT)	88880	287100	76240
10 PERCENT EXCEEDS	260	1280	334
50 PERCENT EXCEEDS	28	119	3.6
90 PERCENT EXCEEDS	.11	.63	.00

# Period of regulated streamflow.

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1960 to June 1966, October 1967 to current year. Chemical and biochemical analyses: January 1968 to September 1992 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1965 to June 1966, November 1967 to September 1982.

WATER TEMPERATURE: May 1965 to June 1966, November 1967 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,080 microsiemens Dec. 31, 1975; minimum daily, 182 microsiemens Oct. 31, 1974.

WATER TEMPERATURE: Maximum daily, 31.0°C July 3, 1980; minimum daily, 0.0°C Jan. 8, 1976, and Jan. 10, 1977.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 03...	0957	0.51	381	7.7	22.0	25	10	5.5	64	1.6	140
NOV 22...	1124	197	329	8.1	12.5	48	20	9.9	94	0.3	130
JAN 23...	1218	552	309	8.1	8.5	45	20	11.6	100	2.8	130
MAR 12...	1343	2040	346	7.8	15.0	45	26	10.6	107	0.7	150
APR 29...	1302	20	540	7.7	18.0	20	320	9.9	106	2.8	210
MAY 12...	1016	37	433	7.7	23.0	40	35	8.1	96	1.4	200
JUN 17...	1219	579	387	7.8	29.5	25	12	7.9	106	4.1	160
AUG 04...	1202	0.88	828	7.9	30.5	5	3.5	7.8	105	1.8	310
12...	1128	1.8	452	7.3	28.0	55	87	5.7	74	4.6	150
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 03...	28	50	3.7	21	0.8	5.5	110	51	14	0.40	6.2
NOV 22...	26	48	2.5	16	0.6	4.7	100	41	10	0.30	7.5
JAN 23...	25	49	2.0	11	0.4	4.3	110	32	9.9	0.30	8.9
MAR 12...	42	56	2.9	17	0.6	3.4	110	45	13	0.30	8.0
APR 29...	90	78	3.3	28	0.8	2.8	120	100	25	0.50	6.3
MAY 12...	51	72	3.8	21	0.7	4.0	150	62	18	0.30	5.0
JUN 17...	44	57	3.2	19	0.7	4.7	110	52	19	0.30	6.7
AUG 04...	99	110	9.4	43	1	4.1	220	150	38	0.40	8.5
12...	60	55	4.1	23	0.8	6.0	95	71	31	0.30	6.0
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
OCT 03...	219	34	22	12	3.08	0.020	3.10	0.040	0.46	0.50	1.10
NOV 22...	193	24	15	9	0.770	0.030	0.800	0.030	0.27	0.30	0.060
JAN 23...	181	16	8	8	1.38	0.020	1.40	0.100	0.70	0.80	0.080
MAR 12...	212	27	5	22	1.05	0.050	1.10	0.090	0.61	0.70	0.060
APR 29...	316	594	102	492	2.91	0.090	3.00	0.100	0.40	0.50	0.030
MAY 12...	274	82	<1	--	1.14	0.060	1.20	0.080	0.42	0.50	0.090
JUN 17...	229	36	18	18	1.28	0.020	1.30	0.110	1.3	1.4	0.050
AUG 04...	494	19	2	17	3.95	0.050	4.00	0.100	1.9	2.0	0.080
12...	254	124	17	107	2.73	0.070	2.80	0.150	2.3	2.4	0.280

## BRAZOS RIVER BASIN

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LITUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 03...	0.980	6.4	--	--	--	--	--	--	--	--	--
NOV 22...	0.050	6.5	4	46	0.7	<1.0	<5	<3	<10	16	<10
JAN 23...	0.070	--	--	--	--	--	--	--	--	--	--
MAR 12...	0.060	6.9	--	--	--	--	--	--	--	--	--
APR 29...	0.040	19	3	40	<0.5	<1.0	<5	<3	<10	5	<10
MAY 12...	<0.010	6.7	2	67	<0.5	<1.0	<5	<3	<10	580	<10
JUN 17...	0.010	7.4	--	--	--	--	--	--	--	--	--
AUG 04...	0.040	5.5	1	99	<0.5	<1.0	<5	<3	<10	<3	<10
12...	0.080	15	2	59	<0.5	1.0	<5	<3	10	27	<10

DATE	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 03...	--	--	--	--	--	--	--	--	--	--
NOV 22...	6	3	<0.1	<10	<10	<1	<1.0	270	<6	<3
JAN 23...	--	--	--	--	--	--	--	--	--	--
MAR 12...	--	--	--	--	--	--	--	--	--	--
APR 29...	10	3	<0.1	<10	<10	<1	<1.0	560	<6	9
MAY 12...	9	93	<0.1	<10	<10	<1	<1.0	390	9	12
JUN 17...	--	--	--	--	--	--	--	--	--	--
AUG 04...	29	14	0.8	<10	<10	4	<1.0	970	<6	5
12...	13	7	<0.1	<10	<10	1	<1.0	350	7	35

## 08093675 NORTH FORK NORTH BOSQUE RIVER NEAR STEPHENVILLE, TX

LOCATION.--Lat 32°18'25", long 98°16'03", Erath County, Hydrologic Unit 12060204, on unnamed road over center of bridge, 0.75 mi west of state highway 108, and 7.1 miles north of Stephenville.

DRAINAGE AREA.--18.6 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1991 to September 1992.

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, O.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 30...	0835	e250	242	7.6	13.5	--	--	3.9	160000	110000
DEC 19...	0920	e30	419	7.6	9.0	10.4	93	2.9	180000	210000
MAR 09...	1200	3.0	1170	7.9	20.0	10.6	123	3.0	K330	K3300
APR 17...	1525	10	1120	7.5	19.0	--	--	3.9	K550000	K150000

DATE	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
OCT 30...	71	0.210	0.090	0.300	0.280	1.4	1.7	0.860	0.730
DEC 19...	100	0.830	0.050	0.880	0.350	1.8	2.2	1.40	1.00
MAR 09...	190	0.430	0.050	0.480	0.120	1.4	1.5	0.310	0.240
APR 17...	150	1.62	0.180	1.80	0.520	2.4	2.9	0.810	0.720

e Estimated



08093685 SOUTH FORK NORTH BOSQUE RIVER NEAR STEPHENVILLE, TX

LOCATION.--Lat 32°14'11", long 98°17'06", Erath County, Hydrologic Unit 12060204, on unnamed road over center of bridge, 1.5 miles north of Farm to Market Road 8, and 5.0 miles west of Stephenville.

DRAINAGE AREA.--31.4 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1991 to September 1992.

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 30...	1008	200	183	7.7	13.0	--	--	3.6	160000	250000
DEC 19...	1045	100	1350	8.1	9.0	11.2	101	0.9	9300	11000
MAR 09...	1445	20	1200	8.1	18.0	9.4	105	2.1	K1700	K4000
APR 17...	1623	20	1450	7.9	19.0	--	--	5.2	K290000	37000

DATE	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
OCT 30...	69	0.170	0.080	0.250	0.140	1.8	1.9	0.740	0.580
DEC 19...	380	2.36	0.040	2.40	0.030	0.97	1.0	0.230	0.150
MAR 09...	250	1.69	0.110	1.80	0.130	0.87	1.0	0.480	0.440
APR 17...	240	1.94	0.060	2.00	1.40	1.4	2.8	0.620	0.490

## BRAZOS RIVER BASIN

275

08093695 NORTH BOSQUE RIVER ABOVE STEPHENVILLE, TX

LOCATION.--Lat 32°14'06", long 98°12'14", Erath County. Hydrologic Unit 12060204, on Farm to Market Road 108 bridge at center of upstream side of bridge, and about 1.0 mi north of Stephenville.

DRAINAGE AREA.--Not determined.

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

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC 19...	1145	150	1150	8.1	9.0	11.2	101	2.4	K7000	K7700
MAR 09...	1540	30	1460	8.2	18.0	9.0	101	2.2	17000	13000
APR 17...	1653	40	1680	8.0	18.5	--	--	2.9	K89000	27000

DATE	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
DEC 19...	240	1.36	0.040	1.40	0.030	0.77	0.80	0.350	0.270
MAR 09...	310	3.43	0.070	3.50	0.080	1.3	1.4	0.370	0.310
APR 17...	380	4.78	0.120	4.90	0.190	1.1	1.3	0.290	0.240

## BRAZOS RIVER BASIN

08093800 NORTH BOSQUE RIVLR BELOW STEPHENVILLE

LOCATION.--Lat 32°06'02", long 98°09'18", Lrath County, Hydrologic Unit 12060204, on unnamed road over center of bridge about 1.0 mi west of State Highway 6, and 8.0 mi south of Stephenville.

DRAINAGE AREA.--Not determined.

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

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC 19...	1245	200	1110	8.1	9.0	11.3	102	1.7	K2800	K4000
MAR 09...	1635	50	1360	8.3	18.0	10.8	121	1.6	K330	38000
APR 17...	1753	50	2010	8.2	19.5	--	--	3.1	840	1800

DATE	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
DEC 19...	290	2.25	0.050	2.30	0.060	1.1	1.2	0.760	0.610
MAR 09...	320	4.75	0.050	4.80	0.040	0.86	0.90	0.410	0.370
APR 17...	390	5.41	0.090	5.50	0.040	0.76	0.80	0.680	0.630

## BRAZOS RIVER BASIN

277

08094800 NORTH BOSQUE RIVER AT HICO, TX

LOCATION.--Lat 31°58'41", long 98°02'04", Hamilton County, Hydrologic Unit 12060204, on left bank at downstream side of bridge on U.S. Highway 281 near south boundary of Hico, 2.6 mi downstream from Gilmore Creek, 5.0 mi upstream from Honey Creek, and 92.4 mi upstream from mouth.

DRAINAGE AREA.--359 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 982.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. Flow is affected at times by discharge from the flood-detention pools of 40 floodwater-retarding structures with a combined detention capacity of 65,720 acre-ft. These structures control runoff from 202 mi<sup>2</sup> in the North Bosque River and Green Creek drainage basins. The city of Stephenville discharges a small amount of sewage effluent into the river above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--11 years (1963-73) 50.5 ft<sup>3</sup>/s (36,590 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1962-72).--Maximum discharge, 16,800 ft<sup>3</sup>/s May 16, 1965 (gage height, 21.83 ft); no flow at times in 1962-65, 1967-68, and 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 27.6 ft May 23, 1952, from floodmarks (discharge, 87,800 ft<sup>3</sup>/s, by contracted-opening measurement).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	1140	76	743	327	326	100	66	105	108	14	367
2	35	681	77	668	318	277	96	66	275	83	23	86
3	35	e484	82	516	808	258	109	66	297	79	135	43
4	34	e381	75	426	3790	816	104	65	151	61	58	28
5	33	e289	72	394	2100	610	99	75	100	49	37	19
6	30	e215	70	372	1330	358	124	64	84	41	26	16
7	30	e182	69	352	864	278	123	56	72	36	22	14
8	31	e148	67	325	618	242	111	53	59	32	19	12
9	32	e142	68	301	461	300	103	55	77	28	17	11
10	33	e136	70	275	370	245	97	54	72	27	15	8.3
11	33	e118	76	253	365	200	103	55	129	25	14	143
12	34	e109	145	242	486	186	98	53	91	23	13	64
13	33	e105	120	226	413	172	90	53	87	22	13	41
14	28	e102	96	203	303	162	85	49	94	22	13	27
15	28	e100	82	190	250	153	81	47	69	21	12	18
16	28	e99	76	174	220	146	78	46	54	20	12	14
17	29	e104	72	168	214	143	92	54	46	22	12	13
18	29	e104	73	384	190	169	136	86	39	30	12	12
19	28	e104	633	417	164	156	117	73	35	23	12	11
20	28	102	13500	293	149	135	107	111	32	21	12	11
21	28	93	5590	261	143	129	89	82	30	21	12	8.8
22	28	91	3170	321	141	127	80	292	59	88	11	8.3
23	29	84	2720	270	139	118	72	175	47	48	10	7.2
24	32	77	2410	233	1180	114	68	128	37	30	9.3	6.1
25	37	77	2120	214	2960	112	65	99	30	24	8.3	6.1
26	39	78	2000	320	1610	109	62	338	1050	e20	8.1	4.1
27	571	83	1810	1790	930	105	60	248	459	e17	6.8	4.0
28	2110	85	1440	924	604	108	60	298	248	32	6.1	3.5
29	3400	85	1160	613	432	113	63	274	229	19	6.7	4.1
30	2140	81	1050	476	---	107	64	148	164	15	8.1	3.6
31	1760	---	854	379	---	101	---	111	---	14	8.4	---
TOTAL	10802	5679	39922	12723	21879	6575	2736	3440	4321	1101	585.8	1014.1
MEAN	348	189	1288	410	754	212	91.2	111	144	35.5	18.9	33.8
MAX	3400	1140	13500	1790	3790	816	136	338	1050	108	135	367
MIN	28	77	67	168	139	101	60	46	30	14	6.1	3.5
AC-FT	21430	11260	79190	25240	43400	13040	5430	6820	8570	2180	1160	2010

e Estimated

## BRAZOS RIVER BASIN

08094800 NORTH BOSQUE RIVER AT HICO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1992#, BY WATER YEAR (WY)

MEAN	36.1	17.6	75.1	30.1	59.4	55.0	80.1	171	135	11.9	21.1	20.8
MAX	348	189	1288	410	754	261	507	768	740	51.4	221	138
(WY)	1992	1992	1992	1992	1992	1977	1990	1990	1986	1987	1991	1991
MIN	.000	.000	.42	1.06	1.59	1.59	1.06	1.25	.57	.000	.000	.000
(WY)	1979	1981	1979	1986	1976	1976	1981	1981	1974	1974	1978	1981

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1974 - 1992#	
ANNUAL TOTAL	71158.1		110777.9			
ANNUAL MEAN	195		303		59.4	
HIGHEST ANNUAL MEAN					303	
LOWEST ANNUAL MEAN					3.42	
HIGHEST DAILY MEAN	13500	Dec 20	13500	Dec 20	13500	Dec 20 1991
LOWEST DAILY MEAN	3.9	Apr 11	3.5	Sep 28	.00	Jun 23 1974
ANNUAL SEVEN-DAY MINIMUM	4.5	Apr 6	4.5	Sep 24	.00	Jun 23 1974
INSTANTANEOUS PEAK FLOW			27000	Dec 20	27000	Dec 20 1991
INSTANTANEOUS PEAK STAGE			23.27	Dec 20	23.27	Dec 20 1991
INSTANTANEOUS LOW FLOW			2.4	Sep 30	.00	at times
ANNUAL RUNOFF (AC-FT)	141100		219700		43030	
10 PERCENT EXCEEDS	263		611		83	
50 PERCENT EXCEEDS	18		86		4.6	
90 PERCENT EXCEEDS	5.3		13		.12	

# Period of regulated streamflow.



## BRAZOS RIVER BASIN

279

08094800 NORTH BOSQUE RIVER AT HICO, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
APR 02...	1045	53	1140	8.0	11.0	10.4	97	1.0	K66	K75
MAY 05...	1330	73	1070	8.4	23.0	10.2	123	0.7	>12000	>12000
JUN 30...	1405	180	647	7.8	30.0	7.8	106	3.6	6200	900
JUL 29...	1245	23	728	8.3	32.0	8.2	116	2.0	1500	1700
AUG 25...	1158	8.2	731	8.3	26.5	12.2	157	--	730	K320
DATE		ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
APR 02...	330	2.76	0.040	2.80	0.020	0.58	0.60	0.120	0.110	
MAY 05...	320	2.08	0.020	2.10	0.010	0.29	0.30	0.100	0.100	
JUN 30...	140	0.640	0.030	0.670	0.050	1.2	1.2	0.470	0.340	
JUL 29...	230	1.06	0.040	1.10	0.030	0.97	1.0	0.200	0.100	
AUG 25...	95	--	<0.010	<0.050	0.020	0.38	0.40	0.050	<0.010	

## 08095000 NORTH BOSQUE RIVER NEAR CLIFTON, TX

LOCATION.--Lat 31°47'09", long 97°34'04", Bosque County, Hydrologic Unit 12060204, near right bank at downstream side of bridge on Farm Road 219, 0.5 mi northeast of Clifton, 2.5 mi downstream from Meridian Creek, and 42.0 mi upstream from mouth.

DRAINAGE AREA.--968 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 788: 1924-26, 1928, 1930. WSP 1058: 1945(M). WSP 1512: 1924(M), 1927, 1928(M), 1929, 1930(M), 1931-33, 1934(M), 1935-37, 1939. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP) and crest-stage gages. Datum of gage is 605.43 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1955, and from Apr. 23, 1957, to Mar. 26, 1958, nonrecording gage at site 1.1 mi upstream at datum 17.02 ft higher; Oct. 1, 1955, to Apr. 22, 1957, and Mar. 27, 1958, to Sept. 30, 1959, water-stage recorder destroyed by floods of Apr. 27, 1957, and Oct. 4, 1959; and Oct. 1, 1959, to Jan. 1, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good, except those for estimated daily discharges which are fair. The city of Clifton diverts water from the river upstream from this station for municipal use. The cities of Clifton and Meridian discharge sewage effluent into the river upstream and downstream, respectively, from the station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08094800. Several observations of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--44 years (water years 1924-67) unregulated, 195 ft<sup>3</sup>/s (141,300 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEAR, 1924-67).--Maximum discharge, 92,800 ft<sup>3</sup>/s Oct. 4, 1959 (gage height, 34.88 ft), from rating curve extended above 34,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of 92,800 ft<sup>3</sup>/s; and step back water computation of 200,000 ft<sup>3</sup>/s; no flow at times. Maximum stage since at least 1854, that of Dec. 20, 1991.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 9, 1922, reached a stage of about 32 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,300:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	1900	9,130	11.15	Feb. 4	1330	28,400	22.70
Oct. 28	2230	16,200	15.65	Feb. 25	1400	41,900	28.30
Oct. 30	0100	13,000	13.67	Mar. 4	0600	19,800	17.85
Dec. 20	2200	200,000	a/38.3	Mar. 9	1230	9,560	11.45
Jan. 27	0700	11,400	12.60				

a/ From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	2790	177	1560	e1130	e1490	342	183	534	297	63	44
2	46	1360	181	1590	1030	e1450	331	177	977	243	56	346
3	44	879	203	1340	3410	e1490	346	172	622	199	113	167
4	41	652	194	1120	19800	e8660	352	181	499	178	126	99
5	37	526	187	1040	7650	4370	333	200	367	158	122	74
6	33	416	181	932	3740	e1980	580	198	366	137	86	62
7	31	359	176	870	e2650	e1630	543	174	331	123	70	55
8	29	322	182	847	1420	e1510	403	164	335	109	61	48
9	28	278	892	730	958	3970	351	155	782	101	54	43
10	26	260	279	657	660	1810	320	153	327	92	49	44
11	26	249	257	609	1330	1120	303	152	595	82	46	48
12	25	235	300	653	2080	988	297	150	404	77	45	62
13	25	224	361	627	2180	879	287	145	314	73	50	107
14	23	216	296	515	1500	802	272	141	302	69	49	74
15	22	212	250	465	1310	737	257	137	284	66	47	62
16	21	210	230	429	1090	677	246	136	244	64	46	54
17	20	274	221	435	988	652	275	1090	209	63	44	46
18	19	270	243	1600	865	666	381	890	185	65	42	40
19	19	455	1260	1950	773	619	410	930	170	70	45	37
20	18	494	e79800	1200	721	543	410	1040	159	69	48	33
21	18	325	e96800	1050	683	508	320	636	147	70	48	30
22	18	271	e10800	1740	862	501	273	2190	170	69	46	29
23	18	235	7500	1250	779	466	248	788	203	67	44	28
24	18	210	5250	851	5440	439	232	460	183	97	42	25
25	18	204	4220	e725	30200	417	229	365	149	74	39	22
26	23	198	4130	1100	8250	397	219	318	1020	63	37	24
27	2510	196	3960	8650	3110	381	207	478	1050	59	36	24
28	5250	195	2940	3910	2070	425	196	666	518	56	35	23
29	6780	192	2260	2110	e1710	461	192	894	369	92	33	22
30	6110	186	1880	1650	---	389	186	493	344	131	31	21
31	3440	---	1620	1350	---	356	---	381	---	75	31	---
TOTAL	24788	12893	227230	43555	108389	40783	9341	14237	12159	3188	1684	1793
MEAN	800	430	7330	1405	3738	1316	311	459	405	103	54.3	59.8
MAX	6780	2790	96800	8650	30200	8660	580	2190	1050	297	126	346
MIN	18	186	176	429	660	356	186	136	147	56	31	21
AC-FT	49170	25570	450700	86390	215000	80890	18530	28240	24120	6320	3340	3560

e Estimated

BRAZOS RIVER BASIN

281

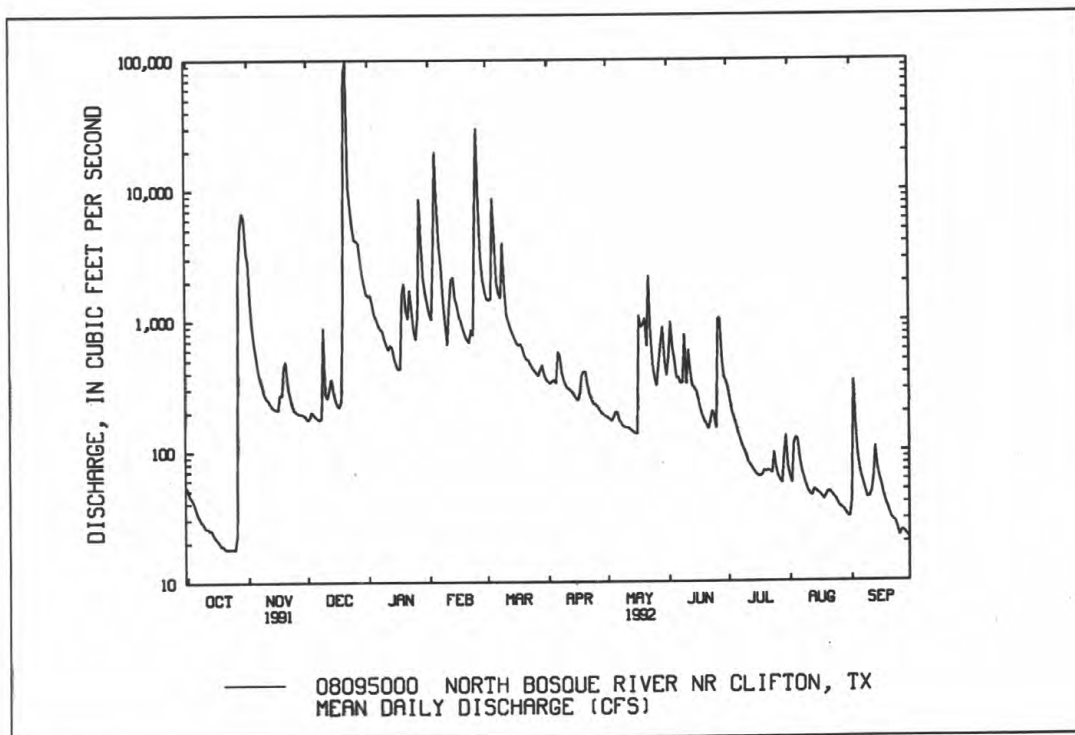
08095000 NORTH BOSQUE RIVER NEAR CLIFTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992#, BY WATER YEAR (WY)

MEAN	128	49.0	366	161	273	299	367	506	328	79.7	37.8	56.1
MAX	1206	430	7330	1405	3738	1316	2340	2412	1517	799	234	449
(WY)	1972	1992	1992	1992	1992	1992	1990	1968	1989	1968	1991	1986
MIN	.79	.58	.85	2.93	9.77	6.30	2.74	1.40	.44	.17	.16	.088
(WY)	1979	1984	1984	1984	1976	1986	1983	1984	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1968 - 1992#	
ANNUAL TOTAL	300682.1		500040		221	
ANNUAL MEAN	824		1366		1366	
HIGHEST ANNUAL MEAN					11.7	
LOWEST ANNUAL MEAN					Dec 21 1991	
HIGHEST DAILY MEAN	96800	Dec 21	96800	Dec 21	96800	Dec 21 1991
LOWEST DAILY MEAN	4.0	Aug 8	18	Oct 20	.01	Oct 28 1983
ANNUAL SEVEN-DAY MINIMUM	4.3	Aug 5	18	Oct 19	.03	Oct 28 1983
INSTANTANEOUS PEAK FLOW			200000	Dec 20	200000	Dec 20 1991
INSTANTANEOUS PEAK STAGE			ab/38.3	Dec 20	ab/38.3	Dec 20 1991
INSTANTANEOUS LOW FLOW			18	Oct 20	.00	at times
ANNUAL RUNOFF (AC-FT)	596400		991800		1594	
10 PERCENT EXCEEDS	562		1960		333	
50 PERCENT EXCEEDS	50		272		24	
90 PERCENT EXCEEDS	17		36		2.6	

# Period of regulated streamflow.  
a/ From floodmark.  
b/ Maximum stage since at least 1854.



## BRAZOS RIVER BASIN

08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX

LOCATION.--Lat 31°40'10", long 97°28'09", Bosque County, Hydrologic Unit 12060204, on right bank at downstream side of bridge on Farm Road 56, about 0.8 mi downstream from Thompson Hollow, 0.8 mi north of intersection of State Highway 6 and Farm Road 56 in Valley Mills, and 28.0 mi upstream from mouth.

DRAINAGE AREA.--1,146 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 524.55 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 29, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good, except those for estimated daily discharges which are fair. Flow is affected at times by discharge from the flood-detention pools of 42 floodwater-retarding structures with a combined detention capacity of 66,800 acre-ft. These structures control runoff from 207 mi<sup>2</sup>. There are several small diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--8 years (water years 1960-67), 263 ft<sup>3</sup>/s (190,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1960-67).--Maximum discharge, 107,000 ft<sup>3</sup>/s Oct. 4, 1959 (gage height, 40.22 ft, from floodmarks), from rating curve extended above 28,200 ft<sup>3</sup>/s on basis of slope-area measurement of 107,000 ft<sup>3</sup>/s; no flow Oct. 5-12, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1868, 43 ft in May 1908. Floods in September 1936 and April 1945 reached a stage of about 38 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	2330	9,530	15.66	Feb. 4	1700	42,200	32.40
Oct. 29	0300	19,600	22.77	Feb. 25	1730	57,100	36.63
Oct. 30	0430	14,400	19.36	Mar. 4	0800	28,700	27.31
Dec. 21	0200	220,000	a/44.6	Mar. 5	0130	15,100	19.84
Jan. 27	0930	14,000	19.08	Mar. 9	1600	11,000	16.77

a/ From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	3550	213	2020	1510	2150	587	266	1020	410	e98	97
2	56	1640	214	2070	1390	1880	566	253	1990	338	e90	349
3	52	1100	240	1750	3350	1840	588	250	968	298	e100	203
4	48	847	236	1520	28500	15100	593	324	820	273	e115	149
5	44	709	219	1460	11100	8780	554	299	634	261	120	103
6	41	578	216	1350	5230	3310	903	292	671	235	120	82
7	39	487	219	1270	3430	2460	898	255	604	214	103	72
8	37	428	229	1240	2570	2110	672	237	569	196	112	66
9	33	371	1200	1120	2150	4640	574	227	1340	185	93	61
10	33	342	462	1040	1920	2480	519	223	569	174	70	60
11	32	320	393	978	1780	1720	490	220	997	162	69	73
12	32	300	461	1020	2290	1560	473	213	702	150	75	68
13	31	282	544	991	2520	1440	459	205	569	143	74	127
14	29	270	475	881	1880	1340	432	194	604	138	67	101
15	26	262	402	814	1700	1250	402	184	486	132	66	77
16	25	256	379	760	1480	1160	386	194	399	132	63	68
17	24	335	367	773	1370	1130	436	1200	348	130	59	63
18	22	350	396	1840	1240	1140	687	e1000	321	131	61	60
19	21	561	1390	2160	1130	1060	754	e1050	302	147	63	57
20	21	674	45400	1430	1060	961	761	e1100	291	140	66	52
21	21	441	123000	1240	1010	917	532	e800	278	e148	67	50
22	21	349	16200	2090	1330	902	434	e2500	300	e149	64	49
23	21	303	9360	1450	1190	843	382	e1450	349	e140	63	48
24	22	271	5860	1140	6020	784	355	e700	364	e160	61	45
25	21	253	4610	1010	42700	743	334	e500	289	e135	58	44
26	22	244	4410	1210	9540	700	315	464	1050	e125	57	43
27	1400	242	4240	9750	4530	666	299	640	1370	e115	53	44
28	4160	241	3200	3790	3100	734	287	921	710	e105	52	44
29	8950	237	2600	2600	2510	814	282	1230	512	e190	51	43
30	8400	227	2300	2060	---	684	270	770	445	e145	50	40
31	3220	---	2090	1720	---	613	---	671	---	e115	56	---
TOTAL	26964	16470	231525	54547	149530	65911	15224	18832	19871	5516	2316	2438
MEAN	870	549	7469	1760	5156	2126	507	607	662	178	74.7	81.3
MAX	8950	3550	123000	9750	42700	15100	903	2500	1990	410	120	349
MIN	21	227	213	760	1010	613	270	184	278	105	50	40
AC-FT	53480	32670	459200	108200	296600	130700	30200	37350	39410	10940	4590	4840

e Estimated

## 08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992#, BY WATER YEAR (WY)

MEAN	150	68.3	388	197	357	384	407	606	407	95.3	48.9	66.5
MAX	1349	549	7469	1760	5156	2126	2392	2776	1609	712	232	344
(WY)	1972	1992	1992	1992	1992	1992	1977	1968	1989	1968	1991	1986
MIN	1.35	2.69	4.10	6.78	14.5	15.4	6.02	2.94	.63	.11	1.43	.000
(WY)	1979	1984	1979	1984	1984	1986	1984	1984	1984	1984	1978	1984

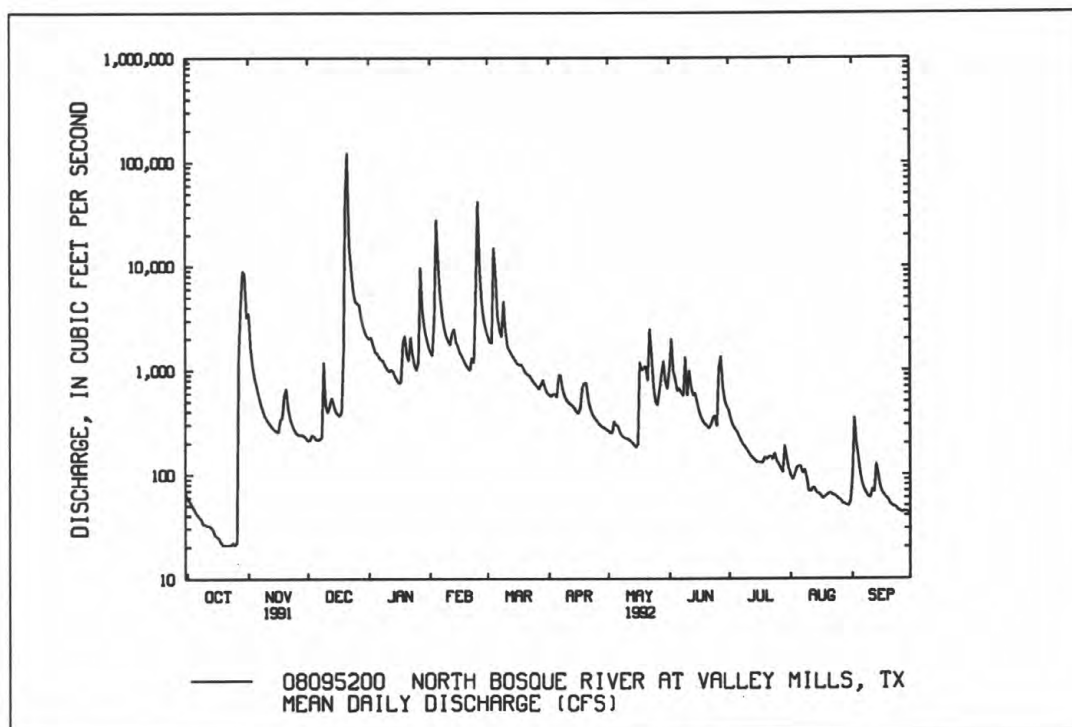
SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1968 - 1992#	
ANNUAL TOTAL	313554.9		609144		264	
ANNUAL MEAN	859		1664		1664	
HIGHEST ANNUAL MEAN					14.6	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	123000	Dec 21	123000	Dec 21	123000	Dec 21 1991
LOWEST DAILY MEAN	5.9	Aug 8	21	Oct 19	.00	Jun 1 1984
ANNUAL SEVEN-DAY MINIMUM	7.1	Aug 3	21	Oct 19	.00	Jun 17 1984
INSTANTANEOUS PEAK FLOW			220000	Dec 21	220000	Dec 21 1991
INSTANTANEOUS PEAK STAGE			ab/44.6	Dec 21	ab/44.6	Dec 21 1991
INSTANTANEOUS LOW FLOW			21	Oct 19	.00	*
ANNUAL RUNOFF (AC-FT)	621900		1208000		191400	
10 PERCENT EXCEEDS	613		2490		408	
50 PERCENT EXCEEDS	56		400		37	
90 PERCENT EXCEEDS	20		52		5.8	

# Period of regulated streamflow.

a/ Maximum stage since at least 1868.

b/ From floodmark.

\* No flow for many days in water year 1984, and for period Oct. 1-5, 1984.





## BRAZOS RIVER BASIN

08095300 MIDDLE BOSQUE RIVER NEAR MCGREGOR, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°30'34", long 97°21'55", McLennan County, Hydrologic Unit 12060203, at left downstream side of bridge on Farm Road 3047, 1,100 ft downstream from Pecan Creek, 5.0 mi upstream from mouth, and 5.2 mi northeast of McGregor.

DRAINAGE AREA.--182 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1959 to September 1985. October 1985 to current year (peaks above base or annual maximum).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 530.51 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1959, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. Two observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years (1959-1985), 78.4 ft<sup>3</sup>/s (56,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,300 ft<sup>3</sup>/s Oct. 31, 1974 (gage height, 24.62 ft); no flow at times in 1960-64, 1967, 1971, 1978-79, and 1981-84.

EXTREMES OUTSIDE PERIOD OF RECORD.--Historical flood information begins with a flood in 1889, which reached a stage of 28.5 ft. A flood in 1957 reached a stage of 28.2 ft; and floods in 1913 and 1942 or 1943 reached a stage of about 28 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 20	2400	*29,100	*22.58	Feb. 25	1200	11,800	13.05
Dec. 22	1300	8,050	10.58	Mar. 4	0500	8,170	10.67
Feb. 24	2100	9,600	11.65				

BRAZOS RIVER BASIN

285

08095400 HOG CREEK NEAR CRAWFORD, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 31°33'20", long 97°21'22", McLennan County, Hydrologic Unit 12060203, on downstream side of bridge on Farm Road 185, 5.6 mi east of Crawford, and 9.8 mi upstream from South Bosque River.

DRAINAGE AREA.--78.2 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1959 to September 1985, October 1985 to current year (peaks above base or annual maximum).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 560.54 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1959, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow affected at times by discharge from the flood-detention pools of two floodwater-retarding structures with a detention capacity of 9,600 acre-ft. These structure control runoff from 42.0 mi<sup>2</sup> in the Hog Creek drainage basin. Several observations of water temperature made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years (1959-1985), 32.3 ft<sup>3</sup>/s (23,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft<sup>3</sup>/s Oct. 4, 1959 (gage height, 14.31 ft); no flow at times in 1959, 1963-64, 1971, 1978-79, and 1983-85.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 17.5 ft Sept. 26, 1936. Flood in April or May 1957 reached a stage of 15.7 ft, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 21	0030	7,690	9.85	Feb. 25	1100	3,720	7.20

LOCATION.--Lat 31°34'46", long 97°11'51", McLennan County, Hydrologic Unit 12060203, in intake structure at Waco Dam on Bosque River, at northwest edge of city limits of Waco, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--1,652 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1965 to current year. Prior to October 1970, published as Waco Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--The lake is formed by a rolled earthfill dam 24,618 ft long, including spillway. The lake was built for flood control and water conservation. From Oct. 1, 1964, to Feb. 26, 1965, the lake was operated as a detention basin only. On Feb. 26, 1965, old Lake Waco was breached and deliberate impoundment began. The spillway is controlled by fourteen 40.0- by 35.0-foot tainter gates. The outlet works consists of three gate-controlled outlets, 6.7 by 20.0 ft, opening into a 20.0-foot-diameter concrete conduit and two 54-inch concrete pipes. Low-flow releases are made through two 54-inch butterfly valves. Flow into two wet wells is controlled by four 5.0- by 6.0-foot slide gates that are used to release water downstream for the city of Waco municipal water supply. Capacity table No. 2-C is based on a sedimentation survey completed in December 1970. Flow is affected at times by discharge from the flood-detention pools of 44 floodwater-retarding structures with a combined detention capacity of 76,460 acre-ft. These structures control runoff from 248 mi<sup>2</sup> in the Bosque River and Hog Creek drainage basins. An unknown amount of water was diverted for municipal and industrial uses. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	510.0	-
Design flood.....	505.0	824,400
Top of gates.....	500.0	722,500
Crest of spillway.....	465.0	229,900
Top of conservation pool.....	455.0	149,200
Lowest gated outlet (invert).....	400.0	560

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 521,100 acre-ft Dec. 24, 1991 (elevation, 488.48 ft); minimum since initial filling, 86,360 acre-ft Oct. 8, 1984 (elevation, 445.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 521,100 acre-ft Dec. 24 (elevation, 488.48 ft); minimum daily, 146,400 acre-ft Sept. 30 (elevation, 454.61 ft).

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

454.0	142,000	472.0	300,800	484.0	453,500
459.0	179,200	476.0	347,100	486.0	483,000
464.0	220,900	479.0	384,800	488.0	513,600
468.0	258,800	482.0	425,100	489.0	529,200

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149900	186200	150900	461000	194700	352400	178100	151900	156200	151100	149600	147300
2	149900	183100	150600	450100	190400	356400	172200	152200	167100	151100	149900	147500
3	149800	178100	150100	438600	191200	361200	166900	153400	170800	150900	149900	147800
4	149800	173100	150300	426800	235500	398200	163200	153500	173600	150600	149900	148000
5	149500	168400	150800	415300	266100	418800	160000	152200	172900	150300	149900	147900
6	149400	164200	151100	403700	278400	426700	157400	151400	170400	150300	149900	147900
7	149200	160000	151300	391800	287100	431700	154800	150800	168000	150400	149700	147800
8	149100	157000	151900	380600	293300	435800	152700	150600	163700	150500	149600	147700
9	149000	155500	155300	368100	298300	446000	151800	150600	162400	150600	149500	147500
10	148900	153800	154900	353700	299900	445800	151900	150800	158900	150700	149300	148800
11	148800	152100	153800	339400	296400	440400	151900	150900	155800	150700	149300	148800
12	148800	150900	152900	325500	292000	432400	151900	151400	153300	150700	149200	148800
13	148600	150400	152100	311800	286800	422600	151500	151100	151400	150600	149000	148800
14	148400	150200	151400	297900	280300	410700	151500	150200	150400	150600	148900	148800
15	148200	149900	150600	283900	273600	395800	152400	150300	150300	150600	148800	148800
16	148000	150300	150400	268900	266400	379500	153300	152400	151100	150500	148500	148800
17	147900	150900	150600	255500	259000	364100	154400	155500	150900	150500	148300	148700
18	147700	151200	151400	247000	250900	348600	155800	158700	150000	150600	148200	148600
19	147600	152100	155600	238500	241600	333100	156400	162600	151000	151100	148400	148500
20	147500	153000	196700	228100	232400	317400	155000	164100	151700	150900	148300	148300
21	147300	153300	461000	220300	222500	302100	152700	165600	152200	150700	148200	148200
22	147200	153400	509200	216500	215100	287100	151100	171300	153300	150300	148200	148000
23	147200	153200	520900	209600	210000	273700	150900	169600	154700	149900	148000	147700
24	147000	153000	519800	202000	225500	262000	151100	166500	155800	149800	147900	147500
25	147000	152600	515100	194100	297900	248600	150900	163100	156600	149800	147800	147300
26	147100	152300	511500	190000	325800	234000	150600	159300	157600	149700	147700	147100
27	147400	152100	507100	203800	335900	220300	150200	155800	157600	149600	147500	147000
28	156200	151800	500300	203800	342800	210600	150300	154700	156000	149800	147300	146800
29	171700	151600	492100	201600	348200	202100	150800	153300	153400	149700	147200	146700
30	184300	151200	483000	199700	---	193100	151400	151300	151700	149700	147000	146400
31	185200	---	472800	198100	---	184500	---	151900	---	149700	147000	---
MEAN	151700	157200	276600	294400	266800	339900	155100	155700	157600	150400	148600	147900
MAX	185200	186200	520900	461000	348200	446000	178100	171300	173600	151100	149900	148800
MIN	147000	149900	150100	190000	190400	184500	150200	150200	150000	149600	147000	146400
(↑)	459.76	455.28	485.32	461.34	476.09	459.67	455.30	455.38	455.34	455.07	454.70	454.61
(Φ)	+35400	-34000	+321600	-274700	+150100	-163700	-33100	+500	-200	-2000	-2700	-600

CAL YR 1991 MEAN 161300 MAX 520900 MIN 133800 (Φ) +339000  
WTR YR 1992 MEAN 200300 MAX 520900 MIN 146400 (Φ) -3400

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER MAIN STEM

287

08096500 BRAZOS RIVER AT WACO, TX

LOCATION.--Lat 31°32'06", long 97°04'22", McLennan County, Hydrologic Unit 12060202, on left bank 2.2 mi downstream from bridge on LaSalle Avenue and at mile 400.7.

DRAINAGE AREA.--29,573 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--September 1898 to current year (January 1912 to September 1914 monthly records only, published in WSP 1312).

REVISED RECORDS.--WSP 850 and 878: 1899-1900, 1907-9 (monthly and yearly summaries only). WSP 1512: 1901-5, 1910, 1915, 1925-26(M), 1927-29. WSP 1922: 1957. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 349.34 ft above National Geodetic Vertical Datum of 1929. Sept. 14, 1898, to Mar. 28, 1918, May 6, 1922, to Feb. 12, 1925, nonrecording gage, and May 28, 1918, to May 5, 1922, Feb. 13, 1925, to Aug. 14, 1969, water-stage recorder. Prior to Aug. 14, 1969, at site 3.9 mi upstream at datum 7.46 ft higher.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Flow is largely regulated by Lake Whitney and by Waco Lake (stations 08092500 and 08095550). The combined capacity for 18 reservoirs above station is 4,135,000 acre-ft, of which 2,194,000 acre-ft is flood-control storage in Lake Whitney and in Waco Lake. The city of Waco diverts water above station for municipal use, and the Brazos River Authority returns treated sewage effluent to the river above station. There are many other small diversions above station for municipal supply, irrigation, and for oil field operations that will not appreciably affect flow. Flow is affected at times by discharge from the flood-detention pools of eleven floodwater-retarding structures with a combined detention capacity of 6,420 acre-ft. These structures control runoff from 20.4 mi<sup>2</sup> in the Aquilla and Hackberry Creeks drainage basins. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--42 years (water years 1899-1940), 2,560 ft<sup>3</sup>/s (1,855,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEAR 1899-1940).--Maximum discharge, 246,000 ft<sup>3</sup>/s Sept. 27, 1936 (gage height, 40.90 ft), at former site and datum, levee on left bank was overtopped and broken by flood; no flow Aug. 20, 21, 1918, and probably for several days in August 1923.  
Maximum stage since at least 1847, that of Sept. 27, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage for 1847-98, 34.63 ft May 28, 1885, from floodmark at site 3.9 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1890	e22500	e1800	35800	14600	3500	22900	2260	5680	3380	862	902
2	1960	e22800	e1780	36400	14500	3530	21600	2260	8730	4170	317	1230
3	1710	e24000	e1780	34900	15000	3810	8830	2290	2410	3240	392	1610
4	1050	e24100	e1800	34200	19000	15700	5940	3070	970	2630	760	1050
5	1670	e24100	e1500	34600	9690	8690	5430	3130	2290	2660	1040	1120
6	587	e23900	e1600	34100	6850	4770	5350	2930	13600	2630	1210	1120
7	543	e23000	e1650	33700	6230	4380	5100	2690	14500	2860	1190	1110
8	527	e12000	e3500	33300	6130	4230	4270	2540	15800	3810	966	1130
9	514	e7000	e5000	33000	6070	7540	4000	1950	21300	4080	247	1520
10	519	e6450	e3500	33400	7560	12000	3320	1690	24200	3640	406	1300
11	527	e6200	e3700	33600	17200	17100	3230	1670	25400	3860	1260	1540
12	717	e5600	e4100	34700	23900	22100	3200	2480	24600	4570	1110	1210
13	388	e4200	e4500	32700	27200	22900	4930	2870	23600	4960	1090	690
14	385	e3400	e4450	32000	27200	23700	3390	2880	23300	2430	1110	1240
15	414	e3200	e3600	31400	27000	25400	2410	2590	22600	2060	892	1030
16	401	e3050	e4500	31500	26900	30100	1550	2470	21600	1570	230	1270
17	497	e3900	e5800	32000	26300	31000	1520	5180	17800	1310	366	1210
18	510	e3500	e8000	32200	23000	31000	1150	7840	16500	912	695	1040
19	502	e3420	e12500	31800	26600	32400	1080	2870	9100	2220	1180	1390
20	92	e3380	e23000	29700	26300	32400	3400	2540	5040	2250	926	1070
21	35	e3300	e35000	27700	26400	32000	3930	4290	4580	2070	1360	2000
22	550	e3880	e44000	24100	26600	31600	3430	4820	3490	1790	1110	1500
23	728	e3400	e25000	22200	25400	29900	2820	6690	4000	1930	208	48
24	693	e2800	e25000	21100	15200	23300	2660	6700	2730	1750	288	17
25	797	e2300	e30000	16400	19700	22400	2710	5800	2580	1130	823	15
26	655	e2300	e32500	15900	7660	28100	2680	5220	2580	843	1180	15
27	247	e2400	34800	16200	3930	28300	2750	4630	5300	1500	901	122
28	1860	e2700	36100	16500	3520	26300	2390	7490	5500	1390	1050	801
29	e8000	e2200	35900	17100	3390	23000	2380	8560	5640	762	1070	785
30	e17000	e2500	35500	15600	---	22800	2260	6570	4850	1330	638	1030
31	e21500	---	35400	14500	---	24200	---	5930	---	1100	500	---
TOTAL	67468	257480	467260	872300	489030	628150	140610	124900	340270	74837	25377	30115
MEAN	2176	8583	15070	28140	16860	20260	4687	4029	11340	2414	819	1004
MAX	21500	24100	44000	36400	27200	32400	22900	8560	25400	4960	1360	2000
MIN	35	2200	1500	14500	3390	3500	1080	1670	970	762	208	15
AC-FT	133800	510700	926800	1730000	970000	1246000	278900	247700	674900	148400	50340	59730

e Estimated

## BRAZOS RIVER MAIN STEM

08096500 BRAZOS RIVER AT WACO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1992#, BY WATER YEAR (WY)

MEAN	2116	1496	1445	1887	2009	2157	2849	5728	4616	1765	1035	1270
MAX	13540	11150	15070	28140	16860	20260	22470	36340	37140	9427	4376	9492
(WY)	1960	1975	1992	1992	1992	1992	1942	1957	1957	1982	1962	1966
MIN	46.6	55.8	40.8	44.6	28.0	77.3	160	43.5	386	49.2	98.3	97.5
(WY)	1984	1984	1955	1955	1984	1971	1955	1988	1971	1978	1988	1983

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1941 - 1992#	
ANNUAL TOTAL	1406051		3517797			
ANNUAL MEAN	3852		9611			
HIGHEST ANNUAL MEAN					2365	
LOWEST ANNUAL MEAN					9611	1992
HIGHEST DAILY MEAN	44000	Dec 22	44000	Dec 22	322	1984
LOWEST DAILY MEAN	35	Oct 21	15	Sep 25	121000	Apr 22 1945
ANNUAL SEVEN-DAY MINIMUM	343	Mar 2	258	Sep 23	.12	Aug 7 1988
INSTANTANEOUS PEAK FLOW			50000	Dec 21	4.4	May 13 1988
INSTANTANEOUS PEAK STAGE			26.50	Dec 21	144000	Apr 22 1945
INSTANTANEOUS LOW FLOW			15	Sep 25	36.70	Apr 22 1945
ANNUAL RUNOFF (AC-FT)	2789000		6978000		.12	Aug 7 1988
10 PERCENT EXCEEDS	8830		29800		1713000	
50 PERCENT EXCEEDS	1450		3510		4790	
90 PERCENT EXCEEDS	451		710		821	
					137	

# Period of regulated streamflow.



# BRAZOS RIVER MAIN STEM

289

08098290 BRAZOS RIVER NEAR Highbank, TX  
(National stream-quality accounting network)

LOCATION.--Lat 31°08'02", long 96°49'29", Falls County, Hydrologic Unit 12070101, near right bank 45 ft downstream from bridge on Farm Road 413, 1.4 mi downstream from Highbank Slough and Spring Branch, 2.6 mi south of Highbank, and at mile 346.6.

DRAINAGE AREA.--30,436 mi<sup>2</sup>, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 279.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges, records good except those for period March to July, which are fair. Many diversions above station for municipal supply, irrigation, and industrial uses. Flow is affected by 20 upstream reservoirs with a total combined capacity of 4,181,000 acre-ft. Water is diverted from the river about 52 miles upstream from this station by Texas Power and Light Co. to Tradinghouse Reservoir. Flow is affected at times by discharge from the flood-detention pools of 76 floodwater-retarding structures with a total combined detention capacity of 83,290 acre-ft. These structures control runoff from 238 mi<sup>2</sup> in the Aquilla, Tehuacana, Castleman Creeks, and Cow Bayou basins. A U.S. Army Corps of Engineers satellite telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1909, 42 ft in December 1913 and 40 ft in September 1936, from information by local residents.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2530	22500	2620	36100	16100	5100	26300	2820	8540	5790	1280	753
2	2650	24800	2060	37500	16000	4830	25300	2750	22700	4800	1070	1120
3	2750	26300	2070	38200	16300	4640	19900	2770	16500	5410	648	1590
4	2340	26600	2110	37200	22500	14000	8910	2990	7220	4210	520	2050
5	1850	26500	1900	36000	30400	25000	6340	3810	4190	4140	723	1370
6	2330	26300	1670	35900	17500	14500	6010	3960	5710	3470	1230	1410
7	1290	25500	1780	35400	12900	9220	5870	3480	14000	3370	1410	1470
8	1130	22900	1790	34700	9890	6440	5420	3170	14700	3830	1330	1470
9	1100	13100	2150	34400	8260	6430	4910	2930	16600	4750	1100	1490
10	1130	7310	6190	34100	7980	14100	4400	2410	22100	4990	551	1930
11	1090	6850	5660	34300	12000	16600	3800	2130	25400	4400	1200	1830
12	1040	6720	6380	34500	20000	21000	3970	1970	26000	4660	1360	1990
13	1280	6260	6790	34200	25900	25000	3780	2880	25500	5590	1370	1630
14	929	4370	6460	33700	28500	26300	5500	3550	25300	4730	1330	833
15	835	3510	4560	33000	29000	27100	3800	3550	24800	2750	1310	1590
16	870	3370	3600	32500	28700	28800	2750	3630	24000	2460	1100	1250
17	965	4150	3810	32400	28500	31500	1990	5690	22200	2060	594	1570
18	972	4970	5200	34400	28000	32800	1960	13100	18100	1530	435	1370
19	1000	4240	7040	36300	27900	32600	1690	12000	15200	1350	717	1210
20	1020	4010	11800	36200	28100	33200	1380	6190	9220	2460	1400	1650
21	614	3860	49700	33600	28000	33900	3860	5030	5800	2650	1240	1430
22	343	5380	70300	33300	29700	33800	4470	8640	5570	2420	1520	2300
23	679	4270	51900	30100	31500	33400	3900	8190	4330	2190	1430	2080
24	1260	3040	25900	27200	30200	31800	3300	9750	4990	2250	707	513
25	1240	2690	26000	22400	35600	26600	3180	8430	3730	2250	374	247
26	1380	2600	30100	17700	32400	25900	3240	6660	3400	1470	992	195
27	1540	2690	34500	28000	15100	29500	3190	5930	4090	1040	1430	172
28	848	3080	36700	32000	9330	30400	3210	5400	6410	1750	1250	159
29	3770	2830	37400	25500	6470	28800	3020	9970	6810	1620	1460	680
30	12600	3000	37200	21600	---	25700	2780	10700	7130	1090	1440	1030
31	17500	---	36500	17500	---	25700	---	8000	---	808	956	---
TOTAL	70875	303700	521840	989900	632730	704660	178130	172480	400240	96288	33477	38382
MEAN	2286	10120	16830	31930	21820	22730	5938	5564	13340	3106	1080	1279
MAX	17500	26600	70300	38200	35600	33900	26300	13100	26000	5790	1520	2300
MIN	343	2600	1670	17500	6470	4640	1380	1970	3400	808	374	159
AC-FT	140600	602400	1035000	1963000	1255000	1398000	353300	342100	793900	191000	66400	76130

## BRAZOS RIVER MAIN STEM

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1992#, BY WATER YEAR (WY)

MEAN	1896	2241	2210	2765	2842	3325	3419	6340	5660	1941	1113	1293
MAX	13740	18050	16830	31930	21820	22730	15700	30140	17520	10050	2545	9865
(WY)	1982	1975	1992	1992	1992	1992	1977	1990	1989	1982	1991	1966
MIN	93.6	72.6	163	167	30.8	84.7	196	179	382	84.4	167	127
(WY)	1984	1984	1984	1984	1984	1971	1978	1988	1984	1978	1988	1983

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1966 - 1992#	
ANNUAL TOTAL	1725685		4142702		2919	
ANNUAL MEAN	4728		11320		11320	
HIGHEST ANNUAL MEAN					1992	
LOWEST ANNUAL MEAN					1984	
HIGHEST DAILY MEAN	70300	Dec 22	70300	Dec 22	70300	Dec 22 1991
LOWEST DAILY MEAN	154	Jul 13	159	Sep 28	23	Feb 24 1984
ANNUAL SEVEN-DAY MINIMUM	455	Jul 11	428	Sep 24	23	Sep 15 1984
INSTANTANEOUS PEAK FLOW			72200	Dec 22	78700	Feb 4 1986
INSTANTANEOUS PEAK STAGE			30.78	Dec 22	30.78	Dec 22 1991
INSTANTANEOUS LOW FLOW			159	Sep 28	32	Oct 4 1984
ANNUAL RUNOFF (AC-FT)	3423000		8217000		2114000	
10 PERCENT EXCEEDS	10100		32400		6390	
50 PERCENT EXCEEDS	2300		4690		1030	
90 PERCENT EXCEEDS	686		1090		217	

# Period of regulated streamflow.

## BRAZOS RIVER MAIN STEM

291

08098290 BRAZOS RIVER NEAR Highbank, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1967 to current year. Pesticide analyses: November 1976 to June 1981. Sediment analyses: October 1974 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1967 to current year.

WATER TEMPERATURES: November 1967 to February 1984, and December 1989 to current year.

INSURUMENTATION.--Since September 1980, specific conductance is recorded continuously at this station. From October 1980, to February 1984, and since December 1989, water temperature is recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments and siltation over probes. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

## EXTREMES FOR PERIOD in DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,000 microsiemens Aug. 24, 1978; minimum daily, 140 microsiemens Mar. 8, 1984. WATER TEMPERATURES (1980-84, 1989-90): Maximum daily, 35.5°C July 15, 16, 1978; minimum daily, 0.0°C on several days during December 1983 and December 1989.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,810 microsiemens Nov. 8; minimum daily, 259 microsiemens Dec. 22. WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 9-10, 12, 14, 23; minimum daily, 8.5°C Jan. 19-20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
OCT	11...	1230	1290	1670	8.0	22.5	--	--	--	--	--	300	
NOV	19...	1150	4000	1160	7.7	17.0	95	8.8	93	1.5	2800	12000	240
JAN	29...	1205	25100	654	7.4	10.0	130	10.9	97	2.6	1600	2500	190
MAY	19...	1145	11300	390	7.3	23.0	350	8.5	100	3.9	2000	4300	140
AUG	03...	1400	610	1440	8.2	30.5	21	9.8	131	3.3	K220	K20	340
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	
OCT	11...	190	83	22	220	6	6.3	--	--	110	--	190	350
NOV	19...	120	73	14	140	4	6.3	0	142	120	116	130	220
JAN	29...	68	63	7.2	51	2	3.9	0	146	120	120	63	83
MAY	19...	47	46	5.1	24	0.9	4.3	0	109	87	89	39	33
AUG	03...	170	88	28	170	4	5.1	0	198	160	161	190	280
DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	
OCT	11...	0.30	5.8	--	943	--	--	--	--	--	--	--	
NOV	19...	0.40	9.2	648	669	0.960	0.960	0.040	0.040	1.00	1.00	0.110	0.110
JAN	29...	0.30	9.2	361	357	0.750	0.800	0.050	0.010	0.800	0.810	0.070	0.050
MAY	19...	0.30	10	243	241	5.64	5.54	0.160	0.160	5.80	5.70	0.090	0.090
AUG	03...	0.30	8.1	894	868	--	--	0.030	<0.010	<0.050	<0.050	0.040	0.020

## BRAZOS RIVER MAIN STEM

08098290 BRAZOS RIVER NEAR Highbank, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
OCT 11...	--	--	--	--	--	--	--	--	--	--	--
NOV 19...	0.49	0.60	0.160	0.100	0.060	0.070	0.18	284	3070	82	10
JAN 29...	0.33	0.40	0.110	0.050	0.080	0.100	0.25	651	44100	62	110
MAY 19...	0.61	0.70	0.110	0.100	0.070	0.070	0.21	3520	107000	43	20
AUG 03...	0.86	0.90	0.090	<0.010	<0.010	0.040	--	182	300	77	10
DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 11...	--	--	--	--	--	--	--	--	--	--	--
NOV 19...	98	<3	9	16	2	<10	2	<1	<1.0	900	<6
JAN 29...	59	<3	78	15	1	<10	1	<1	<1.0	470	<6
MAY 19...	55	<3	16	8	<1	<10	2	<1	<1.0	490	6
AUG 03...	120	<3	5	22	9	<10	1	<1	<1.0	1300	<6
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)		
OCT. 1991	70875	1490	854	163000	280	53300	180	34000	320		
NOV. 1991	303700	1370	780	640000	240	200500	160	130600	300		
DEC. 1991	521840	668	375	528000	95	133500	70	98500	180		
JAN. 1992	989900	802	451	1205E3	120	314900	85	227800	210		
FEB. 1992	632730	1200	686	1172E3	210	356000	140	236000	270		
MAR. 1992	704660	909	512	974000	140	261900	98	186300	230		
APR. 1992	178130	987	558	268000	150	74300	110	51900	240		
MAY 1992	172480	730	409	191000	100	48000	76	35500	190		
JUNE 1992	400240	1130	639	691000	190	204100	130	137400	260		
JULY 1992	96288	1510	869	226000	290	74200	180	47100	320		
AUG. 1992	33477	1540	884	79900	290	26300	180	16700	320		
SEPT 1992	38 182	1610	928	96100	310	32400	200	20300	330		
TOTAL	4142702	**	**	6233000	**	1780000	**	1222000	**		
WTD.AVG.	11320	984	557	**	160	**	110	**	240		

BRAZOS RIVER MAIN STEM

293

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	e1480	1450	1300	1380	1040	1030	1040	1180	1110	1150
2	---	---	e1610	1450	1280	1350	1080	1030	1060	1280	1140	1190
3	---	---	e1690	1440	1370	1380	1110	1060	1080	1290	1210	1250
4	---	---	e1730	1380	1360	1450	1120	1090	1100	1400	1170	1320
5	---	---	e1710	1360	1340	1380	1120	856	1020	769	492	516
6	---	---	e1730	1390	1340	1370	1030	830	936	558	524	542
7	---	---	e1750	1390	1360	1370	992	841	918	---	559	632
8	---	---	e1740	1810	1370	1540	997	764	934	---	677	1050
9	---	---	e1720	1620	1510	1540	780	735	889	824	750	767
10	---	---	e1710	1570	1390	1530	852	794	826	777	744	759
11	1680	1630	1660	1450	1400	1420	859	639	781	816	753	790
12	1660	1620	1640	1420	1370	1400	639	526	554	834	779	804
13	1630	1590	1610	1380	1360	1370	700	560	629	982	835	881
14	1610	1540	1570	1380	1360	1370	760	690	725	936	694	866
15	1570	1510	1550	1430	1370	1400	807	752	787	720	668	691
16	1560	1510	1520	1440	1410	1420	854	808	829	713	692	709
17	1540	1510	1520	1440	1400	1410	888	842	853	697	669	683
18	1550	1510	1530	1410	1350	1390	860	841	852	704	685	693
19	1570	1530	1550	1350	1150	1230	896	850	874	707	667	693
20	1600	1560	1580	1160	1140	1160	890	755	854	738	670	704
21	1600	1560	1580	1140	1120	1130	755	315	469	775	739	759
22	1570	1540	1550	1210	1130	1150	315	259	281	785	763	773
23	1550	1490	1520	1200	1150	1160	461	286	349	780	735	755
24	1540	1500	1520	1210	1170	1180	490	273	423	830	780	802
25	1570	1510	1550	1240	1200	1220	810	273	606	851	795	832
26	1560	1530	1540	1240	1120	1200	864	811	840	808	772	794
27	1590	1200	1470	1110	1060	1090	869	813	841	797	610	671
28	1560	1200	1340	1060	1030	1050	880	798	849	655	568	599
29	1490	1370	1430	1110	1040	1080	910	868	887	769	652	717
30	1460	1320	1410	1100	1040	1090	953	889	920	836	756	796
31	1380	1230	1300	---	---	---	1110	955	1030	959	836	899
MONTH	1680	1200	1570	1810	1030	1310	1120	259	808	1400	492	809

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1020	959	990	800	760	770	1100	1070	1080	---	---	e1000
2	1030	1020	1020	796	768	778	1140	1090	1110	---	---	e1000
3	1060	1020	1040	---	---	e756	1120	1060	1110	---	---	e1000
4	1020	785	935	786	634	710	1060	930	967	---	---	e900
5	785	676	735	---	---	e585	960	880	920	---	---	e875
6	703	665	683	512	509	510	900	880	889	---	---	e812
7	880	704	774	595	500	532	910	880	893	---	---	e820
8	1080	881	966	717	595	681	900	880	895	---	---	e764
9	1160	1080	1130	868	693	737	920	830	890	---	---	e764
10	1240	1160	1190	844	524	744	950	810	887	---	---	e797
11	1310	1120	1240	851	484	656	---	---	e720	---	---	e815
12	1350	1220	1290	992	851	937	---	---	e750	---	---	e830
13	1370	1340	1360	992	954	972	---	---	e700	---	---	e782
14	1380	1350	1370	972	934	955	---	---	e673	---	---	e753
15	1410	1350	1380	948	910	930	---	---	e740	---	---	e752
16	1450	1410	1440	943	884	915	---	---	e784	---	---	e747
17	1470	1430	1450	947	930	934	---	---	e986	---	---	e633
18	1520	1460	1500	950	920	932	---	---	e990	740	460	547
19	1520	1470	1490	970	910	928	---	---	e1000	460	410	440
20	1500	1470	1480	960	890	936	---	---	e1000	---	---	e493
21	1550	1500	1510	950	940	947	1220	1070	1160	760	440	601
22	1540	1400	1490	960	940	952	1060	950	e1150	770	500	e639
23	1470	1400	1440	960	940	952	---	---	e1250	750	630	719
24	1470	1090	1400	980	950	961	---	---	e960	821	610	872
25	1110	878	1020	970	940	959	---	---	e950	902	820	883
26	878	519	610	990	930	959	---	---	e975	902	824	883
27	1090	599	792	1000	980	990	---	---	e975	871	805	831
28	1060	731	947	1010	980	998	---	---	e980	840	796	815
29	819	711	784	1050	1000	1030	---	---	e980	870	715	804
30	---	---	---	1060	1030	1040	---	---	e1000	760	626	675
31	---	---	---	1070	1040	1050	---	---	---	888	767	861
MONTH	1550	519	1150	1070	484	862	1220	810	945	902	410	778

e Estimated



## BRAZOS RIVER MAIN STEM

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	868	515	756	1290	1260	1280	---	---	e1560	1380	1370	1380
2	616	363	500	1290	1270	1280	---	---	e1480	1370	1350	1360
3	647	475	570	1340	1200	1280	---	---	e1440	1400	1350	1370
4	465	435	441	1370	1240	1300	---	---	e1500	1520	1390	1460
5	486	455	473	1440	1370	1390	---	---	e1510	1580	1470	1520
6	---	---	e647	1470	1440	1460	---	---	e1520	1580	1540	1560
7	1080	1070	1080	1480	1470	1480	---	---	e1520	1700	1560	1630
8	1080	1050	1080	1500	1480	1490	---	---	e1520	1660	1590	1630
9	1180	1050	1120	1580	1500	1530	---	---	e1520	1720	1660	1530
10	1200	1160	1180	1650	1580	1620	---	---	e1630	1760	1690	1710
11	1200	1180	1190	1670	1650	1660	---	---	e1650	1770	1690	1710
12	1180	1100	1130	1680	1650	1670	---	---	e1520	1770	1730	1770
13	1170	1110	1140	1730	1680	1690	---	---	e1510	1740	1570	1650
14	1190	1140	1160	---	---	e1690	---	---	e1510	1580	1530	1570
15	1260	1180	1230	---	---	e1690	---	---	e1510	1610	1530	1570
16	1340	1260	1300	---	---	e1700	---	---	e1530	1580	1530	1650
17	1370	1340	1360	---	---	e1620	---	---	e1550	1690	1660	1690
18	1380	1340	1360	---	---	e1620	---	---	e1620	1680	1660	1670
19	1370	1340	1350	---	---	e1600	---	---	e1600	1690	1660	1670
20	1400	1340	1380	---	---	e1500	---	---	e1550	1690	1640	1660
21	1410	1390	1400	---	---	e1510	---	---	e1600	1670	1630	1660
22	1390	1340	1370	---	---	e1510	---	---	e1600	1680	1620	1650
23	1340	1160	1250	---	---	e1510	---	---	e1600	---	1660	1720
24	1370	1300	1350	---	---	e1500	---	---	e1650	---	---	e1590
25	1370	1360	1370	---	---	e1500	---	---	e1600	---	---	e1650
26	1380	1370	1370	---	---	e1600	1660	1610	1630	---	---	e1700
27	1410	1360	1380	---	---	e1680	1630	1480	1530	---	---	e1700
28	1470	1410	1450	---	---	e1530	1560	1490	1530	---	---	e1700
29	1440	1330	1350	---	---	e1530	1570	1470	1510	---	---	1700
30	1330	1270	1280	---	---	e1570	1470	1400	1440	1470	1270	1400
31	---	---	---	---	---	e1560	1410	1380	1390	---	---	---
MONTH	1470	363	1130	1730	1200	1530	1660	1380	1540	1770	1270	1610
YEAR	1810	259	1170									

e Estimated

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	26.5	23.0	25.0	18.0	17.5	17.5	16.0	13.0	14.5	11.5	11.0	11.5
2	27.0	23.0	25.0	17.5	16.5	17.0	12.5	11.5	12.0	11.5	11.0	11.5
3	28.0	23.5	25.5	17.0	16.0	16.5	12.5	10.5	11.5	11.5	11.0	11.0
4	29.0	24.5	26.5	16.0	15.5	16.0	12.5	10.5	11.5	11.5	11.0	11.0
5	25.5	22.0	23.5	15.5	15.0	15.5	12.5	10.5	11.5	11.5	11.0	11.0
6	23.0	19.5	21.0	16.0	15.0	15.5	14.0	11.5	12.5	11.0	11.0	11.0
7	22.5	17.0	20.0	16.0	15.5	16.0	16.0	14.0	15.0	11.0	11.0	11.0
8	22.5	16.5	19.5	15.5	14.0	14.5	18.5	16.0	17.0	11.0	11.0	11.0
9	23.0	16.5	19.5	14.0	13.0	13.5	19.0	17.5	18.0	11.0	10.5	10.5
10	24.5	17.5	21.0	14.0	13.0	13.5	17.5	16.0	17.0	10.5	10.5	10.5
11	26.0	19.5	22.5	15.0	13.0	14.0	17.5	17.0	17.5	10.5	10.0	10.5
12	26.5	22.5	24.5	15.5	14.0	14.5	17.5	16.5	17.0	10.5	10.0	10.0
13	26.5	22.5	24.5	15.0	14.5	14.5	16.5	15.5	16.0	10.5	10.0	10.5
14	25.5	23.0	24.5	16.0	14.5	15.0	15.5	13.5	15.0	10.5	9.0	10.0
15	24.0	21.0	22.5	17.5	16.0	16.5	13.5	12.5	13.0	10.5	9.5	10.0
16	23.5	20.5	22.0	18.0	17.0	17.5	13.5	11.5	12.5	9.5	9.0	9.0
17	23.5	20.0	21.5	18.0	17.0	17.5	13.0	11.5	12.5	9.0	9.0	9.0
18	24.5	20.5	22.5	17.5	16.0	16.5	13.0	12.5	13.0	9.0	8.5	9.0
19	24.5	21.5	23.0	17.5	16.5	17.0	13.0	12.0	12.5	9.0	8.5	8.5
20	24.5	21.0	22.5	16.5	15.0	16.0	14.0	12.0	12.5	9.0	8.5	9.0
21	24.0	21.0	22.5	15.5	14.0	15.0	15.0	12.5	14.0	9.0	9.0	9.0
22	25.0	21.0	23.0	15.0	13.5	14.5	12.5	11.5	12.0	9.5	9.0	9.5
23	25.0	23.0	24.0	14.0	13.0	13.5	11.5	11.0	11.5	9.5	9.5	e9.5
24	26.0	23.0	24.5	13.0	11.5	12.5	11.5	11.0	11.5	9.5	9.0	9.5
25	25.5	23.5	24.5	13.0	11.0	12.0	11.5	11.0	11.0	10.0	9.0	9.5
26	24.5	23.5	24.0	18.0	13.0	15.5	11.0	11.0	11.0	10.0	9.5	10.0
27	23.0	22.0	22.5	15.0	13.5	14.0	11.0	11.0	11.0	10.5	10.0	10.5
28	24.5	22.0	23.0	16.5	15.0	16.0	11.0	11.0	11.0	10.5	10.0	10.5
29	24.0	20.5	22.5	18.0	16.5	17.0	11.0	10.5	11.0	10.0	10.0	10.0
30	20.5	18.5	19.5	18.0	16.0	17.5	11.5	10.5	11.0	11.0	10.0	10.5
31	18.5	17.5	18.0	---	---	---	11.5	11.0	11.5	11.5	10.5	11.0
MONTH	29.0	16.5	22.5	18.0	11.0	15.5	19.0	10.5	13.0	11.5	8.5	10.0

e Estimated

## BRAZOS RIVER MAIN STEM

295

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	10.5	11.0	16.0	14.0	15.0	17.0	16.0	16.5	21.5	19.5	20.5
2	11.0	11.0	11.0	16.5	15.5	16.0	16.0	15.5	15.5	22.0	20.5	21.5
3	11.0	10.5	11.0	17.0	16.5	16.5	16.0	15.0	15.5	22.5	21.5	22.0
4	11.0	11.0	11.0	17.0	16.5	17.0	17.5	15.5	16.5	23.0	22.0	22.5
5	11.0	10.0	10.5	17.0	16.0	16.5	17.0	16.0	16.5	24.0	22.5	23.5
6	10.5	9.5	10.0	17.5	17.0	17.0	17.5	16.0	17.0	23.5	21.5	23.0
7	10.5	10.0	10.0	19.0	17.5	18.0	19.0	16.5	18.0	21.5	18.0	20.5
8	10.5	10.0	10.5	18.5	18.0	18.0	19.5	17.5	18.5	20.0	18.5	19.5
9	11.0	10.5	10.5	18.5	18.0	18.0	20.0	18.5	19.5	20.5	19.0	20.0
10	11.5	10.0	10.5	18.0	15.0	16.5	20.5	19.0	20.0	21.0	19.5	20.5
11	11.5	11.0	11.5	15.0	13.5	14.0	20.5	20.0	20.5	22.0	21.0	22.0
12	12.0	11.5	11.5	14.0	13.0	13.5	21.5	20.5	21.0	23.5	22.0	22.5
13	12.0	11.5	12.0	14.5	13.5	14.0	22.0	21.0	21.5	25.0	22.5	24.0
14	12.0	11.5	12.0	15.0	13.5	14.5	22.0	21.0	21.5	25.0	23.5	24.5
15	12.0	11.5	12.0	15.5	14.0	15.0	21.5	21.0	21.5	24.0	20.5	23.0
16	12.0	11.5	12.0	15.5	14.5	15.0	21.5	20.5	21.0	22.5	21.0	22.0
17	12.0	11.5	12.0	15.0	15.0	15.0	21.0	19.5	20.5	22.5	22.0	22.5
18	12.0	11.5	12.0	15.5	14.5	15.0	20.5	19.5	20.0	23.0	22.0	22.5
19	12.5	11.5	12.0	15.5	14.5	15.0	20.5	19.0	20.0	24.0	22.5	23.5
20	12.5	11.5	12.0	15.5	14.5	15.0	20.0	18.0	19.0	26.0	23.5	24.5
21	12.5	12.0	12.0	15.5	15.0	15.0	21.5	19.5	20.5	24.5	23.5	24.0
22	13.0	12.5	12.5	15.0	14.5	15.0	22.0	19.5	21.0	24.0	23.5	24.0
23	13.0	12.5	13.0	15.0	14.0	14.5	21.5	20.5	21.0	25.0	24.0	e24.5
24	13.5	13.0	13.5	15.0	14.5	14.5	22.0	20.5	21.5	25.5	24.5	25.0
25	13.5	12.0	12.5	16.0	14.5	15.5	20.5	18.5	20.0	25.0	24.0	25.0
26	11.5	10.5	11.0	16.0	15.0	15.5	20.0	18.5	19.5	24.0	23.5	24.0
27	11.5	10.0	10.5	15.5	15.5	16.0	20.0	19.0	19.5	24.0	23.5	23.5
28	14.0	11.5	12.5	16.0	15.5	15.5	21.0	19.5	20.5	23.5	23.0	23.5
29	15.0	13.5	14.0	17.0	15.5	16.0	21.0	19.5	20.5	23.0	21.5	e22.0
30	---	---	---	16.5	16.0	16.0	20.5	19.5	20.0	21.5	21.0	21.5
31	---	---	---	17.0	15.5	16.5	---	---	---	22.0	21.5	22.0
MONTH	15.0	9.5	11.5	19.0	13.0	15.5	22.0	15.0	19.5	26.0	18.0	22.5

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	23.0	21.5	22.0	28.5	28.0	28.0	30.5	30.0	30.0	28.5	27.0	27.5
2	22.5	21.0	22.0	29.0	27.5	28.5	30.5	30.0	30.0	30.0	26.0	28.0
3	24.0	22.5	23.5	29.0	29.0	29.0	30.0	29.0	29.5	29.5	27.0	28.5
4	26.5	24.0	25.5	29.0	29.0	29.0	29.5	29.0	29.5	30.0	27.0	28.5
5	27.0	25.0	26.0	29.0	28.5	29.0	31.0	29.5	30.0	30.0	27.0	28.5
6	27.0	25.5	26.0	28.5	28.0	28.5	30.0	30.5	31.0	30.5	27.5	29.0
7	25.5	23.5	24.5	28.0	28.0	28.0	30.0	30.5	31.0	31.0	27.5	29.0
8	24.5	23.0	24.0	28.0	28.0	28.0	30.0	31.0	31.5	31.5	28.0	29.5
9	24.0	23.5	24.0	28.5	28.0	28.5	30.0	31.0	31.5	31.0	28.0	29.5
10	24.5	23.5	24.0	28.5	28.0	28.5	29.5	31.0	29.0	30.5	28.0	29.0
11	25.0	24.0	24.5	28.5	28.0	28.5	31.5	30.5	31.0	30.0	27.0	28.5
12	24.5	23.5	24.5	28.5	28.0	28.0	33.0	31.0	32.0	30.0	27.5	29.0
13	24.5	24.0	24.5	28.0	28.0	28.0	32.5	31.0	32.0	29.5	27.5	28.5
14	25.0	24.0	24.5	28.0	27.5	28.5	33.0	31.0	31.5	29.5	27.0	28.5
15	25.5	24.0	25.0	28.5	28.5	28.5	32.0	31.0	31.5	29.5	27.0	28.5
16	25.5	24.0	25.0	28.5	28.5	28.5	31.5	29.5	30.5	29.5	26.5	28.0
17	26.0	25.0	25.5	28.5	28.0	28.5	30.5	28.5	29.5	29.5	27.0	28.0
18	26.0	25.5	26.0	28.0	28.0	28.0	29.0	28.0	28.5	30.0	27.0	28.5
19	27.0	25.5	26.5	28.0	27.5	27.5	29.5	28.0	28.5	30.5	27.5	29.0
20	27.0	26.5	27.0	27.5	27.5	27.5	31.0	28.5	29.5	30.0	27.0	28.5
21	27.5	27.0	27.0	28.0	27.5	27.5	31.5	29.0	30.0	29.5	27.0	28.0
22	27.5	27.0	27.0	28.0	27.5	27.5	32.5	30.0	31.0	28.0	26.0	27.0
23	27.0	27.0	27.0	28.5	28.0	28.0	33.0	31.0	32.0	27.0	25.0	26.5
24	27.5	27.0	27.0	29.5	28.0	28.5	32.0	30.5	31.0	25.0	23.0	24.0
25	27.5	27.5	27.5	29.5	28.5	29.0	32.0	29.5	29.0	24.5	19.5	22.5
26	28.0	27.5	28.0	29.5	29.0	29.0	31.5	28.0	30.0	28.5	22.5	25.0
27	28.5	28.0	28.0	29.0	29.0	29.0	29.5	27.5	29.0	26.5	21.0	24.0
28	28.5	28.5	28.5	30.0	29.0	29.5	30.0	26.0	28.0	26.0	19.0	22.0
29	29.0	28.0	28.5	30.0	29.5	29.5	29.5	25.5	27.5	25.0	18.0	22.0
30	29.0	28.0	28.5	30.0	29.0	29.5	29.5	25.5	27.5	24.0	20.5	22.5
31	---	---	---	29.0	28.0	28.5	28.5	26.0	27.5	---	---	---
MONTH	29.0	21.0	25.5	30.0	27.5	28.5	33.0	25.5	30.0	31.5	18.0	27.0
YEAR	33.0	8.5	20.0									

e Estimated

## BRAZOS RIVER BASIN

08099100 LEON RIVER NEAR DE LEON, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°10'25", long 98°31'58", Comanche County, Hydrologic Unit 12070201, on left bank at downstream end of bridge on State Highway 16, 1.5 mi upstream from Flat Creek, 4.4 mi northeast of De Leon, 6 mi downstream from Hog Creek, and 250.1 mi upstream from mouth.

DRAINAGE AREA.--479 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1960 to September 1985 (continuous-record station); October 1985 to current year, (flood-hydrograph partial-record station).

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,209.93 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 22, 1960, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Beginning Oct. 1, 1985, only daily discharges greater than 600 ft<sup>3</sup>/s are published. Flow is regulated by Leon Reservoir (capacity 40,200 acre-ft), about 17.5 mi upstream. There are numerous diversions above station for municipal, steam powerplant operation, and other uses. Recording rain gage was discontinued May 31, 1978. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s Apr. 26, 1990 (gage height, 19.00 ft, from floodmarks), from rating curve extended above 17,600 ft<sup>3</sup>/s; prior to Apr. 26, 1990, maximum discharge, 7,540 ft<sup>3</sup>/s June 21, 1968, (gage height, 15.50 ft); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 19.3 ft occurred in May 1908 at a point 2,000 ft downstream from present gage site and is the highest since that time, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 29	0830	2,750	12.85	Mar. 6	1900	2,940	12.91
Dec. 21	0100	10,400	16.35	Aug. 3	0300	1,510	10.57
Feb. 5	0200	3,690	13.55	Sept. 1	1600	1,600	10.79
Feb. 26	0600	3,750	13.59				

## BRAZOS RIVER BASIN

297

08099100 LEON RIVER NEAR DE LEON, TX--Continued  
(Flood-hydrograph Partial-record Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, and October 1990 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DTS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 06...	1040	53	1010	8.1	9.5	21	8.4	10.1	92	0.8	310
JAN 22...	1750	147	1120	8.1	8.5	42	37	11.8	105	0.4	310
MAR 25...	0830	52	1800	8.1	14.0	15	4.7	8.9	90	0.4	500
MAY 06...	1345	20	2460	8.2	22.0	10	3.5	9.4	112	0.5	610
JUL 07...	0935	29	1060	8.1	25.5	20	16	7.1	91	0.9	280
AUG 05...	1702	102	717	8.1	28.5	20	37	6.8	92	1.9	210
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 06...	100	94	18	86	2	6.2	210	72	160	0.30	11
JAN 22...	140	94	17	100	2	5.9	160	67	210	0.20	8.8
MAR 25...	250	150	30	170	3	5.0	250	140	340	0.30	11
MAY 06...	360	180	40	260	5	5.3	260	180	560	0.40	12
JUL 07...	140	84	16	110	3	5.7	130	65	220	0.20	8.5
AUG 05...	90	62	13	60	2	5.4	120	61	120	0.20	7.2
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 06...	572	13	2	11	0.190	0.020	0.210	0.050	0.35	0.40	0.040
JAN 22...	602	41	<1	--	0.150	0.040	0.190	0.090	0.51	0.60	0.110
MAR 25...	995	8	8	0	--	<0.010	0.130	0.030	0.27	0.30	0.020
MAY 06...	1390	13	13	0	--	0.010	<0.050	0.020	0.18	0.20	0.020
JUL 07...	590	32	5	27	0.051	0.020	0.071	0.030	0.47	0.50	0.050
AUG 05...	401	97	5	92	--	0.030	<0.050	0.050	0.45	0.50	0.140
DATE	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 06...	0.020	5.6	--	--	--	--	--	--	--	--	--
JAN 22...	0.090	6.9	2	140	<0.5	<1.0	<5	<3	<10	9	<10
MAR 25...	0.020	5.0	--	--	--	--	--	--	--	--	--
MAY 06...	0.020	4.2	<1	300	--	<1.0	<1	--	1	10	<1
JUL 07...	0.040	6.6	--	--	--	--	--	--	--	--	--
AUG 05...	0.090	7.9	1	110	<0.5	<1.0	<5	<3	<10	6	<10

## BRAZOS RIVER BASIN

08099100 LEON RIVER NEAR DE LEON, TX--Continued--Continued  
(Flood-hydrograph Partial-record Station)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 06...	--	--	--	--	--	--	--	--	--	--
JAN 22...	18	61	1.2	<10	<10	<1	<1.0	890	<6	5
MAR 25...	--	--	--	--	--	--	--	--	--	--
MAY 06...	--	130	<0.1	--	--	<1	<1.0	--	--	<10
JUL 07...	--	--	--	--	--	--	--	--	--	--
AUG 05...	5	5	<0.1	<10	<10	<1	<1.0	470	<6	5



08099300 SABANA RIVER NEAR DE LEON, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°06'50", long 98°36'19", Comanche County, Hydrologic Unit 12070201, on left bank at downstream end of bridge on Farm Road 587, 0.6 mi downstream from Spring Branch, 4.0 mi west of De Leon, 4.2 mi upstream from Turkey Creek, and 12.2 mi upstream from mouth.

DRAINAGE AREA.--264 mi<sup>2</sup>.

#### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1960 to September 1985 (continuous-record station), October 1985 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,209.59 ft above National Geodetic Vertical Datum of 1929 (levels by State Department of Highways and Public Transportation). Prior to Nov. 22, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Beginning Oct. 1, 1985, only daily discharges greater than 250 ft<sup>3</sup>/s are published. Flow may be slightly affected by Nabors Lake 0.4 mi upstream on Spring Branch. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft<sup>3</sup>/s Apr. 26, 1990 (gage height, 23.65 ft), from floodmark, from rating curve extended above 17,000 ft<sup>3</sup>/s; prior to Apr. 26, 1990, maximum discharge, 10,400 ft<sup>3</sup>/s June 5, 1986, (gage height, 21.99 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 24 ft in May 1908, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	1800	2,530	18.17	Mar. 5	0430	2,880	18.84
Dec. 20	1500	12,100	a21.96	June 9	0900	1,530	13.99
Jan. 19	0200	1,990	a16.38	June 27	1530	1,610	14.44
Jan. 27	0400	1,520	13.92	Aug. 3	0200	1,730	15.07
Feb. 4	1700	3,560	19.91	Sept. 1	1300	2,280	17.43
Feb. 25	0900	3,140	19.29				

a/ From floodmarks.

## BRAZOS RIVER BASIN

08099300 SABANA RIVER NEAR DE LEON, TX--Continued  
(Flood-hydrograph Partial-record Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical and biochemical analyses: October 1990 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 06...	1420	30	915	8.0	10.5	57	23	10.1	94	1.3	320	
JAN 22...	1340	106	1500	8.2	7.0	35	17	12.8	111	0.2	450	
MAR 25...	1035	39	2150	8.2	14.5	15	5.5	9.3	95	0.7	630	
MAY 06...	0928	22	1880	8.2	20.5	20	8.3	7.3	84	0.8	580	
JUL 07...	1235	13	966	8.1	26.0	37	7.1	8.2	105	1.9	320	
AUG 06...	0941	24	484	8.0	25.0	43	62	6.6	83	1.2	160	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS Si02)
NOV 06...		89	93	21	68	2	6.1	230	99	110	0.30	15
JAN 22...		210	120	37	140	3	5.9	250	130	260	0.30	11
MAR 25...		280	160	56	210	4	4.1	350	230	350	0.50	14
MAY 06...		250	150	49	180	3	5.0	330	230	310	0.50	13
JUL 07...		110	90	23	80	2	6.8	210	97	130	0.30	14
AUG 06...		40	48	10	31	1	5.2	120	43	55	0.30	10
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 06...		550	38	8	30	0.260	0.030	0.290	0.070	0.63	0.70	0.130
JAN 22...		854	20	<1	--	0.200	0.020	0.220	0.040	0.56	0.60	0.060
MAR 25...		1240	15	15	0	--	<0.010	0.160	0.010	0.29	0.30	0.020
MAY 06...		1140	25	19	6	0.140	0.020	0.160	0.020	0.38	0.40	0.030
JUL 07...		569	15	8	7	--	0.020	<0.050	0.020	0.78	0.80	0.110
AUG 06...		276	85	7	78	0.220	0.010	0.230	0.040	0.46	0.50	0.110
DATE		PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 06...		0.070	7.9	--	--	--	--	--	--	--	--	--
JAN 22...		0.030	7.7	2	140	<0.5	<1.0	<5	<3	<10	10	<10
MAR 25...		<0.010	4.5	--	--	--	--	--	--	--	--	--
MAY 06...		0.020	6.8	1	150	<0.5	<1.0	<5	<3	<10	9	<10
JUL 07...		0.050	9.2	--	--	--	--	--	--	--	--	--
AUG 06...		0.050	8.0	2	82	<0.5	<1.0	<5	<3	<10	20	<10

BRAZOS RIVER BASIN

301

08099300 SABANA RIVER NEAR DE LEON, TX--Continued--Continued  
(Flood-hydrograph Partial-record Station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 06...	--	--	--	--	--	--	--	--	--	--
JAN 22...	23	120	<0.1	<10	<10	<1	<1.0	1100	<6	5
MAR 25...	--	--	--	--	--	--	--	--	--	--
MAY 06...	35	84	<0.1	<10	<10	<1	2.0	1500	<6	<3
JUL 07...	--	--	--	--	--	--	--	--	--	--
AUG 06...	9	22	<0.1	<10	<10	<1	<1.0	340	<6	9

## 08099400 PROCTOR LAKE NEAR PROCTOR, TX

LOCATION.--Lat 31°58'0", long 98°29'09", Comanche County, Hydrologic Unit 12070201, in intake structure at Proctor Lake on Leon River, 2.0 mi upstream from U.S. Highways 67 and 377, 3.5 mi west of Proctor, and 228.1 mi upstream from mouth.

DRAINAGE AREA.--1,259 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to current year. Prior to October 1970, published as Proctor Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 28, 1963, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a reinforced concrete gated structure and rolled earthfill dam, total length 13,460 ft. The lake was operated as a detention basin from Jan. 30 to July 5, 1963. The gates were closed July 6, 1963, but the lake was operated to elevation 1,156.0 ft until construction was completed. Deliberate impoundment began Sept. 30, 1963. The spillway is a gated concrete gravity structure located on the left bank, with an ogee weir section and stilling basin. The spillway is controlled by eleven 40.0- by 35.0-foot tainter gates. The spillway was designed to discharge 431,800 ft<sup>3</sup>/s at an elevation of 1,201.0 ft. The lake is operated for flood control and water conservation. Inflow is partly regulated by one major reservoir (see station 08099000). Inflow is also affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 43,690 acre-ft. These structures control runoff from 172 mi<sup>2</sup> in the Leon River and Rush Creek drainage basins. The capacity table is based on a survey made in 1946. Borrow is not included in capacity totals. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,206.0	
Design flood.....	1,201.0	433,000
Top of gates.....	1,197.0	374,200
Crest of spillway (top of conservation pool).....	1,162.0	59,400
Lowest gated outlet (invert).....	1,128.0	68

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 383,100 acre-ft May 2, 1990 (elevation, 1,197.63 ft); minimum since first filling of lake, 18,900 acre-ft Oct. 4, 1984 (elevation, 1,149.37 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 290,800 acre-ft Mar. 9 (elevation, 1,190.58 ft); minimum daily, 58,110 acre-ft Oct. 25, 26 (elevation, 1,161.72 ft).

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

1,161.0	54,890	1,175.0	138,700	1,186.0	238,900
1,164.0	69,060	1,178.0	162,700	1,188.0	260,800
1,168.0	91,170	1,181.0	189,200	1,190.0	283,900
1,172.0	116,900	1,184.0	218,100	1,191.0	295,900

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62340	109700	70960	215700	174100	273300	275400	234600	182100	186100	112900	78010
2	61540	109000	70080	214100	175000	273700	274700	232700	182300	183700	112300	82170
3	60740	107600	69110	212600	181500	274400	273900	229500	182600	181500	115200	84380
4	60410	106200	68150	211000	204300	277300	273000	227300	182600	179100	114900	85880
5	60270	104400	67350	209400	218300	282500	272600	224700	182300	176600	112800	85930
6	60230	102000	66460	207600	224600	285500	272100	221700	182200	174300	110600	85470
7	60090	99770	65570	205900	229000	288900	271500	219100	181700	171700	108200	84840
8	59950	97270	64840	203500	230800	289600	270700	216100	182500	169100	105600	84090
9	59900	95050	64020	201200	231500	290800	269900	213300	186000	166300	103100	83300
10	59810	92800	63340	198900	231900	289700	269100	210700	187300	163600	100800	82730
11	59720	90640	62910	196700	232300	289500	268400	207900	187500	160700	98830	82000
12	59620	88680	63820	194600	232700	289000	267600	205500	187500	158100	97080	81270
13	59530	87270	64160	192300	232700	288600	266100	202900	187400	155500	95360	80380
14	59390	86220	63820	189800	232800	288000	264400	200100	187000	152900	93830	79490
15	59210	85360	63300	187600	232800	287400	262700	197200	186500	150300	92620	78670
16	59070	84720	62720	185100	232600	286700	261100	194600	186000	147800	91290	77790
17	58930	83640	62200	183100	232600	286300	260600	192000	185300	145400	89800	76930
18	58840	82790	61770	181200	232200	285900	259800	189300	184800	143300	88500	76010
19	58700	82000	61650	179400	232000	285200	258600	187600	184200	141200	87330	75100
20	58570	80930	115500	177300	231700	284400	256900	185200	183500	138900	86050	74300
21	58480	79990	166900	175400	231500	283600	255300	183900	183500	136700	84840	73510
22	58340	79220	187900	173700	231200	282900	253500	182400	185100	135200	83870	72560
23	58200	78120	203100	171500	230900	282000	251800	181500	186700	132800	82840	71630
24	58160	77200	213000	169000	232700	281200	250300	180700	186600	130200	81830	70750
25	58110	76280	218300	166300	250800	280500	248500	180700	187400	127500	80930	69830
26	58110	75370	220200	165000	260900	279600	246900	180700	188200	124900	80040	69060
27	58330	74410	220600	169900	267300	278900	245100	180700	191100	122400	79000	68200
28	78070	73350	220400	172000	271500	278600	242700	182300	191300	120000	78010	67400
29	93770	72820	219600	173100	272900	278100	240100	182300	190300	117400	76980	66560
30	105900	71890	218400	173700	---	277100	237300	182300	188400	114800	76010	65720
31	109000	---	217100	174000	---	276400	---	182200	---	114700	75370	---
MAX	109000	109700	220600	215700	272900	290800	275400	234600	191300	186100	115200	85930
MIN	58110	71890	61770	165000	174100	273300	237300	180700	181700	114700	75370	65720
(†)	1170.83	1164.55	1183.90	1179.31	1189.06	1189.36	1185.85	1180.23	1180.91	1171.68	1165.21	1163.33
(Φ)	+45900	-37110	+145200	-43100	+98900	+3500	-39100	-55100	+6200	-73700	-39330	-9650

CAI YR 1991 MAX 220600 MIN 53800 (Φ) +157500  
WTR YR 1992 MAX 290800 MIN 58110 (Φ) +2620

(†) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

303

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1964 to July 1982, January 1990 to current year.

315814098291201 - PROCTOR LAKE SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, SATUR- ATION (%)	COIT- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
JAN												
29...	1400	173000	1.00	360	7.8	8.5	0.30	8.4	74	130	K38	120
29...	1402	--	10.0	361	7.8	8.5	--	8.3	73	--	--	--
29...	1404	--	20.0	361	7.8	8.5	--	8.3	73	--	--	--
29...	1406	--	30.0	386	7.8	8.5	--	8.0	70	--	--	--
29...	1408	--	40.0	465	7.7	8.5	--	6.3	55	--	--	--
29...	1420	--	47.0	492	7.7	8.5	--	6.2	55	--	--	160
APR												
29...	0950	240000	1.00	594	8.3	20.0	1.00	7.4	85	K1	K1	190
29...	0952	--	10.0	594	8.2	20.0	--	7.3	83	--	--	--
29...	0954	--	20.0	591	8.2	19.5	--	7.2	82	--	--	--
29...	0956	--	30.0	602	7.5	17.5	--	2.5	27	--	--	--
29...	0958	--	40.0	590	7.4	16.0	--	1.2	13	--	--	--
29...	1000	--	52.0	569	7.4	15.0	--	0.7	7	--	--	190
AUG												
13...	0950	95400	1.00	696	8.2	28.5	1.10	5.4	72	K1	K4	220
13...	0952	--	10.0	696	8.1	28.0	--	5.3	70	--	--	--
13...	0954	--	20.0	696	8.0	27.5	--	4.8	63	--	--	--
13...	0956	--	30.0	682	7.1	22.5	--	0.3	4	--	--	--
13...	0958	--	35.0	682	7.1	22.0	--	0	0	--	--	210

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN											
29...	27	35	7.0	20	0.8	6.2	89	20	41	0.20	5.9
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	43	42	13	30	1	6.3	120	36	58	0.20	7.2
APR											
29...	57	54	13	40	1	6.2	130	42	83	0.20	3.9
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	60	53	13	38	1	5.2	130	39	78	0.20	7.4
AUG											
13...	82	61	17	58	2	6.5	140	47	120	0.30	4.4
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	48	61	15	49	1	6.5	170	35	98	0.20	7.8

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
29...	189	0.230	0.030	0.260	0.090	0.41	0.50	0.150	0.130	22	4
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	0.230	0.030	0.260	0.080	0.42	0.50	0.140	0.120	40	<10
29...	--	--	--	--	--	--	--	--	--	--	--
29...	262	0.160	0.040	0.200	0.140	0.46	0.60	0.130	0.110	19	39
APR											
29...	321	--	<0.010	<0.050	0.010	0.39	0.40	0.050	0.030	10	3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	0.180	0.020	0.200	0.040	0.26	0.30	0.080	0.080	20	20
29...	--	--	--	--	--	--	--	--	--	--	--
29...	310	0.410	0.020	0.430	0.040	0.16	0.20	0.090	0.090	13	310
AUG											
13...	398	--	<0.010	<0.050	0.010	0.59	0.60	0.030	<0.010	<3	2
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	<0.010	<0.050	0.030	0.57	0.60	0.060	0.030	20	170
13...	--	--	--	--	--	--	--	--	--	--	--
13...	375	--	0.010	<0.050	0.500	0.50	1.0	0.380	0.320	350	2300



## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

315823098282801 - PROCTOR LAKE SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
29...	1345	1.00	366	7.8	8.5	8.3	73
29...	1347	10.0	366	7.8	8.5	8.3	73
29...	1349	20.0	367	7.8	8.5	8.2	72
29...	1351	30.0	370	7.8	8.5	8.1	71
29...	1353	40.0	456	7.8	8.5	7.0	62
29...	1355	47.0	466	7.8	8.5	6.7	59
APR							
29...	0930	1.00	590	8.1	19.5	7.0	79
29...	0932	10.0	590	8.1	19.5	6.9	78
29...	0934	20.0	590	8.0	19.0	6.8	76
29...	0936	30.0	588	7.5	17.0	2.7	29
29...	0938	40.0	576	7.4	15.5	1.7	18
29...	0940	45.0	565	7.4	15.0	1.3	13
29...	0942	52.0	558	7.4	15.0	0.7	7
AUG							
13...	0935	1.00	696	8.2	28.5	5.3	71
13...	0937	10.0	696	8.1	28.0	5.1	68
13...	0939	20.0	700	7.5	27.0	1.4	18
13...	0941	30.0	674	7.1	21.5	0	0

315832098302301 - PROCTOR LAKE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
29...	1430	1.00	372	7.8	9.0	8.3	74
29...	1432	10.0	380	7.8	8.5	8.2	72
29...	1434	20.0	380	7.8	8.5	8.0	70
29...	1436	30.0	443	7.8	8.5	7.1	63
29...	1438	40.0	547	7.7	8.5	5.8	51
APR							
29...	1020	1.00	605	8.3	20.5	7.6	88
29...	1022	10.0	604	8.3	20.5	7.5	87
29...	1024	20.0	594	7.7	18.5	4.8	53
29...	1026	30.0	590	7.6	17.5	3.0	33
29...	1028	40.0	594	7.5	16.0	1.3	14
29...	1030	47.0	576	7.5	15.5	0.6	6
AUG							
13...	1010	1.00	700	8.2	29.0	5.8	78
13...	1012	10.0	700	8.2	28.5	5.4	72
13...	1013	20.0	700	7.8	28.0	3.7	49
13...	1015	27.0	686	7.1	23.0	0	0

315837098314201 - PROCTOR LAKE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
29...	1445	1.00	428	7.8	9.0	8.3	74
29...	1447	10.0	442	7.8	9.0	7.9	70
29...	1449	25.0	785	7.6	8.5	4.5	40
APR							
29...	1040	1.00	616	8.4	20.5	7.6	88
29...	1042	10.0	616	8.3	20.5	7.4	85
29...	1044	20.0	605	7.5	16.5	1.7	18
29...	1046	32.0	592	7.5	16.0	0.7	7
AUG							
13...	1030	1.00	700	8.1	29.0	5.3	72
13...	1032	15.0	700	8.1	29.0	5.2	70

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

315943098273101 - PROCTOR LAKE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
29...	1235	1.00	288	7.9	9.0	8.0	71
29...	1237	10.0	288	7.9	8.5	8.3	73
29...	1239	20.0	288	7.8	8.5	8.2	72
29...	1241	29.0	316	7.8	8.5	6.6	58
APR							
29...	0810	1.00	588	8.4	20.5	8.6	99
29...	0812	10.0	588	8.1	19.5	7.3	83
29...	0814	20.0	616	7.5	17.5	2.1	23
29...	0816	35.0	572	7.4	15.5	1.1	11
AUG							
13...	0830	1.00	696	7.5	27.5	2.3	30
13...	0832	10.0	696	7.5	27.5	1.9	25
13...	0834	17.0	700	7.3	26.5	0.4	5

315924098285501 - PROCTOR LAKE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
JAN											
29...	1255	1.00	380	7.8	9.0	0.30	8.6	77	K36	48	110
29...	1257	10.0	380	7.8	9.0	--	8.5	76	--	--	--
29...	1259	20.0	370	7.8	8.5	--	8.4	74	--	--	--
29...	1301	30.0	434	7.8	8.0	--	7.8	68	--	--	--
29...	1303	39.0	458	7.8	8.0	--	7.3	63	--	--	140
APR											
29...	0830	1.00	591	8.2	19.5	1.00	7.4	84	<1	K2	190
29...	0832	10.0	591	8.1	19.5	--	7.2	82	--	--	--
29...	0834	20.0	612	7.7	19.0	--	4.5	51	--	--	--
29...	0836	30.0	609	7.4	16.5	--	0.7	7	--	--	--
29...	0838	45.0	565	7.5	15.5	--	1.3	14	--	--	180
AUG											
13...	0915	1.00	674	8.1	28.5	0.90	5.4	72	<1	<1	200
13...	0917	10.0	674	8.0	28.5	--	4.8	64	--	--	--
13...	0919	15.0	696	7.4	27.5	--	1.0	13	--	--	--
13...	0921	20.0	700	7.3	26.5	--	0	0	--	--	--
13...	0923	27.0	700	7.1	24.5	--	0	0	--	--	210

DATE	HARD- NESS NONCARB DISSOLV F.LD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN											
29...	24	35	6.3	20	0.8	6.5	89	19	42	0.10	6.4
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	37	44	7.8	27	1	6.4	100	25	56	0.20	7.6
APR											
29...	59	55	12	41	1	6.1	130	42	84	0.20	5.3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	59	54	12	38	1	6.1	120	38	78	0.20	7.4
AUG											
13...	74	57	15	55	2	6.5	130	45	110	0.30	4.5
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	55	60	15	53	2	6.6	160	37	110	0.30	7.1

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

315924098285501 - PROCTOR LAKE SITE EC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
29...	189	0.150	0.040	0.190	0.110	0.49	0.60	0.150	0.130	21	3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	0.180	0.030	0.210	0.090	0.41	0.50	0.140	0.130	30	<10
29...	--	--	--	--	--	--	--	--	--	--	--
29...	237	0.070	0.030	0.100	0.150	0.45	0.60	0.140	0.120	21	18
APR											
29...	322	--	<0.010	<0.050	0.020	0.38	0.40	0.050	0.040	4	2
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	<0.010	0.091	0.020	0.38	0.40	0.050	0.060	50	20
29...	--	--	--	--	--	--	--	--	--	--	--
29...	309	0.380	0.030	0.410	0.050	0.35	0.40	0.100	0.100	17	190
AUG											
13...	371	--	<0.010	<0.050	<0.010	--	0.70	0.040	0.010	4	13
13...	--	--	<0.010	<0.050	0.010	0.69	0.70	0.050	0.020	<10	<10
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	<0.010	<0.050	<0.010	--	0.50	0.060	0.030	50	750
13...	386	--	0.020	<0.050	0.540	0.56	1.1	0.310	0.270	640	2200

320040098293501 - PROCTOR LAKE SITE FC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
JAN											
29...	1320	1.00	438	7.8	8.5	0.30	8.7	77	K33	K20	140
29...	1322	10.0	438	7.8	8.5	--	8.5	75	--	--	--
29...	1324	20.0	490	7.8	8.0	--	8.0	70	--	--	--
29...	1326	28.0	547	7.8	8.0	--	7.5	65	--	--	170
APR											
29...	0900	1.00	618	8.2	20.0	0.80	7.4	85	<1	K1	200
29...	0902	10.0	620	8.2	20.0	--	7.4	85	--	--	--
29...	0904	20.0	629	7.9	19.5	--	5.6	63	--	--	--
29...	0906	25.0	646	7.5	18.0	--	2.2	24	--	--	--
29...	0908	33.0	668	7.4	17.0	--	0.2	2	--	--	210
AUG											
13...	0850	1.00	658	8.0	28.5	0.60	5.1	68	K1	<1	190
13...	0852	10.0	758	7.9	28.0	--	4.7	62	--	--	--
13...	0854	16.0	677	7.2	26.5	--	0	0	--	--	210

DATE	HARD- NESS NONCARB DISSOLV FID. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN											
29...	36	43	7.6	28	1	6.2	100	25	55	0.10	7.4
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	51	52	9.9	35	1	6.3	120	31	69	0.10	8.1
APR											
29...	65	58	13	44	1	6.0	130	43	90	0.20	5.4
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	68	62	13	47	1	6.0	140	44	98	0.20	7.8
AUG											
13...	68	54	14	53	2	6.5	120	44	110	0.30	4.3
13...	--	--	--	--	--	--	--	--	--	--	--
13...	66	58	15	53	2	6.5	140	41	110	0.30	5.8

## BRAZOS RIVER BASIN

307

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

320040098293501 - PROCTOR LAKE SITE FC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
29...	234	0.070	0.030	0.100	0.110	0.49	0.60	0.140	0.110	15	3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	283	0.053	0.030	0.083	0.130	0.57	0.70	0.150	0.110	15	7
APR											
29...	339	--	<0.010	<0.050	0.010	0.59	0.60	0.050	0.040	6	3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	0.010	<0.050	0.020	0.48	0.50	0.080	0.050	<10	20
29...	--	--	--	--	--	--	--	--	--	--	--
29...	362	0.220	0.030	0.250	0.070	0.43	0.50	0.110	0.110	8	370
AUG											
13...	361	--	<0.010	<0.050	0.010	0.69	0.70	0.060	0.020	5	13
13...	--	--	<0.010	<0.050	0.010	0.69	0.70	0.060	0.020	10	50
13...	376	--	0.020	<0.050	0.150	0.55	0.70	0.170	0.100	330	1300

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake AC (315814098291201)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-29-92
Time	1400
<hr/>	
TOTAL CELLS/mL	5,131,613
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella meneghiniana</i>	31,290
Order Pennales	
<i>Cocconeis placentula</i> var. <i>euglypta</i>	7,823
<i>Navicula cryptocephala</i>	7,823
<i>Nitzschia palea</i>	7,823
<i>Surirella ovata</i>	7,823
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	31,290
<i>Chlamydomonas</i> sp.	219,032
<i>Chlorella ellipsoidea</i>	156,452
<i>Chlorococcum humicola</i>	31,290
<i>Selenastrum minutum</i>	62,581
<i>Tetraedron minimum</i>	31,290
CHRYSOPHYTA	
Unknown flagellate	406,774
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,817,419
<i>Aphanothece nidulans</i>	156,452
<i>Chroococcus</i> sp.	125,161
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	31,290

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-29-92
Time	1320

<b>TOTAL CELLS/mL</b>	3,786,129
<b>NUMBER OF SPECIES</b>	13
<b>DEPTH COLLECTED (ft.)</b>	0.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella meneghiniana</i>	31,290
Order Pennales	
<i>Navicula cryptocephala</i>	20,860
<i>Navicula radiosa</i>	10,430
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	62,581
<i>Chlamydomonas</i> sp.	312,903
<i>Chlorella ellipsoidea</i>	219,032
<i>Chlorococcum humicola</i>	93,871
CHRYSOPHYTA	
Unknown flagellate	312,903
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,440,645
<i>Aphanocapsa elachista</i>	62,581
<i>Chroococcus</i> sp.	125,161
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	31,290
<i>Rhodomonas minuta</i>	62,581



## Proctor Lake AC (315814098291201)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-29-92
Time	0950

TOTAL CELLS/mL	472,567
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	13,3014
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	12,700
<i>Chlamydomonas</i> sp.	668
<i>Scenedesmus quadricauda</i>	2,674
<i>Schroederia judyi</i>	2,674
<i>Selenastrum</i> sp.	4,010
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	187,155
<i>Aphanocapsa elachista</i>	40,105
<i>Merismopedia tenuissima</i>	74,862
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	2,005
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	12,700

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-29-92
Time	0900

TOTAL CELLS/mL	271374
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	1.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	26,677
<i>Melosira varians</i>	728
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	6,016
<i>Chlamydomonas</i> sp.	3,342
<i>Pediastrum duplex</i>	668
<i>Scenedesmus quadricauda</i>	1,337
<i>Schroederia judayi</i>	668
<i>Selenastrum</i> sp.	1,337
CYANOPHYTA	
<i>Anabaena</i> sp.	13,368
<i>Aphanocapsa delicatissima</i>	153,734
<i>Aphanocapsa elachista</i>	33,421
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	10,026
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	20,052

## Proctor Lake AC (315814098291201)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	0950
<hr/>	
TOTAL CELLS/mL	800084
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.8
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	6,352
<i>Melosira varians</i>	2,779
<i>Stephanodiscus astraea</i>	227
Order Pennales	
<i>Fragilaria crotonensis</i>	6,895
<i>Fragilaria vaucherie</i>	6,649
<i>Nitzschia palea</i>	246
<i>Synedra ulna</i>	246
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	169,108
<i>Cosmarium</i> sp.	2,005
<i>Pediastrum duplex</i>	668
<i>Scenedesmus quadricauda</i>	668
CHRYSOPHYTA (Golden-brown algae)	
<i>Mallomonas</i> sp.	668
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	153,734
<i>Aphanizomenon flos-aquae</i>	142,371
<i>Aphanocapsa delicatissima</i>	106,946
<i>Merismopedia tenuissima</i>	189,828
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	1,337
<i>Trachelomonas</i> spp.	3,342
PYRRHOPHYTA (Dinoflagellates)	
<i>Peridinium</i> sp.	668
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas ovata</i>	5,347

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	0850

TOTAL CELLS/mL	628,303
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	10,521
<i>Melosira varians</i>	5,983
<i>Stephanodiscus astraea</i>	206
Order Pennales	
<i>Fragilaria crotonensis</i>	3,862
<i>Fragilaria vaucherie</i>	4,827
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	53,473
<i>Cosmarium</i> sp.	668
<i>Pediastrum duplex</i>	668
<i>Scenedesmus bijuga</i>	668
<i>Scenedesmus quadricauda</i>	668
CHRYSTOPHYTA (Golden-brown algae)	
<i>Mallomonas</i> sp.	668
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	56,815
<i>Aphanizomenon flos-aquae</i>	240,628
<i>Aphanocapsa delicatissima</i>	140,366
<i>Merismopedia tenuissima</i>	93,577
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	2,005
<i>Trachelomonas</i> spp.	6,016
PYRRHOPHYTA (Dinoflagellates)	
<i>Ceratium cornutum</i>	2,005
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	1,337
<i>Cryptomonas ovata</i>	3,342

## BRAZOS RIVER BASIN

08099500 LEON RIVER NEAR HASSE, TX

LOCATION.--Lat 31°57'28", long 98°27'32", Comanche County, Hydrologic Unit 12070201, at left bank near upstream end of bridge on U.S. Highways 67 and 377, 500 ft upstream from Gulf, Colorado, and Santa Be Railway Co. bridge, 0.3 mi upstream from Walnut Creek, 2.0 mi downstream from Proctor Lake, 2.1 mi northeast of Hasse, and 225.2 mi upstream from mouth.

DRAINAGE AREA.--1,261 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, October 1990 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
JAN 29...	0955	668	386	7.8	8.5	90	33	10.9	96	1.0	120
APR 29...	1135	1990	595	7.8	19.5	30	10	8.1	91	2.2	190
AUG 13...	1140	1310	697	8.0	27.0	23	7.5	5.9	77	2.6	210
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
JAN 29...	34	37	7.8	23	0.9	6.7	90	22	43	0.20	6.3
APR 29...	59	53	14	41	1	5.2	130	43	85	0.20	5.1
AUG 13...	65	57	16	55	2	6.6	140	46	120	0.30	5.4
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
JAN 29...	201	1	<1	--	0.240	0.040	0.280	0.090	0.41	0.50	0.160
APR 29...	326	107	4	103	0.044	0.010	0.054	0.030	0.37	0.40	0.060
AUG 13...	394	35	15	20	--	0.020	<0.050	0.090	0.61	0.70	0.130
DATE	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALI, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
JAN 29...	0.130	6.3	<1	69	<0.5	<1.0	<5	<3	20	76	<10
APR 29...	0.050	7.4	1	86	<0.5	<1.0	<5	<3	20	21	<10
AUG 13...	0.080	7.8	3	88	<0.5	<1.0	<5	<3	<10	24	<10
DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
JAN 29...	<4	13	<0.1	<10	<10	<1	<1.0	210	<6	6	
APR 29...	6	9	<0.1	<10	<10	<1	<1.0	360	<6	4	
AUG 13...	7	350	--	<10	<10	<1	<1.0	440	<6	5	

## BRAZOS RIVER BASIN

315

## 08100000 LEON RIVER NEAR HAMILTON, TX

LOCATION.--Lat 31°47'19", long 98°07'16", Hamilton County, Hydrologic Unit 12070201, at downstream side of bridge on U.S. Highway 281, 2.2 mi upstream from Mesquite Creek, 3.6 mi downstream from Bear Creek, 5.9 mi north of Hamilton, and 172.9 mi upstream from mouth.

DRAINAGE AREA.--1,891 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1925 to September 1931, September 1960 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 955.38 ft above National Geodetic Vertical Datum of 1929. Jan. 7, 1925, to Sept. 30, 1931, nonrecording gage 1.4 mi downstream at datum 1.87 ft higher. Sept. 1 to Nov. 22, 1960, nonrecording gage at same site and at 5.00-foot higher datum. Nov. 22, 1960, to Sept. 30, 1972, recording gage at same site and at 5.00-foot higher datum.

REMARKS.--No estimated daily discharges. Records good. Since 1960, at least 67 percent of the drainage area above this station has been regulated by Proctor Lake (station 08099400) 54 miles upstream and by several other smaller reservoirs. There are numerous diversions above station for irrigation, municipal supply, and for industrial uses. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 11,610 acre-ft. These structures control runoff from 43.9 mi<sup>2</sup> in the northeast tributaries drainage basin. Several observations of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION 9 years (water years 1926-31, 1961-63) prior to regulation by Proctor Lake 148 ft<sup>3</sup>/s (107,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1926-31, 1961-63).--Maximum discharge, 18,600 ft<sup>3</sup>/s Sept. 9, 1962 (gage height, 26.93 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1858, 38.4 ft in May 1908 and December 1913; flood in September 1911 reached a stage of 37.0 ft, all at present site and datum, from information by local residents. The flood in October 1959 reached a stage of 34.1 ft, present datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	396	507	550	1800	993	1130	788	1370	493	1290	1600	3740
2	396	433	557	1810	993	1060	783	1420	484	1430	1580	2520
3	393	684	559	1770	1880	1050	792	1420	454	1460	1550	907
4	394	863	563	1690	7130	1770	795	1450	428	1440	1760	687
5	354	949	563	1640	9490	2100	789	1500	401	1430	1570	628
6	108	970	554	1600	5320	1440	899	1460	398	1410	1430	598
7	39	1100	551	1570	1800	1170	886	1460	466	1390	1380	582
8	21	1370	558	1540	1470	1090	837	1450	420	1370	1320	569
9	14	1440	553	1590	1290	1470	795	1440	819	1340	1330	553
10	27	1440	540	1700	1200	1170	769	1440	671	1350	1370	535
11	34	1420	544	1700	1440	1040	751	1450	463	1410	1360	514
12	31	1380	568	1730	1620	1020	738	1440	410	1410	1290	527
13	33	1330	579	1720	1210	991	728	1430	450	1400	1120	529
14	37	1230	571	1670	1110	965	758	1390	438	1390	1000	516
15	39	944	553	1650	1050	942	951	1370	393	1360	944	500
16	34	664	540	1680	976	916	1040	1460	374	1350	854	479
17	31	612	511	1680	935	907	1130	1470	359	1320	792	469
18	29	610	493	1970	887	918	1210	1470	351	1320	766	468
19	26	601	602	2090	813	900	1220	1500	346	1380	755	466
20	32	593	13800	2010	788	862	1170	1510	337	1360	746	454
21	34	574	21200	1950	770	847	1100	1610	330	1360	728	449
22	36	575	11200	2090	789	844	1080	1920	373	1440	701	447
23	33	558	5610	1970	797	838	1050	1720	651	1530	580	433
24	34	548	3470	1850	1370	830	1040	1220	483	1470	517	426
25	39	550	1980	1790	5830	822	1030	835	387	1420	499	420
26	50	537	2100	1990	4920	813	1020	774	1130	1420	486	414
27	292	549	2300	3370	2020	803	1010	679	1910	1420	474	408
28	1780	548	2230	3290	1410	835	1000	605	1710	1410	465	403
29	1860	560	2000	1820	1220	918	996	856	1050	1420	450	393
30	2330	556	1820	1210	---	858	1150	635	1120	1400	439	390
31	1020	---	1800	1080	---	812	---	520	---	1360	440	---
TOTAL	9976	24695	80019	57020	61521	32131	28305	40274	18099	43260	30296	20424
MEAN	322	823	2581	1839	2121	1036	943	1299	603	1395	977	681
MAX	2330	1440	21200	3370	9490	2100	1220	1920	1910	1530	1760	3740
MIN	14	433	493	1080	770	803	728	520	330	1290	439	390
AC FT	19790	48980	158700	113100	122000	63730	56140	79880	35900	85810	60090	40510



## BRAZOS RIVER BASIN

08100000 LEON RIVER NEAR HAMILTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992#, BY WATER YEAR (WY)

MEAN	73.7	72.1	138	141	189	168	234	476	363	267	129	115
MAX	719	823	2581	1839	2121	1036	1127	4284	1780	1395	977	961
(WY)	1965	1992	1992	1992	1992	1992	1968	1990	1990	1992	1992	1986
MIN	.044	.041	.040	1.49	1.43	.58	.38	1.16	2.09	.26	3.76	2.41
(WY)	1968	1983	1979	1981	1981	1986	1984	1984	1971	1964	1981	1969

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1964 - 1992#	
ANNUAL TOTAL	142600.8		446020		197	
ANNUAL MEAN	391		1219		1219	
HIGHEST ANNUAL MEAN					3.92	
LOWEST ANNUAL MEAN					1219	
HIGHEST DAILY MEAN	21200	Dec 21	21200	Dec 21	21200	Dec 21 1991
LOWEST DAILY MEAN	1.2	Aug 8	14	Oct 9	.00	Oct 16 1963
ANNUAL SEVEN-DAY MINIMUM	3.1	Aug 3	28	Oct 8	.00	Oct 16 1963
INSTANTANEOUS PEAK FLOW			32100	Dec 20	32100	Dec 20 1991
INSTANTANEOUS PEAK STAGE			35.02	Dec 20	35.02	Dec 20 1991
INSTANTANEOUS LOW FLOW			14	Oct 9	.00	at times
ANNUAL RUNOFF (AC-FT)	282800		884700		142900	
10 PERCENT EXCEEDS	577		1810		540	
50 PERCENT EXCEEDS	44		958		13	
90 PERCENT EXCEEDS	10		395		.59	

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

317

## 08100500 LEON RIVER AT GATESVILLE, TX

LOCATION.--lat 31°25'58", long 97°45'42", Coryell County, Hydrologic Unit 120/0201, on right bank at upstream side of county road bridge, 800 ft downstream from U.S. Highway 84 bridge in Gatesville, 0.3 mi downstream from Dodds Creek, 5.2 mi upstream from Cottonwood Creek, and 99.0 mi upstream from mouth.

DRAINAGE AREA.--2,342 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR IX-76-2: Drainage area.

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 723.85 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1950, to Feb. 8, 1951, nonrecording gage; Feb. 9, 1951, to Jan. 21, 1969, water-stage recorder; all at site 800 ft upstream at same datum.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. Some upstream regulation by Proctor Lake (08099400) since July 6, 1963, and other smaller reservoirs. Flow at times is slightly affected by discharge from 18 floodwater-retarding structures with a combined detention capacity of 12,600 acre-ft. These structures control runoff from 47.0 mi<sup>2</sup> in the northeast tributaries and Pecan Creek drainage basins. There are numerous diversions above station for irrigation, municipal supply, and oil field operation. The city of Hamilton, located about 70 mi upstream from this station, diverts flow from the river for municipal use and returned sewage effluent to the stream. The city of Gatesville obtains all of their municipal water supply from ground-water wells, but discharges sewage effluent back to the Leon River downstream from this station. Several observations of water temperature were made during the year. Gage-height telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION (Corrected).--13 years, (water year 1951-1963), 267 ft<sup>3</sup>/s (193,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1951-1963).--Maximum discharge, 51,200 ft<sup>3</sup>/s Oct. 4, 1959 (gage height, 34.14 ft), from rating curve extended above 41,000 ft<sup>3</sup>/s; no flow at times in 1951-52 and 1954-55.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1854, about 35 ft in May 1908, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	436	1990	648	2200	1830	2150	1040	1150	1120	1160	1360	551
2	435	870	646	2330	1610	1940	995	1400	1320	1270	1510	2350
3	436	625	655	2330	2370	1950	988	1580	898	1440	1740	3510
4	435	717	651	2240	8070	6820	990	1580	786	1490	1670	1350
5	427	823	648	2160	8780	6400	988	1680	726	1470	1810	780
6	428	897	646	2100	8860	3630	1050	1770	805	1460	1720	685
7	322	918	645	2010	8800	2740	1310	1590	772	1430	1480	647
8	149	959	647	1990	5770	2090	1190	1570	715	1400	1390	627
9	76	1160	848	1910	2570	2080	1070	1560	733	1370	1360	610
10	51	1250	726	1850	2200	2520	994	1560	952	1350	1350	591
11	40	1270	672	1930	2010	2050	953	1570	1070	1340	1360	573
12	34	1250	689	2000	2000	1770	923	1580	860	1390	1350	565
13	41	1220	703	2030	2570	1640	900	1590	731	1420	1310	558
14	46	1200	675	2000	2000	1550	886	1550	1450	1400	1180	566
15	40	1150	660	1930	1800	1480	879	1510	790	1390	1020	559
16	41	971	663	1870	1640	1430	1030	1470	651	1370	958	544
17	45	834	654	1890	1470	1360	1570	1700	601	1360	874	524
18	43	777	658	2410	1370	1360	1630	1900	574	2700	808	509
19	40	831	1050	2950	1290	1320	1420	2420	551	1990	784	500
20	38	804	9060	2780	1180	1270	1770	2170	529	1500	780	493
21	36	730	49100	2560	1160	1210	1450	2480	512	1410	767	487
22	34	694	24200	3140	1310	1180	1290	4030	510	1390	748	473
23	38	676	13500	2870	1260	1160	1220	3200	555	1430	729	467
24	40	662	9390	2570	2130	1160	1180	2450	663	1530	685	459
25	43	654	5750	2290	8250	1120	1150	2050	719	1510	612	450
26	40	653	3250	2180	9190	1090	1130	1370	574	1430	586	447
27	49	653	3280	4210	8640	1070	1110	1140	1430	1420	573	441
28	95	655	3140	4390	5990	1110	1090	1060	2080	1460	563	438
29	2260	657	2980	4590	2680	1140	1080	1280	2250	1510	555	438
30	2680	653	2730	4060	---	1190	1080	1170	1270	1420	545	426
31	2570	---	2410	2270	---	1120	---	1100	---	1410	529	---
TOTAL	11488	27203	141974	78047	108800	60100	34356	54230	27197	45620	32706	21616
MEAN	371	907	4580	2517	3752	1939	1145	1749	907	1472	1055	721
MAX	2680	1990	49100	4590	9190	6820	1770	4030	2250	2700	1810	3510
MIN	34	625	645	1850	1160	1070	879	1060	510	1160	529	426
ACFT	22790	53960	281600	154800	215800	119200	68150	107600	53950	90490	64870	42880

## BRAZOS RIVER BASIN

08100500 LEON RIVER AT GATESVILLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992#, BY WATER YEAR (WY)

MEAN	104	116	239	204	324	297	369	708	522	320	146	144
MAX	714	907	4580	2517	3752	1939	1501	4899	2191	1472	1055	868
(WY)	1965	1992	1992	1992	1992	1992	1977	1990	1987	1992	1992	1986
MIN	.42	1.18	.39	1.50	5.02	7.06	.64	4.66	2.22	.17	.041	.000
(WY)	1979	1979	1984	1984	1984	1986	1984	1984	1978	1978	1984	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1964 - 1992#	
ANNUAL TOTAL	2225/4.9		643330			
ANNUAL MEAN	610		1758			
HIGHEST ANNUAL MEAN					291	
LOWEST ANNUAL MEAN					1758	
HIGHEST DAILY MEAN	49100 Dec 21		49100 Dec 21		6.22	
LOWEST DAILY MEAN	4.9 Aug 9		34 Oct 12		.00	
ANNUAL SEVEN-DAY MINIMUM	8.6 Aug 7		38 Oct 18		.00	
INSTANTANEOUS PEAK FLOW			68000 Dec 21		68000	
INSTANTANEOUS PEAK STAGE			35.00 Dec 21		35.00	
INSTANTANEOUS LOW FLOW			34 Oct 12		.00	
ANNUAL RUNOFF (AC-F1)	441500		1276000		210700	
10 PERCENT EXCEEDS	812		2690		702	
50 PERCENT EXCEEDS	79		1220		29	
90 PERCENT EXCEEDS	27		471		1.4	

# Period of regulated streamflow.

\* No flow at times in 1971, 1978-79, and 1984.

## BRAZOS RIVER BASIN

319

## 08101000 COWHOUSE CREEK AT PIDCOKE, TX

LOCATION.--Lat 31°17'05", long 97°53'05", Coryell County, Hydrologic Unit 120/0202, on left bank 125 ft downstream from bridge on Farm Road 116, 0.1 mi downstream from Bee House Creek, 0.6 mi northeast of Pidcoke, 4.9 mi upstream from Table Rock Creek, and 34.6 mi upstream from mouth.

DRAINAGE AREA.--455 mi<sup>2</sup>.

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

REVISIO RECORDS.--WSP 1712: 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 736.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges which are fair. No known diversion above station. Several observations of water temperatures were made during the year. Satellite telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 20	2300	110,000	a/44.3	Mar. 4	0900	8,880	17.66
Jan. 27	0500	5,670	13.90	Apr. 17	1430	7,760	16.43
Feb. 4	1030	17,400	25.52	May 21	1830	11,300	20.18
Feb. 24	2100	10,100	19.00	June 27	0900	3,920	11.56
Feb. 25	1200	13,000	21.82	July 18	0500	3,570	11.04

a/ From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	243	19	407	471	643	235	108	396	185	34	28
2	.39	85	21	589	512	580	231	104	592	157	33	92
3	.38	51	21	418	3860	609	234	102	283	134	39	42
4	.35	38	22	352	11500	4020	230	113	220	122	36	34
5	.22	28	23	364	3080	1650	233	135	198	113	33	28
6	.17	23	22	339	1440	974	503	138	637	103	33	23
7	.16	21	22	336	1090	759	351	106	272	99	30	18
8	.15	19	22	350	908	670	241	93	203	97	28	15
9	.16	17	56	298	813	960	217	87	209	96	26	13
10	.17	15	50	273	743	752	199	85	197	91	25	14
11	.14	13	41	264	680	518	187	169	222	88	24	17
12	.12	13	41	307	662	493	176	145	174	85	24	17
13	.10	12	48	308	614	436	167	89	166	76	22	14
14	.09	11	45	250	557	405	164	81	227	69	22	13
15	.11	11	39	227	499	387	158	79	161	64	24	13
16	.09	12	35	215	409	376	155	148	133	61	25	12
17	.08	31	32	229	380	384	1600	192	120	60	23	12
18	.08	35	39	1090	340	394	456	702	113	615	22	12
19	.10	83	283	806	311	346	349	278	106	56	22	12
20	.12	51	e25600	448	295	314	411	392	102	43	22	11
21	.11	43	e20300	608	282	308	222	3470	97	39	21	11
22	.11	39	e3430	1190	478	311	189	1380	100	40	20	9.5
23	.17	31	e1750	542	387	287	166	423	107	37	18	8.8
24	.23	26	e1240	377	2930	272	153	330	100	35	18	8.8
25	.22	23	e1060	324	7980	264	144	442	90	35	18	8.8
26	.32	22	e1390	979	1720	257	135	416	453	33	17	8.4
27	.41	22	e951	3030	1080	254	126	252	2380	31	16	8.3
28	44	20	665	1060	864	309	120	272	405	32	16	8.3
29	819	21	555	871	732	319	116	290	277	47	15	7.5
30	735	20	479	709	---	260	113	241	214	44	15	7.4
31	192	---	423	567	---	241	---	452	---	37	15	---
TOTAL	1795.22	1079	58/24	18127	45617	18752	7981	11314	8954	2824	736	526.8
MEAN	57.9	36.0	1894	585	1573	605	266	365	298	91.1	23.7	17.6
MAX	819	243	25600	3030	11500	4020	1600	3470	2380	615	39	92
MIN	.08	11	19	215	282	241	113	79	90	31	15	7.4
AC-FI	3560	2140	116500	35950	90480	37190	15830	22440	17760	5600	1460	1040
CFSM	.13	.08	4.16	1.29	3.46	1.33	.58	.80	.66	.20	.05	.04
IN.	.15	.09	4.80	1.48	3.73	1.53	.65	.93	.73	.23	.06	.04

e: Estimated

## 08101000 COWHOUSE CREEK AT PIDCOKE, TX--Continued

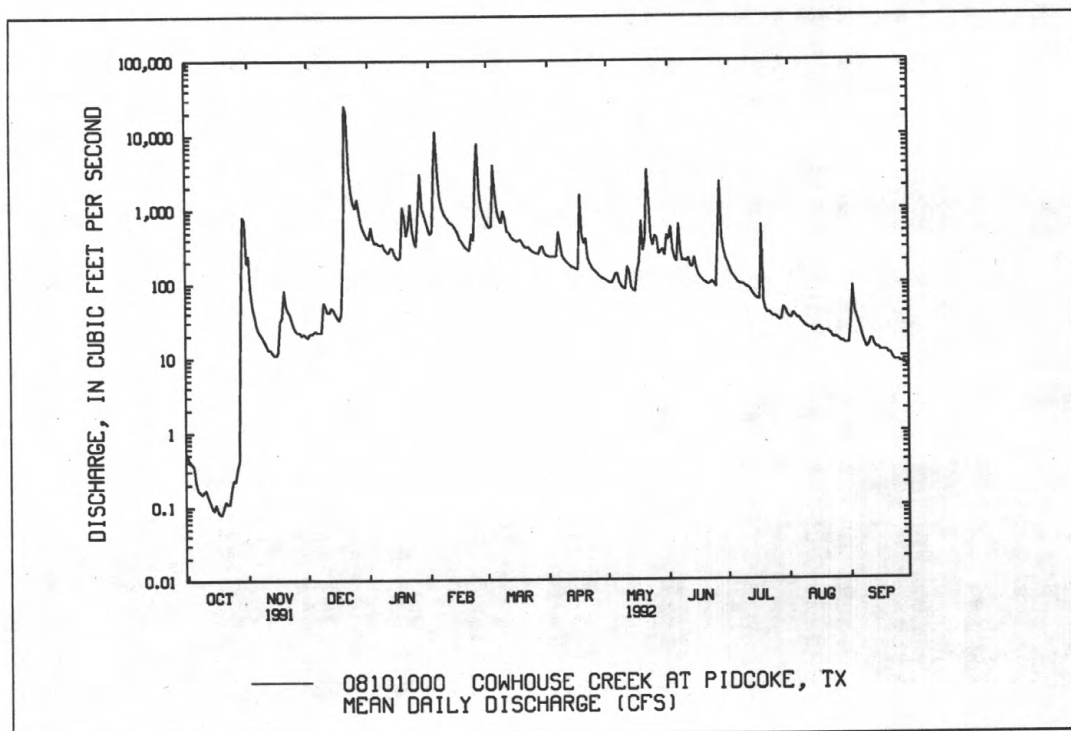
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1992, BY WATER YEAR (WY)

MEAN	90.1	37.7	86.9	75.1	116	101	122	235	115	37.7	17.9	35.8
MAX	1416	425	1894	767	1573	637	1033	2116	702	399	240	433
(WY)	1960	1966	1992	1961	1992	1970	1957	1965	1987	1976	1966	1970
MIN	.000	.000	.000	.000	.000	.010	.000	.76	.073	.000	.000	.000
(WY)	1952	1952	1952	1952	1952	1952	1956	1978	1956	1954	1951	1952

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1951 - 1992
ANNUAL TOTAL	66848.06	176430.02	
ANNUAL MEAN	183	482	89.1
HIGHEST ANNUAL MEAN			482
LOWEST ANNUAL MEAN			1.18
HIGHEST DAILY MEAN	25600 Dec 20	25600 Dec 20	35200 Oct 4 1959
LOWEST DAILY MEAN	.08 Oct 17	.08 Oct 17	.00 May 21 1951
ANNUAL SEVEN-DAY MINIMUM	.09 Oct 13	.09 Oct 13	.00 Jul 6 1951
INSTANTANEOUS PEAK FLOW		a/110000 Dec 20	a/110000 Dec 20 1991
INSTANTANEOUS PEAK STAGE		b/44.30 Dec 20	b/44.30 Dec 20 1991
INSTANTANEOUS LOW FLOW		.08 Oct 17	.00 at times
ANNUAL RUNOFF (AC-FT)	132600	349900	64540
ANNUAL RUNOFF (CFSM)	.40	1.06	.20
ANNUAL RUNOFF (INCHES)	5.47	14.42	2.66
10 PERCENT EXCEEDS	55	773	135
50 PERCENT EXCEEDS	10	118	5.3
90 PERCENT EXCEEDS	.45	11	.00

a/ From rating curve extended above 30,000 ft<sup>3</sup>/s on basis of slope-area measurement of 55,800 ft<sup>3</sup>/s and field (flow over roadway and straight line extension) measurement of 110,000 ft<sup>3</sup>/s.

b/ Maximum stage since at least 1882, from information by local resident.



## 08102000 BELTON LAKE NEAR BELTON, TX

LOCATION.--lat 31°06'22", long 97°28'28", Bell County, Hydrologic Unit 12070201, in intake structure at Belton Dam on Leon River, 1.6 mi upstream from bridge on State Highway 317, 3.5 mi north of Belton, 8.9 mi upstream from Nolan Creek, and 16.7 mi upstream from mouth.

DRAINAGE AREA.--3,531 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1954 to current year. Prior to October 1970, published as Belton Reservoir.  
Water-quality records.--Chemical and biochemical analyses: October 1961 to September 1984.

REVISED RECORDS.--WDR IX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 20, 1955, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,524 ft long, including a 1,300-foot uncontrolled broad-crested spillway in a saddle near left end of dam and a 418-foot-long dike. Deliberate impoundment began Mar. 8, 1954, and the dam was completed in December 1954. The lake was built for flood control and conservation storage. The controlled outlet works consist of a 22.0-foot-diameter conduit that is controlled by three 7.0- by 22.0-foot broome-type gates. The service outlet consists of a 36- by 36-inch gated outlet that discharges into the flood-control conduit. Beginning January 1976, the capacity table is based on a sedimentation survey made in 1966. There are many small diversions upstream for irrigation, municipal supply, and oil field operations. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08100500. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	662.0	-
Design flood.....	656.9	-
Crest of spillway.....	631.0	1,086,000
Top of conservation pool.....	594.0	442,000
Service outlet (invert).....	540.0	51,240
Lowest gated outlet (invert).....	483.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,168,000 acre-ft Mar. 6, 1992 (elevation, 634.36 ft); minimum since initial filling, 113,400 acre-ft Dec. 16, 1956 (elevation, 553.06 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,168,000 acre-ft Mar. 6 (elevation, 634.36 ft); minimum daily, 442,200 acre-ft Oct. 24, 25 (elevation, 594.02 ft).

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

594.0	448,200	616.0	773,100	630.0	1,063,000
600.0	520,500	620.0	848,600	632.0	1,110,000
606.0	606,100	624.0	928,900	634.0	1,159,000
611.0	685,600	627.0	994,100	635.0	1,184,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443600	463700	447200	869400	827300	1151000	1010000	826600	834600	728200	562200	447500
2	443000	463300	446500	867800	826000	1146000	1003000	820300	851500	722100	558400	447400
3	443100	459500	445100	866400	847200	1145000	995000	811700	857200	716000	555100	450100
4	443600	455200	444300	864400	904500	1165000	987600	804800	859300	710000	550800	452600
5	444100	451100	444500	862500	938600	1168000	981300	798400	858500	704000	546500	451200
6	444300	448400	444500	860100	961200	1166000	975300	790000	861900	698100	542300	448600
7	444600	447500	444800	858100	983100	1160000	968600	781900	865600	692100	537700	446000
8	444800	446200	445700	855600	1003000	1153000	961200	773600	861100	685800	533000	445100
9	444800	447000	446800	852700	1018000	1154000	954300	765400	857500	679700	528200	445200
10	444800	448400	446800	848600	1025000	1148000	946600	756900	853200	673800	523200	446000
11	444700	449900	446600	844500	1030000	1144000	939400	750400	849300	667300	518700	446700
12	444600	450000	446100	839400	1036000	1140000	932300	745600	844100	661200	513800	446800
13	444300	449400	445300	834800	1040000	1132000	924800	737800	838700	654700	509000	446700
14	444200	448500	445300	828500	1044000	1126000	917100	730200	832300	649100	504000	446800
15	444000	447700	445200	821600	1046000	1121000	909100	722800	826200	642600	499000	447000
16	443600	447900	445200	814600	1048000	1115000	903800	728600	818900	636600	493300	447000
17	443400	448100	445200	809100	1049000	1108000	901600	730300	812100	630700	487600	446700
18	443400	447000	446300	807600	1047000	1102000	897400	749000	805100	628200	481900	446200
19	443200	446200	449400	804800	1044000	1098000	893300	757800	797800	625700	476600	445700
20	443000	444800	485400	801000	1041000	1089000	887900	763200	790900	621600	470700	445000
21	442900	444300	646100	799700	1036000	1082000	882900	782200	783500	616300	465300	445100
22	442600	444100	747900	799300	1036000	1077000	877300	795600	777100	611300	461400	445100
23	442500	445200	798800	796700	1043000	1069000	872100	801400	769600	605900	457800	444300
24	442200	445300	826400	792200	1067000	1063000	866600	809500	761800	600800	454500	444200
25	442200	445300	845200	787000	1114000	1056000	861100	811200	753800	595800	451200	444000
26	442500	445600	857700	788900	1134000	1049000	855400	817600	747000	591000	449200	444500
27	442900	445800	863400	800400	1147000	1041000	849900	819700	746800	585800	447200	444200
28	444100	446000	867200	808300	1154000	1038000	843900	820500	743100	580900	446600	444000
29	450600	446600	870000	816800	1155000	1032000	837700	820100	738800	576100	446700	443700
30	456300	447500	870900	824600	---	1025000	831000	820100	734400	571600	446800	443600
31	461200	---	870200	828100	---	1017000	---	825000	---	567000	447200	---
MAX	461200	463700	870900	869400	1155000	1168000	1010000	826600	865600	728200	562200	452600
MIN	442200	444300	444300	787000	826000	1017000	831000	722800	734400	567000	446600	443600
(+)	595.52	594.44	621.10	618.94	633.85	628.02	619.09	618.78	613.85	603.34	594.42	594.13
(Φ)	+17500	-13700	+422700	-42100	+326900	-138000	-186000	-6000	-90600	-167400	-119800	-3600

CAI YR 1991 MAX 870900 MIN 440700 (Φ) +424500  
WIR YR 1992 MAX 1168000 MIN 442200 (Φ) -100

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



## BRAZOS RIVER BASIN

## 08102500 LEON RIVER NEAR BELTON, TX

LOCATION.--Lat 31°04'12", long 97°26'28", Bell County, Hydrologic Unit 12070201, on left bank 1,400 ft upstream from bridge on Farm Road 817, 2,000 ft upstream from concrete dam, 1.0 mi upstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.6 mi northeast of Belton, 3.2 mi downstream from Belton Dam, 5.2 mi upstream from Nolan Creek, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--3,542 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to current year.

Water-quality records.--Chemical and biochemical analyses: March 1961 to August 1964. Water temperature: March 1957 to October 1972. Water Temperature recorded continuously from March 1957 to September 1964.

REVISED RECORDS.--WSP 1442: 1925(M), 1935(M), 1936, 1938(M), 1941-42(M), 1944-45(M). WSP 1712: 1937(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder above concrete dam. Datum of gage is 476.68 ft above National Geodetic Vertical Datum of 1929. Prior to May 21, 1931, nonrecording gage.

REMARKS.--No estimated daily discharges. Records good. The city of Temple diverts water from the pool at gage and returns sewage effluent to Little Elm Creek downstream from station. The Brazos River Authority returns sewage effluent to the Leon River downstream from station for their Temple-Belton plant. Flow regulated by Belton (station 08102000) since Mar. 8, 1954. Several observations of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--30 years (water years 1924-53) prior to regulation by Belton Lake, 659 ft<sup>3</sup>/s (477,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1924-53).--Maximum discharge, 56,500 ft<sup>3</sup>/s Apr. 22, 1945 (gage height, 24.41 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 25 ft, and a flood in September 1921 reached a stage of 21 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	376	1140	559	4550	3880	6710	5510	3070	1950	4750	3950	310
2	367	2140	941	4550	3890	5790	5510	5810	1070	4740	3980	515
3	215	2580	1260	4550	3000	5190	5480	5810	107	4740	3960	810
4	13	2580	900	4530	493	7000	5490	5810	483	4740	3950	1630
5	3.5	2580	583	4540	212	9780	5510	5800	1370	4730	3950	1930
6	2.4	2250	594	4540	200	10200	5500	5800	1370	4730	3950	1930
7	.93	1640	587	4550	198	9300	5480	5800	702	4700	3940	1750
8	.81	1140	591	4540	199	7710	5480	5790	1990	4700	3940	941
9	4.3	591	650	4530	200	7030	5480	5790	4480	4680	3930	433
10	4.3	583	934	4850	328	6510	5470	5790	4490	4680	3920	434
11	2.0	581	1070	5340	907	5560	5470	5780	4490	4660	3920	431
12	8.5	1100	1070	5310	1210	5060	5460	5780	4600	4660	3930	434
13	4.3	1530	1070	5580	1210	5400	5450	5780	4780	4640	3910	430
14	9.3	1520	860	5990	1340	5980	5440	5770	4780	4640	3890	424
15	8.7	1520	697	6030	1840	5410	5430	5770	4780	4610	3890	433
16	9.2	1530	707	6020	1970	5110	5260	5780	4780	4590	3880	422
17	9.5	1530	708	6010	1970	5540	4990	3770	4780	4410	3880	518
18	12	1520	709	6020	2350	5570	4780	207	4780	4280	3860	604
19	11	1520	713	6000	3290	5210	4760	176	4770	4280	3870	600
20	11	1520	830	6000	3680	5220	4750	1830	4780	4280	3860	596
21	15	976	576	6000	3880	5600	4750	4150	4780	4270	3570	521
22	18	574	152	6000	4180	5540	4740	2340	4780	4240	2720	462
23	19	572	116	5990	2250	5540	4740	108	4780	4210	2280	462
24	17	564	114	5980	318	5530	4740	2160	4770	4190	2280	325
25	16	572	754	6300	397	5520	4740	3540	4760	4190	2280	298
26	15	564	1920	6600	2210	5520	4730	116	4750	4180	1640	325
27	25	564	2320	5290	4410	5520	4720	675	4760	4160	1150	322
28	14	560	2940	3310	6090	5540	4860	1990	4750	4070	621	314
29	21	564	2960	2230	7100	5520	5130	1990	4750	3950	236	320
30	312	558	3290	2220	---	5520	5260	1990	4760	3950	235	317
31	586	---	4040	3100	---	5510	---	2000	---	3950	235	---
TOTAL	2130.74	37163	35215	157050	63202	190140	155110	116972	112972	137600	95607	19241
MEAN	68.7	1239	1136	5066	2179	6134	5170	3773	3766	4439	3084	641
MAX	586	2580	4040	6600	7100	10200	5510	5810	4780	4750	3980	1930
MIN	.81	558	114	2220	198	5060	4720	108	107	3950	235	298
AC-FT	4230	73710	69850	311500	125400	377100	307700	232000	224100	272900	189600	38160

BRAZOS RIVER BASIN

323

08102500 LEON RIVER NEAR BELTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992#, BY WATER YEAR (WY)

MEAN	368	333	284	492	446	644	587	1026	1150	844	329	179
MAX	3918	3058	1924	5066	2902	6134	5170	4560	6002	6287	3084	1657
(WY)	1960	1960	1961	1992	1961	1992	1992	1990	1957	1957	1992	1986
MIN	2.79	1.07	.67	2.51	2.19	2.56	1.70	.87	.053	.26	1.86	.25
(WY)	1969	1955	1955	1955	1981	1955	1954	1954	1954	1954	1954	1954

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR			FOR 1992 WATER YEAR			WATER YEARS 1954 - 1992#		
ANNUAL TOTAL	138178.74			1122402.74			558		
ANNUAL MEAN	379			3067			3067		
HIGHEST ANNUAL MEAN							4.71		
LOWEST ANNUAL MEAN							1992		
HIGHEST DAILY MEAN	4040			10200			10200		
LOWEST DAILY MEAN	.81			.81			Mar 6 1992		
ANNUAL SEVEN-DAY MINIMUM	2.6			2.6			Oct 1 1953		
INSTANTANEOUS PEAK FLOW				10200			.00		
INSTANTANEOUS PEAK STAGE				9.74			.00		
INSTANTANEOUS LOW FLOW				.81			Oct 1 1953		
ANNUAL RUNOFF (AC-FT)	274100			2226000			56500		
10 PERCENT EXCEEDS	905			5780			24.41		
50 PERCENT EXCEEDS	226			3860			.00		
90 PERCENT EXCEEDS	9.6			200			at times		

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

08103800 LAMPASAS RIVER NEAR KEMPNER, TX

LOCATION.--Lat 31 04'54", long 98°00'59", Lampasas County, Hydrologic Unit 12070203, on left bank 800 ft upstream from centerline of U.S. Highway 190, 0.6 mi upstream from Mesquite Creek, 0.8 mi west of Kempner, 0.9 mi downstream from Sulphur Creek, and 72.3 mi upstream from mouth.

DRAINAGE AREA.--818 mi<sup>2</sup>.

PERIOD OF RECORD. October 1962 to current year.

Water-quality records.--Chemical analyses: March to June 1964, October 1980 to September 1982, October 1987 to August 1990. Biochemical analyses: October 1980 to September 1982, October 1987 to August 1990.

REVISED RECORDS.--WDR IX-76-2: Drainage area.

GAGE. --Water-stage recorder, crest-stage gage and data collection platform (DCP). Datum of gage is 828.38 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 4, 1967, at site 800 ft downstream at present datum.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. At times, flow is affected by discharge from the flood-detention pools of 13 floodwater-retarding structures with a combined detention capacity of 38,570 acre-ft. These structures control runoff from 131 mi<sup>2</sup> in the Sulphur and Bennett Creeks drainage basins. There are many small diversions above station for irrigation and for municipal supply. The city of Lampasas diverts water upstream from this station and returns sewage effluent to Sulphur Creek, upstream from this station. Several observations of water temperature were made during the year. Gage-height telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1871, occurred in September 1873 (stage about 45 ft). Flood of May 13, 1957, reached a stage of 37 ft, and flood of Oct. 4, 1959, reached a stage of 34 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 20	2300	78,000	35.00	May 18	1,100	8,830	10.75
Jan. 27	0400	7,560	9.99	May 21	2,130	6,040	9.13
Feb. 4	1300	25,100	20.28	June 1	2,300	6,840	9.59
Feb. 25	1000	20,900	17.76	June 6	1,430	5,140	8.58
Mar. 4	1100	10,200	11.53	June 27	1,100	10,800	11.90

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	134	45	1130	1110	1830	591	241	1400	347	91	47
2	20	83	47	1250	1270	1690	562	235	2950	297	88	70
3	23	54	47	1020	7940	1730	563	231	1330	252	85	60
4	23	44	45	922	21000	5620	546	445	961	230	85	55
5	17	41	46	969	7790	2990	582	429	803	213	79	49
6	18	37	47	900	e4480	1960	937	282	2140	199	75	49
7	18	36	47	838	e3340	1600	733	238	1370	184	72	49
8	18	35	47	804	e2690	1430	591	228	941	177	70	47
9	16	33	59	702	e2340	2230	522	221	778	168	69	46
10	15	33	58	652	e2160	1430	483	223	724	161	64	49
11	17	32	57	630	1940	1160	460	216	654	155	64	89
12	19	32	62	723	1850	1140	435	240	721	145	64	65
13	20	33	57	666	1770	1040	401	207	725	141	64	51
14	18	36	54	556	1610	984	383	244	585	138	61	47
15	17	38	49	522	1480	922	362	272	509	133	62	49
16	15	39	49	487	1310	894	358	266	453	127	64	48
17	19	73	49	516	1260	914	1420	369	402	122	61	49
18	19	57	58	1280	1140	1130	858	2840	367	155	62	51
19	21	153	185	1140	1070	895	473	674	347	317	54	52
20	16	81	24200	820	1020	816	512	866	327	170	59	50
21	19	48	42500	902	1000	823	372	1850	309	136	59	42
22	20	49	7680	1590	1510	840	331	2460	319	133	56	41
23	21	47	4560	931	1250	762	306	945	375	127	53	41
24	24	45	3370	757	6270	734	292	681	337	122	50	42
25	25	46	2900	692	12500	715	284	622	298	110	49	44
26	26	44	3210	1630	3950	684	270	765	544	105	50	43
27	26	46	2660	4700	2810	667	261	530	2860	102	49	43
28	29	47	2170	2150	2340	1060	257	536	804	100	49	42
29	432	48	1880	1730	2050	970	249	524	674	178	47	35
30	303	48	1530	1470	---	699	246	441	429	111	47	38
31	151	---	1200	1250	---	619	---	932	---	99	45	---
TOTAL	1443	1572	98968	34329	102250	40978	14640	19253	25436	5154	1947	1483
MEAN	46.5	52.4	3193	1107	3526	1322	488	621	848	166	62.8	49.4
MAX	432	153	42500	4700	21000	5620	1420	2840	2950	347	91	89
MIN	15	32	45	487	1000	619	246	207	298	99	45	35
AC-FI	2860	3120	196300	68090	202800	81280	29040	38190	50450	10220	3860	2940

e Estimated

BRAZOS RIVER BASIN

325

08103800 LAMPASAS RIVER NEAR KEMPNER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1992, BY WATER YEAR (WY)

MEAN	96.0	64.6	1/6	123	232	204	177	314	239	64.6	48.0	67.3
MAX	453	398	3193	1107	3526	1502	1106	2995	1716	365	3/8	417
(WY)	1986	1987	1992	1992	1992	1970	1977	1965	1987	1976	1966	1970
MIN	6.73	11.0	11.5	10.3	10.9	13.5	8.86	6.57	5.98	5.78	4.18	8.12
(WY)	1964	1990	1964	1984	1984	1984	1984	1984	1984	1964	1963	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1963 - 1992	
ANNUAL TOTAL	126296		347453		150	
ANNUAL MEAN	346		949		949	
HIGHEST ANNUAL MEAN					10.7	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	42500	Dec 21	42500	Dec 21	42500	Dec 21 1991
LOWEST DAILY MEAN	12	Aug 28	15	Oct 10	1.4	Jul 17 1971
ANNUAL SEVEN-DAY MINIMUM	14	Aug 27	17	Oct 5	2.2	Jul 18 1963
INSTANTANEOUS PEAK FLOW			78000	Dec 20	78000	Dec 20 1991
INSTANTANEOUS PEAK STAGE			35.00	Dec 20	35.00	Dec 20 1991
INSTANTANEOUS LOW FLOW			15	Oct 10	1.4	Jul 17 1971
ANNUAL RUNOFF (AC-FT)	250500		689200		108600	
10 PERCENT EXCEEDS	183		1860		258	
50 PERCENT EXCEEDS	52		268		31	
90 PERCENT EXCEEDS	20		36		11	

## BRAZOS RIVER BASIN

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX  
(Hydrologic bench-mark station)

LOCATION.--lat 30°54'41", long 98°02'12", Burnet County, Hydrologic Unit 12070203, at upstream side of bridge on Ranch Road 963, 6 mi above confluence with North Fork Rocky Creek, 7 mi west of Briggs, and 12.9 mi above mouth.

DRAINAGE AREA.--33.3 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD IX-74-1: 1972-73(P). WDR IX-76-2: Drainage area.

GAGE.--Water-stage recorder, concrete control, and crest-stage gages. Datum of gage is 955.8 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. A recording rain gage located at station. Gage-height telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 20	1900	1,450	6.10	Mar. 3	2330	1,220	5.66
Dec. 21	1145	1,790	6.78	Mar. 4	0730	2,070	7.30
Dec. 22	0815	2,230	7.59	May 25	1900	1,020	5.24
Feb. 3	2315	5,080	11.09	May 31	1230	2,140	7.44
Feb. 4	0600	1,690	6.59	June 1	2330	1,090	5.40
Feb. 11	1845	6,140	12.00				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	14	8.0	65	68	81	33	7.7	141	14	1.5	.00
2	.37	9.4	8.0	61	90	75	31	7.6	289	13	1.4	.00
3	.35	7.6	7.9	55	860	121	30	6.8	107	12	1.6	.00
4	.30	6.7	7.4	52	1010	665	28	25	85	11	1.3	.00
5	.10	6.4	7.4	61	296	172	41	15	73	10	1.3	.00
6	.00	6.1	7.4	51	173	126	37	9.3	180	9.2	1.3	.00
7	.11	6.0	7.4	51	140	108	30	7.6	82	8.3	1.1	.00
8	.17	5.1	7.4	48	120	100	27	6.8	68	7.8	1.0	.00
9	.18	5.1	7.2	42	109	210	25	6.2	83	6.5	.92	.00
10	.22	5.0	6.4	40	99	95	23	6.3	68	6.6	.71	.02
11	.18	4.6	6.7	38	470	87	23	6.4	61	5.6	.65	.05
12	.06	4.3	7.7	41	158	81	21	6.2	123	5.0	.59	.00
13	.00	4.1	7.3	36	110	73	20	5.3	70	4.6	.58	.00
14	.00	4.0	6.1	33	101	67	19	4.8	57	4.3	.52	.00
15	.00	3.9	5.7	32	87	61	18	4.9	49	3.9	.95	.00
16	.00	3.8	5.6	31	77	57	17	67	43	3.6	.92	.00
17	.00	8.9	5.6	37	74	57	18	51	37	3.3	.60	.00
18	.00	8.8	8.9	78	66	76	19	31	34	3.1	.48	.00
19	.00	33	49	53	61	51	16	27	32	3.2	.41	.00
20	.00	16	401	44	57	47	15	23	30	3.4	.46	.00
21	.00	13	1090	61	54	45	13	165	27	3.1	.44	.00
22	.00	12	549	68	90	44	13	84	26	3.1	.41	.00
23	.00	11	171	48	62	39	12	53	25	3.1	.35	.00
24	.00	10	123	44	242	37	12	43	22	3.1	.26	.00
25	.00	10	106	42	372	36	11	149	19	2.6	.20	.00
26	.00	10	139	183	136	33	10	79	18	2.6	.14	.00
27	.51	10	115	170	112	33	9.5	52	37	2.7	.33	.00
28	.59	10	95	106	98	91	9.1	48	20	2.3	.16	.00
29	71	10	83	96	88	48	8.6	41	16	1.9	.12	.00
30	10	8.8	75	85	---	37	8.3	37	15	1.6	.00	.00
31	21	---	69	75	---	34	---	345	---	1.5	.00	---
TOTAL	105.49	267.6	3193.1	1927	5480	2887	597.5	1420.9	1937	166.0	20.70	0.07
MEAN	3.40	8.92	103	62.2	189	93.1	19.9	45.8	64.6	5.35	.67	.002
MAX	71	33	1090	183	1010	665	41	345	289	14	1.6	.05
MIN	.00	3.8	5.6	31	54	33	8.3	4.8	15	1.5	.00	.00
AC-F1	209	531	6330	3820	10870	5730	1190	2820	3840	329	.41	.1
CFSM	.10	.27	3.09	1.87	5.67	2.80	.60	1.38	1.94	.16	.02	.00
IN.	.12	.30	3.57	2.15	6.12	3.23	.67	1.59	2.16	.19	.02	.00

## BRAZOS RIVER BASIN

327

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX--Continued  
(Hydrologic bench-mark station)

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, WATER YEAR (WY)

MEAN	4.13	4.10	8.44	10.2	18.3	17.7	13.4	25.4	20.9	5.15	2.32	4.08
MAX	34.0	55.3	103	81.9	189	93.1	78.4	118	106	43.9	51.2	69.6
(WY)	1975	1975	1992	1968	1992	1992	1977	1965	1981	1976	1974	1974
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1968	1968	1971	1971	1971	1971	1971	1978	1967	1964	1964	1965

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1991 WATER YEAR		WATER YEARS 1964 - 1992	
ANNUAL TOTAL	5962.36		18002.36			
ANNUAL MEAN	16.3		49.2		11.1	
HIGHEST ANNUAL MEAN					49.2	
LOWEST ANNUAL MEAN					.036	
HIGHEST DAILY MEAN	1090	Dec 21	1090	Dec 21	1510	Jun 19 1976
LOWEST DAILY MEAN	.00	Aug 20	.00	Oct 6	.00	Oct 1 1963
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 20	.00	Oct 13	.00	Oct 1 1963
INSTANTANEOUS PEAK FLOW			6140	Feb 11	31200	Jun 19 1976
INSTANTANEOUS PEAK STAGE			12.00	Feb 11	22.70	Jun 19 1976
INSTANTANEOUS LOW FLOW					.00	*
ANNUAL RUNOFF (AC-FT)	11830		35710		8060	
ANNUAL RUNOFF (CFSM)	.49		1.48		.33	
ANNUAL RUNOFF (INCHES)	6.66		20.11		4.54	
10 PERCENT EXCEEDS	20		107		26	
50 PERCENT EXCEEDS	6.7		12		.65	
90 PERCENT EXCEEDS	.00		.00		.00	

\* No flow for many days most years.



## BRAZOS RIVER BASIN

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX--Continued  
(Hydrologic bench-mark station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to January 1964. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: July 1971 to July 1982. Sediment analyses: May to June 1963, February 1968 to current year. Radiochemical analyses: January 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, SATURATION	COLIFORM, FFCAI, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
NOV 12...	1050	4.1	532	7.9	13.0	0.30	10.4	101	120	100	280	34
JAN 30...	1010	84	540	8.1	11.5	0.40	9.9	93	96	110	300	40
MAY 18...	1040	24	389	7.6	22.5	4.2	8.0	95	800	2400	200	6
JUL 27...	1015	2.5	518	7.6	28.5	0.50	7.3	97	110	820	260	20
DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 12...	68	25	12	0.3	1.5	0	294	241	24	19	0.40	7.9
JAN 30...	82	23	8.2	0.2	1.2	0	319	261	22	16	0.40	8.4
MAY 18...	49	18	6.7	0.2	1.2	0	235	192	11	9.5	0.40	8.1
JUL 27...	59	27	12	0.3	1.3	0	294	241	21	18	0.50	13
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS, PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS, PHOSPHORUS DIS-SOLVED (MG/L AS P)
NOV 12...	245	305	<0.010	<0.010	0.078	<0.050	0.020	<0.010	<0.20	<0.010	<0.010	<0.010
JAN 30...	294	322	<0.010	<0.010	0.300	0.300	0.030	<0.010	<0.20	<0.010	<0.010	<0.010
MAY 18...	218	222	<0.010	<0.010	0.110	0.130	<0.010	0.010	0.20	0.030	0.020	<0.010
JUL 27...	281	300	<0.010	<0.010	0.230	0.240	0.010	0.010	<0.20	<0.010	<0.010	<0.010
DATE	PHOSPHORUS, ORTHO TOTAL (MG/L AS P)	SEDIMENT, DIS-SOLVED (MG/L)	SEDIMENT, DIS-SOLVED (MG/L)	SEDIMENT, DIS-SOLVED (MG/L)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM, DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)
NOV 12...	<0.010	18	0.20	65	10	50	<3	12	9	1	<10	<1
JAN 30...	<0.010	28	6.4	37	<10	52	<3	10	13	3	<10	<1
MAY 18...	<0.010	5	0.32	95	10	37	<3	5	8	<1	<10	<1
JUL 27...	<0.010	8	0.05	43	<10	55	<3	5	9	2	<10	<1
DATE	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCT/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCT/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCT/L AS SR-90)	GROSS BETA, SUSP. TOTAL (PCT/L AS SR-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCT/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
NOV 12...	<1	<1.0	2200	<6	1.2	<0.6	3.2	<0.6	2.4	<0.6	0.07	0.89
JAN 30...	<1	<1.0	2200	<6	--	--	--	--	--	--	--	--
MAY 18...	<1	<1.0	1600	<6	1.4	<0.6	1.5	<0.6	1.1	<0.6	0.06	0.39
JUL 27...	<1	<1.0	2000	<6	--	--	--	--	--	--	--	--

## 08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX

LOCATION.--Lat 31°01'20", long 97°31'57", Bell County, Hydrologic Unit 12070203, in intake structure at Stillhouse Hollow Dam on Lampasas River, 5 mi southwest of Belton, and 16.0 mi upstream from mouth.

DRAINAGE AREA.--1,313 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1966 to current year. Prior to October 1970, published as Stillhouse Hollow Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 15,624 ft long, including a 1,650-foot spillway and 5,894-foot dike. The lake was operated as a temporary detention basin from Sept. 2, 1966, to Feb. 19, 1968. Deliberate impoundment began Feb. 19, 1968. The lake was built for flood control and water conservation. The spillway is an uncontrolled broad-crested weir 1,650 ft long located near right end of dam. The flood-control outlet consists of a 12.0-foot-diameter conduit controlled by two 5.67- by 12.0-foot slide gates at an invert elevation of 515.0 ft. The capacity curve is based on maps prepared by Brazos River Authority in 1937 and supplemented by contour maps prepared by the U.S. Army Corps of Engineers in 1958. There are many small diversions upstream for irrigation, municipal supply and for oil field operations. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08103800. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	698.0	-
Design flood.....	693.2	1,013,300
Crest of spillway.....	666.0	630,400
Top of conservation pool.....	622.0	235,700
Lowest gated outlet (invert).....	515.0	775

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 654,000 acre-ft Mar. 4, 1992 (elevation, 667.97 ft); minimum since conservation storage was reached on Apr. 12, 1969, 178,300 acre-ft Oct. 5, 1984 (elevation, 612.18 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 654,000 acre-ft Mar. 4 (elevation, 667.97 ft); minimum daily, 234,000 acre-ft Oct. 26 (elevation, 621.73 ft).

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

621.0	229,300	645.0	413,700	661.0	573,200
628.0	276,400	650.0	460,200	664.0	607,000
634.0	321,100	654.0	499,500	666.0	630,400
640.0	369,900	658.0	540,800	668.0	654,400

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236300	238200	237000	448600	477800	643100	608900	463800	453200	429900	301400	236300
2	236300	237900	237100	449800	476600	642600	605800	460000	462100	425900	298800	236200
3	236200	237500	236900	450600	492400	642800	602700	454500	466100	421600	295600	236300
4	236100	237200	236700	451100	549500	654000	599500	450200	468800	417100	292200	236500
5	235900	236700	236500	451700	581000	649900	597000	446500	471100	412400	288900	236500
6	235700	236500	236500	452200	593300	646300	594200	442100	474900	407300	285700	236500
7	235600	236600	236700	452600	602500	644600	590900	438200	478800	401400	282300	236500
8	235400	236500	237100	452800	609800	643500	587100	432800	480300	394800	278700	236400
9	235300	236500	237300	452500	615700	645700	582900	428100	480800	388200	275400	236400
10	235300	236500	237400	451600	618400	643600	578300	423600	480800	382100	272000	237100
11	235200	236500	237600	450700	617400	642400	574100	420000	479800	375900	269000	237100
12	235100	236500	237600	449900	617700	641600	569600	415600	478200	369800	266300	237100
13	235100	236600	237400	448900	616200	640200	565200	411200	476800	364200	263600	237200
14	234900	236700	237100	447600	614400	638900	560500	406700	475000	359400	260900	237200
15	234800	236700	236800	445300	612300	638000	555900	402700	472800	355600	258300	237200
16	234700	237200	236500	441500	609700	637100	551200	399800	470300	352200	255500	237200
17	234500	237600	236300	437900	606900	636200	547400	401000	467700	348800	252800	237200
18	234700	237600	236900	437000	603700	635500	543600	407500	465000	347100	250600	237200
19	234400	237400	237700	437000	600300	633900	538600	411000	462300	344000	249100	237200
20	234400	237300	247200	436200	596700	632400	533400	412700	459700	341100	247800	237100
21	234200	237100	355600	436300	593000	630700	527800	417400	457100	337900	246400	237100
22	234200	236900	399700	438400	592400	629100	521900	424400	453900	334600	245100	236900
23	234100	236700	412500	440500	594100	627200	515500	427600	450700	331400	243600	236800
24	234100	236400	420900	441900	607700	625200	508400	429700	447500	328000	242300	236700
25	234100	236300	447200	442700	644200	623200	500900	433100	444100	324600	241100	236500
26	234000	236400	433000	446200	647800	621100	494600	437200	441200	321400	239700	236400
27	234600	236500	438100	459600	646300	618800	487400	439300	441900	318100	238600	236300
28	235100	236700	441500	466600	644900	618500	480600	441200	440400	314700	238000	236200
29	236700	236900	444200	472200	644000	617200	474600	442600	437300	311400	237500	236000
30	237700	237000	446100	477000	---	614900	469000	444100	433800	308000	237100	235800
31	238300	---	447600	479000	---	612000	---	448800	---	304800	236700	---
MAX	238300	238200	447600	479000	647800	654000	608900	463800	480800	429900	301400	237200
MIN	234000	236300	236300	436200	476600	612000	469000	399800	433800	304800	236700	235800
(↑)	622.40	622.20	648.67	651.93	667.14	664.43	650.91	648.80	647.20	631.87	622.16	622.02
(Φ)	+2000	-1300	+210600	+31400	+165000	-32000	-143000	-20200	-15000	-129000	-68100	-900
CAL YR 1991	MAX 447600	MIN 234000	(Φ)	+209800								
WTR YR 1992	MAX 654000	MIN 234000	(Φ)	-500								

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1982, January 1988 to current year.

310129097315901 - STILLHOUSE HOLLOW LAKE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
APR												
07...	0905	591000	1.00	457	8.3	16.5	5.20	8.5	89	K1	<1	200
07...	0907	--	10.0	456	8.3	16.5	--	8.5	89	--	--	--
07...	0909	--	20.0	456	8.2	16.5	--	8.4	88	--	--	--
07...	0911	--	30.0	457	8.2	16.5	--	8.4	88	--	--	--
07...	0913	--	40.0	457	8.2	16.0	--	8.4	87	--	--	--
07...	0915	--	50.0	456	8.2	15.5	--	7.5	76	--	--	--
07...	0917	--	60.0	444	7.9	13.5	--	5.8	57	--	--	--
07...	0919	--	70.0	438	7.9	13.0	--	6.1	59	--	--	--
07...	0921	--	80.0	436	7.9	13.0	--	6.1	59	--	--	--
07...	0923	--	90.0	437	7.9	12.5	--	5.7	54	--	--	--
07...	0925	--	100	437	7.9	12.5	--	5.5	53	--	--	--
07...	0927	--	110	438	7.9	12.5	--	5.5	53	--	--	--
07...	0929	--	120	442	7.8	12.0	--	5.4	51	--	--	--
07...	0931	--	130	445	7.8	12.0	--	5.0	47	--	--	--
07...	0933	--	140	445	7.8	12.0	--	5.0	47	--	--	--
07...	0935	--	154	445	7.6	12.0	--	4.9	46	--	--	190
MAY												
14...	1040	407000	1.00	490	8.5	23.5	2.30	8.2	99	<1	<1	230
14...	1042	--	10.0	492	8.5	23.0	--	8.0	96	--	--	--
14...	1044	--	20.0	498	8.4	22.5	--	6.8	80	--	--	--
14...	1046	--	30.0	498	8.3	22.0	--	6.6	77	--	--	--
14...	1048	--	40.0	500	8.0	20.5	--	4.4	50	--	--	--
14...	1050	--	50.0	492	7.7	18.5	--	2.0	22	--	--	--
14...	1052	--	60.0	498	7.7	17.5	--	2.0	21	--	--	--
14...	1054	--	70.0	491	7.8	17.0	--	2.7	29	--	--	--
14...	1056	--	80.0	485	7.8	16.5	--	3.0	31	--	--	--
14...	1058	--	90.0	485	7.8	16.0	--	2.9	30	--	--	--
14...	1100	--	100	504	7.7	15.5	--	1.2	12	--	--	--
14...	1102	--	110	487	7.6	15.0	--	0.6	6	--	--	--
14...	1104	--	120	471	7.6	14.5	--	0.3	3	--	--	--
14...	1106	--	130	468	7.6	14.5	--	0.3	3	--	--	--
14...	1108	--	142	466	7.5	14.5	--	0.1	1	--	--	210
AUG												
12...	0945	266000	1.00	459	8.1	29.5	1.80	6.8	91	<1	64	190
12...	0947	--	10.0	459	8.1	29.5	--	6.7	90	--	--	--
12...	0949	--	20.0	464	8.0	29.0	--	5.9	78	--	--	--
12...	0950	--	30.0	477	7.7	28.0	--	3.1	41	--	--	--
12...	0951	--	40.0	491	7.5	27.5	--	1.6	21	--	--	--
12...	0953	--	45.0	491	7.5	27.5	--	0.9	12	--	--	--
12...	0955	--	50.0	503	7.4	27.5	--	0	0	--	--	--
12...	0957	--	60.0	511	7.4	27.5	--	0	0	--	--	--
12...	0959	--	70.0	578	7.4	26.5	--	0	0	--	--	--
12...	1001	--	80.0	533	7.3	25.5	--	0	0	--	--	--
12...	1003	--	90.0	537	7.1	23.5	--	0	0	--	--	--
12...	1005	--	100	555	7.1	21.0	--	0	0	--	--	--
12...	1007	--	110	579	7.1	19.5	--	0	0	--	--	--
12...	1009	--	118	594	6.8	17.5	--	0	0	--	--	270

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 - STILLHOUSE HOLLOW LAKE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	HARD- NESS NONCARB DISSOLV F.D. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
APR											
07...	23	57	15	14	0.4	2.4	180	21	30	0.30	8.8
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	22	50	15	18	0.6	2.8	170	20	36	0.20	9.5
MAY											
14...	28	64	16	16	0.5	2.6	200	27	30	0.40	7.1
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	23	60	15	16	0.5	2.7	190	26	29	0.40	11
AUG											
12...	28	45	19	21	0.7	2.3	160	23	38	0.50	5.7
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	6	74	20	19	0.5	2.5	260	15	32	0.50	14

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BEITON, TX--Continued

31012909/315901 - STILLHOUSE HOLLOW LAKE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
APR											
07...	257	0.520	0.020	0.540	<0.010	--	0.20	<0.010	0.010	<3	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	250	--	<0.010	0.550	<0.010	--	<0.20	<0.010	0.020	8	15
MAY											
14...	282	0.360	0.020	0.380	0.030	--	<0.20	<0.010	<0.010	<3	<1
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	274	0.610	0.020	0.630	0.030	--	<0.20	0.020	0.030	8	75
AUG											
12...	252	--	<0.010	<0.050	<0.010	--	0.20	<0.010	<0.010	<3	<1
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	0.010	<0.050	0.030	0.17	0.20	0.010	<0.010	20	<10
12...	--	--	<0.010	0.190	<0.010	--	<0.20	0.020	<0.010	10	<10
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	334	--	<0.010	<0.050	1.60	0.50	2.1	0.130	0.090	230	590

## BRAZOS RIVER BASIN

333

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310033697333001 - STILLHOUSE HOLLOW LAKE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
APR							
07...	1020	1.00	458	8.3	17.5	8.6	92
07...	1022	10.0	458	8.3	17.0	8.5	89
07...	1024	20.0	457	8.3	16.5	8.4	88
07...	1026	30.0	457	8.3	16.5	8.3	86
07...	1028	40.0	457	8.2	16.0	7.9	81
07...	1030	50.0	452	7.8	15.0	6.4	65
07...	1032	60.0	444	7.7	14.0	5.6	55
07...	1034	70.0	442	7.6	13.5	5.4	53
07...	1036	80.0	439	7.6	13.0	5.5	53
07...	1038	90.0	437	7.8	13.0	5.4	52
07...	1040	100	438	7.8	13.0	5.4	52
07...	1042	110	436	7.6	13.0	5.3	51
07...	1044	120	438	7.8	12.5	5.2	50
07...	1046	130	438	7.6	12.5	5.1	49
07...	1048	140	443	7.7	12.5	4.9	47
07...	1050	150	444	7.6	12.5	4.8	46
MAY							
14...	1150	1.00	490	8.5	24.0	8.2	100
14...	1152	10.0	495	8.5	23.0	7.9	94
14...	1154	20.0	495	8.4	22.5	7.5	89
14...	1156	30.0	493	8.4	22.5	6.9	82
14...	1158	40.0	504	7.9	20.5	2.9	33
14...	1200	50.0	517	7.7	19.0	1.6	18
14...	1202	60.0	503	7.7	17.5	1.8	19
14...	1204	70.0	506	7.7	17.0	2.0	21
14...	1206	80.0	502	7.7	17.0	2.1	22
14...	1208	90.0	511	7.7	16.5	1.7	18
14...	1210	100	513	7.6	15.5	0.1	1
14...	1212	110	513	7.6	15.5	0	0
14...	1214	120	483	7.6	14.5	0	0
14...	1216	134	475	7.6	14.5	0	0
AUG							
12...	1045	1.00	457	8.1	29.5	6.9	92
12...	1047	10.0	457	8.1	29.5	6.9	92
12...	1049	20.0	460	8.0	29.5	6.3	84
12...	1051	30.0	480	7.6	28.0	2.4	31
12...	1053	40.0	495	7.4	27.5	0.3	4
12...	1055	50.0	508	7.4	27.5	0	0
12...	1057	60.0	531	7.4	27.0	0	0
12...	1059	70.0	576	7.3	26.5	0	0
12...	1101	80.0	583	7.2	24.5	0	0
12...	1103	90.0	547	7.2	23.0	0	0
12...	1105	100	592	7.2	21.0	0	0
12...	1107	113	592	7.2	18.5	0	0



## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310128097353601 - STILLHOUSE HOLLOW LAKE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
APR											
07...	1115	1.00	481	8.2	17.5	4.30	7.9	84	<1	31	220
07...	1117	10.0	475	8.2	17.0	--	7.6	80	--	--	--
07...	1119	20.0	459	8.2	16.5	--	7.9	82	--	--	--
07...	1121	30.0	457	8.1	16.0	--	7.9	81	--	--	--
07...	1123	40.0	457	8.2	16.0	--	7.6	78	--	--	--
07...	1125	50.0	458	8.0	15.5	--	6.8	69	--	--	--
07...	1127	60.0	459	7.8	14.0	--	4.5	44	--	--	--
07...	1129	70.0	449	7.8	13.5	--	4.3	42	--	--	--
07...	1131	80.0	445	7.8	13.0	--	4.3	42	--	--	--
07...	1133	90.0	441	7.8	13.0	--	4.5	43	--	--	--
07...	1135	100	439	7.8	13.0	--	4.6	44	--	--	--
07...	1137	110	439	7.8	13.0	--	4.6	44	--	--	--
07...	1139	126	441	7.7	13.0	--	4.4	42	--	--	190
MAY											
14...	1250	1.00	504	8.5	25.0	1.50	8.4	104	<1	<1	230
14...	1252	10.0	504	8.5	24.0	--	8.0	97	--	--	--
14...	1254	20.0	517	8.3	23.0	--	6.6	79	--	--	--
14...	1256	30.0	524	8.1	22.0	--	4.6	54	--	--	--
14...	1258	40.0	547	7.8	20.5	--	1.5	17	--	--	--
14...	1300	50.0	556	7.7	20.0	--	0.7	8	--	--	--
14...	1302	60.0	568	7.6	18.0	--	0	0	--	--	--
14...	1304	70.0	556	7.6	17.0	--	0	0	--	--	--
14...	1306	80.0	556	7.6	17.0	--	0	0	--	--	--
14...	1308	90.0	552	7.6	16.5	--	0	0	--	--	--
14...	1310	110	552	7.6	16.0	--	0	0	--	--	--
14...	1312	110	548	7.6	16.0	--	0	0	--	--	250
AUG											
12...	1140	1.00	465	8.1	30.0	1.20	6.4	87	<1	K2	200
12...	1142	10.0	465	8.1	29.5	--	6.2	83	--	--	--
12...	1144	20.0	485	7.8	29.0	--	4.0	53	--	--	--
12...	1146	30.0	517	7.4	28.5	--	0.3	4	--	--	--
12...	1148	40.0	540	7.4	28.0	--	0	0	--	--	--
12...	1150	45.0	549	7.4	28.0	--	0	0	--	--	--
12...	1152	50.0	556	7.4	27.0	--	0	0	--	--	--
12...	1154	60.0	586	7.3	27.5	--	0	0	--	--	--
12...	1156	70.0	628	7.2	26.5	--	0	0	--	--	--
12...	1158	80.0	628	7.0	24.5	--	0	0	--	--	--
12...	1200	88.0	610	7.0	24.0	--	0	0	--	--	260

## BRAZOS RIVER BASIN

335

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310128097353601 - STILLHOUSE HOLLOW LAKE CC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
APR											
07...	21	61	16	14	0.4	2.3	200	22	29	0.30	8.3
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	19	54	14	15	0.5	2.6	170	20	30	0.20	10
MAY											
14...	27	65	17	17	0.5	2.0	210	28	32	0.40	6.9
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	21	71	18	17	0.5	2.2	230	29	32	0.40	11
AUG											
12...	30	46	20	21	0.7	2.4	170	23	39	0.50	5.9
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	11	67	22	24	0.7	2.5	250	12	47	0.50	13

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

31012809/353601 - STILLHOUSE HOLLOW LAKE CC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
APR											
07...	2/1	0.580	0.020	0.600	<0.010	--	0.30	<0.010	0.020	6	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	250	--	<0.010	0.600	<0.010	--	<0.20	<0.010	0.030	12	8
MAY											
14...	291	0.370	0.030	0.400	0.040	0.16	0.20	<0.010	0.020	<3	1
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	0.440	0.040	0.480	0.030	--	<0.20	<0.010	0.010	<10	<10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	0.600	0.020	0.620	0.030	--	<0.20	<0.010	0.010	<10	20
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	319	0.520	0.030	0.550	0.150	0.15	0.30	0.030	0.040	7	730
AUG											
12...	258	--	<0.010	<0.050	0.010	0.29	0.30	<0.010	<0.010	3	<1
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	0.010	<0.050	0.010	0.19	0.20	<0.010	<0.010	<10	<10
12...	--	0.100	0.010	0.110	0.040	0.26	0.30	0.020	0.010	20	<10
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	337	--	<0.010	0.540	1.40	0.30	1.7	0.040	0.030	310	330

31013009/3/1701 - STILLHOUSE HOLLOW LAKE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
APR							
07...	1205	1.00	495	8.1	18.0	7.6	82
07...	1207	10.0	501	8.1	17.5	7.6	81
07...	1209	20.0	497	8.0	17.0	7.0	74
07...	1211	30.0	478	8.0	16.5	6.8	71
07...	1213	40.0	482	7.8	15.5	5.0	51
07...	1215	50.0	466	7.8	15.0	5.5	55
07...	1217	60.0	466	7.7	14.5	4.1	41
07...	1219	70.0	457	7.6	13.5	3.8	37
07...	1221	80.0	454	7.6	13.5	3.8	37
07...	1223	90.0	452	7.7	13.5	4.0	39
07...	1225	100	450	7.8	13.5	3.9	38
07...	1227	114	450	7.8	13.5	3.9	38
MAY							
14...	1405	1.00	544	8.4	25.0	7.6	94
14...	1407	10.0	568	8.3	23.5	6.7	81
14...	1409	20.0	540	8.2	23.0	6.2	74
14...	1411	30.0	539	8.1	22.0	5.1	60
14...	1413	40.0	596	7.6	20.5	1.0	11
14...	1415	50.0	592	7.6	18.5	0.4	4
14...	1417	60.0	580	7.6	17.5	0.4	4
14...	1419	70.0	580	7.6	17.0	0.2	2
14...	1421	80.0	580	7.6	17.0	0	0
14...	1423	95.0	575	7.6	16.5	0	0
AUG							
12...	1300	1.00	469	8.1	30.0	6.6	89
12...	1302	10.0	469	8.0	30.0	6.3	85
12...	1304	20.0	502	7.6	29.0	3.0	40
12...	1306	30.0	595	7.4	28.5	0.3	4
12...	1308	40.0	566	7.4	28.0	0	0
12...	1310	50.0	598	7.3	27.5	0	0
12...	1312	60.0	634	7.2	27.5	0	0
12...	1314	70.0	675	7.1	26.5	0	0
12...	1316	76.0	675	7.0	25.0	0	0

## BRAZOS RIVER BASIN

337

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037G97383201 - STILLHOUSE HOLLOW LAKE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	
APR												
07...	1250	1.00	545	8.1	18.5	3.60	6.9	75	<1	K1	250	
07...	1252	10.0	553	8.1	17.5	--	6.9	74	--	--	--	
07...	1254	20.0	531	8.1	17.5	--	6.4	68	--	--	--	
07...	1256	30.0	562	7.9	17.0	--	4.7	50	--	--	--	
07...	1258	40.0	568	7.7	16.0	--	2.3	24	--	--	--	
07...	1300	50.0	527	7.7	15.0	--	2.4	24	--	--	--	
07...	1302	60.0	520	7.6	14.5	--	1.4	14	--	--	--	
07...	1304	70.0	505	7.6	14.0	--	1.2	12	--	--	--	
07...	1306	77.0	500	7.7	14.0	--	1.2	12	--	--	230	
MAY												
14...	1445	1.00	641	8.3	26.0	1.70	7.7	98	<1	<1	280	
14...	1447	10.0	603	8.3	24.0	--	7.3	89	--	--	--	
14...	1449	20.0	632	8.1	23.5	--	5.3	64	--	--	--	
14...	1451	30.0	708	7.6	22.0	--	1.0	12	--	--	--	
14...	1453	40.0	716	7.5	21.0	--	0.4	5	--	--	--	
14...	1455	50.0	685	7.5	19.0	--	0.2	2	--	--	--	
14...	1457	58.0	654	7.5	18.0	--	0	0	--	--	300	
AUG												
12...	1240	1.00	524	8.0	30.0	--	7.3	99	<1	<1	210	
12...	1242	10.0	527	8.0	30.0	--	6.8	92	--	--	--	
12...	1244	20.0	635	7.4	29.0	--	0.8	11	--	--	--	
12...	1246	30.0	794	7.2	29.0	--	0	0	--	--	--	
12...	1248	40.0	777	7.1	28.0	--	0	0	--	--	280	
DATE		HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSURPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS-FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
APR												
07...	20	69	18	16	0.4	1.9	230	25	31	0.30	7.8	
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	18	67	16	13	0.4	2.0	220	22	27	0.30	11	
MAY												
14...	40	73	24	26	0.7	2.5	240	35	51	0.50	8.4	
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	33	80	24	24	0.6	2.2	270	33	46	0.50	11	
AUG												
12...	36	48	22	27	0.8	2.6	170	25	50	0.50	7.1	
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	42	66	29	49	1	3.1	240	25	93	0.50	12	

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037097383201 - STILLHOUSE HOLLOW LAKE EC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
APR											
07...	305	0.760	0.020	0.780	<0.010	--	0.30	<0.010	0.010	8	1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	0.840	0.030	0.870	<0.010	--	0.20	<0.010	0.020	<10	<10
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	287	0.760	0.020	0.780	<0.010	--	0.30	0.020	0.020	9	49
MAY											
14...	365	0.640	0.030	0.670	0.030	0.17	0.20	<0.010	0.010	4	1
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	0.660	0.040	0.700	0.040	0.36	0.40	<0.010	0.010	<10	<10
14...	--	0.660	0.060	0.720	0.150	0.15	0.30	0.010	0.020	<10	30
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	381	0.170	0.010	0.180	0.460	0.24	0.70	0.040	0.040	22	330
AUG											
12...	287	--	<0.010	<0.050	0.010	0.39	0.40	0.020	<0.010	32	<1
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	0.150	0.030	0.180	0.150	0.35	0.50	0.030	0.020	10	10
12...	--	--	--	--	--	--	--	--	--	--	--
12...	423	--	0.020	<0.050	0.740	0.36	1.1	0.030	0.010	210	320

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

## Stillhouse Hollow Lake AC (310129097315901)

## Phytoplankton Analyses October 1991-September 1992

Date	4-7-92
Time	0905

TOTAL CELLS/mL	182,267
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	8.4

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	782
Order Pennales	
<i>Fragilaria crotonensis</i>	10,560
<i>Synedra delicatissima</i>	3,520
CHLOROPHYTA (Green algae)	
<i>Chlamydomonas</i> sp.	2,347
<i>Chlorella ellipsoidea</i>	3,911
<i>Chlorococcum humicola</i>	2,347
<i>Selenastrum minutum</i>	1,565
CHRYSTOPHYTA (Golden-brown algae)	
Unknown flagellate	9,387
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	106,387
<i>Aphanocapsa elachista</i>	9,387
<i>Aphanothece nidulans</i>	8,605
<i>Chroococcus</i> sp.	5,476
<i>Oscillatoria</i> sp.	4,694
CRYPTOPHYTA (Cryptomonads)	
<i>Chroomonas</i> sp.	4,694
<i>Cryptomonas erosa</i>	6,258
<i>Rhodomonas minuta</i>	2,347



## Stillhouse Hollow Lake EC (310037097383201)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-7-92
Time	1250

TOTAL CELLS/mL	114,211
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	5.8

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Fragilaria crotonensis</i>	261
<i>Nitzschia acicularis</i>	65
<i>Synedra delicatissima</i>	65
<i>Tabellaria flocculosa</i>	391
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	1,565
<i>Chlamydomonas</i> sp.	2,347
<i>Chlorella ellipsoidea</i>	2,347
<i>Chlorococcum humicola</i>	1,565
<i>Selenastrum minutum</i>	1,565
<b>CHRYSTOPHYTA (Golden-brown algae)</b>	
Unknown flagellate	8,605
<b>CYANOPHYTA (Blue-green algae) ,</b>	
<i>Aphanocapsa delicatissima</i>	79,008
<i>Aphanocapsa elachista</i>	3,129
<i>Chroococcus</i> sp.	3,129
<i>Oscillatoria</i> sp.	2,347
<b>EUGLENOPHYTA</b>	
<i>Euglena</i> sp.	782
<b>CRYPTOPHYTA</b>	
<i>Chroomonas</i> sp.	3,911
<i>Cryptomonas erosa</i>	3,129

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

## Stillhouse Hollow Lake AC (3101291097315901)

## Phytoplankton Analyses October 1991 to September 1992

Date	5-14-92
Time	1040

---

TOTAL CELLS/mL	220,575
NUMBER OF SPECIES	8
DEPTH COLLECTED (ft.)	3.8

---

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Pennales	
<i>Fragilaria crotonensis</i>	60,825
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	668
<i>Oocystis lacustris</i>	2,674
CYANOPHYTA	
<i>Anabaena flos-aquae</i>	40,105
<i>Aphanocapsa delicatissima</i>	100,262
<i>Chroococcus limneticus</i>	6,684
EUGLENOPHYTA	
<i>Euglena</i> sp.	668
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	8,689

---

## Stillhouse Hollow Lake EC (310037097383201)

## Phytoplankton Analyses October 1991 to September 1992

Date	5-14-92
Time	1445

<b>TOTAL CELLS/mL</b>	240,627
<b>NUMBER OF SPECIES</b>	14
<b>DEPTH COLLECTED (ft.)</b>	2.8

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Stephanodiscus</i> sp.	7,353
Order Pennales	
<i>Cocconeis placentula</i>	280
<i>Fragilaria crotonensis</i>	16,958
<i>Navicula</i> sp.	140
<b>CHLOROPHYTA</b>	
<i>Chlamydomonas</i> sp.	3,342
<i>Cosmarium</i> sp.	668
<i>Oocytis elliptica</i>	2,005
<i>Pediastrum</i> sp.	668
<b>CHRYSTOPHYTA</b>	
<i>Dinobryon sociale</i>	1,337
<b>CYANOPHYTA</b>	
<i>Anabaena flos-aquae</i>	7,353
<i>Aphanocapsa delicatissima</i>	113,630
<i>Microcystis aeruginosa</i>	66,841
<b>EUGLENOPHYTA</b>	
<i>Euglena</i> sp.	6,684
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	13,368

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

## Stillhouse Hollow Lake AC (3101291097315901)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-12-92
Time	0945

TOTAL CELLS/mL	215,895
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	2.9

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Achnanthes</i> sp.	5,549
<i>Fragilaria capucina</i>	4,855
<i>Fragilaria crotonensis</i>	11,098
<i>Fragilaria vaucherie</i>	4,855
<i>Navicula</i> spp.	9,017
<i>Nitzschia palea</i>	1,387
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	9,358
<i>Chlamydomonas</i> sp.	668
<i>Cosmarium</i> sp.	668
<i>Staurastrum</i> sp.	668
CHRYSTOPHYTA (Golden-brown algae)	
<i>Dinobryon sociale</i>	1,337
CYANOPHYTA (Blue-green algae)	
<i>Aphanizomenon flos-aquae</i>	3,342
<i>Aphanocapsa delicatissima</i>	100,262
<i>Chroococcus limneticus</i>	6,684
<i>Merismopedia chondroidea</i>	10,695
<i>Merismopedia tenuissima</i>	16,042
<i>Oscillatoria subrevis</i>	20,052
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	6,016
PYRRHOPHYTA (Dinoflagellates)	
<i>Peridinium pusilla</i>	2,005
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas ovata</i>	1,337

## Stillhouse Hollow Lake EC (310037097383201)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-12-92
Time	1240
<hr/>	
TOTAL CELLS/mL	282069
NUMBER OF SPECIES	26
DEPTH COLLECTED (ft.)	Surface
<hr/>	

<u>Organism</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	2,674
Order Pennales	
<i>Achnanthes</i> sp.	9,824
<i>Fragilaria capucina</i>	6,186
<i>Fragilaria crotonensis</i>	19,285
<i>Fragilaria vaucherie</i>	6,186
<i>Navicula</i> spp.	16,374
<i>Nitzschia palea</i>	1,455
Unk. Pennate	1,092
<i>Tabellaria fenestrata</i>	1,092
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	13,368
<i>Chlamydomonas</i> sp.	2,005
<i>Scenedesmus dimorphus</i>	2,674
<i>Scenedesmus quadricauda</i>	2,674
<i>Staurastrum</i> sp.	668
CHRYSTOPHYTA (Golden-brown algae)	
<i>Dinobryon sertularia</i>	668
<i>Dinobryon sociale</i>	668
<i>Mallomonas</i> sp.	668
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	141,035
<i>Chroococcus limneticus</i>	5,347
<i>Merismopedia chondroidea</i>	10,695
<i>Merismopedia tenuissima</i>	10,695
<i>Oscillatoria subrevis</i>	13,368
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	1,337
<i>Trachelomonas</i> spp.	8,689
PYRRHOPHYTA (Dinoflagellates)	
<i>Glenodinium</i> sp.	2,005
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas ovata</i>	1,337

## BRAZOS RIVER BASIN

345

## 08104500 LITTLE RIVER NEAR LITTLE RIVER

LOCATION.--Lat 30°57'59", long 97°20'45", Bell County, Hydrologic Unit 12070204, on right bank 25 ft downstream from State Highway 95, 2.4 mi southeast of Little River, 5 mi downstream from confluence of Leon and Lampasas Rivers, and 95.8 mi upstream from mouth.

DRAINAGE AREA.--5,228 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to May 1929, August 1962 to current year.

Water-quality records.--Chemical analyses: October 1964 to September 1982.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 400.11 ft above National Geodetic Vertical Datum of 1929. From Oct. 5, 1923, to May 27, 1929, nonrecording gage at railroad bridge 0.5 mi upstream at same datum.

REMARKS.--Records fair. Many small diversions upstream for irrigation and municipal supply affect very low flows. Flow regulated by Belton Lake (station 08102000) on Leon River beginning Mar. 8, 1954, and by Stillhouse Hollow Lake (station 08104050) on the Lampasas River beginning Sept. 2, 1966. Sewage effluent from Fort Hood military installation and by cities of Killeen, Nolanville, and Harker Heights. Flow is affected at times by discharge from the flood-detention pools of 13 floodwater-retarding structures with a combined detention capacity of 15,430 acre-ft. These structures control runoff from 47.4 mi<sup>2</sup>. Several observations of water temperature were made during the year. Gage-height telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--5 years (water years 1924-28), 709 ft<sup>3</sup>/s (513,700 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1924-28).--Maximum discharge, 28,400 ft<sup>3</sup>/s Oct. 2, 1927, (gage height 43.3 ft); minimum, 8.9 ft<sup>3</sup>/s Aug. 12, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 46.8 ft in September 1921, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	469	1310	617	6430	7090	11000	8990	e8220	3850	7130	4870	637
2	469	2490	868	6710	7440	10300	9000	e8800	3770	7010	4890	870
3	415	3100	1530	6500	9250	9570	8980	e9250	1450	6970	5200	912
4	125	3090	1400	6410	10700	12600	8960	e9290	1120	7100	4870	1780
5	93	3070	775	6460	5090	20000	8980	9320	2640	7070	4820	2220
6	85	2990	775	6440	2660	17300	9050	9280	2840	7110	4830	2200
7	83	2030	670	6410	2300	14500	9180	9250	2360	7510	4820	2140
8	82	1700	663	6440	2030	12400	9210	9220	1680	7890	4810	1610
9	81	677	739	6370	1890	10900	9290	9210	5550	8150	4770	641
10	82	666	1020	6550	2160	11200	9300	9210	6000	7800	4760	673
11	82	655	1290	7310	4800	9780	9280	9210	6380	7650	4720	997
12	81	993	1410	7440	5440	8890	9260	9440	6800	7610	4540	668
13	84	1830	1420	7470	5390	8630	9250	9320	7060	7510	4500	638
14	80	1850	1340	7870	5410	9300	9240	9190	7180	6710	4490	637
15	83	1860	982	8120	5780	8940	9250	9170	7000	6380	4470	629
16	82	1860	981	8640	5990	8320	9220	9470	6920	5650	4470	613
17	80	2070	982	9140	5950	8560	9220	9130	6850	5470	4450	670
18	80	1980	859	9720	5970	9130	9200	4120	6800	5170	4420	844
19	84	2070	1250	9000	6530	8870	9110	2970	6780	5850	4230	831
20	84	2120	2740	8520	6970	8450	9070	3230	6750	5240	4050	829
21	83	1710	17000	8490	7040	8780	9080	7880	6700	5160	3930	790
22	83	878	7980	9130	8140	8790	9180	9810	6720	5130	3500	728
23	85	786	2960	7730	6100	8730	9300	2010	6940	5120	3100	660
24	85	768	1590	7390	3520	8780	9460	1990	6880	5090	3090	568
25	85	765	1560	7470	7320	8780	9590	5880	6790	5070	3120	426
26	88	667	4320	8310	6390	8760	9580	3010	6780	5050	2900	464
27	250	650	4700	10600	9110	8750	9550	1390	7040	5050	2220	472
28	212	644	5160	5920	10200	9090	9510	3360	7040	5010	1610	467
29	835	633	5100	3890	10900	9180	9410	3410	6810	4900	669	481
30	848	627	5140	3690	---	8910	9400	3320	7100	4850	633	464
31	959	---	5800	4240	---	8880	---	3450	---	4940	617	---
TOTAL	6417	46539	83621	224810	177560	316070	277100	211810	168580	192350	118369	26559
MEAN	207	1551	2697	7252	6123	10200	9237	6833	5619	6205	3818	885
MAX	959	3100	17000	10600	10900	20000	9590	9810	7180	8150	5200	2220
MIN	80	627	617	3690	1890	8320	8960	1390	1120	4850	617	426
AC-FT	12730	92310	165900	445900	352200	626900	549600	420100	334400	381500	234800	52680

e Estimated



## BRAZOS RIVER BASIN

08104500 LITTLE RIVER NEAR LITTLE RIVER--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1992#, BY WATER YEAR (WY)

MEAN	468	480	531	908	968	1115	1250	1987	1895	1257	539	397
MAX	2760	2136	2697	7252	6123	10200	9237	6833	7264	6205	3818	2009
(WY)	1975	1975	1992	1992	1992	1992	1992	1992	1965	1992	1992	1986
MIN	43.0	57.8	47.7	59.3	60.7	102	59.4	150	165	85.2	12.1	41.3
(WY)	1979	1990	1964	1971	1984	1967	1984	1978	1967	1972	1963	1972

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1963 - 1992#

ANNUAL TOTAL	330302			1849785								
ANNUAL MEAN	905			5054								
HIGHEST ANNUAL MEAN										983		1992
LOWEST ANNUAL MEAN										5054		1984
HIGHEST DAILY MEAN	17000	Dec 21		20000	Mar 5					179		1984
LOWEST DAILY MEAN	75	Aug 9		80	Oct 14					62000	May 17	1965
ANNUAL SEVEN-DAY MINIMUM	79	Aug 7		81	Oct 12					8.2	Aug 6	1963
INSTANTANEOUS PEAK FLOW				21100	Mar 5					9.5	Aug 3	1963
INSTANTANEOUS PEAK STAGE				38.08	Mar 5					79600	May 17	1965
INSTANTANEOUS LOW FLOW				75	Oct 14					42.85	May 17	1965
ANNUAL RUNOFF (AC-FT)	655200			3669000						8.2	Aug 6	1963
10 PERCENT EXCEEDS	2000			9270						711900		
50 PERCENT EXCEEDS	554			5090						3110		
90 PERCENT EXCEEDS	94			616						246		
										62		

# Period of regulated streamflow.

## 08104650 LAKE GEORGETOWN NEAR GEORGETOWN, TX

LOCATION.--Lat 30°40'03", long 97°43'38", Williamson County, Hydrologic Unit 12070205, at North San Gabriel Dam, on North Fork San Gabriel River, 2.5 mi upstream from Middle Fork San Gabriel River, 3.7 mi northwest of Georgetown, and 4.4 mi upstream from confluence with South Fork San Gabriel River.

DRAINAGE AREA.--247 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1980 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1980 to August 1989.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 13, 1980, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 6,700 ft long, including the spillway. The lake was built for water conservation and flood control. Deliberate impoundment began on Mar. 3, 1980. The spillway is an ungated broad-crested weir 1,000 ft long, located near right end of dam. The spillway for normal flood releases is a gated, 11-foot-diameter conduit, controlled by two 5- by 11 foot slide gates, located near the center of dam. The invert for the floodgate is 720.0 ft. A low-flow outlet, consisting of four 3- by 4-foot gates is located near the center of dam. These gates are inverts of 735.0, 749.0, 763.0, and 777.0 ft. Figures given herein represent total content. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	861.0	246,700
Design flood.....	856.2	221,200
Crest of spillway.....	834.0	130,800
Top of conservation pool.....	791.0	37,080
Lowest gated outlet (invert of 11-foot conduit).....	720.0	0

COUPLKATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 136,900 acre-ft Mar. 4, 1992 (elevation, 835.86 ft); minimum, 466 acre-ft Mar. 4, 1980 (elevation, 724.46 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 136,900 acre-ft Mar. 4 (elevation, 835.86 ft); minimum daily, 35,340 acre-ft Sept. 30 (elevation, 789.64 ft).

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

789.0	34,540	811.0	70,730	828.0	112,500
795.0	42,570	816.0	81,600	831.0	121,400
801.0	51,990	820.0	91,100	834.0	130,800
806.0	60,910	824.0	101,400	836.0	137,400

RESERVOIR STORAGE (ACRE-FT.), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37150	37320	37300	78400	90040	132700	119100	93940	96050	72340	37530	36370
2	37130	37340	37290	79110	90660	132900	118200	93080	102000	71790	37460	36320
3	37120	37360	37270	79290	99450	132500	117400	91840	103300	71960	37420	36280
4	37100	37370	37240	79430	115400	136000	116500	90970	104200	71310	37360	36250
5	37040	37370	37210	79740	120500	133800	115900	90090	104700	69050	37280	36200
6	37000	37400	37210	79740	122900	133000	115200	89040	105400	67740	37230	36160
7	36960	37410	37210	79610	124700	132800	114500	87960	106300	67840	37210	36100
8	36920	37420	37370	79430	126200	132700	113600	86880	106300	67920	37190	36050
9	36900	37420	37410	79020	127500	133200	112800	85810	106100	67560	37160	36000
10	36870	37420	37410	78310	128800	132600	111800	84540	105600	66350	37130	36150
11	36850	37450	37440	77450	129800	132400	111000	84430	104600	64820	37110	36110
12	36820	37460	37440	76660	129900	132300	110100	84520	104300	63330	37080	36070
13	36800	37480	37420	75780	129100	132300	109100	84640	103400	61440	37100	36020
14	36760	37520	37360	74810	128400	132200	108200	83800	102300	59350	37060	35960
15	36720	37540	37270	73870	127600	132200	107200	82340	101100	57260	37060	35920
16	36690	37640	37250	72860	126600	132000	106500	81280	99770	55170	37020	35870
17	36640	37740	37270	72080	125500	131800	106000	81670	98300	53080	36980	35820
18	36610	37710	37400	71980	124400	131600	105400	82480	96690	51820	36940	35780
19	36590	37670	37850	72080	123200	130900	104800	83310	95110	49930	36910	35730
20	36550	37700	41750	72750	122000	130300	104100	83770	93460	48230	36900	35660
21	36510	37600	60780	73920	120800	129600	103400	86190	91810	46790	36870	35660
22	36480	37540	69190	75240	120900	128900	102700	87500	90020	45350	36850	35610
23	36440	37540	71520	76000	121600	128100	102000	88220	87980	43920	36850	35560
24	36430	37530	72960	76680	125900	127700	101200	88580	85720	42480	36720	35540
25	36410	37530	74150	77320	128600	126300	100200	89070	83420	41060	36690	35510
26	36380	37490	75760	81010	129800	124900	99140	90070	81170	39870	36650	35480
27	36820	37420	76920	84780	131000	123600	98090	90660	79630	38920	36630	35460
28	36850	37370	77380	86400	131700	123000	97030	91150	77490	38270	36570	35410
29	36990	37340	77690	87860	132400	121800	96000	91520	75550	38010	36510	35380
30	37200	37330	77960	89070	--	120700	94980	91910	73870	37820	36460	35340
31	37290	---	78110	89730	---	119900	---	93940	---	37670	36420	---
MAX	37290	37740	78110	89730	132400	136000	119100	93940	106300	72340	37530	36370
MIN	36380	37320	37210	71980	90040	119900	94980	81280	73870	37670	36420	35340
(↑)	791.16	791.19	814.45	819.44	834.50	830.50	821.55	821.14	812.50	791.45	790.49	789.64
(Φ)	+60	+40	+40780	+11620	+42670	-12500	-24920	-1040	-20070	-36200	-1250	-1080

LAI YR 1991 MAX 78110 MIN 25310 (Φ) +52760  
WTR YR 1992 MAX 136000 MIN 35340 (Φ) -1890

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08104700 NORTH FORK SAN GABRIEL RIVER NEAR GEORGETOWN, TX

LOCATION.--Lat 30°39'42", Long 97°42'40", Williamson County, Hydrologic Unit 12070205, on left bank 5,000 ft downstream from North Fork dam, 1.5 mi upstream from Middle Fork San Gabriel River, 2.7 mi upstream from Interstate Highway 35, 2.7 mi northwest of Georgetown, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--248 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to August 1989.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 689.06 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Beginning Mar. 3, 1980, flow largely regulated by Lake Georgetown (station 08104650) located about 1.0 mi upstream from gage. U.S. Army Corps of Engineers satellite telemeter (DCP) at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--11 years (water years 1969-79) prior to regulation by Lake Georgetown, 88.1 ft<sup>3</sup>/s (63,830 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1969-79).--Maximum discharge, 35,000 ft<sup>3</sup>/s Sept. 17, 1974 (gage height, 26.20 ft); no flow July 23-25, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 39.5 ft in September 1921. Flood in April 1957 reached a stage of 34.5 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	5.4	29	312	273	210	631	621	13	1040	98	19
2	5.6	5.3	29	316	274	307	626	623	21	431	81	20
3	5.6	5.3	29	314	213	356	629	623	14	11	57	20
4	5.8	5.3	29	314	30	3660	632	626	14	512	53	20
5	5.8	5.3	29	306	19	2570	629	629	149	1490	50	20
6	5.8	5.3	29	370	17	1240	631	629	296	846	33	20
7	5.8	5.3	29	468	16	829	635	628	136	12	18	20
8	5.8	5.1	29	465	16	668	637	628	372	9.1	18	21
9	5.8	5.1	30	529	16	778	636	629	659	244	20	22
10	5.8	5.1	30	665	15	891	634	629	818	712	20	21
11	5.8	5.1	30	757	323	603	637	248	1050	886	19	19
12	5.3	5.1	36	742	835	507	637	13	1070	879	19	19
13	5.3	5.1	44	736	1030	439	637	12	1060	1140	19	18
14	5.3	5.2	56	736	1020	409	637	566	1030	1270	19	18
15	5.3	5.3	52	736	1010	370	634	1000	1030	1270	19	18
16	5.4	5.5	29	736	1000	436	516	960	1010	1260	20	18
17	5.6	6.1	18	736	1000	539	425	19	1140	1250	19	19
18	5.6	51	26	727	992	665	425	11	1230	1260	19	19
19	5.6	84	28	386	983	725	428	10	1230	1240	18	18
20	5.6	85	49	9.0	981	656	424	117	1190	1020	18	18
21	5.6	85	30	9.1	966	655	425	299	1230	850	18	19
22	5.6	52	16	8.8	699	656	424	120	1330	847	19	19
23	5.7	24	12	9.4	16	653	424	12	1510	846	18	14
24	5.8	23	11	9.9	25	653	522	119	1670	840	19	3.1
25	5.8	24	10	9.9	18	866	618	173	1580	835	19	.84
26	5.7	45	9.9	15	17	989	614	12	1580	679	19	1.4
27	5.3	62	163	13	17	987	618	12	1600	521	19	1.7
28	5.3	62	321	12	19	990	619	12	1580	359	19	1.7
29	5.7	45	312	12	73	990	620	11	1360	167	19	1.6
30	5.5	29	310	11	---	869	620	11	1160	122	19	1.7
31	5.7	---	311	175	---	632	---	11	---	116	19	---
TOTAL	210.3	760.9	2165.9	10645.1	11913	25798	17224	10013	28132	22964.1	844	451.04
MEAN	6.78	25.4	69.9	343	411	832	574	323	938	741	27.2	15.0
MAX	42	85	321	757	1030	3660	637	1000	1670	1490	98	22
MIN	5.3	5.1	9.9	8.8	15	210	424	10	13	9.1	18	.84
AC-FT	417	1510	4300	21110	23630	51170	34160	19860	55800	45550	1670	895

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1992#, BY WATER YEAR (WY)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	19.6	26.0	54.4	59.6	93.7	131	74.2	94.8	182	199	9.82	42.8	
MAX	153	171	254	343	485	832	574	323	938	962	27.2	461	
(WY)	1982	1982	1986	1992	1986	1992	1992	1992	1992	1987	1992	1981	
MIN	1.18	1.72	1.97	1.39	4.06	1.30	.44	.71	.60	4.47	1.30	1.37	
(WY)	1983	1986	1984	1986	1990	1980	1980	1980	1980	1989	1982	1982	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1980 - 1992#

ANNUAL TOTAL	12631.05	131121.34	82.1
ANNUAL MEAN	34.6	358	358
HIGHEST ANNUAL MEAN			4.00
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	356	May 8	4500
LOWEST DAILY MEAN	.48	Mar 14	.00
ANNUAL SEVEN-DAY MINIMUM	.57	Mar 11	.01
INSTANTANEOUS PEAK FLOW			3500
INSTANTANEOUS PEAK STAGE			26.20
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	25050	260100	59490
10 PERCENT EXCEEDS	87	1000	184
50 PERCENT EXCEEDS	8.9	56	6.3
90 PERCENT EXCEEDS	3.8	5.6	1.8

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

349

## 08104900 SOUTH FORK SAN GABRIEL RIVER AT GEORGETOWN, TX

LOCATION.--Lat 30°37'32", Long 97°41'27", Williamson County, Hydrologic Unit 12070205, on right bank at downstream side of downstream bridge of two bridges on Interstate Highway 35, 1.1 mi southwest of the courthouse at Georgetown, and 2.4 mi upstream from mouth.

DRAINAGE AREA.--133 mi<sup>2</sup>.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1948, 1962-67, and December 1967 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 687.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year. Gage-height telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 41 ft Apr. 24, 1957, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 27	1430	4,510	8.99	Feb. 24	1900	2,550	7.15
Dec. 20	2030	6,490	10.45	Mar. 4	1200	9,380	12.04
Dec. 21	1030	10,700	12.69	Mar. 5	0030	6,410	10.40
Dec. 22	1430	5,350	9.65	May 18	0530	2,190	6.77
Jan. 26	2300	5,570	9.81	May 21	2200	2,550	7.15
Feb. 3	1130	4,880	9.29	June 2	0400	2,770	7.38
Feb. 4	0430	11,200	12.91	July 19	0100	4,840	9.26

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	31	17	196	245	214	107	50	218	91	22	5.7
2	30	27	16	459	279	201	104	47	1340	73	26	4.7
3	33	23	14	240	2850	203	104	48	300	67	24	4.2
4	29	20	15	208	6010	3190	101	56	207	62	20	4.8
5	27	20	15	238	1850	1960	108	61	175	57	21	5.8
6	26	20	15	212	917	571	134	53	450	51	20	5.8
7	25	19	16	201	681	416	102	45	241	46	16	5.7
8	25	18	17	203	558	380	97	43	164	42	13	5.3
9	23	17	25	186	484	396	94	40	307	38	15	3.9
10	23	18	18	168	422	300	92	42	240	36	14	4.1
11	23	17	18	160	377	267	90	41	175	32	15	9.5
12	23	16	17	181	342	261	90	40	251	32	11	8.7
13	24	15	16	161	302	215	86	35	200	29	15	6.5
14	22	15	14	138	282	204	82	35	142	27	14	6.6
15	20	15	15	133	257	187	80	42	125	24	17	5.2
16	20	15	15	126	225	173	78	97	112	23	21	3.6
17	21	22	15	132	213	168	85	92	103	22	16	3.1
18	22	22	21	317	189	265	95	382	98	31	13	4.5
19	21	19	65	225	175	170	87	161	93	665	10	4.4
20	21	16	1090	176	162	152	81	121	87	153	11	3.3
21	21	15	7250	200	153	143	75	782	86	63	11	5.7
22	19	15	2540	434	345	148	71	628	84	48	11	11
23	19	15	791	207	210	134	69	172	96	40	12	6.2
24	20	15	572	178	993	129	67	132	77	38	11	5.2
25	20	15	579	168	811	122	61	127	69	33	9.8	3.1
26	21	16	586	1090	461	117	64	195	65	33	7.3	2.3
27	449	16	448	1820	327	115	59	128	157	30	7.8	2.9
28	74	17	273	558	211	194	54	384	119	27	6.0	4.7
29	37	17	238	466	235	171	52	131	103	27	6.3	4.4
30	35	17	215	370	---	116	52	116	90	26	7.8	1.7
31	33	---	200	285	---	109	---	135	---	24	7.6	---
TOTAL	1238	543	15146	9836	20626	11391	2521	4461	5974	1990	431.6	152.6
MEAN	39.9	18.1	489	317	711	367	84.0	144	199	64.2	13.9	5.09
MAX	449	31	7250	1820	6010	3190	134	782	1340	665	26	11
MIN	19	15	14	126	153	109	52	35	65	22	6.0	1.7
AC-FT	2460	1080	30040	19510	40910	22590	5000	8850	11850	3950	856	303

## BRAZOS RIVER BASIN

08104900 SOUTH FORK SAN GABRIEL RIVER AT GEORGETOWN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992, BY WATER YEAR (WY)

MEAN	38.3	22.4	47.2	53.5	83.1	63.9	68.3	103	124	26.2	15.7	22.4
MAX	221	124	489	441	711	367	337	247	851	85.8	131	306
(WY)	1974	1975	1992	1968	1992	1992	1977	1975	1981	1976	1974	1981
MIN	.069	.16	.22	.34	.81	1.61	1.04	.24	.37	.13	.036	.022
(WY)	1979	1989	1989	1990	1990	1976	1984	1984	1971	1978	1980	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1968 - 1992	
ANNUAL TOTAL	26321.41		74310.2		52.5	
ANNUAL MEAN	72.1		203		203	1992
HIGHEST ANNUAL MEAN					2.15	1984
LOWEST ANNUAL MEAN					7830	Sep 3 1981
HIGHEST DAILY MEAN	7250	Dec 21	7250	Dec 21	.00	Jul 3 1971
LOWEST DAILY MEAN	.72	Aug 9	1.7	Sep 30	.00	Jul 3 1971
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 4	3.5	Sep 24	.00	Sep 3 1981
INSTANTANEOUS PEAK FLOW			11200	Feb 4	33400	Sep 3 1981
INSTANTANEOUS PEAK STAGE			12.91	Feb 4	24.60	Sep 3 1981
INSTANTANEOUS LOW FLOW			1.7	Sep 30	.00	at times
ANNUAL RUNOFF (AC-FT)	52210		147400		38070	
10 PERCENT EXCEEDS	72		388		101	
50 PERCENT EXCEEDS	22		62		13	
90 PERCENT EXCEEDS	4.1		9.9		.31	



## BRAZOS RIVER BASIN

351

08105100 BERRY CREEK NEAR GEORGETOWN, TX

LOCATION.--Lat 30°41'28", long 97°39'21", Williamson County, Hydrologic Unit 12070205, on right bank at upstream side of upstream service road on Interstate Highway 35, 2.9 mi north of the county courthouse at Georgetown, and 3.6 mi upstream from mouth.

DRAINAGE AREA.--83.1 mi<sup>2</sup>.

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

Water-quality records.--Sediment records: October 1976 to September 1981.

REVISED RECORDS.--WDR IX-76-2: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and data collection platform (DCP). Datum of gage is 659.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. No regulation or diversions. Several observations of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921 occurred September 1921, 25 ft, from information by State Department of Highways and Public Transportation and local residents (discharge not determined).

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 21	1000	5,690	13.32	Feb. 25	1330	1,310	6.52
Dec. 22	1400	3,530	10.92	Mar. 4	1300	4,420	12.04
Jan. 26	2300	3,630	11.10	May 21	2100	1,130	6.08
Feb. 3	2130	5,490	13.16	June 2	0200	3,340	10.55
Feb. 24	1830	4,640	12.29				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.16	.27	72	114	132	84	46	108	42	20	11
2	.43	.16	.38	219	135	125	82	46	901	39	20	11
3	.31	.16	.16	88	2550	132	80	46	130	38	19	11
4	.22	.16	.15	70	2570	1760	77	45	85	36	17	11
5	.16	.16	.16	103	741	414	81	44	72	34	17	10
6	.16	e.16	.16	87	246	203	97	42	70	32	17	9.6
7	.16	e.16	.16	74	185	158	80	42	98	32	17	9.6
8	.16	e.16	.24	88	157	142	75	42	72	32	16	9.4
9	.16	e.16	1.1	71	144	207	72	41	63	32	16	8.3
10	.16	e.16	.18	65	135	146	69	41	64	30	17	8.0
11	.16	e.16	.23	64	130	104	67	41	63	29	17	8.3
12	.16	e.16	.48	80	187	103	65	40	98	28	19	8.2
13	.16	e.16	.56	76	133	96	63	40	87	28	19	8.0
14	.16	.16	.77	65	127	94	61	40	64	27	19	7.7
15	.16	.16	.94	62	119	89	60	40	59	27	19	7.7
16	.16	.16	.94	60	107	86	59	50	55	25	19	7.7
17	.16	.37	.94	62	102	88	60	145	54	23	18	7.7
18	.16	.17	1.5	314	98	98	63	58	51	22	17	7.8
19	.16	.16	4.0	162	95	90	61	109	49	22	16	8.1
20	.16	.19	606	97	94	83	59	76	49	23	16	8.1
21	.16	.27	4300	194	91	83	56	283	48	24	16	8.3
22	.16	.27	1390	363	314	83	54	294	46	25	16	7.7
23	.16	.27	252	116	144	81	53	91	46	24	15	7.7
24	.16	.27	105	90	1470	79	52	73	46	25	15	7.7
25	.16	.33	84	83	913	79	50	73	44	22	15	7.7
26	.16	.40	109	711	275	78	49	158	44	21	11	7.7
27	.16	.40	185	1030	185	78	49	82	100	20	9.9	7.7
28	.16	.40	101	233	156	114	48	74	79	20	10	7.7
29	.16	.36	84	206	142	123	47	69	51	19	11	7.7
30	.16	.27	79	169	---	89	47	64	45	19	11	7.6
31	.16	---	73	131	---	87	---	65	---	20	11	---
TOTAL	5.68	6.69	7381.32	5305	11859	5324	1920	2400	2841	840	495.9	255.7
MEAN	.18	.22	238	171	409	172	64.0	77.4	94.7	27.1	16.0	8.52
MAX	.43	.40	4300	1030	2570	1760	97	294	901	42	20	11
MIN	.16	.16	.15	60	91	78	47	40	44	19	9.9	7.6
AC-FI	11	13	14640	10520	23520	10560	3810	4760	5640	1670	984	507

e Estimated



## BRAZOS RIVER BASIN

08105100 BERRY CREEK NEAR GEORGETOWN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992, BY WATER YEAR (WY)

MEAN	17.3	9.68	24.4	30.5	53.2	34.1	34.7	48.6	50.6	14.0	5.30	8.81
MAX	158	74.2	238	264	409	172	168	148	321	45.9	18.3	82.4
(WY)	1975	1975	1992	1968	1992	1992	1977	1979	1981	1973	1975	1974
MIN	.000	.000	.000	.000	.019	.010	.005	.003	.025	.000	.000	.000
(WY)	1979	1989	1989	1990	1984	1984	1984	1971	1978	1978	1978	1978

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1968 - 1992

ANNUAL TOTAL	14261.52	38634.29	
ANNUAL MEAN	39.1	106	27.4
HIGHEST ANNUAL MEAN			106
LOWEST ANNUAL MEAN			.047
HIGHEST DAILY MEAN	4300	Dec 21	4670
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.05	Jan 1	.00
INSTANTANEOUS PEAK FLOW			15500
INSTANTANEOUS PEAK STAGE			19.33
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	28290	76630	19870
10 PERCENT EXCEEDS	44	156	49
50 PERCENT EXCEEDS	10	44	4.9
90 PERCENT EXCEEDS	.16	.16	.00

## 08105600 GRANGER LAKE NEAR GRANGER, TX

LOCATION.--30°41'34", long 97°19'34", Williamson County, Hydrologic Unit 12070205, at Granger Dam on San Gabriel River, 1.5 mi south of Friendship, 2.2 mi upstream from Willis Creek, 7.1 mi east of Granger, and at mile 31.9.

DRAINAGE AREA.--730 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1980 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1980 to August 1989.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 27, 1980, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 16,320 ft long, including the spillway. The lake was built for water conservation and flood control. Deliberate impoundment began on Jan. 21, 1980. The spillway is an ungated 950-foot long ogee weir, located near right end of dam. The spillway for normal flood releases is a gated 18-foot-diameter conduit, controlled by two 8- by 18-foot slide gates, located near the center of dam. The invert for the floodgate is 457.0 ft. A low-flow outlet consists of three 3- by 4-foot gated openings, with invert elevations of 486.0, 494.0, and 502.0 ft. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	555.0	674,500
Designed flood.....	550.3	580,000
Crest of spillway.....	528.0	244,200
Top of conservation pool.....	504.0	65,510
Lowest gated outlet (invert of 18-foot conduit).....	457.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 268,200 acre-ft Mar. 5, 1992 (elevation, 530.11 ft); minimum, 615 acre-ft Jan. 21, 1980 (elevation, 462.60 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 268,200 acre-ft Mar. 5 (elevation, 530.11 ft); minimum daily, 63,820 acre-ft Oct. 26 (elevation, 503.61 ft).

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

503.0	61,260	518.0	149,900	528.0	244,200
507.0	79,510	521.0	174,900	529.0	255,400
511.0	101,600	524.0	202,700	530.0	266,900
515.0	127,500	526.0	222,800	531.0	278,800

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65900	65200	66170	156600	168200	251500	222500	173200	173400	141300	66970	66340
2	65900	65070	66170	158400	168800	251800	220400	171900	184100	138000	67540	66430
3	65900	64980	66120	158000	176600	252500	218300	169600	186200	133500	67720	66570
4	65860	64940	66120	157500	227700	266600	216200	167900	187200	128900	67680	66660
5	65640	64890	66120	157200	236300	265800	215100	166200	187600	126800	67630	66480
6	65460	64850	66170	156500	239500	261000	213700	164000	191000	124400	67540	66260
7	65420	64850	66210	155700	241700	257900	212600	162200	192600	120400	67360	66080
8	65290	64760	66740	153500	243700	256200	211600	160000	192400	117100	67230	66080
9	65200	64720	68030	150400	245400	256100	210500	157900	191000	114200	67050	66120
10	65110	64680	67540	147600	243200	255300	209300	155700	189800	112400	66880	66170
11	65070	64680	67050	144800	241500	254500	208100	153300	188500	110700	66740	66340
12	64980	64630	66790	142800	239500	253700	206200	149700	187200	109200	66570	66480
13	64940	64630	66610	139600	236200	251200	204200	146200	186100	107500	66390	66570
14	64760	64630	66340	136900	234000	249100	202500	143300	184700	106100	66210	66660
15	64680	64680	66170	134000	231300	247500	201100	141600	182600	104100	66040	66700
16	64590	64890	66120	131700	229400	245800	199600	146500	180300	101300	65860	66740
17	64460	65290	65990	130500	225800	244900	198300	152200	177200	97360	65770	66790
18	64370	65290	66480	132600	222700	243500	197600	154300	173500	95500	65820	66830
19	64290	65460	68120	134600	219700	241900	193400	155400	170700	93550	66040	66830
20	64200	65550	83760	135600	219200	240500	191500	154800	167400	90630	66170	66830
21	64070	65680	137000	138100	218300	239700	189900	159500	164300	87740	66300	66740
22	64070	65770	155300	141200	223400	237700	188000	164700	161200	84020	66430	66700
23	63940	65730	159000	142500	225000	235300	186200	165900	158600	80970	66570	66700
24	63900	65730	160500	143500	243000	233600	184100	164300	156100	77520	66520	66660
25	63860	65640	160800	144400	249400	231300	182500	164700	154000	73520	66390	66570
26	63820	65680	160400	149000	249800	230200	181000	166400	150800	70690	66210	66520
27	63990	65820	160200	160400	251900	229200	179200	167400	150300	68530	65990	66520
28	64760	65990	159600	163000	251600	228900	178000	168700	149000	67590	65950	66390
29	65290	66120	158800	165400	251400	228000	175900	169100	145800	67050	66040	66300
30	65240	66120	158000	167200	---	226400	174500	169600	143100	66920	66040	66210
31	65330	---	157200	167900	---	224300	---	170500	---	66920	66170	---
MAX	65900	66120	160800	167900	251900	266600	222500	173200	192600	141300	67720	66830
MIN	63820	64630	65990	130500	168200	224300	174500	141600	143100	66920	65770	66080
(+)	503.96	504.14	518.91	520.19	528.65	526.15	520.95	520.49	517.13	504.32	504.15	504.16
(-)	-400	-790	+91080	+10700	+83500	-27100	49800	-4000	-27400	-76180	-750	+40

CAL YR 1991 MAX 160800 MIN 62250 (+) +94990  
WTR YR 1992 MAX 266600 MIN 63820 (-) +480

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

## BRAZOS RIVER BASIN

08105700 SAN GABRIEL RIVER AT LANEPORT, TX

LOCATION.--Lat 30°41'39", long 97°16'43", Williamson County, Hydrologic Unit 120/0205, on right bank at upstream side of county bridge, 0.2 mi north of Laneport, 3.4 mi downstream from Willis Creek, 7.5 mi northwest of Thrall, and 26.2 mi upstream from mouth.

DRAINAGE AREA.--738 mi<sup>2</sup>.

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

Water-Quality records.--Chemical and biochemical analyses: July 1972 to August 1989. Continuous daily water temperature records: December 1976 to March 1982.

REVISED RECORDS.--WRD TX-74-1: 1965(M), 1966(P), 1967(M), 1968, 1969(P), 1973(P). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 412.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good including those of estimated daily discharges. Flow partly regulated by Granger Lake (station 08105600) since Jan. 21, 1980. U.S. Army Corps of Engineers satellite telemeter (DCP) at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--14 years (water years 1966-79) prior to regulation by Granger Lake, 289 ft<sup>3</sup>/s (209,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1966-79).--Maximum discharge, 31,200 ft<sup>3</sup>/s Oct. 31, 1974 (gage height, 30.80 ft); minimum daily, 0.28 ft<sup>3</sup>/s Aug. 25-28, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1910, occurred during September 1921, 39.6 ft; in April 1957, 34.6 ft; and in October 1959, 33.8 ft; from floodmarks at present site and datum. Discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	57	58	1340	951	961	1980	1610	102	2740	189	11
2	57	56	59	1350	952	998	1970	1610	168	2520	191	10
3	56	56	58	1340	805	1080	1970	1600	104	2510	198	9.6
4	56	56	58	1340	225	2680	1970	1670	99	2470	192	86
5	56	56	59	1350	139	6870	1980	1710	221	2410	193	170
6	56	57	59	1340	109	5130	1850	1700	430	2400	208	172
7	55	57	59	1450	104	3250	1650	1700	214	2240	208	173
8	55	58	60	1960	103	2430	1650	1800	684	1970	206	95
9	56	58	162	2290	102	2150	1620	1870	1560	1800	203	8.5
10	56	58	424	2470	1240	2090	1660	1860	1770	1730	201	6.8
11	56	58	416	2430	2290	1750	1640	1860	1920	1860	201	7.1
12	56	58	338	2420	2250	1610	1620	1860	1990	1870	199	7.5
13	56	57	203	2430	2550	2070	1620	1860	1960	1950	199	7.5
14	56	58	203	2420	2760	2190	1630	1860	1900	1990	198	12
15	56	57	163	2390	2760	1880	1660	1840	2010	2160	196	34
16	56	58	125	2210	2750	1790	1660	1780	2250	2450	194	35
17	56	59	124	1900	2740	1890	1660	220	2400	2790	156	36
18	56	57	130	1580	2740	1990	1660	96	2440	2910	15	37
19	56	57	157	687	2710	1970	1480	90	2440	2960	12	48
20	56	57	452	95	2260	1970	1490	1050	2400	2970	12	48
21	56	57	563	96	1870	1960	1620	1930	2410	2920	11	48
22	56	57	272	99	1360	1960	1620	1130	2410	2900	11	46
23	57	58	99	90	111	1970	1610	110	2400	2840	11	8.8
24	57	61	92	90	243	1980	1610	943	2390	2770	90	51
25	57	58	497	89	402	1980	1610	1400	2420	2750	176	52
26	57	58	1360	105	1020	1980	1610	108	2440	2440	177	52
27	58	58	1360	115	1090	1980	1610	99	2440	1940	175	50
28	58	58	1350	94	1060	2000	1610	98	2420	1340	98	47
29	60	58	1350	92	996	1990	1610	95	2400	799	10	47
30	57	58	1350	92	---	1980	1610	96	2680	383	9.4	47
31	58	---	1340	520	---	1980	---	98	---	281	11	---
TOTAL	1754	1726	13000	36274	38692	68509	50540	35753	51472	68063	4150.4	1462.8
MEAN	56.6	57.5	419	1170	1334	2210	1685	1153	1716	2196	134	48.8
MAX	60	61	1360	2470	2760	6870	1980	1930	2680	2970	208	173
MIN	55	56	58	89	102	961	1480	90	99	281	9.4	6.8
AC-F1	3480	3420	25790	71950	76750	135900	100200	70920	102100	135000	8230	2900

## BRAZOS RIVER BASIN

355

08105700 SAN GABRIEL RIVER AT LANEPORT, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1992#, BY WATER YEAR (WY)

MEAN	83.6	104	205	262	291	389	282	392	531	528	40.7	90.1
MAX	464	378	953	1233	1334	2210	1685	1153	1732	2196	134	922
(WY)	1982	1982	1986	1987	1992	1992	1992	1992	1981	1992	1992	1981
MIN	3.21	3.99	3.06	5.25	2.62	3.24	3.53	2.87	10.3	.19	.018	.000
(WY)	1983	1983	1983	1981	1980	1980	1984	1984	1990	1984	1984	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1980 - 1992#
ANNUAL TOTAL	88243.7	371396.2	
ANNUAL MEAN	242	1015	267
HIGHEST ANNUAL MEAN			1015
LOWEST ANNUAL MEAN			21.4
HIGHEST DAILY MEAN	1590 Apr 20	6870 Mar 5	6870 Mar 5 1992
LOWEST DAILY MEAN	3.7 Feb 3	6.8 Sep 10	.00 Aug 21 1984
ANNUAL SEVEN-DAY MINIMUM	5.0 Jan 2	12 Sep 9	.00 Aug 21 1984
INSTANTANEOUS PEAK FLOW		7540 Mar 5	31200 Oct 31 1974
INSTANTANEOUS PEAK STAGE		21.86 Mar 5	30.80 Oct 31 1974
INSTANTANEOUS LOW FLOW		6.8 Sep 10	.00 *
ANNUAL RUNOFF (AC-FT)	175000	736700	193100
10 PERCENT EXCEEDS	658	2420	911
50 PERCENT EXCEEDS	87	441	28
90 PERCENT EXCEEDS	55	56	2.9

# Period of regulated streamflow.

\* No flow Aug. 21 to Oct 6 and Oct. 13-15, 1985.

## BRAZOS RIVER BASIN

08106310 SAN GABRIEL RIVER NEAR ROCKDALE, TX

LOCATION.--Lat 30°43'39", long 97°02'19", Milam County, Hydrologic Unit 12070204, on left bank at downstream side of Farm Road 487, 1.2 mi downstream from Brushy Creek, 4.3 mi upstream from mouth, and 5.3 mi north of Rockdale.

DRAINAGE AREA.--1,359 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to September 1992, (discontinued). Prior to October 1980, gage-height record only (not published).

GAUGE.--Water-stage recorder and data collection platform. Datum of gage is 311.59 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period Dec. 28 to Aug. 29, which are poor, because of backwater from Little River. Flow largely regulated by Granger Lake (station 08105600). Flow may be affected at times by discharge from the flood-detention pools of 46 floodwater-retarding structures with a combined detention capacity of 46,140 acre-ft. These structures control runoff from 144 mi<sup>2</sup> in the Brushy Creek drainage basin. Backwater from Little River occurs at times. Several observations of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter (DCP) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	159	118	2320	947	2280	2210	1790	870	3070	687	70
2	167	164	118	2270	1290	2230	2170	1480	8250	2900	663	65
3	118	131	117	2690	3440	2200	2150	1640	10500	2850	742	61
4	90	120	118	2080	12100	5880	2130	1760	2740	2840	906	62
5	81	115	117	1910	12800	12000	2130	1830	1340	2810	726	142
6	78	114	118	2020	6780	9340	2270	1830	2000	2820	664	179
7	76	113	119	1940	2200	6020	2010	1800	3700	2800	641	155
8	75	111	120	2100	1770	4140	1930	1780	900	2630	627	151
9	75	111	211	2450	1570	3600	1920	1890	2290	2510	613	75
10	74	111	1170	2530	1560	3960	1920	1880	2380	2390	604	51
11	73	111	516	2500	3060	3110	1910	1870	2520	2470	606	57
12	73	110	453	2620	3140	2770	1900	1860	2800	2470	594	53
13	72	111	326	2690	3240	2520	1880	1930	2960	2460	540	48
14	72	109	318	2510	3480	2670	1850	1950	2820	2540	509	47
15	71	110	301	2450	3330	2550	1830	2050	2730	2480	506	49
16	71	112	227	2410	3280	2350	1820	2440	2850	2660	499	59
17	71	121	215	2130	3200	2170	1840	5710	3050	2730	498	59
18	71	221	223	3180	3120	2540	2170	8410	3100	2840	439	58
19	72	185	1360	3310	3010	2660	2000	2580	3100	2840	376	59
20	72	141	3080	1630	2940	2420	1700	1650	3070	2980	317	63
21	72	130	26100	690	2390	2240	1790	3430	3040	2950	267	64
22	72	124	17800	1910	3350	2220	1750	10100	3040	2870	227	63
23	72	119	13800	1860	3830	2220	1740	5990	3050	2830	157	80
24	73	118	7640	870	4280	2200	1770	1830	3080	2760	114	101
25	73	117	2290	468	11900	2180	1810	2250	3040	2750	180	96
26	73	115	2780	531	6690	2150	1850	1780	3040	2710	193	81
27	74	117	3750	3860	2810	2120	1860	951	3040	2470	186	73
28	76	118	3150	4770	2400	2360	1840	561	3480	1900	169	69
29	83	118	2640	2200	2310	3530	1830	904	3150	1370	91	64
30	444	118	2490	814	---	2700	1800	565	3000	906	71	63
31	316	---	2440	453	---	2330	---	430	---	802	67	---
TOTAL	3078	3774	94225	66166	116217	103660	57780	76921	94930	78408	13479	2317
MEAN	99.3	126	3040	2134	4007	3344	1926	2481	3164	2529	435	77.2
MAX	444	221	26100	4770	12800	12000	2270	10100	10500	3070	906	179
MIN	71	109	117	453	947	2120	1700	430	870	802	67	47
AC-FT	6110	7490	186900	131200	230500	205600	114600	152600	188300	155500	26740	4600

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1992#, BY WATER YEAR (WY)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	263	192	632	552	718	662	429	929	1273	670	100	133	
MAX	1238	516	3040	2134	4007	3344	1926	2481	4234	2579	435	1094	
(WY)	1985	1987	1992	1992	1992	1992	1992	1992	1981	1987	1992	1981	
MIN	4.36	8.74	12.1	15.9	26.5	47.5	10.9	6.31	66.7	1.30	4.01	.76	
(WY)	1990	1989	1990	1990	1989	1989	1984	1984	1990	1984	1984	1984	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1980 - 1992

	1991	1992	1980-1992
ANNUAL TOTAL	247080	710955	545
ANNUAL MEAN	677	1942	1942
HIGHEST ANNUAL MEAN			44.3
LOWEST ANNUAL MEAN			26100
HIGHEST DAILY MEAN	26100	Dec 21	Dec 21 1991
LOWEST DAILY MEAN	29	Jan 1	.08 Jul 13 1984
ANNUAL SEVEN-DAY MINIMUM	70	Aug 5	.31 Jul 10 1984
INSTANTANEOUS PEAK FLOW		39000	Dec 21 1991
INSTANTANEOUS PEAK STAGE		35.74	Dec 21 1991
INSTANTANEOUS LOW FLOW		47	.08 Jul 13 1984
ANNUAL RUNOFF (AC-FT)	490100	1410000	395000
10 PERCENT EXCEEDS	1300	3290	1740
50 PERCENT EXCEEDS	211	1830	86
90 PERCENT EXCEEDS	74	73	6.5

# Period of regulated streamflow.

BRAZOS RIVER BASIN

357

08106350 LITTLE RIVER NEAR ROCKDALE, TX

LOCATION.--lat 30°45'38", long 97°00'49", Milam County, Hydrologic Unit 12070204, on right bank downstream from Alcoa pumping station, 200 ft downstream from mouth of San Gabriel River, and 6.8 mi north of Rockdale.

DRAINAGE AREA.--6,959 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 299.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Daily discharges are not published above 1,000 ft<sup>3</sup>/s. There are numerous diversions for irrigation and municipal supply above station. For statement regarding regulations by the Soil Conservation Service floodwater-retarding structures, see station Nos. 08104500 and 08106310. The Aluminum Co. of America diverts water from Little River to their plant reservoir. No observations of water temperature were made during the year. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 38.34 ft Dec. 21, 1991 (maximum discharge not determined); minimum daily, 13 ft<sup>3</sup>/s May 9, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 38.34 ft Dec. 21 at 1600 hours (maximum discharge not determined); minimum daily discharge, 164 ft<sup>3</sup>/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	536	---	709	---	---	---	---	---	---	---	---	855
2	640	---	701	---	---	---	---	---	---	---	---	838
3	600	---	---	---	---	---	---	---	---	---	---	---
4	527	---	---	---	---	---	---	---	---	---	---	---
5	316	---	---	---	---	---	---	---	---	---	---	---
6	243	---	863	---	---	---	---	---	---	---	---	---
7	225	---	850	---	---	---	---	---	---	---	---	---
8	216	---	765	---	---	---	---	---	---	---	---	---
9	210	---	---	---	---	---	---	---	---	---	---	---
10	191	773	---	---	---	---	---	---	---	---	---	---
11	181	759	---	---	---	---	---	---	---	---	---	---
12	180	743	---	---	---	---	---	---	---	---	---	---
13	178	---	---	---	---	---	---	---	---	---	---	---
14	174	---	---	---	---	---	---	---	---	---	---	850
15	172	---	---	---	---	---	---	---	---	---	---	826
16	168	---	---	---	---	---	---	---	---	---	---	823
17	169	---	---	---	---	---	---	---	---	---	---	804
18	169	---	---	---	---	---	---	---	---	---	---	809
19	164	---	---	---	---	---	---	---	---	---	---	965
20	165	---	---	---	---	---	---	---	---	---	---	983
21	182	---	---	---	---	---	---	---	---	---	---	956
22	194	---	---	---	---	---	---	---	---	---	---	947
23	194	---	---	---	---	---	---	---	---	---	---	905
24	194	876	---	---	---	---	---	---	---	---	---	829
25	194	845	---	---	---	---	---	---	---	---	---	810
26	194	832	---	---	---	---	---	---	---	---	---	643
27	192	758	---	---	---	---	---	---	---	---	---	662
28	325	733	---	---	---	---	---	---	---	---	---	653
29	382	732	---	---	---	---	---	---	---	---	---	638
30	---	720	---	---	---	---	---	---	---	---	---	609
31	---	---	---	---	---	---	---	---	---	---	892	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
AC-FT	---	---	---	---	---	---	---	---	---	---	---	---
CAL YR 1991	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---
WTR YR 1992	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---	---	---



## BRAZOS RIVER BASIN

## 08106500 LITTLE RIVER AT CAMERON, TX

LOCATION (REVISED).--Lat 30°50'06", Long 96°56'47", Milam County, Hydrologic Unit 12070204, on right bank at bridge on U.S. Highway 77, 2,020 ft downstream from old McCowan bridge, 0.7 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2 mi southeast of Cameron, and 33.2 mi upstream from mouth.

DRAINAGE AREA.--7,065 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1916 to current year.

REVISED RECORDS.--WSP 718: 1918-20, 1922. WSP 1512: 1918-20(M), 1921, 1922(M), 1924(M), 1926, 1929-30, 1934, 1935(M), 1936, 1940(M), 1941, 1944-45(M). WDR TX-76-2: Drainage area.

GAGE.--Period Oct. 1, to Aug. 13, 1992, water-stage recorder and data collection platform (DCP). Period Aug. 14, to Sept. 30, 1992, non-recording gage at site 2,020 ft downstream. Datum of gage is 281.89 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Nov. 2, 1916, to Sept. 30, 1922, nonrecording gage at site 2.2 mi upstream at different datum. Oct. 1, 1922, to Apr. 8, 1926, nonrecording gage at McCowan bridge 1,990 ft upstream at same datum. Apr. 9, 1926, to Oct. 9, 1933, nonrecording gage at same location but at 1.58 ft lower datum. Oct. 10, 1933, to Aug. 13, 1992, recording gage at site 2,020 ft upstream at same datum.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. Many small diversions for irrigation and municipal supply affect low flows. Since Mar. 8, 1954, 50 percent of the drainage area has been regulated by Belton Lake (station 08102000) on the Leon River, since Sept. 21, 1966, an additional 19 percent of the drainage area by Stillhouse Hollow Lake (station 08104050) on the Lampasas River, and since Jan. 21, 1980, an additional 10 percent of the drainage area by Granger Lake (station 08105700) on the San Gabriel River. The Aluminum Co. of America diverts water 10.9 mi upstream from the gage for use at their Rockdale plant. The city of Cameron diverts water for municipal use 2.1 mi upstream from gage. Treated effluent is returned to the river upstream from gage. Flow is slightly affected at times by discharge from the flood-detention pools of 65 floodwater-retarding structures with a combined detention capacity of 68,500 acre-ft. These structures control runoff from 209 mi<sup>2</sup> in the Nolan, Donahoe, and Brushy Creeks drainage basins. Satellite telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--36 years (water years 1918-53), prior to regulation by Belton Lake, 1.80/ ft<sup>3</sup>/s (1,309,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1918-53).--Maximum discharge, 647,000 ft<sup>3</sup>/s Sept. 10, 1921 (gage height, 53.2 ft, present datum, from floodmark), from rating curve extended above 110,000 ft<sup>3</sup>/s on basis of slope-area measurement of 647,000 ft<sup>3</sup>/s; no flow July 12-27, 1956. Maximum stage since 1852, that of Sept. 10, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1852 reached about the same stage as that of Sept. 10, 1921. Flood in December 1913, reached a stage of 49.0 ft. Stages based on information furnished by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	496	990	724	7780	5790	12800	10700	10600	4750	10500	6500	e1130
2	581	1250	715	8610	7820	12800	10600	9300	10800	10400	6420	1020
3	584	2090	865	10300	9790	12200	10600	9760	14000	10200	6570	1070
4	497	2650	1430	8980	24600	14200	10600	10400	8010	10200	7110	1030
5	307	2700	1390	8150	45300	26700	10500	10600	3740	10100	6660	1560
6	203	2710	886	8190	28600	31900	10700	10600	4310	10100	6450	2210
7	185	2590	858	8010	9320	30100	10600	10500	6930	10100	6380	2320
8	178	1850	782	7980	4660	26000	10500	10400	5410	10100	6330	2280
9	173	1530	858	8460	e3900	20200	10500	10500	4270	10000	6290	1930
10	158	765	2000	8590	e3600	18300	10600	10500	7260	10000	6260	1090
11	143	717	1620	8750	5700	16100	10600	10500	8570	10000	6270	1020
12	142	697	1680	9340	8100	13800	10600	10500	9320	10000	6240	1520
13	141	912	1650	9840	9640	12100	10500	10700	9850	9920	e6070	1040
14	137	1610	1600	9680	9650	11700	10600	10700	10000	9990	e5900	892
15	137	1650	1530	9750	9610	11800	10500	10500	9980	9660	e5870	854
16	134	1660	1180	9930	9740	11500	10500	11100	9980	9580	e5870	841
17	135	1710	1130	10000	9920	10600	10600	15000	10200	9420	e5870	831
18	137	1960	1140	11800	9910	11100	10900	26100	10300	9430	e5670	811
19	136	1930	2030	14800	9850	11800	10800	16100	10300	9370	e5580	912
20	133	1940	5200	12100	10200	11300	e10300	5380	10200	10000	e5300	e912
21	141	1990	52200	9460	10100	10600	e10200	6490	10200	9730	e5000	e932
22	163	1700	71300	10700	11500	10500	10200	16300	10100	9400	e4780	e1060
23	164	995	38200	11600	15100	10600	10200	24100	10200	9270	e4190	e831
24	163	888	22800	9220	14200	10500	10300	10500	10300	9140	e3530	e795
25	163	851	6610	7740	25900	10500	10500	5410	10300	9040	e3400	e724
26	166	848	5220	7520	27000	10500	10700	8140	10200	8970	e3480	e724
27	167	784	8480	11600	14300	10400	10800	6540	10300	8640	e3280	682
28	223	751	8720	17500	11700	10600	10700	3680	10700	8030	e2390	676
29	392	745	7970	11900	12400	12500	10700	4570	10700	7400	e1890	658
30	875	734	7650	6140	---	12300	10700	4740	10300	6870	e1480	624
31	1220	---	7520	5090	---	11100	---	4470	---	6640	e1260	---
TOTAL	8574	44197	265938	299510	377900	447100	316800	324680	271480	292200	158290	32979
MEAN	277	1473	8579	9662	13030	14420	10560	10470	9049	9426	5106	1099
MAX	1220	2710	71300	17500	45300	31900	10900	26100	14000	10500	7110	2320
MIN	133	697	715	5090	3600	10400	10200	3680	3740	6640	1260	624
AC-FT	17010	87660	527500	594100	749600	886800	628400	644000	538500	579600	314000	65410

e Estimated

BRAZOS RIVER BASIN

359

08106500 LITTLE RIVER AT CAMERON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992# , BY WATER YEAR (WY)

MEAN	1330	1037	1340	1663	2085	1829	2088	3221	2697	1701	640	611
MAX	10140	5063	8579	9662	13030	14420	10560	12970	11330	9426	5106	3141
(WY)	1960	1975	1992	1992	1992	1992	1992	1965	1957	1992	1992	1974
MIN	17.2	18.4	23.0	34.5	50.2	22.8	16.5	132	15.1	1.58	6.24	4.40
(WY)	1955	1956	1955	1956	1957	1956	1956	1984	1954	1956	1954	1956

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1954 - 1992#	
ANNUAL TOTAL	725440		2839648		1685	
ANNUAL MEAN	1988		7759		7759	1992
HIGHEST ANNUAL MEAN					174	1956
LOWEST ANNUAL MEAN					84200	May 18 1965
HIGHEST DAILY MEAN	71300	Dec 22	71300	Dec 22	.00	Jul 12 1956
LOWEST DAILY MEAN	132	Aug 11	133	Oct 20	.00	Jul 12 1956
ANNUAL SEVEN-DAY MINIMUM	136	Oct 14	136	Oct 14	.00	Jul 12 1956
INSTANTANEOUS PEAK FLOW			116000	Dec 21	116000	Apr 5 1957
INSTANTANEOUS PEAK STAGE			38.95	Dec 21	39.56	Apr 5 1957
INSTANTANEOUS LOW FLOW			133	Oct 20	.00	*
ANNUAL RUNOFF (AC-FT)	1439000		5632000		1220000	
10 PERCENT EXCEEDS	3530		12100		4710	
50 PERCENT EXCEEDS	851		8170		468	
90 PERCENT EXCEEDS	175		722		61	

# Period of regulated streamflow.

\* No flow July 12-27, 1956.

08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1959 to September 1974. Chemical and biochemical analyses: January 1968 to current year. Sediment analyses: February 1978 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1959 to current year.

WATER TEMPERATURES: October 1959 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,280 microsiemens Sept. 25, 26, 1963; minimum daily, 154 microsiemens Sept. 13, 1974.

WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 6, 1964, Aug. 1, 1969; minimum daily, 0.0°C Dec. 25, 26, 29, 30, 1983.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 800 microsiemens Sept. 13; minimum daily, 223 microsiemens Dec. 23.

WATER TEMPERATURE: Maximum daily, 29.5°C Sept. 9; minimum daily, 9.0°C Jan. 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)
NOV 20...	1035	1790	425	7.5	15.0	70	9.5	95	1.1	<150	600	150
JAN 28...	1430	18300	319	8.0	11.0	200	10.3	94	3.5	3200	24000	110
MAR 24...	1155	10200	413	8.3	14.0	100	--	--	0.6	K100	K120	180
MAY 20...	1100	5440	395	7.3	23.0	700	6.5	77	4.8	K1500	3800	160
AUG 04...	1145	7560	438	7.7	26.0	240	6.6	81	1.9	K1500	4100	190

DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKALINITY WAT DIS FIX END FIELD (MG/L AS CaCO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)
NOV 20...	10	46	8.8	27	1	5.6	0	173	140	142	28	42
JAN 28...	45	38	4.6	12	0.5	3.5	0	84	69	69	21	28
MAR 24...	34	57	9.2	15	0.5	3.1	0	179	--	146	22	26
MAY 20...	28	55	6.2	17	0.6	3.4	0	165	130	135	28	23
AUG 04...	25	57	11	19	0.6	3.3	0	199	160	163	26	34

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 20...	0.30	6.7	272	252	0.500	0.490	0.020	0.010	0.520	0.500	0.010	0.020
JAN 28...	0.20	9.5	189	163	1.08	--	0.020	<0.010	1.10	1.10	0.220	0.020
MAR 24...	0.20	8.5	237	234	0.940	0.990	0.060	0.010	1.00	1.00	0.020	0.020
MAY 20...	0.30	11	235	239	2.92	2.93	0.080	0.070	3.00	3.00	0.040	0.050
AUG 04...	0.30	9.7	273	262	0.680	0.680	0.050	0.040	0.730	0.720	0.020	0.020

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDIMENT, DISCHARGE, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. STEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DIS-SOLVED (UG/L AS AL)
NOV 20...	--	<0.20	0.110	0.080	0.070	0.090	0.21	244	1180	88	10
JAN 28...	0.28	0.50	0.250	0.060	0.090	0.070	0.28	879	43400	57	--
MAR 24...	0.58	0.60	0.250	0.020	0.030	0.060	0.09	796	21900	36	10
MAY 20...	0.36	0.40	0.090	0.070	0.060	0.060	0.18	1800	26400	92	20
AUG 04...	1.4	1.4	0.800	0.040	0.030	0.030	0.09	1120	22900	63	20

08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 20...		60	<3	10	4	<1	<10	<1	<1	<1.0	330	<6
JAN 28...		--	--	--	--	--	--	--	--	--	--	--
MAR 24...		51	<3	4	6	2	<10	<1	<1	<1.0	490	<6
MAY 20...		49	<3	14	6	<1	<10	2	<1	<1.0	420	8
AUG 04...		61	<3	15	7	1	<10	1	<1	<1.0	600	7
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)		
OCT.	1991	8574	513	286	6610	40	936	32	750	190		
NOV.	1991	44197	422	235	28000	32	3800	23	2780	170		
DEC.	1991	265938	316	176	126000	23	16500	16	11200	130		
JAN.	1992	299510	384	214	173000	29	23100	20	16400	160		
FEB.	1992	377900	423	236	240000	32	32900	24	24600	170		
MAR.	1992	447100	434	242	292000	33	39800	25	29600	170		
APR.	1992	316800	433	241	206000	33	28000	24	20700	170		
MAY	1992	324680	442	246	216000	34	29500	25	22100	170		
JUNE	1992	271480	445	247	181000	34	24900	25	18700	170		
JULY	1992	292200	471	262	207000	36	28600	28	21800	180		
AUG.	1992	158290	489	272	116000	38	16200	29	12600	190		
SEPT	1992	32979	589	328	29200	48	4250	40	3570	210		
TOTAL		2839648	**	**	1821000	**	249000	**	185000	**		
WTD.AVG.		7759	427	238	**	32	**	24	**	170		

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	290	476	382	446	418	423	443	530	469	482	660
2	460	420	477	368	446	418	426	454	317	478	487	650
3	490	410	478	368	450	532	426	440	312	470	478	650
4	460	400	445	361	378	656	425	443	408	470	463	630
5	440	400	421	368	287	500	425	444	531	472	472	620
6	450	400	442	376	287	389	427	448	572	469	477	560
7	480	400	470	383	665	440	434	451	372	469	477	530
8	510	420	470	555	485	424	426	451	430	477	478	530
9	530	400	462	364	509	430	427	449	489	483	479	560
10	540	410	450	359	532	413	430	450	452	487	479	560
11	550	440	422	354	460	412	429	452	452	483	481	590
12	460	450	417	342	451	418	430	455	449	483	483	410
13	570	450	413	359	407	427	431	459	448	481	485	800
14	590	400	439	348	433	420	429	452	450	478	488	560
15	590	410	443	365	433	416	430	458	452	477	491	640
16	600	410	449	363	432	423	430	450	450	471	491	640
17	600	410	465	373	427	428	430	461	447	466	494	630
18	610	420	461	436	427	413	434	391	449	461	496	630
19	610	460	460	410	427	425	441	416	452	460	495	620
20	620	420	392	372	421	417	440	402	454	457	493	600
21	620	440	412	381	423	424	435	427	459	462	491	580
22	620	430	225	395	422	417	435	304	460	464	493	580
23	610	440	223	388	697	419	435	500	461	460	502	580
24	610	480	247	379	384	418	437	406	460	458	511	590
25	610	480	312	387	384	417	437	478	464	457	512	570
26	610	480	376	387	564	418	442	454	463	457	515	600
27	620	480	376	376	459	417	442	463	464	472	502	600
28	620	480	387	376	418	415	443	500	492	473	514	610
29	640	480	387	389	418	435	445	500	456	476	530	610
30	590	480	386	450	---	411	444	532	465	480	566	610
31	340	---	386	454	---	418	---	532	---	481	610	---
MI AN	552	430	409	386	447	433	433	450	452	471	497	600

## BRAZOS RIVER BASIN

08106500 LITTLE RIVER AT CAMERON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	20.0	15.0	13.0	12.0	15.0	23.0	18.5	21.5	24.5	26.0	25.0
2	21.0	19.0	12.0	13.0	12.0	15.0	26.5	18.5	22.0	25.0	26.0	25.5
3	21.5	20.0	12.0	12.0	12.0	17.0	22.0	19.0	23.0	25.0	26.0	26.0
4	23.0	---	11.0	12.5	13.5	19.0	20.0	18.0	23.5	24.0	26.0	26.0
5	22.5	20.0	12.0	13.0	12.0	19.0	21.0	18.0	24.5	24.5	26.5	26.5
6	20.5	16.0	12.5	12.5	11.0	17.0	21.0	18.0	24.0	25.0	26.5	27.0
7	20.0	17.0	14.0	12.5	12.5	17.0	21.0	17.0	24.0	24.5	27.0	27.5
8	19.0	14.0	17.0	13.0	12.0	16.0	22.0	17.0	24.0	24.5	27.0	29.0
9	20.0	14.0	17.0	12.5	12.0	16.0	22.0	17.5	24.0	24.5	27.0	29.5
10	19.5	15.0	17.0	12.0	12.0	17.0	22.5	18.0	22.0	24.5	28.0	28.0
11	20.0	14.0	16.5	11.0	13.0	14.5	22.5	19.0	22.5	24.5	27.5	26.5
12	21.0	14.0	17.0	11.5	13.5	14.0	23.0	19.5	22.0	24.5	27.0	26.0
13	22.0	14.5	16.0	12.0	13.5	14.5	22.0	19.5	23.0	24.5	27.0	26.0
14	22.0	16.5	14.0	10.5	14.0	15.0	22.5	19.5	23.0	24.5	27.0	26.0
15	20.0	17.0	13.5	11.0	13.5	16.0	22.5	19.0	23.0	25.0	26.5	27.0
16	20.0	17.5	12.0	10.0	14.0	16.0	22.5	19.0	23.0	25.0	26.0	26.0
17	22.0	17.0	12.0	10.0	13.0	16.0	22.5	20.0	23.5	25.5	26.0	27.0
18	22.0	15.5	12.5	11.0	12.5	16.0	22.5	22.0	24.0	25.0	26.0	27.0
19	22.0	17.0	12.5	12.0	13.0	14.0	23.0	19.0	24.0	25.0	26.0	26.5
20	20.5	15.0	14.0	9.0	12.0	14.0	22.0	23.0	24.0	25.0	26.0	27.0
21	20.5	14.0	15.0	10.0	12.0	13.5	22.0	23.0	24.0	24.5	26.0	27.0
22	21.0	19.0	14.0	11.0	12.0	13.0	23.0	21.0	24.0	25.0	27.0	26.5
23	22.0	13.0	14.0	10.0	14.5	12.0	23.0	22.0	23.0	25.0	27.0	25.0
24	23.0	13.0	13.0	10.5	14.0	14.0	23.0	23.0	24.0	25.5	27.0	24.0
25	23.5	11.5	13.0	11.0	13.0	13.5	22.5	23.0	24.0	26.5	27.0	22.5
26	24.0	12.0	13.0	12.0	12.0	14.0	22.5	21.0	24.0	26.5	27.5	24.0
27	23.0	13.5	11.0	11.5	12.0	14.0	22.5	22.0	23.5	26.5	27.0	24.0
28	24.0	16.0	11.5	12.0	14.0	14.0	23.0	22.0	24.0	26.5	26.0	23.0
29	24.0	17.0	12.0	12.0	14.0	14.5	23.0	22.0	24.0	26.0	25.5	23.0
30	24.0	18.0	12.0	12.0	---	14.0	23.0	21.0	24.5	25.5	25.5	22.5
31	16.0	---	12.0	12.0	---	14.0	---	21.5	---	26.0	25.5	---
MEAN	21.4	15.9	13.5	11.5	12.8	15.1	22.4	20.0	23.4	25.1	26.5	25.9



## BRAZOS RIVER MAIN STEM

363

08109000 BRAZOS RIVER NEAR BRYAN, TX

LOCATION.--Lat 30°36'50", long 96°29'11", Brazos-Burleson County line, Hydrologic Unit 12070101, on left bank 2.4 mi downstream from Little Brazos River, 5 mi downstream from Texas and New Orleans Railroad Co. bridge, 9 mi southwest of Bryan, and at mile 281.1.

DRAINAGE AREA.--39,515 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--August 1899 to December 1902, February 1918 to January 1926, June 1926 to current year. Monthly figures only for some periods, published in WSP 1312. Prior to September 1925, published as "near College Station".

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 192.33 ft above National Geodetic Vertical Datum of 1929. Aug. 1, 1899, to Dec. 31, 1902, and Feb. 23, 1918, to Sept. 17, 1925, nonrecording gage at site 7.5 mi downstream at different datum. Sept. 11, 1925, to Oct. 24, 1932 nonrecording a gage at site 3,000 ft upstream at present datum.

REMARKS.--No estimated daily discharges. Records fair. Flow is partly regulated by six upstream reservoirs with a combined capacity of 4,828,600 acre-ft, of which 3,482,690 acre-ft is for flood control. Many small diversions above station for irrigation, municipal, industrial, and oil field operation. Flow is affected at times by discharge from the flood-detention pools of 145 floodwater-retarding structures with a combined detention capacity of 152,800 acre-ft. These structures control runoff from 450 mi<sup>2</sup>. Since 1941, at least 10 percent of drainage area is regulated by upstream reservoirs. Several observations of water temperature were made during the year. Satellite telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--24 years (water years 1900-1902, 1919-25, 1927-40) prior to regulation by many upstream reservoirs, 5,652 ft<sup>3</sup>/s (4,095,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1900-1902, 1919-25, 1927-40).--Maximum gage height, 54 ft Sept. 12 1921, present site and datum (discharge not determined); minimum daily, 89 ft/s Aug. 24, 1934. Maximum stage since at least 1854, that of Sept. 12, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 5, 1913, reached a stage of 51 ft, present site and datum, from information by Texas and New Orleans Railroad Co. at their bridge 5 mi upstream and from comparison of maximum stages reached by floods in 1913 and 1921 at gage near College Station. Flood in 1854 reached about the same stage as flood of Dec. 5, 1913.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3150	19100	3880	46400	24200	24300	40900	14200	16100	17700	8130	2010
2	3000	22600	3670	46400	24200	21900	40400	13900	34800	16300	8010	1730
3	3040	24800	3060	49500	26200	21200	39200	12500	47800	15300	7820	1670
4	3150	26900	2970	51100	36800	27200	30600	13300	37500	16200	7670	2100
5	2850	27800	3690	49200	59100	49000	21400	14100	20700	14800	7960	2590
6	2060	28100	3520	47700	76400	54900	19100	15200	13100	14200	7460	2740
7	2240	28000	2750	47200	63300	50500	18800	15200	17500	14100	7590	3360
8	1540	27000	2690	46200	31800	43000	18300	14700	24000	14000	7800	3560
9	1220	21800	2740	45400	19100	34800	17500	14400	22000	14500	7610	3530
10	1140	12900	4410	45000	15800	32500	17000	14400	24200	15500	7420	3240
11	1120	8390	8480	44700	15100	37400	16400	13900	31400	15600	6870	2780
12	1070	7880	7620	45500	23000	37700	15800	13500	34700	15000	6630	2660
13	1040	7630	8180	46100	33100	39200	15600	13500	36200	15200	7150	3220
14	1100	7370	8490	46100	39300	40400	15800	14600	37200	16100	7110	2520
15	1030	6310	8000	45400	42000	41000	16900	15100	38100	15200	6970	1940
16	860	5610	6160	44800	42600	41900	15300	15300	36500	12700	6890	2010
17	842	5580	4890	44600	42700	43600	14400	21200	35100	12400	6710	1990
18	895	6310	5250	47700	42300	46200	13800	31700	33000	11800	6410	2100
19	931	7480	7310	54200	41800	47800	14200	40000	29900	11300	6020	2020
20	940	6660	14800	57000	41600	48700	14300	28500	25700	11500	6030	2040
21	947	6340	47100	53600	42000	48700	13000	13700	20000	13100	6300	2230
22	882	6280	112000	49700	47800	48200	15000	20700	17200	12700	6070	2290
23	604	6990	161000	50600	54800	47800	15300	36000	17100	12400	5970	2490
24	509	5420	147000	46700	57300	47400	14800	35800	15800	11900	5440	2830
25	969	4170	98700	39600	69800	45500	14500	23900	15900	11700	4480	1780
26	1150	3780	61300	31600	83400	40400	14700	18500	15100	11600	4090	1260
27	1270	3660	51200	33300	79200	40900	14600	18800	14500	10900	4240	1030
28	1350	3630	52100	48700	49700	44300	14500	14500	15300	10300	4460	884
29	1620	3990	51300	53400	30500	46600	14500	11600	17700	10100	3760	852
30	5120	3840	49700	43600	---	46400	14200	17100	17900	9250	3310	854
31	14500	---	48000	30000	---	42800	---	16000	---	8320	2520	---
TOTAL	62139	356320	991960	1431000	1254900	1282200	560800	575800	762000	411670	194900	66310
MEAN	2004	11880	32000	46160	43270	41360	16090	18570	25400	13280	6287	2210
MAX	14500	28100	161000	57000	83400	54900	40900	40000	47800	17700	8130	3560
MIN	509	3630	2690	30000	15100	21200	13000	11600	13100	8320	2520	852
AC-FT	123300	706800	1968000	2838000	2489000	2543000	1112000	1142000	1511000	816500	386600	131500



## BRAZOS RIVER MAIN STEM

08109000 BRAZOS RIVER NEAR BRYAN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1992#, BY WATER YEAR (WY)

MEAN	3854	3594	4090	4768	5576	5311	6557	11660	8696	3745	1883	2305
MAX	25800	24290	32000	46160	43270	41360	33650	52650	50410	13280	6287	13230
(WY)	1960	1975	1992	1992	1992	1992	1945	1957	1957	1992	1992	1942
MIN	111	214	171	212	221	271	408	675	899	903	640	232
(WY)	1953	1989	1955	1955	1984	1954	1951	1978	1956	1952	1963	1988

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1941 - 1992#

ANNUAL TOTAL	2894868			7949999			5166	
ANNUAL MEAN	7931			21720			21720	1992
HIGHEST ANNUAL MEAN							627	1984
LOWEST ANNUAL MEAN							161000	Dec 23 1991
HIGHEST DAILY MEAN	161000	Dec 23		161000	Dec 23		90	Oct 28 1952
LOWEST DAILY MEAN	509	Oct 24		509	Oct 24		92	Nov 1 1952
ANNUAL SEVEN-DAY MINIMUM	815	Oct 18		815	Oct 18		172000	May 5 1944
INSTANTANEOUS PEAK FLOW				163000	Dec 23		43.20	May 5 1944
INSTANTANEOUS PEAK STAGE				43.93	Dec 23		84	Oct 28 1952
INSTANTANEOUS LOW FLOW				509	Oct 24			
ANNUAL RUNOFF (AC-FT)	5742000			15770000			3742000	
10 PERCENT EXCEEDS	17600			47800			12500	
50 PERCENT EXCEEDS	3540			14900			1730	
90 PERCENT EXCEEDS	1140			2050			474	

# Period of regulated streamflow.

## 08109700 MIDDLE YEGUA CREEK NEAR DIME BOX, TX

LOCATION.--Lat 30°20'21", long 96°54'16", Lee County, Hydrologic Unit 12070102, on right bank 25 ft upstream from centerline of State Highway 21, 4.5 mi upstream from West Yegua Creek, 5.0 mi southwest of Dime Box, and 17.5 mi upstream from mouth.

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

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

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 295.4 ft above State Department of Highways and Public Transportation datum. June 30 to July 21, 1970, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature were made during the year. A U.S. Army Corps of Engineers satellite (DCP) telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1851, 16 ft in December 1913, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0500	12,500	15.39	Mar. 5	1200	4,190	12.78
Jan. 22	0300	773	9.90	May 23	0500	4,270	12.82
Feb. 5	0300	6,430	13.81	June 3	0600	5,680	13.50
Feb. 25	1700	4,930	13.16	June 10	1500	677	9.60

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.03	3.7	100	313	162	107	11	239	38	1.2	.12
2	.01	.03	3.7	92	122	88	49	11	1130	36	1.6	.07
3	.01	.16	4.2	116	316	73	36	10	4270	28	1.1	.10
4	.01	.42	5.0	165	1420	631	31	9.4	1940	25	8.3	1.1
5	.02	.57	5.4	156	5080	2470	33	10	1220	21	3.9	1.6
6	.01	.62	5.0	126	2460	1810	54	10	744	16	2.0	1.5
7	.01	.52	5.0	118	1400	1030	88	10	509	11	1.1	1.8
8	.01	.34	4.9	96	812	661	69	8.2	333	7.7	1.1	5.0
9	.01	.30	4.7	75	518	292	43	7.2	441	5.4	.73	7.9
10	.01	.30	4.8	60	258	101	33	6.8	641	4.3	.32	7.4
11	.00	.29	5.0	50	101	103	29	8.9	286	3.7	.34	7.0
12	.00	.32	5.4	76	93	77	28	11	71	7.7	.54	9.0
13	.00	.45	6.3	103	166	58	25	12	50	8.0	.27	16
14	.00	.58	6.6	119	111	50	23	11	41	6.3	.14	13
15	.00	.60	6.7	83	83	45	20	11	35	4.6	.14	10
16	.00	.60	6.7	57	68	42	18	89	31	3.1	.22	7.3
17	.00	1.3	6.0	49	73	40	19	307	27	2.2	.29	5.5
18	.00	4.7	5.6	239	67	38	75	764	24	1.3	.33	4.2
19	.00	6.1	23	367	59	51	139	1900	21	6.5	.31	3.2
20	.00	4.5	59	348	50	75	191	1180	20	21	.26	2.4
21	.00	3.4	1210	511	42	51	108	1220	18	104	.29	1.3
22	.00	2.8	9470	722	629	40	53	1770	16	44	.28	1.2
23	.00	2.8	3730	516	1350	34	36	3200	15	26	.26	.76
24	.00	3.9	2340	346	2080	30	28	1740	16	17	.33	.45
25	.00	4.0	1310	370	3240	28	24	1060	21	11	.36	.18
26	.00	4.2	939	318	2370	24	21	681	19	6.1	.33	.16
27	.00	4.2	765	298	1250	24	18	260	64	4.3	.23	.07
28	.00	4.1	542	339	790	26	16	401	135	4.1	.15	.06
29	.02	4.0	389	376	505	50	14	423	120	3.2	.10	.03
30	.06	3.6	390	624	---	141	12	303	56	2.3	.07	.01
31	.03	---	243	613	---	166	---	226	---	1.8	.07	---
TOTAL	0.23	59.73	21504.7	7628	25826	8511	1440	15671.5	12553	480.6	36.56	108.41
MEAN	.007	1.99	694	246	891	275	48.0	506	418	15.5	1.18	3.61
MAX	.06	6.1	9470	722	5080	2470	191	3200	4270	104	11	16
MIN	.00	.03	3.7	49	42	24	12	6.8	15	1.3	.07	.01
AC-FT	.5	118	42650	15130	51230	16880	2860	31080	24900	953	73	215
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)												
MEAN	20.0	43.5	78.4	63.8	99.3	62.6	59.7	131	109	6.78	1.37	17.8
MAX	245	415	694	481	891	280	355	662	1052	67.7	18.2	368
(WY)	1974	1975	1992	1991	1992	1970	1969	1975	1987	1975	1974	1974
MIN	.000	.000	.000	.006	.007	.65	.72	.000	.000	.000	.000	.000
(WY)	1964	1964	1964	1964	1964	1971	1971	1984	1984	1963	1962	1963

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1962 - 1992

ANNUAL TOTAL	46872.49	93819.73	57.5
ANNUAL MEAN	128	256	256
HIGHEST ANNUAL MEAN			.55
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	9470	9470	9470
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		12500	12500
INSTANTANEOUS PEAK STAGE		15.39	15.39
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	92970	186100	41680
10 PERCENT EXCEEDS	207	667	92
50 PERCENT EXCEEDS	8.2	17	4.2
90 PERCENT EXCEEDS	.00	.07	.00

## BRAZOS RIVER BASIN

08109800 EAST YEGUA CREEK NEAR DIME BOX, TX

LOCATION.--lat 30°24'26", long 96°49'02", Burleson County, Hydrologic Unit 12070102, on left bank 49 ft upstream from centerline of State Highway 21, 0.8 mi downstream from Buffalo Creek, 3.5 mi north of Dime Box, and 12.2 mi upstream from mouth.

DRAINAGE AREA.--244 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: November 1980 to August 1987.

Sediment analyses: June 1966 to September 1975.

REVISED RECORDS.--WDR 1X-76-2: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 284.00 ft State Department of Highways and Public Transportation datum. Nov. 6 to Dec. 10, 1970, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. Diversions above station for irrigation. Several observations of water temperature were made during the year. Gage-height telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1886, 17 ft in 1899 and 1957, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0300	8,910	12.94	Mar. 5	1400	3,240	11.05
Jan. 20	1000	1,080	9.49	May 18	1600	1,340	9.74
Feb. 5	0500	3,600	11.23	May 22	2100	1,960	10.25
Feb. 23	1800	2,850	10.84	June 3	0900	3,730	11.29
Feb. 25	1800	4,930	11.78	June 8	1000	1,040	9.44

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	11	8.8	73	134	137	55	19	202	46	12	11
2	2.2	6.3	9.4	90	86	98	47	18	1380	36	13	11
3	1.7	6.7	10	158	454	86	43	24	3080	29	15	11
4	1.2	6.7	11	181	2330	1050	37	24	1750	24	14	11
5	1.1	5.9	6.6	129	3280	2550	49	39	843	22	12	10
6	1.0	5.5	5.1	118	2200	1680	105	30	395	21	11	10
7	1.5	4.6	5.4	110	1230	811	120	25	435	22	9.7	13
8	3.3	3.3	6.3	91	586	338	63	24	965	22	9.3	13
9	2.9	2.0	5.3	82	260	171	48	25	531	21	10	12
10	1.7	1.5	3.4	70	157	127	42	26	219	21	9.2	11
11	.92	1.7	2.7	64	125	124	38	25	115	19	11	15
12	.90	3.4	26	84	156	88	36	24	91	20	13	54
13	1.6	4.2	33	110	184	74	34	23	62	18	32	33
14	1.7	19	27	87	196	59	32	22	50	16	19	26
15	1.5	29	15	55	134	55	31	23	44	15	15	24
16	2.2	27	9.9	44	87	55	28	124	35	14	17	21
17	2.7	22	7.2	42	83	55	35	455	31	13	17	22
18	3.9	15	9.9	295	80	65	144	1220	28	16	17	18
19	4.4	20	55	714	64	81	232	1160	22	17	17	17
20	4.5	20	74	1020	61	64	376	654	19	133	16	9.2
21	3.6	9.0	3020	589	60	54	302	487	25	151	17	5.5
22	2.4	4.8	7340	330	1600	54	86	1760	27	48	16	8.8
23	1.4	3.8	3300	419	2520	53	44	1700	28	29	18	7.7
24	.96	4.7	1910	488	2340	50	36	1270	24	18	18	10
25	.83	5.2	1060	243	3880	47	32	569	24	14	15	4.8
26	.72	5.1	617	122	2610	44	28	239	23	13	12	6.8
27	.67	5.2	840	339	1310	43	22	122	70	12	11	9.9
28	.56	4.7	829	550	634	50	20	145	77	11	11	6.5
29	5.1	4.1	583	699	256	116	25	181	52	12	9.9	5.8
30	8.3	6.2	247	414	---	192	23	166	39	12	9.9	5.9
31	10	---	115	234	---	100	---	99	---	12	11	---
TOTAL	77.86	267.6	20192.0	8044	27097	8571	2213	10722	10686	877	438.0	423.9
MEAN	2.51	8.92	651	259	934	276	73.8	346	356	28.3	14.1	14.1
MAX	10	29	7340	1020	3880	2550	376	1760	3080	151	32	54
MIN	.56	1.5	2.7	42	60	43	20	18	19	11	9.2	4.8
AC-FT	154	531	40050	15960	53750	17000	4390	21270	21200	1740	869	841

BRAZOS RIVER BASIN

36/

08109800 EAST YEGUA CREEK NEAR DIME BOX, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)	
MEAN	21.2 41.0 72.7 68.6 113 74.0 73.1 130 115 17.2 6.16 23.7
MAX	242 347 651 418 934 276 364 656 813 221 67.1 506
(WY)	1985 1975 1992 1991 1992 1992 1976 1975 1987 1968 1974 1974
MIN	.000 .023 .77 2.55 3.65 3.89 1.00 2.98 .91 .001 .000 .000
(WY)	1964 1964 1964 1990 1990 1972 1972 1984 1971 1967 1962 1963

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1962 - 1992
ANNUAL TOTAL	42650.70	89609.36	
ANNUAL MEAN	117	245	62.6
HIGHEST ANNUAL MEAN			245 1992
LOWEST ANNUAL MEAN			3.93 1971
HIGHEST DAILY MEAN	7340 Dec 22	7340 Dec 22	9490 May 24 1975
LOWEST DAILY MEAN	.38 Sep 21	.56 Oct 28	.00 Aug 1 1962
ANNUAL SEVEN-DAY MINIMUM	1.1 Oct 22	1.1 Oct 22	.00 Aug 1 1962
INSTANTANEOUS PEAK FLOW		8910 Dec 22	14000 May 24 1975
INSTANTANEOUS PEAK STAGE		12.94 Dec 22	13.91 May 24 1975
INSTANTANEOUS LOW FLOW		.56 Oct 28	.00 at times
ANNUAL RUNOFF (AC-FT)	84600	177700	45350
10 PERCENT EXCEEDS	117	622	73
50 PERCENT EXCEEDS	9.9	27	7.1
90 PERCENT EXCEEDS	1.5	4.3	.09

## 08109900 SOMERVILLE LAKE NEAR SOMERVILLE, TX

LOCATION.--lat 30°19'20", long 96°31'32", Burleson County, Hydrologic Unit 12070102, in intake structure of Somerville Dam on Yegua Creek, at the southwest edge of the city limits of Somerville, and 20.0 mi upstream from mouth.

DRAINAGE AREA.--1,007 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1966 to current year. Prior to October 1970, published as Somerville Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 20,210 ft long, with a 4,715-foot-long dike and a 1,250-foot long uncontrolled spillway. Deliberate impoundment began Jan. 3, 1967, and the dam was completed Oct. 27, 1967. The spillway is an uncontrolled ogee weir 1,250 ft wide located near right end of dam. The low-flow outlet consists of one 10.0-foot-diameter conduit that is controlled by two 5.0- by 10.0-foot tractor-type gates. Capacity table is based on Geological Survey topographic maps dated 1959. The lake was designed for flood control and water conservation. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	280.0	-
Design flood.....	274.5	1,028,800
Crest of spillway.....	258.0	507,500
Top of conservation pool.....	238.0	160,100
Lowest gated outlet (invert of 10-foot conduit).....	206.0	200

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 547,600 acre-ft Mar. 6, 1992 (elevation, 259.60 ft); minimum, 88,800 acre-ft Oct. 5, 1984 (elevation, 230.70 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 547,600 acre-ft Mar. 6 (elevation, 259.60 ft); minimum daily, 149,400 acre-ft Oct. 23 (elevation, 237.05 ft).

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

237.0	148,900	248.0	301,600	256.0	460,300
240.0	184,000	250.0	336,900	258.0	507,500
243.0	223,900	252.0	375,000	259.0	532,300
246.0	268,800	254.0	416,100	260.0	557,900

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152700	151100	151500	328000	331800	519800	439300	328500	373000	364400	247400	171100
2	152700	151100	151500	326200	329600	519800	434900	326700	395200	360800	243800	168600
3	152700	151100	151500	322600	337600	521100	431200	319800	417800	356900	241000	167400
4	152500	151100	151500	322500	359600	537400	426200	315400	435200	353100	236400	164700
5	152100	151100	151500	320900	390100	544000	424700	313500	440700	349300	234800	161700
6	151800	151100	151500	318600	411900	547600	421000	307200	443600	345600	230500	160700
7	151800	151100	151500	315400	421000	544000	417800	302100	444000	339300	225300	160200
8	151400	151100	151500	311400	426600	539100	412900	296700	442900	334500	222900	160200
9	151300	151100	151500	307600	430100	535300	408700	291000	441600	330900	220700	160200
10	151200	151100	151500	303000	427500	530300	404500	285100	440200	327300	218300	160200
11	151100	151100	151500	300900	423600	525800	400300	281300	438500	323700	215300	160200
12	151000	151100	151500	299100	422500	522500	396200	282400	434900	318900	212500	160200
13	150900	151100	151500	298200	421500	519600	392100	279200	430300	314900	209000	160200
14	150700	151100	151500	294800	419500	516100	388000	276100	426000	311200	207800	159900
15	150600	151100	151500	291500	416100	511900	384000	272300	421700	307800	203900	159900
16	150300	151100	151500	287400	412500	507500	380000	271700	417600	304500	201100	159900
17	150100	151300	151500	284600	409100	502600	377800	277600	413300	300400	196700	159800
18	150000	151300	152700	289800	404500	498500	374400	285100	409100	295700	195900	159800
19	149900	151300	153900	293200	402000	494200	372100	288000	404700	292300	192900	159700
20	149800	151300	155800	297400	398300	489400	369500	295500	401600	289200	192300	159400
21	149700	151300	169600	301100	393500	485600	367200	310900	397900	288000	191800	159400
22	149600	151300	218300	306700	413100	480700	364200	332900	392300	286000	190000	159200
23	149400	151300	266300	310200	428800	476400	360400	347500	388400	282000	189200	158900
24	150000	151300	285400	312300	460300	471800	356700	355600	384400	280200	187400	158600
25	150000	151300	295700	314200	488700	467800	353100	358800	380200	275000	184900	158400
26	150000	151300	305900	316600	500200	462800	349300	359400	376400	271500	182300	158300
27	150000	151300	313300	323300	512200	459100	345600	361300	375000	267500	179900	158200
28	150000	151200	319100	328700	517100	456400	341500	362300	372400	262200	177500	157800
29	150000	151200	320900	333200	519600	452300	337800	362300	368500	257400	174900	157500
30	151100	151300	325700	336900	---	448500	330500	361000	367200	255000	173400	157100
31	151100	---	326000	335400	---	444000	---	361200	---	251300	172900	---
MAX	152700	151300	326000	336900	519600	547600	439300	362300	444000	364400	247400	171100
MIN	149400	151100	151500	284600	329600	444000	330500	271700	367200	251300	172900	157100
(†)	237.20	237.22	249.40	249.92	258.49	255.28	249.65	251.29	251.60	244.87	239.09	237.74
(Φ)	-1300	+200	+174700	+9400	+184200	-75600	-113500	+30700	+6000	-115900	-78400	-15800

CAL YR 1991 MAX 326000 MIN 133900 (Φ) +192100  
WTR YR 1992 MAX 547600 MIN 149400 (Φ) +4700

(†) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## 08110100 DAVIDSON CREEK NEAR LYONS, TX

LOCATION.--Lat 30°25'10", long 96°32'24", Burleson County, Hydrologic Unit 12070102, on left bank 83 ft downstream from Farm Road 60, 1.2 mi downstream from Berry Creek, 2.8 mi northeast of Lyons, and 10.7 mi upstream from mouth.

DRAINAGE AREA.--195 mi<sup>2</sup>.

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

Water-quality records.--Sediment records: June 1966 to September 1975.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 220.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. The city of Caldwell discharges sewage effluent into creek above station. Several observations of water temperature were made during the year. Satellite telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1902, that of June 24, 1968. Flood in 1947 reached a stage of 17 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 21	2200	8,560	17.27	Mar. 5	0500	3,310	15.62
Jan. 18	2330	1,660	14.65	May 18	2130	2,960	15.46
Feb. 5	0530	3,450	15.68	May 22	1830	4,710	16.14
Feb. 22	2400	5,070	16.25	June 3	0800	3,010	15.48
Feb. 25	0800	6,260	16.65				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	12	.37	37	57	74	32	9.2	538	5.3	.53	.06
2	.10	5.9	.48	77	42	56	25	8.5	1370	7.7	.33	.06
3	.10	2.8	.49	201	602	47	20	8.2	2570	7.5	.36	.05
4	.07	.99	.41	89	2490	1580	18	9.9	1530	6.7	.55	.05
5	.12	.45	.57	98	3270	2550	20	8.6	813	5.4	.53	.06
6	.08	.29	2.4	184	1960	1350	32	8.3	237	4.4	.34	.06
7	.08	.23	.83	92	1110	714	58	8.1	285	3.9	.29	.05
8	.10	.24	.48	58	356	173	38	8.4	241	3.4	.30	.05
9	.07	.21	.38	43	90	81	26	8.1	175	2.9	.30	.05
10	.11	.18	.52	34	59	59	19	7.8	48	2.6	.24	.05
11	.14	.20	.44	29	159	48	16	7.4	41	2.3	.19	.05
12	.15	.22	.32	293	151	37	14	7.1	28	2.2	.14	.05
13	.15	.23	.30	226	227	35	13	9.1	21	1.8	.13	.07
14	.11	.23	.76	72	158	31	12	12	18	1.6	.13	.07
15	.06	.21	.70	40	87	29	11	14	16	1.4	.09	.06
16	.07	.19	.54	29	55	26	9.9	228	14	1.3	.07	.07
17	.05	.25	.46	28	58	24	10	652	12	1.2	.06	.10
18	.05	.22	5.8	981	75	24	84	1600	11	1.2	.05	.09
19	.03	.29	182	1520	48	46	128	2120	9.0	1.2	.05	.06
20	.00	.13	344	663	35	36	142	725	8.0	1.4	.05	.06
21	.17	3.1	2690	254	31	28	215	787	7.1	60	.05	.05
22	.30	4.8	6180	511	2180	23	133	3580	6.6	32	.04	.09
23	.21	2.4	4680	386	3130	21	33	2580	6.5	14	.04	1.5
24	.16	1.3	e2150	167	2250	21	24	994	5.6	9.0	.04	.47
25	.17	.93	e1050	64	4590	19	19	263	5.4	7.2	.03	.19
26	.78	.60	e500	44	2310	18	15	96	5.0	5.4	.04	.19
27	17	.37	e1000	508	1380	17	14	51	5.0	3.3	.06	.30
28	6.6	.33	804	851	416	17	12	34	5.0	2.3	.06	.33
29	6.7	.27	289	399	115	24	10	37	4.4	1.6	.06	.23
30	81	.23	85	188	---	88	9.4	45	4.4	1.2	.05	.14
31	38	---	48	92	---	51	---	59	---	.86	.06	---
TOTAL	152.87	39.79	20018.25	8258	27491	7347	1212.3	13985.7	8040.0	202.26	5.26	4.71
MEAN	4.93	1.33	646	266	948	237	40.4	451	268	6.52	.17	.16
MAX	81	12	6180	1520	4590	2550	215	3580	2570	60	.55	1.5
MIN	.00	.13	.30	28	31	17	9.4	7.1	4.4	.86	.03	.05
AC-FT	303	79	39710	16380	54530	14570	2400	27740	15950	401	10	9.3

e Estimated



## BRAZOS RIVER BASIN

08110100 DAVIDSON CREEK NEAR LYONS, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1992, BY WATER YEAR (WY)

MEAN	31.0	40.3	77.8	83.9	133	78.8	117	136	118	8.58	3.95	22.9
MAX	445	350	646	687	948	357	692	451	841	61.5	36.1	428
(WY)	1974	1975	1992	1991	1992	1979	1977	1992	1968	1968	1983	1974
MIN	.000	.000	.000	.19	1.20	.44	.23	1.16	.060	.000	.000	.000
(WY)	1964	1968	1968	1971	1967	1971	1972	1978	1971	1964	1964	1963

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1963 - 1992

ANNUAL TOTAL	55626.87	86757.14	70.4
ANNUAL MEAN	152	237	237
HIGHEST ANNUAL MEAN			1.42
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	6180	Dec 22	12000
LOWEST DAILY MEAN	.00	Aug 26	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Aug 24	.00
INSTANTANEOUS PEAK FLOW		8560	23200
INSTANTANEOUS PEAK STAGE		17.27	18.67
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	110300	172100	51010
10 PERCENT EXCEEDS	170	655	76
50 PERCENT EXCEEDS	4.6	8.5	2.4
90 PERCENT EXCEEDS	.16	.07	.00

## 371

LOCATION.--Lat 30°21'40", long 96°09'18", Washington County, Hydrologic Unit 12070101, near right bank beneath floor of bridge on State Highway 105, 2.4 mi upstream from Navasota River, 2.5 mi north of Washington, and at mile 228.8.

PERIOD OF RECORD.--November 1965 to September 1983. Stage only site October 1983 to current year. Gage heights collected in this vicinity since 1915 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 140.13 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated gage heights. Records good. Backwater at times from the Navasota River. There are many diversions above station for irrigation, municipal, industrial, and oil field operations. At times, flow affected by five upstream reservoirs with a combined capacity of 4,955,000 acre-ft. Flow is also affected by discharge from the flood-detention pools of 147 floodwater-retarding structures with a combined detention capacity of 153,200 acre-ft. These structures control runoff from 451 mi<sup>2</sup> above station. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 82,500 ft<sup>3</sup>/s Jan. 24, 1968 (gage height, 33.60 ft); maximum gage height, 48.00 ft Dec. 26, 1991; minimum discharge, 170 ft<sup>3</sup>/s Oct. 22, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1856, 62.0 ft Dec. 6, 1913, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 48.00 ft Dec. 26 at 1400 hours; minimum, 3.11 ft Oct. 25.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.60	15.49	7.41	34.25	22.46	28.01	26.62	15.49	21.54	17.20	11.92	6.78
2	6.40	16.97	7.50	33.13	21.97	25.28	26.38	15.43	27.69	16.73	11.98	6.40
3	6.30	17.85	6.79	32.81	25.95	24.06	25.90	14.79	30.55	16.18	12.08	6.27
4	6.48	18.83	6.32	32.80	30.12	28.35	23.70	14.95	29.08	16.32	11.81	6.45
5	6.29	19.31	7.03	32.25	34.78	32.51	19.98	15.33	23.45	15.84	11.95	6.82
6	5.52	19.53	7.18	31.34	38.26	35.41	18.43	15.82	19.75	15.49	11.63	6.94
7	5.38	19.64	6.51	30.69	38.66	35.59	18.14	15.94	19.52	15.38	11.67	6.63
8	5.12	19.42	6.20	30.04	33.00	33.96	17.85	15.65	21.96	15.31	11.77	6.89
9	4.50	17.81	6.27	29.26	23.49	30.95	17.48	15.45	21.22	15.40	11.38	6.89
10	4.27	14.13	7.05	28.92	19.72	28.08	17.20	15.48	21.28	15.89	11.10	6.82
11	4.19	11.38	10.73	28.83	19.55	28.28	16.90	15.39	23.56	16.02	10.97	6.23
12	4.13	10.84	11.01	29.56	22.21	27.84	16.58	15.17	24.95	15.69	10.69	6.03
13	4.06	10.65	10.83	29.49	25.80	27.79	16.49	15.16	25.57	15.72	10.84	6.44
14	4.00	10.38	11.35	29.33	27.80	27.85	16.41	15.46	25.85	16.06	10.96	6.14
15	4.17	9.92	11.16	29.04	28.62	27.57	17.06	15.92	25.87	15.85	10.84	5.65
16	3.83	9.20	10.08	28.54	28.66	27.66	16.42	15.98	25.38	14.91	10.76	5.16
17	3.72	9.08	8.85	28.43	28.49	27.81	16.21	17.69	24.59	14.58	10.68	5.44
18	3.74	9.28	8.63	30.59	28.15	28.46	15.76	22.41	23.79	14.44	10.54	5.30
19	3.83	10.37	10.37	32.11	27.72	28.99	17.19	25.13	22.55	14.08	10.20	5.37
20	3.85	10.16	14.50	33.22	27.34	29.36	16.94	23.79	21.01	14.04	10.13	5.31
21	3.85	9.67	26.14	32.81	27.16	29.34	15.85	17.78	18.90	14.79	10.22	5.38
22	3.85	9.60	34.89	31.50	30.54	29.22	16.46	19.22	17.43	14.86	10.19	5.61
23	3.54	10.21	40.27	31.00	32.53	28.99	16.67	24.29	17.02	14.33	10.08	5.46
24	3.24	9.46	44.77	29.96	35.47	28.81	16.26	25.27	16.37	14.43	9.78	6.10
25	3.20	8.21	47.55	27.54	38.42	28.37	17.20	22.70	16.61	14.20	9.08	5.57
26	4.04	7.68	47.66	24.47	40.74	26.87	16.68	19.76	16.02	14.22	8.50	4.65
27	4.11	7.50	45.59	24.77	41.64	26.23	16.41	19.82	15.80	13.79	8.50	4.30
28	4.25	7.40	43.31	29.17	39.14	27.26	16.01	18.85	15.82	13.41	8.75	4.00
29	4.90	7.67	41.20	31.41	33.52	28.17	15.88	15.97	17.14	13.21	8.33	3.88
30	5.35	7.74	38.85	29.95	---	28.38	15.66	17.55	17.33	12.67	7.86	3.79
31	13.07	---	36.28	25.34	---	27.45	---	18.26	---	12.34	7.26	---
MAX	13.07	19.64	47.66	34.25	41.64	35.59	26.62	25.				

## BRAZOS RIVER BASIN

08110325 NAVASOTA RIVER ABOVE GROESBECK, TX

LOCATION.--Lat 31°34'27", long 96°31'14", Limestone County, Hydrologic Unit 120/0103, in city of Groesbeck at water supply pumping plant, 1.2 mi downstream from Springfield Lake, 3.7 mi north of Groesbeck, and 161.4 mi upstream from mouth.

DRAINAGE AREA.--239 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1975 to May 1978 (periodic gage-height and low-flow measurements only), June 1978 to current year.

Water-quality records.--Chemical analyses: November 1967 to June 1989.

GAUGE.--Water-stage recorder, data collection platform (DCP), and concrete control. Datum of gage is 396.65 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow is partly regulated by Lake Mexia 7.4 mi upstream (capacity, 9,400 acre-ft) and by Springfield Lake 1.2 mi upstream (approximate capacity, 3,100 acre-ft). There are several diversions above station for irrigation, municipal supply, and oil field operation (total amount is unknown). The city of Groesbeck diverts water from pool at gage for municipal use, and returns washwater and sewage effluent into river downstream from gage. Gage-height telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 26 ft in 1910 and 1944, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	438	24	47	114	62	23	4.0	2240	13	.38	.32
2	.58	192	28	52	66	49	20	3.7	2930	9.7	.30	.34
3	.52	65	24	53	53	42	20	4.0	1080	7.1	.55	.31
4	.47	34	19	48	615	1010	18	14	310	5.6	.31	.24
5	.60	26	14	44	2910	2840	17	37	89	3.9	.10	.14
6	.51	21	12	48	1990	1110	17	43	48	1.9	.06	.14
7	.48	16	10	57	562	312	15	32	38	1.2	.05	.13
8	.12	14	9.2	70	177	103	13	23	92	1.1	.02	.10
9	.30	8.5	18	95	79	197	12	17	191	1.0	.01	.08
10	.37	6.9	362	71	54	1300	10	11	77	.88	.03	.12
11	.37	6.0	263	50	47	979	9.4	9.1	46	.76	.03	.33
12	.38	5.4	109	48	42	265	8.7	7.7	35	.70	.23	.35
13	.58	4.6	309	75	42	84	8.5	8.0	27	.65	.31	.21
14	.57	2.9	232	42	48	52	8.0	6.2	21	.41	.36	.13
15	.75	2.7	77	38	55	45	6.8	4.8	26	.72	.38	.15
16	.82	2.8	46	33	47	36	6.1	17	24	.69	.23	.05
17	.82	11	36	31	44	31	5.8	590	19	.79	.19	.11
18	.63	217	31	962	37	47	5.9	809	15	.60	.10	.06
19	.51	334	379	1920	31	55	7.7	337	11	.75	.30	.01
20	.65	261	2210	777	26	41	13	110	8.2	.91	.38	.01
21	.67	102	15700	318	22	32	6.0	49	6.3	1.0	.27	.02
22	.56	49	9870	1280	238	33	4.7	78	5.3	.95	.26	.06
23	.47	42	3440	1060	1730	25	4.1	312	6.3	.79	.11	.04
24	.41	24	1020	347	1390	20	3.9	134	5.5	.78	.10	.00
25	.43	18	290	128	5350	19	4.3	52	3.5	.53	.12	.00
26	.63	14	127	156	5030	17	3.9	71	3.5	.61	.11	.00
27	1.1	10	275	2880	1360	15	3.4	105	3.6	.52	.11	.00
28	1.2	8.8	434	2810	333	18	3.2	135	4.1	.46	.11	.00
29	4.5	7.0	233	961	119	26	6.6	1540	7.5	.58	.16	.00
30	11	11	102	456	---	27	5.0	1440	13	.52	.10	.00
31	162	---	56	233	---	24	---	441	---	.38	.16	---
TOTAL	193.64	1954.6	35759.2	15190	22611	8916	290.0	6444.5	7385.8	59.48	5.93	3.45
MEAN	6.25	65.2	1154	490	780	288	9.67	208	246	1.92	.19	.11
MAX	162	438	15700	2880	5350	2840	23	1540	2930	13	.55	.35
MIN	.12	2.7	9.2	31	22	15	3.2	3.7	3.5	.38	.01	.00
AC-FT	384	3880	70930	30130	44850	17680	575	12780	14650	118	12	6.8

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1992, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	40.5	51.2	214	97.7	253	170	80.4	343	146	4.69	9.58	.91		
MAX	347	450	1154	518	909	1109	541	1384	554	51.4	103	5.24		
(WY)	1982	1986	1992	1991	1986	1990	1979	1979	1981	1981	1983	1979		
MIN	.004	.031	.075	.35	.65	.72	.61	.19	.13	.009	.001	.002		
(WY)	1989	1989	1990	1989	1981	1981	1981	1984	1984	1984	1980	1984		

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1979 - 1992

ANNUAL TOTAL	82967.10	98813.60	117
ANNUAL MEAN	227	270	270
HIGHEST ANNUAL MEAN			17.8
LOWEST ANNUAL MEAN			1984
HIGHEST DAILY MEAN	15700	15700	17300
LOWEST DAILY MEAN	.12	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.36	.00	.00
INSTANTANEOUS PEAK FLOW		20000	27200
INSTANTANEOUS PEAK STAGE		13.59	15.06
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	164600	196000	84860
10 PERCENT EXCEEDS	380	439	109
50 PERCENT EXCEEDS	11	14	1.6
90 PERCENT EXCEEDS	.67	.14	.00

\* No flow at times most years.

BRAZOS RIVER BASIN

3/3

08110430 BIG CREEK NEAR FREESTONE, TX

LOCATION.--Lat 31°30'24", Long 96°19'28", Limestone County, Hydrologic Unit 12070103, 12 ft to left and 25 ft downstream from left end of bridge on State Highway 164, 5.1 mi southwest of Freestone, and 8.2 mi upstream from mouth.

DRAINAGE AREA.--97.2 mi<sup>2</sup> (corrected).

PERIOD OF RECORD.--July 1975 to June 1978 (periodic gage-height and low-flow measurements only), July 1978 to current year.

GAUGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 362.94 ft above National Geodetic Vertical Datum of 1929. Apr. 25, 1985, to Aug. 17, 1987, at site 62 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year. Satellite telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1950, 19 ft in April 1957, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 20	1930	603	12.07	Feb. 5	1600	875	12.80
Dec. 9	0700	1,650	13.29	Feb. 23	1100	695	12.48
Dec. 21	1030	17,500	16.33	Feb. 25	1300	2,150	13.59
Jan. 2	0530	528	11.62	Mar. 5	0400	1,340	13.07
Jan. 19	0430	767	12.67	Mar. 10	2300	501	11.42
Jan. 22	2230	683	12.43	Mar. 17	2400	3,640	14.24
Jan. 28	0230	787	12.72	June 2	1430	779	12.70

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	119	252	97	69	55	30	10	226	8.4	.48	.02
2	2.5	86	165	445	51	44	26	8.5	659	5.4	.37	.03
3	2.0	26	86	173	43	41	24	6.3	591	3.9	.89	.04
4	1.7	15	51	78	205	461	24	149	203	3.0	.39	.05
5	1.4	9.5	29	56	716	884	22	87	49	2.3	4.9	.10
6	1.1	7.8	20	51	633	533	26	26	32	1.9	1.8	.31
7	.82	6.7	17	46	309	184	28	14	28	1.6	.92	.13
8	.67	6.1	18	68	91	70	26	9.5	44	1.4	.48	.07
9	.68	5.9	1140	64	55	92	22	6.7	38	1.3	.34	.04
10	.46	5.0	575	43	44	359	20	5.0	24	1.2	.28	.03
11	.42	4.6	194	34	39	324	18	4.7	18	1.2	.12	.02
12	.34	4.2	184	92	40	82	15	4.9	14	.99	2.2	.03
13	.31	3.8	279	114	39	53	13	4.7	11	.82	3.5	.04
14	.27	3.5	209	63	40	42	13	4.8	13	.74	1.4	.02
15	.33	4.0	70	42	40	37	12	4.5	12	.55	.95	.02
16	.58	4.6	39	31	35	33	13	9.1	9.2	.35	.32	.01
17	.71	15	28	36	31	28	12	1020	7.3	.30	.13	.01
18	1.1	89	56	455	28	190	18	2490	5.9	.91	.10	.00
19	1.2	227	526	703	24	373	23	919	5.1	22	.07	.00
20	1.3	559	825	441	22	136	23	413	4.4	5.1	.07	.00
21	1.4	473	8390	188	20	53	22	95	4.1	2.6	.07	.00
22	1.6	125	2140	589	290	43	14	160	4.2	1.8	.05	.00
23	1.6	38	1400	573	638	37	10	171	19	1.4	.04	.00
24	3.1	22	618	237	511	31	8.8	51	19	1.1	.02	.00
25	3.2	17	299	74	1820	30	8.4	31	10	.84	.04	.00
26	3.3	13	154	67	1280	28	7.5	40	6.4	.96	.05	.00
27	3.7	12	364	482	549	25	10	58	5.0	.68	.02	.00
28	4.7	11	412	688	196	68	6.6	27	4.3	.39	.00	.00
29	161	10	199	431	78	144	7.2	186	4.3	.30	.00	.00
30	353	54	85	218	---	67	13	434	4.2	.25	.00	.00
31	247	---	59	111	---	39	---	147	---	.23	.00	---
TOTAL	804.69	1976.7	18883	6790	7936	4586	515.5	6596.7	2074.4	73.91	146.72	0.97
MEAN	26.0	65.9	609	219	274	148	17.2	213	69.1	2.38	4.73	.032
MAX	353	559	8390	703	1820	884	30	2490	659	22	89	.31
MIN	.27	3.5	17	31	20	25	6.6	4.5	4.1	.23	.00	.00
AC-FT	1600	3920	37450	13470	15740	9100	1020	13080	4110	147	291	1.9

## BRAZOS RIVER BASIN

08110430 BIG CREEK NEAR FREESTONE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1992, BY WATER YEAR (WY)

MEAN	28.8	33.2	99.9	56.0	97.9	69.5	39.5	110	43.0	6.81	2.41	4.74
MAX	205	150	609	262	274	209	192	335	159	62.0	11.8	33.4
(WY)	1985	1986	1992	1991	1992	1990	1979	1990	1989	1981	1991	1991
MIN	.000	.001	.056	.20	3.36	4.50	3.31	.26	.43	.012	.000	.000
(WY)	1990	1989	1981	1981	1981	1986	1984	1984	1984	1986	1984	1984

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1979 - 1992

ANNUAL TOTAL	47844.18	50384.59	
ANNUAL MEAN	131	138	49.2
HIGHEST ANNUAL MEAN			138
LOWEST ANNUAL MEAN			4.58
HIGHEST DAILY MEAN	8390	8390	8390
LOWEST DAILY MEAN	.09 Aug 9	.00 Aug 28	.00 Aug 4 1980
ANNUAL SEVEN-DAY MINIMUM	.14 Aug 7	.00 Sep 18	.00 Sep 29 1983
INSTANTANEOUS PEAK FLOW		17500	17500
INSTANTANEOUS PEAK STAGE		16.33	16.33
INSTANTANEOUS LOW FLOW		.00 Aug 28	.00 at times
ANNUAL RUNOFF (AC-FT)	94900	99940	35610
10 PERCENT EXCEEDS	280	412	88
50 PERCENT EXCEEDS	17	18	2.9
90 PERCENT EXCEEDS	.80	.06	.00



## 08110470 LAKE LIMESTONE NEAR MARQUEZ, TX

LOCATION.--Lat 31°19'30", long 96°19'08", Leon County, Hydrologic Unit 12070103, in left end bypass pier of Sterling C. Robertson Dam on the Navasota River, 7.5 mi northwest of Marquez, and 124 mi upstream from mouth.

DRAINAGE AREA.--675 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 11,395 ft long, including the spillway. The lake was built for water conservation. Deliberate impoundment began on Oct. 16, 1978. The spillway is an uncontrolled broad-crested weir 3,000 ft long located near left end of dam. The spillway for normal flood releases is a gated concrete gravity structure with an ogee weir section and stilling basin located near center of dam. It is controlled by five 40- by 28-foot tainter gates. There are two 4- by 8-foot slide gates located in each of the two center piers of the spillway that discharge into the stilling basin. These gates can also be opened during extreme floods. A low-flow outlet, consisting of a 10-inch-diameter cast iron pipe, is located in the left end of pier. In addition, there are two 36-inch (outside diameter) steel cylinder pipes located in the right end pier for water supply releases. The lowest invert for low flow and water supply releases is at elevation 325.50 ft. The city of Mexia releases various amounts of sewage effluent into stream above lake. Gage-height telemeter (DCP) at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	380.0	-
Design flood.....	370.0	334,735
Crest of spillway.....	369.6	327,760
Top of gates.....	365.0	253,905
Top of conservation pool.....	363.0	225,445
Concrete gated spillway.....	337.0	21,125
Lowest gated outlet (invert).....	322.0	265

COOPERATION.--Records of daily lake elevations are obtained in cooperation with the Brazos River Authority. Area and capacity tables were furnished by the Brazos River Authority and are based on Geological Survey topographic maps.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 245,000 acre-ft Dec. 21, 1992 (elevation, 364.38 ft); minimum, 10,740 acre-ft Nov. 30, 1978 (elevation, 332.63 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 245,000 acre-ft Dec. 21 at 1400 hours (elevation, 364.38 ft); minimum, 190,000 acre-ft Sept. 30 at 2400 hours (elevation, 360.25 ft).

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

360.0	187,000	362.0	212,200	364.0	239,600
361.0	199,400	363.0	225,600	365.0	254,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	217400	223500	227500	226300	226100	221100	225000	225200	231300	222700	213200	200900
2	217300	225300	227200	229000	225700	219700	224900	225300	235200	222400	212900	200100
3	217000	223700	227000	228500	226100	217900	224500	225700	236400	222400	212400	200700
4	218200	223400	226300	227500	232200	222000	224500	226500	232400	222000	212300	200400
5	216800	223500	225700	227400	235300	225000	224300	227000	228700	221600	211800	200000
6	216200	223500	225000	227200	235700	225000	225000	226800	228100	221200	211400	199700
7	215700	225000	224500	227400	231800	223700	224900	226500	226700	220800	210700	199200
8	215400	223400	225800	227500	229000	223400	225200	226300	225700	220500	210300	198800
9	215400	223000	229600	227100	226400	226500	225200	225800	225600	220100	209900	198300
10	215300	223000	229700	226500	225600	226100	225200	225700	225700	219700	209700	198500
11	215200	223200	229000	227100	224200	227400	225200	226100	225800	219200	209700	198100
12	215200	223000	228900	226500	224300	226700	225200	226500	225800	218900	209600	197500
13	214800	223000	229000	226700	224600	225000	225200	226800	225700	218500	209000	197200
14	214800	222800	227500	226100	225300	225000	224900	226800	225600	218100	208700	196700
15	214400	223000	226100	226000	225700	224600	225000	226500	225200	217700	208000	196500
16	213800	223200	225000	224700	226300	224100	224300	227800	225000	217000	207400	196000
17	213500	224500	224600	226300	226300	224600	225700	235200	224700	217000	206900	195600
18	213700	225300	225200	231000	226300	227800	225200	232200	224700	216900	206600	195300
19	213600	228200	230600	231500	226300	227200	226000	227100	224500	217000	206200	195000
20	213400	228700	238000	230300	226100	226100	225700	224900	224500	216900	206000	194100
21	213100	227800	234300	230800	226400	225000	225400	225300	224200	216500	205600	194000
22	213000	227500	234600	234600	230600	225000	225300	226800	224100	216300	205100	194000
23	212800	226300	229700	233200	231400	223900	225700	228200	223500	215900	204500	193200
24	212800	225200	227800	230600	233900	223900	226300	228500	223900	215900	204200	192600
25	212800	224500	225600	228500	236200	223900	225700	228200	223900	215700	204000	191900
26	213300	223800	225400	228500	232800	223800	225300	227900	223700	215400	203900	191900
27	213800	224100	226100	233500	227600	223900	225200	227400	223400	215000	203000	191600
28	213500	224200	225600	234900	223000	225300	224100	228300	223400	214900	202500	191300
29	218900	224600	224900	231700	222300	227100	225700	228600	223100	214400	202000	190600
30	220500	227000	224600	228900	---	225200	225400	230000	223100	213800	201500	190000
31	221300	---	224500	227100	---	225000	---	229900	---	213700	201400	---
MAX	221300	228700	238000	234900	236200	227800	226300	235200	236400	222700	213200	200900
MIN	212800	222800	224500	224700	222300	217900	224100	224900	223100	213700	201400	190000
(↑)	362.69	363.10	362.92	363.11	362.76	362.96	362.99	363.31	362.82	362.12	361.16	360.25
(Φ)	+4000	+5700	-2500	+2600	-4800	+2700	+400	+4500	-6800	-9400	-12300	-11400
CAI YR 1991	MAX	238000	MIN	212800	(Φ)	+3200						
WTR YR 1992	MAX	238000	MIN	190000	(Φ)	-27300						

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.



## BRAZOS RIVER BASIN

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1980 to current year.

## 311937096194601 - LAKE LIMESTONE SITE AR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)
JAN							
30...	0915	1.00	145	7.4	10.0	9.0	80
30...	0917	10.0	145	7.4	10.0	9.0	80
30...	0919	20.0	145	7.4	10.0	9.0	80
30...	0921	30.0	145	7.4	10.0	9.0	80
30...	0923	39.0	145	7.5	10.0	9.0	80
APR							
30...	0855	1.00	194	7.7	20.5	7.5	84
30...	0857	10.0	194	7.6	20.5	7.3	82
30...	0859	20.0	194	7.6	20.5	7.3	82
30...	0901	30.0	195	7.4	20.5	6.8	76
30...	0903	38.0	195	7.3	20.0	5.7	63
AUG							
14...	1000	1.00	233	8.0	29.0	7.2	94
14...	1002	10.0	233	7.8	29.0	6.8	89
14...	1004	20.0	233	7.8	29.0	6.6	86
14...	1006	30.0	233	7.3	28.5	5.0	65
14...	1008	36.0	251	6.8	26.0	0	0

## 311941096191401 - LAKE LIMESTONE SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV (MG/L AS CaCO3)
JAN											
30...	1015	229000	1.00	145	7.3	10.5	0.30	9.0	81	45	8
30...	1017	--	10.0	145	7.3	10.0	--	8.9	79	--	--
30...	1019	--	20.0	145	7.3	9.5	--	8.8	77	--	--
30...	1021	--	30.0	145	7.3	9.5	--	8.7	76	--	--
30...	1023	--	45.0	145	7.3	9.5	--	8.5	74	45	8
APR											
30...	0915	225000	1.00	194	7.6	20.5	0.20	7.3	82	65	17
30...	0917	--	10.0	194	7.5	20.5	--	7.2	81	--	--
30...	0919	--	20.0	194	7.5	20.5	--	7.0	78	--	--
30...	0921	--	30.0	194	7.4	20.5	--	6.7	75	--	--
30...	0923	--	45.0	196	7.0	18.0	--	0.9	10	67	16
AUG											
14...	1020	209000	1.00	233	8.1	29.0	1.30	7.4	97	75	19
14...	1022	--	10.0	233	7.9	29.0	--	6.9	90	--	--
14...	1024	--	20.0	233	7.9	29.0	--	6.9	90	--	--
14...	1026	--	30.0	233	7.8	29.0	--	6.7	88	--	--
14...	1028	--	43.0	277	6.9	24.5	--	0	0	87	0

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIELD END (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
JAN											
30...	14	2.5	7.5	0.5	4.3	37	11	13	0.20	7.0	82
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	14	2.5	7.6	0.5	4.3	38	11	13	0.20	7.2	83
APR											
30...	20	3.6	12	0.6	3.7	48	18	19	0.20	7.1	112
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	21	3.6	12	0.6	3.7	51	17	19	0.20	9.1	117
AUG											
14...	23	4.2	15	0.8	3.9	56	19	26	0.20	4.7	130
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	27	4.7	14	0.7	4.0	89	8.0	26	0.20	14	163

## BRAZOS RIVER BASIN

377

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

311941096191401 - LAKE LIMESTONE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
30...	0.220	0.040	0.260	0.120	0.48	0.60	0.090	0.080	49	15
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	0.180	0.080	0.260	0.200	0.70	0.90	0.170	0.130	340	150
APR										
30...	0.350	0.020	0.370	0.030	0.47	0.50	0.040	0.050	39	13
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	0.370	0.020	0.390	0.030	0.47	0.50	0.050	0.050	70	40
30...	0.440	0.070	0.510	0.080	0.42	0.50	0.100	0.030	90	350
AUG										
14...	--	<0.010	<0.050	0.020	0.38	0.40	0.020	0.010	14	61
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	0.010	<0.050	0.030	0.47	0.50	0.030	0.030	30	370
14...	--	<0.010	<0.050	1.30	1.9	3.2	1.20	0.020	6800	4800

312458096205101 - LAKE LIMESTONE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLO. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN											
30...	1045	1.00	197	7.3	10.5	0.30	8.7	78	63	11	20
30...	1047	10.0	197	7.3	10.0	--	8.8	78	--	--	--
30...	1049	20.0	197	7.3	10.0	--	8.8	78	--	--	--
30...	1051	29.0	197	7.3	10.0	--	8.6	76	61	11	19
APR											
30...	0945	1.00	204	7.5	21.0	0.40	7.0	79	68	18	21
30...	0947	10.0	204	7.5	21.0	--	6.9	78	--	--	--
30...	0949	20.0	202	7.4	21.0	--	6.7	76	--	--	--
30...	0951	28.0	198	7.4	20.5	--	6.0	67	65	17	20
AUG											
14...	1100	1.00	240	7.8	29.5	0.80	6.4	84	78	19	24
14...	1102	10.0	240	7.4	29.0	--	5.1	67	--	--	--
14...	1104	20.0	240	6.9	28.0	--	0	0	--	--	--
14...	1106	26.0	240	6.9	28.0	--	0	0	78	16	24

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN										
30...	3.2	11	0.6	4.0	53	16	19	0.20	9.5	114
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	3.3	11	0.6	3.9	50	16	19	0.20	9.3	112
APR										
30...	3.7	13	0.7	3.0	50	18	21	0.20	4.8	115
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	3.6	12	0.6	3.7	48	18	21	0.20	6.5	114
AUG										
14...	4.3	15	0.7	4.0	59	20	27	0.20	5.2	135
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	4.3	14	0.7	3.9	62	19	26	0.20	5.5	136

## BRAZOS RIVER BASIN

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312458096205101 - LAKE LIMESTONE SITE BC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
30...	0.150	0.040	0.190	0.110	0.69	0.80	0.140	0.090	100	6
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	0.150	0.040	0.190	0.130	0.67	0.80	0.130	0.090	66	18
APR										
30...	0.230	0.030	0.260	0.060	0.44	0.50	0.060	0.060	79	41
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	<0.010	0.370	0.050	1.5	1.5	0.280	0.010	89	210
AUG										
14...	--	<0.010	<0.050	0.020	0.58	0.60	0.050	0.030	3	27
14...	--	<0.010	<0.050	0.020	0.48	0.50	0.050	0.020	10	220
14...	--	--	--	--	--	--	--	--	--	--
14...	--	<0.010	<0.050	0.160	0.84	1.0	0.310	0.030	650	1100

312625096205901 - LAKE LIMESTONE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
30...	1110	1.00	179	7.1	11.0	8.2	74
30...	1112	10.0	179	7.2	10.0	8.6	76
30...	1114	19.0	187	7.2	10.0	8.4	74
APR							
30...	1005	1.00	210	7.7	21.5	7.5	85
30...	1007	10.0	210	7.7	21.5	7.4	84
30...	1009	17.0	210	7.7	21.0	7.4	84
AUG							
14...	1120	1.00	240	7.8	29.5	6.1	80
14...	1122	10.0	240	7.6	29.0	5.5	72
14...	1124	17.0	240	7.5	29.0	5.0	65

312622096224201 - LAKE LIMESTONE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
30...	1130	1.00	187	7.2	11.5	8.3	76
30...	1132	10.0	168	7.2	11.0	7.8	71
30...	1134	22.0	168	7.2	10.5	8.1	73
APR							
30...	1020	1.00	248	7.7	22.0	7.0	81
30...	1022	10.0	245	7.7	22.0	7.0	81
30...	1024	20.0	244	7.7	21.5	6.9	79
AUG							
14...	1135	1.00	264	7.9	29.5	6.5	86
14...	1137	10.0	275	7.6	29.0	5.8	76
14...	1139	21.0	275	7.5	29.0	5.2	68

## BRAZOS RIVER BASIN

379

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312726096240001 - LAKE LIMESTONE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARANCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONIC DISSOLVED (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)
JAN											
30...	1150	1.00	158	7.3	11.5	0.20	8.2	75	61	4	21
30...	1152	14.0	158	7.2	8.0	--	7.1	--	62	1	21
APR											
30...	1030	1.00	269	7.7	22.0	0.30	6.7	77	85	18	27
30...	1032	13.0	270	7.7	22.0	--	6.6	76	91	24	29
AUG											
14...	1150	1.00	270	7.8	29.0	0.50	6.6	87	91	21	29
14...	1152	12.0	270	7.3	28.5	--	4.2	55	88	17	28

DATE	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS-FIX END CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
JAN										
30...	2.1	6.1	0.3	3.6	57	8.8	7.2	0.20	10	94
30...	2.2	6.5	0.4	3.5	61	8.7	7.4	0.30	10	96
APR										
30...	4.2	17	0.8	3.7	67	23	28	0.10	1.7	145
30...	4.4	18	0.8	3.5	67	23	29	0.10	1.8	149
AUG										
14...	4.5	18	0.8	4.3	70	19	28	0.20	7.4	152
14...	4.5	18	0.8	4.4	71	20	30	0.20	7.5	155

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)
JAN										
30...	0.060	0.090	0.150	0.120	0.68	0.80	0.180	0.150	120	7
30...	0.050	0.100	0.150	0.210	0.59	0.80	0.160	0.160	65	54
APR										
30...	--	0.030	<0.050	0.040	0.66	0.70	0.080	0.060	11	3
30...	--	0.030	<0.050	0.050	0.75	0.80	0.090	0.070	16	5
AUG										
14...	--	0.020	<0.050	0.030	0.67	0.70	0.100	0.050	24	18
14...	--	<0.010	<0.050	0.100	0.50	0.60	0.120	0.040	19	75

## BRAZOS RIVER BASIN

08110500 NAVASOTA RIVER NEAR EASTERLY, TX

LOCATION.--lat 31°10'12", long 96°17'51", Leon-Robertson County line, Hydrologic Unit 12070103, at left downstream end of bridge on U.S. Highway 79, 1.0 mi upstream from Missouri Pacific Railroad Co. bridge, 7 mi northeast of Easterly, and 105.7 mi upstream from mouth.

DRAINAGE AREA.--968 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: December 1941 to September 1947, February 1966 to August 1985.  
Sediment records: October 1968 to September 1973.

REVISED RECORDS.--WSP 898: 1924, 1926-27, 1928(M), 1929-30, 1931(M). WSP 1512: 1932(M), 1936. WDR TX-76-2: Drainage area. WDR TX-78-2: 1974(M), 1977.

GAGE.--Water-stage recorder, and data collection platform (DCP). Datum of gage is 271.46 ft above National Geodetic Vertical Datum of 1929. Prior to June 11, 1932, nonrecording gage at railroad bridge 1.0 mi downstream at 19.86-foot higher datum. June 11, 1932, to Sept. 30, 1978, water-stage recorder 46 ft upstream at 5.00-foot higher datum.

REMARKS.--No estimated daily discharges. Records good. Flow is largely regulated by Lake Mexia (capacity, 9,400 acre-ft) and lake Limestone (station 08110470). There are numerous diversions above station for irrigation, municipal supply, and oil field operation. Several observations of water temperature were made during the year. Satellite telemeter (DCP) at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION (1925-60).--36 years (water years 1925-60), 406 ft<sup>3</sup>/s (5.70 in/yr), 294,100 acre-ft/yr.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-60).--Maximum discharge, 60,300 ft<sup>3</sup>/s May 2, 1944 (gage height, 27.13 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1845, 29 ft in June 1899, from information by local residents (discharge, 90,000 ft<sup>3</sup>/s), from rating curve extended above 60,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	57	36	348	2500	1760	151	38	1690	22	55	77
2	23	46	46	306	1290	1120	76	35	1840	22	79	78
3	28	55	154	1420	644	1040	70	31	2460	19	81	78
4	19	36	277	2020	1140	1930	65	28	3370	18	77	78
5	15	24	275	1270	2720	4070	62	60	3640	17	77	78
6	16	19	273	626	4250	5220	64	132	3060	16	81	77
7	14	17	271	621	5930	4760	65	54	1460	15	86	76
8	13	15	270	589	4750	3060	60	38	855	15	85	76
9	12	19	188	606	2930	1190	53	34	482	14	84	76
10	12	14	868	557	1900	956	46	31	199	14	83	76
11	11	13	1660	511	1130	1310	44	30	65	24	82	77
12	11	13	1690	608	993	1550	41	30	44	25	82	76
13	10	13	1390	737	493	1340	39	29	38	23	82	76
14	9.9	12	1140	651	303	958	38	29	35	19	80	76
15	9.5	11	1070	540	273	434	36	28	33	14	79	76
16	9.4	11	873	498	210	398	33	42	31	12	78	76
17	9.5	17	422	258	152	223	33	761	29	10	78	76
18	9.4	24	302	901	129	306	38	7260	35	13	78	76
19	9.4	35	676	2410	107	1090	48	13700	35	9.1	78	76
20	9.7	565	1760	4150	94	1160	62	7410	33	9.0	78	75
21	10	1020	17800	4360	89	819	55	3850	32	9.6	78	75
22	10	1030	57400	3360	771	508	41	1370	31	9.4	77	75
23	11	793	38000	3150	2620	415	34	344	32	10	78	75
24	11	315	15400	4000	3850	449	31	150	32	8.6	77	85
25	11	271	6100	3590	11600	147	30	334	29	8.0	79	85
26	11	254	4080	2230	20200	71	28	375	27	11	85	82
27	12	74	2560	2120	12800	61	32	367	28	11	82	81
28	16	27	2350	3340	8050	107	31	359	26	12	81	79
29	30	20	2460	5860	4430	415	32	360	23	13	79	78
30	40	21	1830	5570	---	621	46	620	22	11	77	76
31	52	---	939	3750	---	454	---	1310	---	24	76	---
TOTAL	476.8	4841	162560	60957	96348	37942	1484	39239	19716	457.7	2452	2321
MEAN	15.4	161	5244	1966	3322	1224	49.5	1266	657	14.8	79.1	77.4
MAX	52	1030	57400	5860	20200	5220	151	13700	3640	25	86	85
MIN	9.4	11	36	258	89	61	28	28	22	8.0	55	75
AC-FT	946	9600	322400	120900	191100	75260	2940	77830	39110	908	4860	4600

BRAZOS RIVER BASIN

381

08110500 NAVASOTA RIVER NEAR EASTERLY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1992#, BY WATER YEAR (WY)

MEAN	221	324	700	525	734	567	656	975	521	71.5	41.7	129
MAX	2427	4059	5244	2974	3322	2208	3761	5195	2794	474	486	1614
(WY)	1974	1975	1992	1961	1992	1973	1966	1965	1973	1961	1966	1974
MIN	1.20	1.73	4.63	9.52	15.1	17.8	8.36	6.88	1.88	.37	.81	1.20
(WY)	1964	1964	1964	1964	1967	1972	1972	1972	1971	1964	1963	1972

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1961 - 1992#
ANNUAL TOTAL	378040.9	428794.5	
ANNUAL MEAN	1036	1172	454
HIGHEST ANNUAL MEAN			1172
LOWEST ANNUAL MEAN			15.4
HIGHEST DAILY MEAN	57400	57400	57400
LOWEST DAILY MEAN	8.5	8.0	.19
ANNUAL SEVEN-DAY MINIMUM	8.9	9.1	.26
INSTANTANEOUS PEAK FLOW		61800	61800
INSTANTANEOUS PEAK STAGE		27.22	27.22
INSTANTANEOUS LOW FLOW		8.0	.00
ANNUAL RUNOFF (AC-FT)	749800	850500	328800
10 PERCENT EXCEEDS	2430	2970	966
50 PERCENT EXCEEDS	59	78	26
90 PERCENT EXCEEDS	10	13	2.4

# Period of regulated streamflow.



## BRAZOS RIVER BASIN

08111000 NAVASOTA RIVER NEAR BRYAN, TX

LOCATION.--Lat 30°52'10", long 96°11'32", Brazos-Madison County line, Hydrologic Unit 12070103, on right bank at upstream side of bridge on U.S. Highway 190, 2.5 mi upstream from Shepard Creek, 17 mi northeast of Bryan, and 68.4 mi upstream from mouth.

DRAINAGE AREA.--1,454 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1951, to current year.

Water-quality records.--Chemical and biochemical analyses: October 1958, to September 1981. Sediment records: October 1973, to September 1981.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 224.64 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow partially regulated by Lake Mexia since June 1961, and now largely regulated by Lake Limestone (station 08110470) since October 1978. There are numerous diversions above station for irrigation, municipal, and oil field operations. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--27 years (water years 1952-78), 557 ft<sup>3</sup>/s (403,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEAR 1952-78).--Maximum discharge, 38,200 ft<sup>3</sup>/s Apr. 29, 1966, (gage height, 16.57 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1840, that of Dec. 23, 1991; and next highest stage was about 19.5 ft in June 1899, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	41	15	3080	6010	7390	656	36	1000	16	1.4	22
2	1.9	43	16	2260	5030	5450	396	37	2360	13	1.4	23
3	1.1	34	29	1170	4250	3950	141	30	3340	13	7.4	24
4	3.9	24	38	761	3860	3560	81	25	2850	13	17	21
5	12	23	111	1090	4230	4580	70	22	3070	9.8	22	21
6	8.1	16	168	1580	3660	4150	66	19	3470	9.3	21	21
7	3.9	11	177	1710	4050	5650	66	34	3820	8.0	20	21
8	2.3	7.2	173	1360	5360	6140	66	47	3990	7.3	21	20
9	1.8	6.1	171	905	6290	5520	62	29	3400	6.0	22	19
10	1.1	6.1	161	664	5670	4560	57	20	2230	5.2	22	28
11	.82	5.9	200	546	4630	3210	52	16	1080	4.4	22	28
12	.88	5.9	513	724	3620	2110	47	15	285	3.9	22	17
13	.88	4.6	810	806	2650	1630	43	21	86	3.6	24	24
14	.80	4.2	1070	726	1860	1540	39	24	54	4.4	25	24
15	.81	4.2	1250	731	1320	1460	36	21	40	4.4	26	18
16	.62	4.1	1240	600	917	1130	33	22	32	4.1	24	17
17	.49	5.3	1130	446	680	615	32	75	27	3.0	22	21
18	.39	5.8	952	1140	371	540	34	714	23	2.3	21	20
19	.32	20	680	2000	194	504	43	1050	20	5.4	21	20
20	.37	131	830	1700	130	615	62	3210	18	22	21	19
21	.34	120	2290	2200	96	933	70	9460	18	13	21	19
22	.42	346	8600	3870	1290	1100	67	7290	17	7.4	21	19
23	.63	573	58700	5250	3230	893	53	5430	19	4.8	21	18
24	.64	716	46900	4920	2660	532	41	3970	18	3.5	21	18
25	.46	650	24300	4520	6880	356	34	2230	19	2.8	21	18
26	.68	332	11900	4490	10500	255	29	837	20	2.4	21	20
27	.85	200	7840	4880	19700	107	26	495	19	1.7	22	22
28	1.6	138	5870	4530	15200	89	23	474	17	1.1	23	22
29	3.5	55	4710	3860	9780	280	23	417	23	1.1	23	21
30	5.1	22	3990	4110	---	424	24	316	21	.98	23	20
31	18	---	3500	5700	---	606	---	343	---	.99	23	---
TOTAL	77.10	3554.4	188334	72329	134118	69879	2472	36729	31386	197.87	623.2	625
MEAN	2.49	118	6075	2333	4625	2254	82.4	1185	1046	6.38	20.1	20.8
MAX	18	716	58700	5700	19700	7390	656	9460	3990	.22	26	28
MIN	.32	4.1	15	446	96	89	23	15	17	.98	1.4	17
AC-FT	153	7050	373600	143500	266000	138600	4900	72850	62250	392	1240	1240

BRAZOS RIVER BASIN

383

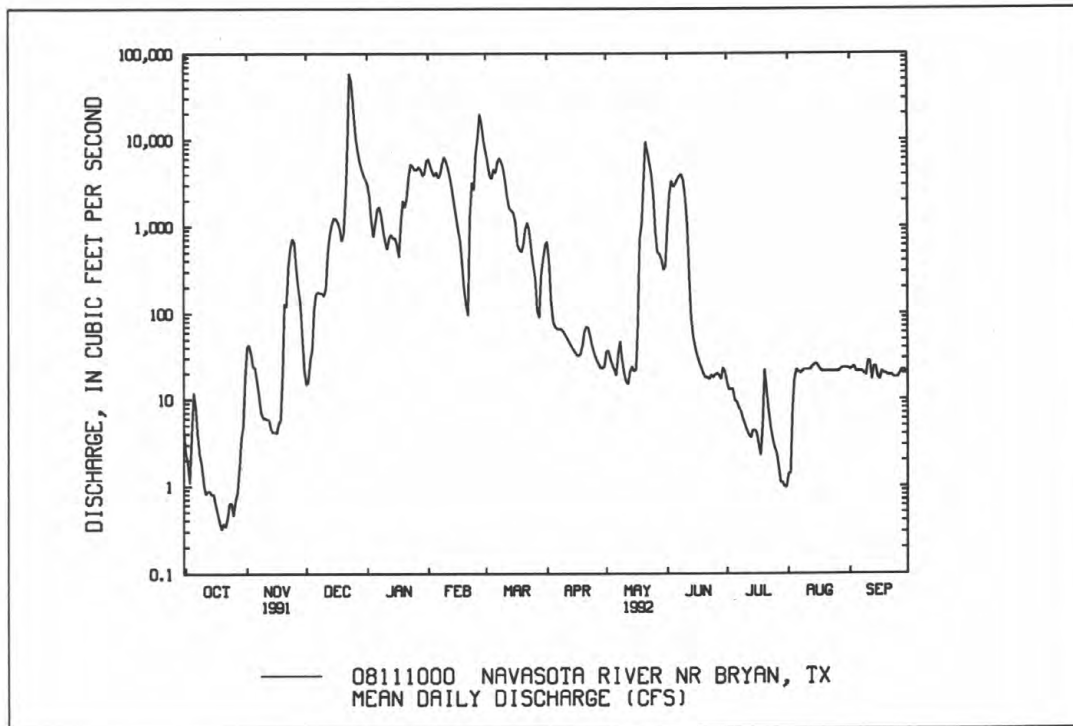
08111000 NAVASOTA RIVER NEAR BRYAN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1992#, BY WATER YEAR (WY)

MEAN	279	313	1015	678	1263	881	407	1210	874	86.9	69.6	56.0
MAX	2234	2182	6075	3788	4625	2254	1533	2718	3228	608	408	254
(WY)	1985	1986	1992	1991	1992	1992	1979	1989	1979	1979	1983	1981
MTN	1.38	2.95	2.81	21.8	36.4	38.7	22.1	29.0	21.3	3.93	3.95	5.54
(WY)	1989	1989	1990	1990	1990	1989	1989	1984	1988	1991	1980	1982

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1979 - 1992#
ANNUAL TOTAL	483975.14	540324.57	
ANNUAL MEAN	1326	1476	
HIGHEST ANNUAL MEAN			591
LOWEST ANNUAL MEAN			1476
HIGHEST DAILY MEAN	58700 Dec 23	58700 Dec 23	94.1 1992
LOWEST DAILY MEAN	.18 Jul 22	.32 Oct 19	.00 Dec 23 1991
ANNUAL SEVEN-DAY MINIMUM	.24 Jul 20	.42 Oct 16	.02 Jun 22 1990
INSTANTANEOUS PEAK FLOW		66600 Dec 23	66600 Dec 23 1991
INSTANTANEOUS PEAK STAGE		a/19.97 Dec 23	a/19.97 Dec 23 1991
INSTANTANEOUS LOW FLOW		.32 Oct 19	.00 at times
ANNUAL RUNOFF (AC-FT)	960000	1072000	428400
10 PERCENT EXCEEDS	3760	4320	1500
50 PERCENT EXCEEDS	66	36	52
90 PERCENT EXCEEDS	.88	3.5	6.8

# Period of regulated streamflow.  
a/ Maximum stage known since about 1840.



## BRAZOS RIVER MAIN STEM

08111500 BRAZOS RIVER NEAR HEMPSTEAD, TX

LOCATION.--Lat 30°07'44", long 96°11'15", Washington-Waller County line, Hydrologic Unit 12070101, at downstream side of bridge on U.S. Highway 290, 6,000 ft upstream from Texas and New Orleans Railroad Co. bridge, 6.5 mi northwest of Hempstead, 10.5 mi upstream from Caney Creek, and at mile 193.8.

DRAINAGE AREA.--43,880 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is non-contributing.

PERIOD OF RECORD.--October 1938 to current year. Gage-height records collected in this vicinity at intermittent periods since 1903 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1512: 1941. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 107.90 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1940, nonrecording gage at railroad bridge 6,000 ft downstream at datum 4.20 ft higher. Nov. 1, 1940, to Sept. 30, 1963, nonrecording gage at site 1,500 ft downstream at datum 10.00 ft higher. Oct. 1, 1964, to July 31, 1974, water-stage recorder 1,500 ft downstream at datum 10.00 ft higher. Aug. 1, 1974, to Dec. 31, 1988, water-stage recorder at present site at datum 10.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. There are many diversions above station for irrigation, municipal and industrial uses, and for oil field operations. At times, flow is affected by reservoirs on the Brazos River above Waco (see station 08096500) and by reservoirs on the Lampasas and Little Rivers above Cameron. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08110200. Gage-height tliemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 66.1 ft Dec. 8, 1913, at site 1,500 ft downstream at present datum, from information by Texas and New Orleans Railroad Co., obtained at bridge 6,000 ft downstream. Flood of July 4, 1899, reached a stage of 63.6 ft, at site 1,500 ft downstream at present datum, from information by Texas and New Orleans Railroad Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3870	10900	4660	85700	38300	78200	42700	17400	27900	20300	10500	4820
2	3600	16500	4450	76200	30400	57100	40000	17100	47500	20000	9990	4300
3	3500	19400	4360	69600	33000	40500	39100	16700	55700	18800	10100	3920
4	3440	21400	3950	66400	52900	41500	37400	15900	56700	17800	10100	3750
5	3430	23100	3630	64700	63900	56300	31000	16400	50300	18000	9790	3780
6	3330	24100	3860	62100	72000	62800	24600	16800	35700	17200	9840	4150
7	2870	24600	4070	58600	80700	71000	21600	17600	27800	16400	9550	4280
8	2560	24700	3810	55700	82900	73100	20700	17700	27900	16200	9500	4020
9	2480	23800	3620	52900	67500	68400	20200	17300	31000	16000	9590	4210
10	1990	19700	3610	50300	40500	57800	19600	16900	29500	16300	9220	4260
11	1760	13600	4000	48600	24100	48400	19200	16800	30800	17100	8890	4170
12	1660	9330	6540	52100	25300	46500	18800	16400	35800	17300	8690	3790
13	1610	8090	7960	52800	30000	45300	18400	16000	39300	16900	8350	3540
14	1550	7730	7910	51000	37500	44800	18200	15900	41000	17000	8490	3690
15	1500	7390	8670	50000	43100	44600	18500	16700	41600	17500	8640	3670
16	1550	6740	8620	48700	45600	44000	19300	17600	41300	16900	8500	3170
17	1450	5890	7430	47400	46100	43700	18600	18600	39600	15200	8400	2780
18	1330	5650	6020	51600	45600	44400	19400	26900	37600	14400	8290	2870
19	1310	5790	6190	58200	44500	46100	18700	35700	35200	14300	8090	2790
20	1340	6830	8550	60500	43000	47800	24600	40900	32100	13800	7740	2830
21	1370	6910	20300	63200	41700	48700	21500	35600	28000	13800	7610	2770
22	1370	6270	49000	63200	45600	48900	18500	24500	23200	14800	7700	2820
23	1370	6130	70200	59200	56000	48500	19200	28900	20300	14700	7690	2980
24	1290	6500	84200	56300	61400	47800	19400	37400	19400	14100	7540	2940
25	1090	6230	96100	52200	78100	47300	20700	39300	18700	13900	7260	3310
26	1010	5240	107000	44800	84500	45500	21100	32100	18500	13500	6590	3120
27	1330	4780	114000	38100	90300	41100	19800	27600	17300	13500	6010	2390
28	1500	4640	115000	39800	93500	40000	19100	29500	17000	12900	5900	2020
29	1620	4570	111000	49300	89700	43400	18300	28900	17600	12300	6070	1800
30	1890	4660	104000	55500	---	45200	17800	20900	19700	11800	5800	1670
31	2890	---	95600	51100	---	45400	---	21900	---	11200	5320	---
TOTAL	62860	341170	1078310	1735800	1587700	1564100	686000	717900	964000	483900	255750	1006100
MEAN	2028	11370	34780	55990	54750	50450	22870	23160	32130	15610	8250	3354
MAX	3870	24700	115000	85700	93500	78200	42700	40900	56700	20300	10500	4820
MIN	1010	4570	3610	38100	24100	40000	17800	15900	17000	11200	5320	1670
AC-FT	124700	676700	2139000	3443000	3149000	3102000	1361000	1424000	1912000	959800	507300	1996000

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1992, BY WATER YEAR (WY)

MEAN	4507	4818	6023	6921	8068	7359	8675	14680	11250	4943	2346	2936
MAX	24830	29490	41590	55990	54750	50450	42860	69860	51960	19000	8250	18030
(WY)	1960	1975	1941	1992	1992	1992	1945	1957	1957	1940	1992	1974
MIN	181	318	299	386	572	426	922	1145	1027	1175	726	454
(WY)	1953	1989	1955	1940	1971	1954	1954	1988	1956	1971	1963	1954

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1939 - 1992
--------------------	------------------------	---------------------	-------------------------

ANNUAL TOTAL	3926790		9578100						
ANNUAL MEAN	10760		26170			6868			
HIGHEST ANNUAL MEAN						26170			1992
LOWEST ANNUAL MEAN						1216			1984
HIGHEST DAILY MEAN	115000	Dec 28	115000	Dec 28	138000		May	1	1957
LOWEST DAILY MEAN	1010	Oct 26	1010	Oct 26	137		Nov	6	1952
ANNUAL SEVEN-DAY MINIMUM	1260	Oct 21	1260	Oct 21	140		Nov	3	1952
INSTANTANEOUS PEAK FLOW			116000	Dec 28	143000		May	2	1957
INSTANTANEOUS PEAK STAGE			53.00	Dec 28	54.21		May	2	1957
ANNUAL RUNOFF (AC-FT)	7789000		19000000		4976000				
10 PERCENT EXCEEDS	20400		58300		17800				
50 PERCENT EXCEEDS	5240		18200		2490				
90 PERCENT EXCEEDS	1560		2970		668				

BRAZOS RIVER BASIN

385

08111700 MILL CREEK NEAR BELLVILLE, TX

LOCATION.--Lat 29°52'51", long 96°12'18", Austin County, Hydrologic Unit 12070104, on left bank at upstream side of abandoned bridge pier, about 5 ft downstream from State Highway 36, 5.0 mi southeast of Bellville, 6.0 mi upstream from Brazos River, and 9.0 mi upstream from mouth.

DRAINAGE AREA.--376 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: October 1968 to September 1985. Sediment records: October 1966 to September 1985.

REVISED RECORDS.--WSP 2122: 1965(P). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 122.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. During the year, the city of Bellville discharged about 566 acre-ft of sewage effluent into a tributary of Mill Creek above gage. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1899, 22.8 ft in 1940, from information by local residents and the Texas Department of Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,500 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 23	0300	11,100	14.66	Mar. 5	0800	14,200	15.08
Feb. 4	2300	11,300	14.69	May 23	1200	7,670	14.16
Feb. 23	2100	6,810	14.02	June 3	0300	15,000	15.18
Feb. 25	1900	13,900	15.04				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	63	22	178	194	230	178	94	2240	187	28	21
2	17	31	22	155	174	201	132	82	11000	121	28	20
3	18	24	22	173	1750	201	117	73	11600	121	31	19
4	20	19	21	160	8970	4680	106	76	4040	124	31	17
5	18	17	21	302	8500	12500	619	67	761	87	28	18
6	14	17	20	562	4050	4320	2320	136	584	70	25	18
7	12	19	20	341	1430	707	959	83	665	54	24	17
8	11	26	20	332	444	360	247	57	561	49	23	17
9	10	83	36	458	333	314	166	56	227	42	22	16
10	9.8	47	36	262	270	245	130	53	166	35	22	16
11	9.8	28	27	172	604	214	119	57	665	33	22	16
12	9.6	23	25	2370	2300	208	116	56	242	31	42	16
13	9.2	21	26	2270	3040	189	110	54	147	28	45	16
14	8.7	20	27	853	975	172	106	52	121	27	50	16
15	8.3	19	27	216	480	164	95	105	103	25	37	16
16	8.3	20	27	142	331	156	95	705	99	25	31	16
17	7.8	22	26	142	304	144	373	1450	82	23	27	21
18	7.7	61	35	2250	259	135	3280	2930	69	22	25	15
19	7.7	127	143	3830	227	157	2620	2070	66	64	23	14
20	7.3	56	447	2450	188	121	3000	2350	60	165	22	14
21	7.1	34	1070	615	178	126	3750	2340	58	224	22	13
22	7.1	28	6220	863	1870	147	1170	3010	207	113	21	13
23	7.3	25	8440	961	5220	127	238	6030	2480	113	20	13
24	14	22	2800	404	3150	99	173	2760	471	92	20	12
25	18	19	497	194	10300	105	373	427	179	61	21	13
26	12	16	1230	198	5870	92	303	199	127	48	19	12
27	11	22	3120	1670	1330	85	187	573	214	39	17	11
28	11	25	3480	2070	409	334	136	1550	326	33	17	12
29	10	22	1220	1020	288	1690	109	2260	154	30	16	11
30	11	22	336	447	---	840	98	933	113	26	16	12
31	104	---	225	271	---	239	---	457	---	24	17	---
TOTAL	441.7	978	29688	26331	63438	29302	21425	31145	37827	2136	792	461
MEAN	14.2	32.6	958	849	2188	945	714	1005	1261	68.9	25.5	15.4
MAX	104	127	8440	3830	10300	12500	3750	6030	11600	224	50	21
MIN	7.1	16	20	142	174	85	95	52	58	22	16	11
AC-FI	876	1940	58890	52230	125800	58120	42500	61780	75030	4240	1570	914
CFSM	.04	.09	2.55	2.26	5.82	2.51	1.90	2.67	3.35	.18	.07	.04
IN.	.04	.10	2.94	2.61	6.28	2.90	2.12	3.08	3.74	.21	.08	.05

## BRAZOS RIVER BASIN

08111700 MILL CREEK NEAR BELLVILLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

MEAN	114	163	231	280	358	264	329	516	446	34.2	32.8	110
MAX	955	1178	1472	1350	2188	1202	1604	1930	2022	201	302	1202
(WY)	1974	1982	1977	1974	1992	1983	1991	1979	1987	1968	1974	1974
MIN	3.23	3.84	8.20	15.6	11.8	12.4	22.3	11.9	2.77	.98	1.23	2.28
(WY)	1989	1964	1964	1964	1967	1967	1971	1964	1990	1971	1967	1988

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1964 - 1992

ANNUAL TOTAL	128571.7			243964.7								
ANNUAL MEAN	352			667						239		
HIGHEST ANNUAL MEAN										667		1992
LOWEST ANNUAL MEAN										21.5		1967
HIGHEST DAILY MEAN	10500	Apr 15		12500	Mar 5					24000	Nov 1	1981
LOWEST DAILY MEAN	3.8	Aug 8		7.1	Oct 21					.08	Jul 22	1971
ANNUAL SEVEN-DAY MINIMUM	4.3	Aug 24		7.4	Oct 17					.20	Jun 28	1967
INSTANTANEOUS PEAK FLOW				15000	Jun 3					44400	Jun 13	1973
INSTANTANEOUS PEAK STAGE				15.18	Jun 3					17.95	Jun 13	1973
ANNUAL RUNOFF (AC-FT)	255000			483900						172900		
ANNUAL RUNOFF (CFSM)	.94			1.77						.63		
ANNUAL RUNOFF (INCHES)	12.72			24.14						8.63		
10 PERCENT EXCEEDS	548			2260						286		
50 PERCENT EXCEEDS	41			96						34		
90 PERCENT EXCEEDS	8.8			15						4.3		

## 08114000 BRAZOS RIVER AT RICHMOND, TX

LOCATION.--Lat 29°34'56", long 95°45'27", Fort Bend County, Hydrologic Unit 12070104, on right bank at downstream side of upstream bridge on U.S. Highway 90 in Richmond, 850 ft downstream from Texas and New Orleans Railroad Co. bridge, and at mile 92.0.

DRAINAGE AREA.--45,007 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1903 to June 1906, October 1922 to current year. Published as "at Rosenberg" October 1922 to September 1931 and equivalent except for diversion by Richmond Irrigation Co.'s canal. June to November 1901 and June to September 1902 in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1914 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1392: 1933. WSP 1632: 1958. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 27.94 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1922, various types of nonrecording gages at railroad bridge 925 ft upstream at different datums. Oct. 1, 1922, to Sept. 30, 1931, nonrecording chain gage at Rosenberg 7.6 mi upstream at datum about 17 ft higher; Oct. 1, 1931, to Sept. 30, 1975, water-stage recorder at present site at datum 13.00 ft higher; Oct. 1, 1975 to Dec. 31, 1988, water-stage recorder at present site and at datum 10.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Considerable water is diverted above station for irrigation and for municipal supply. For statement regarding regulation by upstream reservoirs and by Soil Conservation Service Floodwater-retarding structures, see station 08110200. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--20 years (water years 1904-05, 1923-40) 7,209 ft<sup>3</sup>/s (5,223,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1904-05, 1923-40).--Maximum discharge, 123,000 ft<sup>3</sup>/s June 6, 1929 (gage height, 53.6 ft, from floodmark), present site and datum; minimum daily, 35 ft<sup>3</sup>/s Aug. 23, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 61.2 ft Dec. 10, 1913, present datum, from floodmarks on right bank 1,000 ft upstream from gage. From information by Texas and New Orleans Railroad Co., stages of other floods at railroad bridge, present datum, are as follows: May 1884, 56.7 ft; June 13, 1885, 57.7 ft; July 1899, 58.6 ft; May 2, 1915, 56.3 ft; and May 9, 1922, 53.9 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4180	1940	4390	93400	51200	77800	45000	17800	22700	18600	11700	5950
2	4120	7450	4590	89000	42800	76200	43300	17400	33700	19400	11100	5360
3	3790	16000	4350	82200	35300	69500	41300	17000	54400	19300	10800	4800
4	3470	19000	4070	76900	46400	62000	40000	16800	62300	18800	10600	4760
5	3400	21000	3800	72400	61300	65400	39500	16200	61800	17700	10600	4400
6	3330	22400	3350	69100	68700	68700	38000	16300	56500	17400	10300	4080
7	3210	23400	3140	66400	71200	68100	31600	16500	45400	17000	10200	3970
8	3030	24000	3460	63800	72600	67400	25700	17000	32700	16300	10100	4280
9	2610	24100	4990	61400	73800	67900	23200	17200	27900	15900	9880	4380
10	2340	23300	4990	57900	72400	67100	22000	16900	29200	15800	9940	4130
11	2260	19300	3920	54200	60400	63600	21100	16600	29400	15800	9850	4290
12	1990	13600	3490	52900	42100	56500	20300	16500	29900	16400	9560	4430
13	1750	9740	5070	55200	35600	51000	19800	16200	32900	16800	9590	4250
14	1580	8120	7580	55700	36300	47600	19100	15800	35800	16500	9220	3750
15	1490	7730	7910	53300	39100	45500	18700	15700	37400	16400	8980	3550
16	1340	7440	8140	50600	42100	44400	18700	16400	38000	16700	9020	3640
17	1250	7750	8290	48600	44000	43700	20400	18300	38000	16600	8940	3520
18	1250	7070	8010	51200	44600	43300	25000	19600	36900	15500	8890	3050
19	1320	6250	7660	56100	44400	43500	25800	25600	35100	14700	8810	2810
20	1240	6110	7020	60100	43600	44600	25700	33300	32900	14800	8630	2810
21	1120	6490	9680	61500	42300	45900	28600	38000	30100	14800	8380	2690
22	1080	7030	32300	62400	44700	47000	26400	35600	26900	14400	8090	2650
23	1110	6650	51900	62900	49600	47400	21000	27900	23800	14600	8110	2480
24	1280	6300	64300	61700	55400	47300	19500	30400	21100	14900	8320	2550
25	1320	6360	71300	58800	61700	47000	20000	35000	19400	14400	8310	2680
26	1240	6560	77600	55200	69000	46500	21300	35800	18400	14200	8120	2830
27	1090	5850	84200	51000	74100	45300	21300	31200	18200	13800	7510	3140
28	908	4990	87900	46900	75900	42900	20000	27700	17700	13600	6820	2910
29	940	4580	89800	44800	77200	42700	19200	32300	17100	13300	6340	2320
30	1340	4440	92000	48000	---	44600	18400	32900	17100	12800	6340	1940
31	1610	---	93400	51800	---	45200	---	25100	---	12200	6350	---
TOTAL	61988	334950	862600	1875400	1577800	1675600	779900	715000	982700	489400	279400	108400
MEAN	2000	11160	27830	60500	54410	54050	26000	23060	32760	15790	9013	3613
MAX	4180	24100	93400	93400	77200	77800	45000	38000	62300	19400	11700	5950
MIN	908	1940	3140	44800	35300	42700	18400	15700	17100	12200	6340	1940
AC-FT	123000	664400	1711000	3720000	3130000	3324000	1547000	1418000	1949000	970700	554200	215000



## BRAZOS RIVER MAIN STEM

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1992#, BY WATER YEAR (WY)

MEAN	4959	5628	6921	7932	8943	8299	9183	15750	12330	5052	2524	3305
MAX	28760	32360	52860	60500	54410	54050	41900	77200	58350	17100	9013	19850
(WY)	1958	1975	1941	1992	1992	1992	1945	1957	1957	1968	1992	1974
MIN	203	366	480	543	702	445	829	1100	786	717	550	414
(WY)	1953	1989	1955	1952	1971	1954	1954	1978	1956	1956	1963	1954

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1941 - 1992#		
ANNUAL TOTAL	4004738		9743138				
ANNUAL MEAN	10970		26620				
HIGHEST ANNUAL MEAN					7557		
LOWEST ANNUAL MEAN					26620		1992
HIGHEST DAILY MEAN	93400	Dec 31	93400	Dec 31	1403		1984
LOWEST DAILY MEAN	908	Oct 28	908	Oct 28	118000	May 5	1957
ANNUAL SEVEN-DAY MINIMUM	1130	Oct 23	1130	Oct 23	55	Jul 5	1956
INSTANTANEOUS PEAK FLOW			94000	Jan 1	93	Jul 4	1956
INSTANTANEOUS PEAK STAGE			a/49.68	Jan 1	119000	May 5	1957
ANNUAL RUNOFF (AC-FT)	7943000		19330000		a/49.68	Jan 1	1992
10 PERCENT EXCEEDS	22500		62500		5475000		
50 PERCENT EXCEEDS	6360		18300		19000		
90 PERCENT EXCEEDS	1530		3040		2890		
					759		

# Period of regulated streamflow.

a/ The next highest stage, 38.50 ft, occurred on Nov. 28, 1940; and the third highest stage, 37.13 ft, occurred on May 5, 1957.

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1941 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1967 to May 1982. Sediment analyses: April 1957 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1941 to current year.

WATER TEMPERATURE: November 1950 to current year.

SUSPENDED-SEDIMENT DISCHARGE: January 1966 to September 1986.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,600 microsiemens Sept. 4, 1978; minimum daily, 172 microsiemens Oct. 31, 1984

WATER TEMPERATURE: Maximum daily, 33.0°C Aug. 5, 1951; minimum daily, 1.0°C Jan. 8, 1970 and Dec. 23-24, 1989.

SEDIMENT CONCENTRATION: Maximum daily mean, 13,500 mg/L Apr. 4, 1979; minimum daily mean, 8 mg/L Nov. 29, 1967, Sept. 20, and Oct. 6, 7, 1980.

SEDIMENT LOAD: Maximum daily, 1,860,000 tons Apr. 4, 1979; minimum daily, 9.8 tons Oct. 11, 1983.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,480 microsiemens Nov. 5; minimum daily, 233 microsiemens Dec. 27.

WATER TEMPERATURE: Maximum daily, 31.0°C Aug. 9; minimum daily, 8.0°C Jan. 20.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
JAN 15...	1117	53500	674	8.0	10.5	450	10.4	92	3.4	390	700	180
MAR 30...	1542	44900	762	7.6	18.0	310	9.0	95	1.4	700	780	210
MAY 28...	0957	27200	405	8.0	25.5	300	6.8	84	1.3	270	280	150
JUN 29...	1050	17100	688	8.0	29.0	240	7.1	94	1.2	190	170	220
JUL 22...	0940	14400	620	7.9	27.5	310	7.2	91	0.9	780	520	200
SEP 01...	1000	6050	646	8.3	28.0	61	7.2	92	1.3	140	40	230

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT MG/L AS CaCO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 15...	72	55	9.2	64	2	4.3	0	127	104	73	100	0.30
MAR 30...	73	67	11	65	2	3.5	0	170	140	69	110	0.30
MAY 28...	37	48	6.1	24	0.9	4.6	0	132	108	33	38	0.20
JUN 29...	67	68	13	52	2	3.9	0	191	157	63	89	0.30
JUL 22...	52	59	13	44	1	3.7	0	183	153	52	72	0.20
SEP 01...	67	67	16	49	1	4.4	0	204	167	53	74	0.30

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
JAN 15...	8.9	361	381	0.400	--	0.160	<0.010	0.560	0.570	0.190	0.040
MAR 30...	9.1	438	422	0.660	0.670	0.020	0.020	0.680	0.690	0.030	0.030
MAY 28...	11	242	235	1.09	1.09	0.010	0.010	1.10	1.10	0.030	0.030
JUN 29...	8.9	372	395	--	--	<0.010	<0.010	0.600	0.610	0.020	0.020
JUL 22...	8.7	356	346	--	--	<0.010	<0.010	0.450	0.470	0.010	0.030
SEP 01...	10	367	377	--	--	<0.010	<0.010	0.510	0.510	0.020	0.030

## BRAZOS RIVER MAIN STEM

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE		NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. STEEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
JAN	15...	0.31	0.50	0.170	0.060	0.050	0.171	0.15	1940	280000	82	100
MAR	30...	0.37	0.40	0.090	0.040	0.040	0.050	0.12	1570	190000	75	--
MAY	28...	0.47	0.50	0.110	0.060	0.070	0.060	0.21	1320	96900	77	60
JUN	29...	0.58	0.60	0.310	0.070	0.060	0.060	0.18	841	38800	86	--
JUL	22...	0.29	0.30	0.090	0.060	0.050	0.040	0.15	742	28800	85	10
SEP	01...	0.28	0.30	0.060	0.040	0.040	0.030	0.12	205	3350	97	20
DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
JAN	15...	79	<3	110	9	5	<10	<1	<1	<1.0	480	<6
MAR	30...	--	--	--	--	--	--	--	--	--	--	--
MAY	28...	69	<3	43	9	2	<10	2	<1	<1.0	380	<6
JUN	29...	--	--	--	--	--	--	--	--	--	--	--
JUL	22...	80	<3	4	9	<1	<10	2	<1	<1.0	660	<6
SEP	01...	100	<3	4	11	1	<10	1	<1	<1.0	710	<6
MONTH YEAR		DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)		
OCT.	1991	61988	1100	620	104000	190	31100	120	19800	260		
NOV.	1991	334950	1310	737	667000	240	213300	150	131500	280		
DEC.	1991	862600	379	212	494000	45	105300	34	80200	110		
JAN.	1992	1875400	570	319	1617E3	72	362900	53	268600	160		
FEB.	1992	1577800	481	269	1147E3	58	249100	44	187800	140		
MAR.	1992	1675600	502	281	1271E3	63	285600	47	211300	140		
APR.	1992	779900	609	341	719000	79	166800	58	121200	170		
MAY	1992	715000	470	263	508000	56	107700	43	82400	140		
JUNE	1992	982700	635	356	944000	87	231300	61	163100	170		
JULY	1992	489400	685	384	507000	91	120800	65	86500	190		
AUG.	1992	279400	618	346	261000	79	59900	58	43800	180		
SEPI	1992	108400	901	505	148000	140	39700	91	26700	230		
TOTAL		9743138	**	**	8387000	**	1974000	**	1423000	**		
WTD.AVG.		26620	569	319	**	75	**	54	**	160		

## BRAZOS RIVER MAIN STEM

391

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	481	1320	1040	404	e440	305	790	526	433	640	576	650
2	693	1300	1020	435	e445	267	781	555	522	670	e589	650
3	692	1390	996	469	e452	284	785	556	352	776	e600	710
4	851	1360	978	510	e479	315	802	555	305	722	626	750
5	1050	1480	992	560	e339	300	833	553	378	703	619	710
6	1080	1430	1000	570	e328	270	798	550	356	671	641	750
7	1070	1440	1070	577	e322	303	713	555	325	652	623	800
8	1150	1390	1100	597	e318	358	652	567	309	668	592	840
9	1120	1420	1050	622	e320	337	591	569	302	e679	553	830
10	1340	1400	712	663	e328	324	591	612	333	689	535	830
11	1360	1400	831	702	e342	332	570	613	561	684	537	920
12	1360	1450	791	740	364	345	560	588	673	e689	595	980
13	1370	1390	794	704	396	404	554	538	784	683	582	1000
14	1290	1290	841	639	433	462	535	547	877	697	633	920
15	1300	1310	779	680	555	444	544	545	e880	802	624	910
16	1400	1370	884	694	635	598	553	532	886	765	621	890
17	1390	1250	480	724	677	665	473	526	913	795	574	920
18	1360	1140	752	688	704	680	505	527	905	848	610	990
19	1340	1160	796	586	723	685	426	522	964	790	644	1140
20	1350	1100	778	532	750	707	459	493	1020	728	647	e1070
21	1320	1070	752	525	759	737	459	454	992	655	657	1000
22	1330	1070	558	535	734	737	373	422	1040	626	655	1050
23	1330	1050	497	530	725	745	427	362	950	570	623	1060
24	1320	983	286	540	636	764	470	345	841	569	598	1000
25	1200	985	250	577	555	778	480	360	782	626	596	1060
26	1310	907	242	567	506	779	546	365	747	648	640	1100
27	1300	921	233	546	458	781	533	360	739	603	681	1160
28	1300	1000	239	542	444	772	467	398	688	662	683	1160
29	1300	985	265	524	371	741	495	437	697	605	736	1110
30	1300	1080	318	538	---	719	498	406	646	620	738	1140
31	1300	---	373	452	---	770	---	357	---	590	705	---
MEAN	1210	1230	700	580	501	539	575	493	673	681	624	937
MAX	1400	1480	1100	740	759	781	833	613	1040	848	738	1160
MIN	481	907	233	404	318	267	373	345	302	569	535	650

WTR YR 1992 MEAN 728 MAX 1480 MIN 233

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	16.0	15.0	12.0	---	13.0	17.0	20.0	23.0	28.0	29.0	27.0
2	24.0	15.0	15.0	12.0	---	15.0	12.0	21.0	23.0	28.0	---	28.0
3	24.0	15.0	13.0	12.0	---	16.0	16.0	22.0	23.0	28.0	---	28.0
4	24.0	13.0	13.0	12.0	---	17.0	16.0	22.0	24.0	28.0	29.0	27.0
5	24.0	14.0	13.0	13.0	---	16.0	17.0	22.0	24.0	28.0	29.0	27.0
6	23.0	14.0	14.0	13.0	---	18.0	16.0	22.0	25.0	28.0	29.0	28.0
7	22.0	15.0	15.0	13.0	---	18.0	17.0	21.0	26.0	28.0	29.0	28.0
8	21.0	14.0	17.0	14.0	---	19.0	18.0	21.0	25.0	28.0	29.0	28.0
9	21.0	14.0	18.0	13.0	---	19.0	18.0	21.0	25.0	---	31.0	28.0
10	21.0	14.0	18.0	12.0	---	18.0	19.0	21.0	25.0	28.0	30.0	28.0
11	22.0	15.0	18.0	13.0	---	17.0	19.0	21.0	26.0	28.0	30.0	28.0
12	23.0	15.0	18.0	12.0	13.0	15.0	20.0	21.0	26.0	---	30.0	28.0
13	24.0	14.0	20.0	12.0	---	16.0	21.0	21.0	26.0	28.0	30.0	27.0
14	24.0	15.0	18.0	11.0	15.0	16.0	21.0	23.0	26.0	28.0	29.0	28.0
15	24.0	15.0	15.0	11.0	16.0	16.0	21.0	23.0	---	28.0	29.0	28.0
16	23.0	17.0	15.0	10.0	15.0	16.0	21.0	23.0	26.0	28.0	28.0	28.0
17	22.0	17.0	15.0	10.0	15.0	17.0	20.0	23.0	27.0	28.0	28.0	28.0
18	23.0	18.0	15.0	10.0	15.0	19.0	20.0	23.0	27.0	28.0	27.0	28.0
19	23.0	19.0	15.0	9.0	15.0	17.0	20.0	23.0	27.0	28.0	27.0	28.0
20	23.0	18.0	15.0	8.0	14.0	17.0	20.0	22.0	27.0	28.0	27.0	---
21	22.0	16.0	15.0	10.0	15.0	17.0	20.0	22.0	27.0	28.0	27.0	28.0
22	23.0	16.0	16.0	10.0	15.0	16.0	20.0	24.0	27.0	28.0	27.0	28.0
23	24.0	16.0	16.0	10.0	15.0	16.0	20.0	24.0	27.0	28.0	29.0	28.0
24	24.0	14.0	16.0	10.0	---	16.0	21.0	24.0	28.0	28.0	27.0	25.0
25	25.0	12.0	14.0	10.0	15.0	16.0	21.0	25.0	28.0	28.0	27.0	25.0
26	25.0	14.0	13.0	11.0	14.0	16.0	20.0	25.0	28.0	28.0	28.0	26.0
27	25.0	14.0	12.0	11.0	14.0	17.0	20.0	25.0	28.0	28.0	27.0	26.0
28	25.0	15.0	12.0	10.0	14.0	17.0	21.0	25.0	28.0	29.0	27.0	26.0
29	25.0	15.0	11.0	12.0	14.0	17.0	21.0	25.0	28.0	29.0	27.0	25.0
30	23.0	18.0	11.0	12.0	---	17.0	21.0	25.0	28.0	29.0	27.0	23.0
31	21.0	---	12.0	12.0	---	17.0	---	25.0	---	29.0	27.0	---
MEAN	23.5	15.0	15.0	11.5	14.5	16.5	19.0	22.5	26.0	28.0	28.5	27.0
MAX	25.0	19.0	20.0	14.0	16.0	19.0	21.0	25.0	28.0	29.0	31.0	28.0
MIN	21.0	12.0	11.0	8.0	13.0	13.0	12.0	20.0	23.0	28.0	27.0	23.0

WTR YR 1992 MEAN 21.0 MAX 31.0 MIN 8.0

## 08115000 BIG CREEK NEAR NEEDVILLE, TX

LOCATION.--Lat 29°28'35", long 95°48'45", Fort Bend County, Hydrologic Unit 12070104, near center of stream at downstream side of bridge on State Highway 36, 1.5 mi downstream from Coon Creek, 5.5 mi north of Needville, and 10.5 mi upstream from Fairchild Creek, and 33.0 mi upstream from mouth.

DRAINAGE AREA.--42.8 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1947 to June 1950, March 1952 to current year.

REVISED RECORDS.--WSP 1148: 1947. WSP 1712: 1957-58, 1959(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 59.39 ft above National Geodetic Vertical Datum of 1929. Prior to June 30, 1950, and May 29, 1959, to Mar. 29, 1960, nonrecording gage at 10.00 ft higher datum. March 1952 to May 28, 1959, and Mar. 30, 1960, to Sept. 30, 1967, water-stage recorder at 10.00 ft higher datum.

RLMARKS.--No estimated daily discharges. Records good. Channel was rectified in 1956. No diversions above station. Low flow supplemented by drainage from irrigated fields. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, 24.4 ft in August 1945 before channel rectification, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	0730	2,230	21.86	Mar. 4	2400	1,780	20.75
Feb. 4	0200	1,750	20.66	Apr. 18	0200	2,330	22.05
Feb. 22	1430	1,750	20.64				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.5	1.0	12	14	10	4.3	1.5	43	9.2	2.3	3.1
2	1.6	1.5	1.4	9.0	11	7.3	2.5	1.5	332	9.6	9.4	2.1
3	1.6	1.2	1.3	7.3	512	5.2	1.8	1.6	120	11	12	1.9
4	1.4	1.2	1.0	5.5	1140	652	1.5	1.4	32	14	9.0	3.1
5	1.2	1.1	.86	150	486	1040	422	1.4	14	12	9.8	7.6
6	1.2	1.2	.92	116	160	322	356	1.4	175	11	8.2	8.8
7	1.0	4.3	.86	50	61	110	104	1.4	312	7.8	4.6	12
8	.77	9.8	.95	290	29	37	35	1.4	124	4.7	2.6	12
9	1.2	3.2	29	150	18	19	17	1.4	55	3.1	2.0	24
10	.92	2.2	52	47	12	12	11	1.4	85	2.4	1.7	18
11	.91	1.5	26	23	309	7.5	6.3	1.4	63	1.9	1.6	9.8
12	.66	1.6	14	222	398	5.0	4.4	1.5	49	1.9	1.4	10
13	.98	.98	216	130	121	3.4	3.1	1.4	26	1.7	1.9	4.5
14	1.0	.96	117	45	51	2.4	1.8	1.5	15	1.6	3.8	4.0
15	.88	.92	29	22	29	1.9	1.5	1.5	9.3	2.9	3.7	3.0
16	.83	.90	12	14	18	1.6	1.4	3.0	6.0	5.7	2.5	3.2
17	.86	160	6.6	32	17	1.7	540	154	4.5	4.4	2.1	2.4
18	.78	109	153	947	12	.89	1350	110	3.2	3.9	1.9	1.5
19	.99	40	272	285	8.9	.81	287	46	2.8	9.1	1.9	1.3
20	.93	20	108	103	6.6	.82	455	1.1	2.5	67	1.8	1.3
21	.84	11	610	46	4.7	.81	145	10	2.1	42	1.6	1.1
22	.60	5.7	1630	150	1070	.85	49	4.9	2.2	31	1.5	1.1
23	.68	3.7	378	65	403	.85	23	2.9	7.7	26	1.4	1.1
24	1.0	2.6	134	28	347	.84	14	2.1	2.4	10	1.4	1.7
25	.93	2.2	49	17	453	.84	10	1.6	1.7	5.6	1.5	1.2
26	.98	1.5	457	14	128	.82	6.3	1.5	1.9	4.2	1.3	.88
27	1.2	1.4	486	363	49	.85	4.6	3.5	5.3	3.1	1.3	1.0
28	1.2	1.2	154	154	25	22	3.7	5.3	4.7	2.4	1.3	1.0
29	1.1	1.1	60	62	15	59	2.1	40	2.7	2.0	1.3	.95
30	1.2	1.0	31	34	---	17	1.8	8.7	3.6	2.5	3.2	.77
31	1.5	---	19	21	---	8.5	---	12	---	1.6	4.2	---
TOTAL	32.84	395.46	5050.89	3613.8	5908.2	2352.88	3865.1	446.2	1507.6	315.3	104.2	144.40
MEAN	1.06	13.2	163	117	204	75.9	129	14.4	50.3	10.2	3.36	4.81
MAX	1.9	160	1630	947	1140	1040	1350	154	332	67	12	24
MIN	.60	.90	.86	5.5	4.7	.81	1.4	1.4	1.7	1.6	1.3	.77
AC-FT	65	784	10020	7170	11720	4670	7670	885	2990	625	207	286

BRAZOS RIVER BASIN

393

08115000 BIG CREEK NEAR NEEDVILLE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1992, BY WATER YEAR (WY)

MEAN	43.4	34.7	39.9	36.3	47.9	18.9	34.7	40.1	48.0	16.4	27.1	44.6
MAX	254	298	194	186	223	130	218	224	467	166	284	399
(WY)	1960	1986	1987	1974	1959	1957	1973	1982	1960	1961	1983	1979
MIN	.000	.000	.000	.000	.039	.000	.000	.33	.023	.019	.000	.000
(WY)	1948	1956	1949	1957	1962	1954	1954	1963	1948	1956	1948	1948

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1948 - 1992
ANNUAL TOTAL	15872.17	23736.87	35.6
ANNUAL MEAN	43.5	64.9	91.1
HIGHEST ANNUAL MEAN			3.54
LOWEST ANNUAL MEAN			1973
HIGHEST DAILY MEAN	1630 Dec 22	1630 Dec 22	7080 Jun 26 1960
LOWEST DAILY MEAN	.50 Jan 1	.60 Oct 22	.00 Oct 1 1947
ANNUAL SEVEN-DAY MINIMUM	.81 Oct 17	.81 Oct 17	.00 Oct 1 1947
INSTANTANEOUS PEAK FLOW		2330 Apr 18	10400 Jun 26 1960
INSTANTANEOUS PEAK STAGE		22.05 Apr 18	24.03 Oct 31 1959
INSTANTANEOUS LOW FLOW			.00 at times
ANNUAL RUNOFF (AC-FT)	31480	47080	25770
10 PERCENT EXCEEDS	110	154	48
50 PERCENT EXCEEDS	3.0	4.6	1.6
90 PERCENT EXCEEDS	.97	.99	.00



08116650 BRAZOS RIVER NEAR ROSHARON, TX

LOCATION.--Lat 29°20'58", Long 95°34'56", Fort Bend-Brazoria County line, Hydrologic Unit 12070104, on right bank at downstream side of bridge on Farm Road 1462, 2.0 mi downstream from Big Creek, 2.1 mi upstream from Cow Creek, and 7.3 mi west of Rosharon and at mile 56.7.

DRAINAGE AREA.--45,339 mi<sup>2</sup>, approximately, of which 9,566 mi<sup>2</sup> probably is noncontributing.

PERIOD OF RECORD.--April 1967 to September 1980, Apr. 25, 1984, to current year.

Water-quality records.--Chemical and biochemical analyses: October 1967 to September 1980.

Specific Conductance: October 1967 to September 1980. Water Temperature: October 1967 to September 1980.

Sediment analyses: October 1974 to September 1980.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Water is diverted above station for irrigation, industrial, and municipal supply and materially affect low flows. For regulation by upstream reservoirs and by Soil Conservation Service floodwater-retarding structures, see Brazos River at Washington (station 08110200).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since at least 1884, 56.4 ft about Dec. 11, 1913, from information by the Texas Department of Transportation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3810	1900	4850	78500	60200	77600	47800	18800	28100	17500	11500	5980
2	3790	2280	4880	81200	56700	78700	46800	18100	34200	19100	11000	5480
3	3530	9580	4910	82500	48000	79200	45000	17600	54500	19700	10500	5010
4	3210	16300	4720	82300	55300	77700	43100	17200	65100	19400	10300	4670
5	2970	19800	4520	81900	65300	76400	43200	16800	68200	18400	10200	4630
6	2900	22400	4250	81000	71100	76400	46200	16400	68100	17300	10000	4300
7	2840	24200	3920	80000	73700	76600	40500	16600	65400	17100	9730	4120
8	2750	25500	3870	79000	74800	75900	31200	16900	52900	16400	9650	4200
9	2540	25700	4190	77600	75700	75400	26100	17400	38300	15600	9440	4350
10	2160	25300	5270	75300	76400	74800	24300	17500	34300	15400	9330	4270
11	1980	22900	4660	72100	75800	73900	23100	17100	35100	15200	9330	4130
12	1870	17600	4110	69700	71100	71500	21900	16800	34100	15500	9090	4260
13	1660	12300	4030	68300	58500	66500	21100	16600	36000	16100	9050	4290
14	1490	9010	5940	67400	47100	59600	20400	16200	39500	16300	8960	4110
15	1400	7830	7460	65700	44000	53100	19800	15900	42100	16000	8600	3860
16	1320	7570	7540	62600	45400	49600	19500	16500	43300	16200	8480	3750
17	1190	8290	7840	60000	47700	48000	20700	20300	43600	16500	8460	3790
18	1130	9660	7960	62600	48900	47200	33100	23900	42900	15900	8360	3520
19	1150	7560	8390	67000	49200	46700	35900	26600	41200	14700	8300	3180
20	1180	6560	8090	69000	48500	47000	35400	35800	38800	14400	8160	3020
21	1140	6250	8750	70300	47000	48100	34300	42600	35500	14600	8010	2990
22	1110	6620	26800	71400	48500	49400	33100	44900	31800	14300	7730	2880
23	1090	6740	47500	72300	53200	50200	26700	38100	27900	14000	7520	2780
24	1130	6490	56400	72300	58400	50300	21800	33100	23900	14400	7830	2640
25	1230	6350	60200	71200	64400	50000	21000	37900	21000	14300	8230	2710
26	1250	6510	62000	67700	68800	49500	22000	41500	19100	13900	8010	2830
27	1180	6430	64600	65500	71900	48600	23000	41200	18300	13600	7470	2990
28	1050	5770	67400	62300	74000	47000	21800	36200	18000	13200	6880	3190
29	918	5210	70300	57100	75900	46200	20500	38400	17300	13000	6350	2810
30	1400	4960	73100	55600	---	46600	19600	41700	16600	12600	6130	2340
31	1780	---	75600	58100	---	47600	---	36300	---	11900	6150	---
TOTAL	58148	343570	724050	2187500	1755500	1865300	888900	810900	1135100	482500	268750	113080
MEAN	1876	11450	23360	70560	60530	60170	29630	26160	37840	15560	8669	3769
MAX	3810	25700	75600	82500	76400	79200	47800	44900	68200	19700	11500	5980
MIN	918	1900	3870	55600	44000	46200	19500	15900	16600	11900	6130	2340
AC-FT	115300	681500	1436000	4339000	3482000	3700000	1763000	1608000	2251000	957000	533100	224300

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992, BY WATER YEAR (WY)

	MEAN	5934	7652	10800	11250	10980	11010	14430	14410	5120	2648	3351
MAX	24240	33580	23360	70560	60530	60170	32050	39370	41010	18200	8669	19370
(WY)	1974	1975	1992	1992	1992	1992	1977	1990	1987	1968	1992	1974
MIN	369	290	866	1119	596	498	540	312	367	246	596	504
(WY)	1989	1989	1989	1971	1971	1971	1971	1978	1971	1971	1985	1988

SUMMARY STATISTICS

	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1968 - 1992
ANNUAL TOTAL	3914550	10631298	8614
ANNUAL MEAN	10720	29050	29050
HIGHEST ANNUAL MEAN			1634
LOWEST ANNUAL MEAN			82500
HIGHEST DAILY MEAN	75600	Dec 31	82500
LOWEST DAILY MEAN	598	Aug 16	67
ANNUAL SEVEN-DAY MINIMUM	689	Aug 11	78
INSTANTANEOUS PEAK FLOW			82700
INSTANTANEOUS PEAK STAGE			51.89
INSTANTANEOUS LOW FLOW			40
ANNUAL RUNOFF (AC-FT)	7765000	21090000	6240000
10 PERCENT EXCEEDS	23300	71300	22000
50 PERCENT EXCEEDS	6020	18600	3550
90 PERCENT EXCEEDS	1450	2980	692

\* Also occurred on Apr. 8-10, 1967.

## SAN BERNARD RIVER MAIN STEM

395

08117500 SAN BERNARD RIVER NEAR BOLING, TX

LOCATION.--Lat 29°18'48", long 95°53'38", Wharton-Fort Bend County line, Hydrologic Unit 12090401, on left bank at downstream side of bridge on Farm Road 442; 2.5 mi downstream from Snake Creek, and 4.5 mi northeast of Boling.

DRAINAGE AREA.--727 mi<sup>2</sup>.

PERIOD OF RECORDS.--May 1954 to current year:

Water-quality records.--Chemical and biochemical analyses: February 1978 to September 1986.

REVISED RECORDS.--WSP 1712: 1958. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 30.81 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor, except those for from July 28 through September 30 which are good. Part of low flow is drainage from areas irrigated with diversions from the Colorado River. There are numerous diversions above station for irrigation and for other uses.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 43.5 ft in 1913 (probably December). Flood in September 1938 reached a stage of 43.3 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 22	2400	8,890	30.19	Apr. 18	1800	7,540	27.80
Jan. 19	0200	3,710	19.11	May 18	1800	3,530	18.61
Feb. 7	1800	8,410	29.36	June 3	0400	5,620	23.83
Feb. 25	1900	5,310	23.11	June 13	1000	3,030	17.21
Apr. 6	0600	3,600	18.80				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	49	15	3410	1900	2840	e1390	378	739	312	175	106
2	129	73	21	1850	1520	1540	e850	244	3260	285	188	101
3	172	112	22	991	2150	1050	643	168	5270	264	185	116
4	204	110	19	669	6450	835	480	138	4280	760	187	138
5	187	82	24	853	6510	e1400	896	131	4990	1100	241	278
6	174	58	11	1350	6960	e2200	3200	126	5210	1230	288	479
7	163	44	e8.0	1130	8260	e3590	2140	137	5300	990	310	434
8	161	34	e7.7	1130	7850	e4750	1930	128	4560	602	313	351
9	149	33	e8.0	2250	6520	e4600	2950	131	3560	372	296	287
10	135	36	63	1600	5220	e3700	2430	131	3350	253	273	259
11	115	34	223	1360	4100	e3000	1410	123	2860	190	239	240
12	98	31	295	1740	5300	e2300	941	114	2840	159	236	218
13	85	24	331	2330	4570	e1900	635	108	3000	142	258	209
14	77	17	372	1910	3780	e1600	396	105	2970	138	285	223
15	68	15	260	1760	4430	e1200	242	133	2870	142	265	217
16	54	16	149	1570	4510	e900	152	1350	e2600	166	234	214
17	43	22	93	1120	3770	e700	95	2660	e2050	184	234	207
18	35	111	e1770	2380	2770	e585	5050	3470	e1700	191	211	185
19	27	205	e1880	3360	2150	e500	5830	3350	e1210	403	162	163
20	22	289	e1900	2810	1600	e440	4350	3330	e800	561	133	141
21	20	269	2230	2970	1120	e400	4270	3260	e515	700	127	133
22	18	199	7250	3080	1540	e370	4180	2750	e375	636	132	128
23	15	135	8330	2600	4170	e340	3970	2080	e285	e575	128	160
24	14	90	7110	2130	3890	e310	3360	1860	e225	e520	119	180
25	12	62	7210	1720	4980	e290	2250	1900	213	e570	114	170
26	12	45	7170	1460	5030	e280	1490	1590	258	e630	124	161
27	13	33	801	2300	4910	e270	1180	1310	349	e500	134	155
28	11	26	6940	2480	4810	e265	892	896	391	426	145	149
29	8.2	20	5840	1980	4020	e245	705	797	375	327	150	146
30	7.7	17	5300	2540	---	e240	545	521	340	246	132	138
31	55	---	4550	2470	---	e230	---	460	---	192	116	---
TOTAL	2420.9	2291	77411.7	61303	124790	42870	58852	33879	66745	13766	6134	6086
MEAN	78.1	76.4	2497	1978	4303	1383	1962	1093	2225	444	198	203
MAX	204	289	8330	3410	8260	4750	5830	3470	5300	1230	313	479
MIN	7.7	15	7.7	669	1120	230	95	105	213	138	114	101
AC-FT	4800	4540	153500	121600	247500	85030	116700	67200	132400	27300	12170	12070

e Estimated

## SAN BERNARD RIVER MAIN STEM

08117500 SAN BERNARD RIVER NEAR BOLING, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1992, BY WATER YEAR (WY)

MEAN	505	477	434	556	716	339	462	620	813	343	210	625
MAX	3326	4069	2497	2316	4303	2142	3348	2840	4437	1417	710	3794
(WY)	1958	1986	1992	1979	1992	1957	1973	1972	1973	1961	1983	1979
MIN	3.27	5.23	6.19	6.57	15.2	5.97	15.2	22.8	10.4	10.7	26.8	35.2
(WY)	1957	1956	1990	1957	1967	1956	1963	1956	1956	1956	1956	1956

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1955 - 1992

ANNUAL TOTAL	247520.4		496548.6			
ANNUAL MEAN	678		1357			
HIGHEST ANNUAL MEAN					506	1992
LOWEST ANNUAL MEAN					1357	1956
HIGHEST DAILY MEAN					37.9	1956
LOWEST DAILY MEAN	8330	Dec 23	8330	Dec 23	21000	Jun 28 1960
ANNUAL SEVEN-DAY MINIMUM	7.7	Oct 30	7.7	Oct 30	1.7	Dec 7 1988
INSTANTANEOUS PEAK FLOW	11	Oct 24	11	Oct 24	2.2	Dec 1 1988
INSTANTANEOUS PEAK STAGE			8890	Dec 22	21200	Jun 28 1960
ANNUAL RUNOFF (AC-FT)	491000		30.19	Dec 22	42.41	Jun 28 1960
10 PERCENT EXCEEDS	1950		984900		366500	
50 PERCENT EXCEEDS	172		4270		1230	
90 PERCENT EXCEEDS	20		360		119	
			41		17	

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

#### Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1992

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Measurements	
					Date	Discharge (ft³/s)
Brazos River Basin						
08084100	Deadman Creek near Nugent, Tex.	Lat 32°40'36", long 99°37'00", Jones County, at low-water crossing on county road, 3.2 mi east of Nugent, and 4.4 mi upstream from Clear Fork Brazos River.	--	1967-92	10-10-91 11-21-91 04-09-92 04-27-92 05-21-92 07-17-92	13.9 27.6 52.4 38.7 37.8 38.9
08104290	Salado Creek above Salado, Tex.	Lat 30°56'42", long 97°32'30", Bell County, 0.2 mi upstream from I.H. 35, at Salado.	--	1984-88, 1990-92	07-09-92 08-04-92 08-26-92	29.0 21.2 13.3
08104310	Salado Creek below Salado Springs, Tex.	Lat 30°57'07", long 92°21'26", Bell County, on right bank downstream from low-water crossing in the Mill Creek Country Club and subdivision at Salado.	--	1984-87† 1988, 1990-92	07-09-92 08-04-92 08-26-92	78.1 63.1 52.6
08104795	North Fork San Gabriel River upstream from State Highway 418 at Georgetown, Tex.	Lat 30°38'44", long 97°40'49", Williamson County 0.2 mi upstream from State Highway 418 at Georgetown.	--	1984-88, 1990-92	07-09-92 08-04-92 08-26-92	17.7 51.3 20.7
08104950	South Fork San Gabriel River upstream from State Highway 418 at Georgetown, Tex.	Lat 30°38'38", long 97°40'50", Williamson County 0.2 mi upstream from State Highway 418, at Georgetown.	--	1984-88, 1990-92	07-09-92 08-04-92 08-26-92	38.4 70.3 6.72
08105000	San Gabriel River at Georgetown, Tex.	Lat 30°39'14", long 97°39'18", Williamson County, on left bank 100 ft downstream from Missouri-Kansas Railroad bridge, 1.2 mi below confluence of North and South Forks, about 1.5 mi northeast of Williamson County Courthouse in Georgetown.	399	1924-25† 1934-73† 1984-87† 1988, 1990-92	07-09-92 08-04-92 08-26-92	91.0 95.0 52.6
08105095	Berry Creek upstream from I.H. 35 near Georgetown, Tex.	Lat 30°42'11", long 97°39'58", Williamson County, 1.4 mi upstream from I.H. 35 near Georgetown.	--	1984-88, 1990-92	07-09-92 08-04-92 08-26-92	12.2 1.63 0
08105160	Dry Berry Creek near Georgetown, Tex.	Lat 30°41'28", long 97°38'14", Williamson County, at downstream side of county road, 0.4 mi upstream from mouth, and 4.0 mi northeast of Georgetown.	--	1986-88, 1990-92	07-09-92 08-04-92 08-26-92	.41 .16 .01
08105200	Berry Creek at State Highway 971 near Georgetown, Tex.	Lat 30°40'33", long 97°36'52", Williamson County, at downstream side of State Highway 971 bridge and 4.7 mi northeast of Georgetown.	--	1964-73 1984-87† 1988, 1990-92	07-10-92 08-04-92 08-26-92	38.8 23.7 15.8
08105300	San Gabriel River near Weir, Tex.	Lat 30°38'45", long 97°35'06", Williamson County on left bank at downstream side of State Highway 29 bridge, 0.5 mi upstream from Manske Branch, 4.7 mi east of Georgetown, and 54.8 mi upstream from mouth.	563	1976-90† 1992	07-09-92 08-04-92 08-26-92	141 121 65.7
08110000	Yegua Creek near Somerville, Tex.	Lat 30°19'18", long 96°30'26", Burleson County, on left bank 40 ft downstream from bridge on State Highway 36, 1.0 mi downstream from Somerville Lake, 2.0 mi south of Somerville, and 5.0 mi upstream from Davidson Creek.	1,009	1924-91†	10-15-91 10-29-91 11-25-91 01-13-92 03-09-92 04-23-92 06-08-92 07-27-92 09-14-92	0 0 0 2,100 3,410 2,060 1,620 1,850 .10

† Operated as a continuous-record station.

## 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), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occurring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

## Annual maximum stage and (or) discharge during water year 1992

Station name and number	Location	Drainage area (mi²)	Period of record	Water Year 1992 maximum			Period of record maximum		
				Date	Gage height (ft)	Dis-charge (ft³)	Date	Gage height (ft)	Dis-charge (ft³)
San Jacinto River Basin									
McClellan Creek near McLean, Tex. 07301200	Lat 35°19'45", long 100°36'32", Gray County, on left bank at downstream side of bridge on State Highway 273, 5 mi upstream from mouth.	759	1967-80†	06-05-92	6.17	2,150	05-20-77	14.55	26,600
Goose Creek at Baytown, Tex. 08067525	Lat 29°46'14", long 94°59'58", Harris County, at bridge on Baker Road in Baytown, 1.1 mi upstream from West Fork Goose Creek, and 2.0 mi upstream from East Fork Goose Creek.	a15.8	1984-92	06-02-92	*14.95	--	06-11-87	*18.04	--
Willow Creek near Tomball, Tex. 08068325	Lat 30°06'19", long 95°32'47", Harris County, at bridge on Kuykendahl Road, 0.6 mi upstream from Cannon Gully, and 4.0 mi east of Tomball.	41.0	1984-92	04-17-92	29.79	1,550	05-18-89	31.54	--
Cypress Creek at Sharp Road near Hockley, Tex. 08068700	Lat 29°55'15", long 95°50'24", Harris County, at bridge on Sharp Road and 7.4 mi south of Hockley.	80.7	1976-78, 1979-92	06-14-92	*67.27	--	09-21-79	67.75	--
Cypress Creek at Stubner Airline Road near Westfield, Tex.	Lat 30°00'23", long 95°30'42", Harris County, at bridge on Stubner Airline Road, 1.3 mi upstream from Spring Gully and 6.5 mi west of Westfield.	248	1982-87† 1987-92	06-02-92	32.98	3,740	05-18-89	39.15	6,360
Buffalo Bayou near Fulshear, Tex. 08072350	Lat 29°43'22", long 95°46'01", Harris County, at proposed location of Peek Road bridge, about 200 ft downstream from Little Prong Bayou, 4,300 ft upstream from Mason Road, 8.3 mi east-northeast of Fulshear.	81.7	1986-92	03-04-92	13.55	--	06-08-86	b15.82	--
South Mayde Creek near Addicks, Tex. 08072700	Lat 29°48'03", long 95°41'33", Harris County, at bridge on Groeschke Road, 3.2 mi west of Addicks, and 4.6 mi upstream from Langham Creek.	32.3	1974-92	03-04-92	*107.09	--	08-31-81	108.76	4,080
Langham Creek near Addicks, Tex. 08072800	Lat 29°50'08", long 95°37'32", Harris County, at bridge on Clay Road, 3.6 mi north of Addicks, and 4.4 mi upstream from mouth.	48.9	1974-92	03-08-92	*100.83	--	08-31-81	102.25	3,360
Whiteoak Bayou at Alabonson Road at Houston, Tex. 08074020	Lat 29°52'14", long 95°28'49", Harris County, at bridge on Alabonson Road, in northwest Houston, 1.0 mi upstream from Vogel Creek, and 2.5 mi upstream from Cole Creek.	34.5	1984-92	03-04-92	*49.58	8,610	05-18-89	48.77	7,390
Cole Creek at Deihl Road, Houston, Tex. 08074150	Lat 29°51'04", long 95°29'16", Harris County, at bridge on Heihl Road in northwest Houston, 1.8 mi upstream from mouth.	7.50	1964-86† 1987-92	03-04-92	*80.73	2,780	05-18-89	79.00	--
Brickhouse Gully at Costa Rica Street, Houston, Tex. 08074250	Lat 29°49'40", long 95°28'09", Harris County, at bridge on Costa Rica Street in northwest Houston and 1.0 mi upstream from Whiteoak Bayou.	11.4	1964-81† 1984-85† 1986-92	03-04-92	*71.26	7,580	03-20-72	69.20	5,800
Little Whiteoak Bayou at Trimble Street at Houston, Tex. 08074540	Lat 29°47'33", long 95°22'06", Harris County, at bridge on Trimble Street, Houston.	18.0	1979-92	03-04-92	*43.17	--	10-25-84	40.25	--
Brays Bayou at Alief Road, Alief, Tex. 08074760	Lat 29°42'39", long 95°35'13", Harris County, at bridge on High Star Street in Alief.	14.1	1977-92	03-04-92	21.16	--	08-31-81	19.59	4,580
Keegans Bayou at Keegan Road near Houston, Tex. 08074780	Lat 29°39'55", long 95°35'42", Harris County, at bridge on Keegan Road and about 16 mi southwest of Houston.	a8.63	1965-71, 1975-92	03-04-92	*80.93	--	04-16-66	83.53	--
Keegans Bayou at Roark Road near Houston, Tex. 08074800	Lat 29°39'23", long 95°33'43", Harris County, at bridge on Roark Road in southwest Houston.	a12.7	1965-92	03-04-92	*75.91	4,880	09-19-83	75.00	4,250
Brays Bayou at Gessner Drive, Houston, Tex. 08074810	Lat 29°40'21", long 95°31'41", Harris County, at bridge on Gessner Drive in southwest Houston and 0.10 mi below mouth of Keegans Bayou.	53.2	1977-92	03-04-92	*65.42	16,900	09-19-83	65.33	16,800

See footnotes at end of table.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum stage and (or) discharge during water year 1992--Continued

Station name and number	Location	Drainage area (mi <sup>2</sup> )	Period of record	Water Year 1992 maximum			Period of record maximum		
				Date	Gage height (ft)	Discharge (ft <sup>3</sup> )	Date	Gage height (ft)	Discharge (ft <sup>3</sup> )
San Jacinto River Basin--Continued									
Sims Bayou at Hiram Clarke St., Houston, Tex. 08075400	Lat 29°37'07", long 95°26'45", Harris County on right bank at downstream side of bridge on Hiram Clarke St. in southwest Houston, 12.7 mi upstream from gage Sims Bayou at Houston, and 19.7 mi upstream from mouth.	20.2	1964-91† 1992	02-22-92	*53.08	6,290	06-15-76	57.12	--
Greens Bayou at Cutten Road near Houston, Tex. 08075780	Lat 29°56'56", long 95°31'10", Harris County, at bridge on Cutten Road and about 16.5 mi northwest of Houston.	a8.65	1965-92	11-17-92	*114.22	904	09-21-67	118.38	--
Carpenters Bayou near Channelview, Tex. 08076900	Lat 29°46'20", long 95°09'24", Harris County, at bridge on temporary Beltway 8, at western boundary of Channelview 4.9 mi upstream from mouth.	a25.8	1986-92	03-04-92	*12.33	--	06-26-89	18.49	--
Clear Creek Basin									
Beamer Street Ditch at Houston, Tex. 08077505	Lat 29°35'30", long 95°13'19", Harris County, at at bridge on Hughes Road in southeast Houston.	5.19	1984-92	06-02-92	*28.49	--	06-26-89	31.27	--
Turkey Creek near Friendswood, Tex. 08077520	Lat 29°35'02", long 95°11'13", Harris County, at bridge on Dixie Farm Road in southern Harris County, 2.4 mi upstream from Clear Creek, and 3.9 mi north-northeast of Friendswood.	6.78	1985-92	06-02-92	*24.56	--	06-25-89	*27.22	--
Clear Creek near Friendswood, Tex. 08077600	Lat 29°31'02", long 95°10'42", Galveston County, at bridge on Farm Road 528 and 1.5 mi southeast of Friendswood.	--	1966-92	06-02-92	*11.67	07-26-79	d25.9	--	--
Horsepen Bayou at Bay Area Blvd., Houston, Tex. 08077630	Lat 29°35'00", long 95°06'12", Harris County, at upstream bridge on Bay Area Blvd., in southeast Houston, and 2.0 mi upstream from Armand Bayou.	17.8	1985-92	02-24-92	*6.87	--	08-01-89	*12.35	--
Brazos River Basin									
Blackwater Draw tributary near Floyd, N. Mex. 08079300	Lat 34°14'52", long 103°44'51", Roosevelt County, 0.5 mi below section road and 10 mi west of Floyd.	10	1963-91	07-13-91	1.68	123	07-13-91	1.68	123
Running Water Draw near Clovis, N. Mex. 08080600	Lat 34°31'55", long 103°12'05", Curry County, 0.25 mi upstream from State Highway 18 and 8 mi west of Clovis.	109	1953-56, 1957-64† 1965-91	07-15-91	5.18	2,710	07-15-91	5.18	2,710

\* Elevation, in feet.

† Operated as a continuous-record station.

b Revised.

c Gage height not determined.

d Discharge not determined.

e Estimated.





# INDEX

	Page		Page
Access to WATSTORE data .....	15	Chemical oxygen demand (COD), definition of .....	17
Accuracy of the records .....	12	Chlorophyll, definition of .....	17
Acre-foot, definition of .....	16	Chocolate Bayou near Alvin .....	153-154
Addicks Reservoir near Addicks .....	85	Classification of records .....	12
Adenosine triphosphate (ATP), definition of .....	16	Clear Creek, near Friendswood .....	399
Algae, definition of .....	16	near Pearland .....	146-147
growth potential (AGP), definition of .....	16	Clear Creek Basin, crest-stage partial-record stations in .....	399
Aquilla Creek, above Aquilla .....	268	gaging-station records in .....	146
near Aquilla .....	269-272	Clear Fork Brazos River, at Fort Griffin .....	183
near Peoria .....	245-246	at Nugent .....	179-180
Aquilla Lake above Aquilla .....	253-267	near Roby .....	177-178
Arrangement of records .....	13	Coastal Basin, gaging-station records in .....	148-149
Artificial substrate, definition of .....	21	Cole Creek at Deihl Road, Houston .....	398
Ash mass, definition of .....	16	Color Unit, definition of .....	17
		Computation, data collection and .....	9
Bacteria, definition of .....	16	Contents, definition of .....	17
Barker Reservoir near Addicks .....	81	Continuous-record station, definition of .....	12
Beamer Street Ditch at Houston .....	399	Control, definition of .....	17
Bear Creek near Barker .....	82-83	structure .....	17
Bed load, definition of .....	20	Cooperation .....	2
discharge, definition of .....	20	Cowhouse Creek at Pidcoke .....	319-320
Bed material, definition of .....	16	Crest-stage partial-record measurements .....	398-399
Belton Lake near Belton .....	321	Crest-stage partial-record station, definition of .....	9
Berry Bayou at Forest Oaks Street, Houston .....	131-132	Cubic-foot-per-second day, definition of .....	17
Berry Creek, at State Highway 971 near Georgetown .....	397	Cubic foot per second (FT <sup>3</sup> /s, ft <sup>3</sup> /s), definition of .....	17
near Georgetown .....	351-352	Cubic foot per second per square mile (CFSM), definition of .....	17
upstream from Interstate Highway 35 near Georgetown .....	397	Cypress Creek, Grant Road near Cypress .....	48
Big Creek, near Freestone .....	373-374	at House and Hahl Road near Cypress .....	45
near Needville .....	392-393	at Katy-Hockley Road near Hockley .....	44
Big Sandy Creek above Breckenridge .....	191-197	at Sharp Road near Hockley .....	398
Biochemical oxygen demand (BOD), definition of .....	16	at Stuebner-Airline Road near Westfield .....	398
Biomass, definition of .....	16	near Westfield .....	49-51
Blackwater Draw tributary near Floyd, N. Mex. ....	399	Data, collection and computation .....	9
Blue-green algae, definition of .....	19	presentation .....	10,14
Bottom material, definition of .....	17	Davidson Creek near Lyons .....	369-370
Brays Bayou, at Alief Road, Alief .....	398	Definition of terms .....	16
at Gessner Drive, Houston .....	398	Diatoms, definition of .....	19
at Houston .....	126-128	Discharge, at partial-record stations .....	397
Brazos River, at Morris Sheppard Dam near Graford .....	219	definition of .....	17
at Richmond .....	387-391	Dissolved, definition of .....	17
at Seymour .....	171-173	Dissolved-solids concentration, definition of .....	17
at Waco .....	287-288	Diversity index, definition of .....	17
at Washington .....	371	Double Mountain Fork Brazos River, at Justiceburg .....	158-161
at Whitney Dam near Whitney .....	241-243	near Aspermont .....	162-166
near Aquilla .....	244	Downstream order numbering .....	8
near Bryan .....	363-364	Drainage area, definition of .....	17
near Dennis .....	222-224	Drainage Basin, definition of .....	17
near Glen Rose .....	234-235	Dry Berry Creek near Georgetown .....	397
near Hempstead .....	384	Dry mass, definition of .....	16
near Highbank .....	289-295		
near Palo Pinto .....	220-221	East Fork San Jacinto River, near New Caney .....	54-60
near Rosharon .....	394	near Cleveland .....	52-53
near South Bend .....	205-208	East Yegua Creek near Dime Box .....	366-367
Brazos River Basin, crest-stage partial-record stations in .....	399	Estimated daily discharge, identification of .....	12
gaging-station records in .....	155-394	Explanation of the records .....	8
low-flow partial-record stations in .....	397		
Brickhouse Gully at Costa Rica Sreet, Houston .....	398	Fecal coliform bacteria, definition of .....	16
Buffalo Bayou, at Houston .....	91-96	Fecal streptococcal bacteria, definition of .....	16
at Main Street, Houston .....	105-111		
at McKee Street, Houston .....	112-118	Gage height, definition of .....	18
at Piney Point .....	90	Gaging station, definition of .....	18
at Turning Basin, Houston .....	119-125	Gaging-station records .....	27-396
at West Belt Drive, Houston .....	87-89	Garners Bayou near Humble .....	141-142
near Addicks .....	86	Goose Creek at Baytown .....	398
near Fulshear .....	398	Granger Lake near Granger .....	353
near Katy .....	80	Green algae, definition of .....	19
California Creek near Stamford .....	181-182	Greens Bayou, at Cutten Road near Houston .....	399
Caney Creek near Splendor .....	61-63	at Ley Road at Houston .....	145
Carpenters Bayou near Channelview .....	399	at U.S. Highway 75 near Houston .....	136-137
Cells/volume, definition of .....	17	near Houston .....	138-140

	Page		Page
Hackberry Creek, at Hillsboro .....	247-250	Langham Creek, at West Little York Road near Addicks .....	84
below Hillsboro .....	251-252	near Addicks .....	398
Halls Bayou at Houston .....	143-144	Leon River, at Gatesville .....	317-318
Hardness, definition of .....	18	near Belton .....	322-323
Highland Bayou Basin, gaging-station records in .....	150-152	near De Leon .....	296-298
Hog Creek near Crawford .....	285	near Hamilton .....	315-316
Horsepen Bayou at Bay Area Blvd., Houston .....	399	near Hasse .....	314
Hubbard Creek, below Albany .....	184-190	Little Cypress Creek near Cypress .....	46-47
Hubbard Creek Reservoir near Breckenridge .....	198-204	Little River at Cameron .....	358-362
Hunting Bayou at Interstate Highway 610 at Houston .....	134-135	Little River near Little River .....	345-346
Hydrographs:		near Rockdale .....	357
Brazos River near south Bend .....	206	Little Whiteoak Bayou at Trimble Street at Houston .....	398
Buffalo Bayou at West Belt Drive, Houston .....	88	Low-flow partial-record measurements .....	397
Couhouse Creek at Pidcoke .....	320	Low-flow partial-record stations, definition of .....	9
Garners Bayou near Humble .....	142	Luce Bayou above Lake Houston near Huffman .....	64-66
Hubbard Creek below Albany .....	185		
Navasota River near Bryan .....	383	Mean concentration, definition of .....	21
North Bosque River at Valley Mills .....	283	Mean discharge, definition of .....	17
North Bosque River near Clifton .....	281	Metamorphic stage, definition of .....	18
Whiteoak Bayou at Houston .....	98	Methylene blue active substance (MBAS), definition of .....	18
Hydrologic bench-mark network .....	8, 18	Micrograms per gram, definition of .....	18
Hydrologic conditions .....	2	Micrograms per liter, definition of .....	18
Hydrologic unit .....	18	Middle Bosque River near McGregor .....	284
		Middle Yegua Creek near Dime Box .....	365
Identifying estimated daily discharge .....	12	Mill Creek near Bellville .....	385-386
Illustrations .....	4,5,7	Millers Creek near Munday .....	174-175
Index .....	401-403	Millers Creek Reservoir near Bomartin .....	176
Instantaneous discharge, definition of .....	17	Milligrams of carbon per area or volume per unit time .....	20
Introduction .....	1	Milligrams of oxygen per area or volume per unit time .....	20
		Milligrams per liter, definition of .....	18
Keegans Bayou, at Keegan Road near Houston .....	398	Moses Lake-Galveston Bay near Texas City .....	148-149
at Roark Road near Houston .....	398		
		National Geodetic Vertical Datum (NGVD), definition of .....	18
Laboratory measurements .....	14	National stream-quality accounting network (NASQAN),	
Lake Conroe near Conroe .....	27-33	definition of .....	18
Lake Georgetown near Georgetown .....	347	National Trends Network (NTN), definition of .....	18
Lake Graham near Graham .....	209	Natural substrates, definition of .....	21
Lake Granbury near Granbury .....	225-233	Navasota River, above Groesbeck .....	372
Lake Houston near Sheldon .....	67-77	near Bryan .....	382-383
Lake Whitney near Whitney .....	240	near Easterly .....	380-381
Lake Surveys (Water Quality):		Networks and programs, special .....	8
Aquila Lake above Aquila .....	254-267	Nolan River at Blum .....	239
Conroe, Lake, near Conroe .....	28-33	North Bosque River, above Stephenville .....	275
Granbury, Lake, near Granbury .....	226-233	at Hico .....	277-279
Houston, Lake, near Sheldon .....	68-77	at Valley Mills .....	282-283
Hubbard Creek Reservoir near Breckenridge .....	199-204	below Stephenville .....	276
Limestone, Lake, near Marquez .....	376-379	near Clifton .....	280-281
Possum Kingdom Lake near Grafard .....	211-218	North Fork Bosque River near Stephenville .....	274
Proctor Lake near Proctor .....	303-313	North Fork Double Mountain Fork Brazos River near Post .....	155-157
Stillhouse Hollow Lake near Belton .....	330-334	North Fork San Gabriel River, near Georgetown .....	348
Lakes and reservoirs:		upstream from State Highway 418 at Georgetown .....	397
Addicks Reservoir near Addicks .....	85		
Aquila Lake above Aquila .....	253-267	On-site measurements and sample collection .....	13
Barker Reservoir near Addicks .....	81	Organic mass, definition of .....	16
Belton Lake near Belton .....	321	Organism, definition of .....	18
Conroe, Lake, near Conroe .....	27-33	Organism count/area, definition of .....	18
Lake Georgetown near Georgetown .....	347	Organism count/volume, definition of .....	19
Graham, Lake, near Graham .....	209	Other records available .....	12
Granbury, Lake, near Granbury .....	225-233		
Granger Lake near Granger .....	353	Paluxy River at Glen Rose .....	236
Houston, Lake, near Sheldon .....	67-77	Parameter code, definition of .....	19
Hubbard Creek Reservoir near Breckenridge .....	198-204	Partial-record station, definition of .....	12,19
Limestone, Lake, near Marquez .....	375-379	Partial-record stations, crest-stage .....	398-399
Millers Creek Reservoir near Bomartin .....	176	low-flow .....	397
Possum Kingdom Lake near Grafard .....	210-218	Particle size, definition of .....	19
Proctor Lake near Proctor .....	302-313	Particle-size classification, definition of .....	19
Somerville Lake near Somerville .....	368	Percent composition, definition of .....	19
Squaw Creek Reservoir near Glen Rose .....	237	Periphyton, definition of .....	19
Stillhouse Hollow Lake near Belton .....	329-344	Pesticides, definition of .....	19
Waco Lake near Waco .....	286	Phytoplankton, definition of .....	19
Whitney, Lake, near Whitney .....	240	Pioccure, definition of .....	19
LaMarque Levee pump station near LaMarque .....	150-152	Plankton, definition of .....	19
Lampasas River near Kempner .....	324-325		

	Page
Polychlorinated biphenyls (PCBs), definition of .....	20
Possum Kingdom Lake near Graford .....	210-218
Primary productivity, definition of .....	20
Proctor Lake near Proctor .....	302-313
Programs, special networks and .....	8
Publication of techniques of water-resources investigations .....	13,23
Radiochemical program .....	8,20
Records, accuracy of .....	12
arrangement of .....	13
Records, classification of .....	12
explanation of .....	8
of stage and water discharge .....	9
of surface-water quality .....	12
others available .....	12
Recoverable from bottom material, definition of .....	20
Remark codes .....	15
Reservoirs. See Lakes and reservoirs.	
Return period, definition of .....	20
Running Water Draw near Clovis, N. Mex. ....	399
Runoff in inches, definition of .....	20
Sabana River near De Leon .....	299-301
Salado Creek, above Salado .....	397
below Salado Springs .....	397
Salt Fork Brazos River, near Aspermont .....	167-170
San Bernard River Basin, gaging-stations records in .....	395-396
San Bernard River near Boling .....	395-396
San Gabriel River, at Georgetown .....	397
at Laneport .....	354-355
near Rockdale .....	356
near Weir .....	397
San Jacinto River near Sheldon .....	78-79
San Jacinto River Basin, crest-stage partial-record stations in .....	398
gaging-station records in .....	27-145
Sediment, collection and examination .....	14
definition of .....	20
Sims Bayou, at Hiram Clarke Street, Houston .....	399
at Houston .....	129-130
Sodium adsorption ratio (SAR), definition of .....	21
Solute, definition of .....	21
Somerville Lake near Somerville .....	368
South Fork Bosque River near Stephenville .....	274
South Fork Rocky Creek near Briggs .....	326-328
South Fork San Gabriel River at Georgetown .....	349-350
upstream from State Highway 418 at Georgetown .....	397
South Mayde Creek near Addicks .....	398
Special networks and programs .....	8
Specific conductance, definition of .....	21
Spring Creek at Spring .....	41-43
Squaw Creek near Glen Rose .....	238
Squaw Creek Reservoir near Glen Rose .....	237
Stage, records of .....	9
Stage-discharge relation, definition of .....	21
Station identification numbers .....	8
Stillhouse Hollow Lake near Belton .....	329-344

	Page
Streamflow, definition of .....	21
yearly summary .....	3
Substrate, definition of .....	21
Surface area, definition of .....	21
Surficial bed material, definition of .....	21
Suspended (as used in tables of chemical analyses), definition of .....	21
Suspended, recoverable, definition of .....	21
Suspended, total, definition of .....	22
Suspended sediment, definition of .....	20
Suspended-sediment concentration, definition of .....	20
Suspended-sediment discharge, definition of .....	21
Suspended-sediment load, definition of .....	21
Taxonomy, definition of .....	22
Techniques of water-resources investigations, publication of .....	23-25
Temperature, collection and examination .....	13
Terms, definition of .....	16-23
Thermograph, definition of .....	22
Time-weighted average, definition of .....	22
Tons per acre-foot, definition of .....	22
Tons per day, definition of .....	22
Total coliform bacteria, definition of .....	16
Total (in tables of chemical analyses), definition of .....	22
Total discharge, definition of .....	22
Total organism count, definition of .....	19
Total, recoverable, definition of .....	22
Total sediment discharge, definition of .....	21
Total sediment load, definition of .....	21
Tritium network .....	22
Turkey Creek near Friendwood .....	399
Vince Bayou at Pasadena .....	133
Waco Lake near Waco .....	286
Water discharge, records of .....	9
Water quality, yearly summary .....	6
Water temperature, explanation of .....	13
Water year, definition of .....	23
WATSTORE data, access to .....	15
WDR, definition of .....	23
Weighted average, definition of .....	23
West Fork San Jacinto River, above Lake Houston near Porter .....	39-40
below Lake Conroe near Conroe .....	34
near Conroe .....	35-38
Wet mass, definition of .....	17
Whiteoak Bayou, at Alabonson Road at Houston .....	398
at Houston .....	97-99
at Mian Street, Houston .....	100-104
Willow Creek near Tomball .....	398
WSP, definition of .....	23
Yegua Creek near Somerville .....	397
Zooplankton, definition of .....	19





## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons



USGS LIBRARY - RESTON



3 1818 00152886 6

U.S. DEPARTMENT OF THE INTERIOR  
U.S. Geological Survey  
8011 Cameron Road, Building 1  
Austin, TX 78753

---